WellFlorida Council

Working Together for Healthy Communities

Traumatic Brain Injury in Florida

A Needs and Resource Assessment

April 2007

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April 2007

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Brain & Spinal Cord Injury Program

Support is provided in part by project H25MC00264 from the Maternal and Child Health Bureau (Title V, Social Security Act), Health Resources and Services Administration, Department of Health and Human Services.

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This report has been revised to reflect the September 17, 2007 Notice of Corrections.

Table of Contents

Executive Summary 1

Introduction 1-1
Project Description 1-2

Demographic and Socio-economic Profile 2-1
Introduction 2-1
Population 2-1
Population Growth and Distribution 2-3
Population by Age, Race, Ethnicity and Gender 2-4
Population by Rural Residence 2-15
Economic Characteristics 2-18
Per Capita Income and Median Household Income 2-18
Poverty 2-19
Employment 2-21
Educational Attainment 2-21
Summary of Key Findings 2-22

Traumatic Brain Injury Profile 3-1
Introduction 3-1
Prevalence of TBI-Related Disability 3-1
Incidence of TBI 3-3
Total Crude and Age-Adjusted Rates 3-5
Rates by Age, Race, Ethnicity and Gender 3-7
Rates by Cause of Injury 3-19
Rates by Rural Residence 3-28
Limitations 3-28
TBI-Related Deaths 3-29
Average Annual Crude and Age-Adjusted Death Rates 3-30
Rates by Age, Race, Ethnicity and Gender 3-33
Rates by Cause of Injury 3-42
Rates by Rural Residence 3-52
TBI-Related Hospitalizations 3-53
Average Annual Crude and Age-Adjusted Hospitalizations Rates 3-54
Rates by Age, Race, Ethnicity and Gender 3-58
Rates by Cause of Injury 3-71
Rates by Rural Residence 3-81
TBI-Related Emergency Department Visits 3-82
Total Crude and Age-Adjusted ED Visit Rates 3-83
Rates by Age, Race, Ethnicity and Gender 3-85
Rates by Cause of Injury 3-98
Rates by Rural Residence 3-106
Summary of Key Findings 3-107

Table of Contents (Continued)

Traumatic Brain Injury System Profile 4-1
Introduction 4-1
Brian and Spinal Cord Injury Program 4-1
Program Description 4-1
New Injuries 4-4
BSCIP Trust Fund 4-14
Trust Fund Allocation 4-15
BSCIP Trust Fund Clients Served 4-18
BSCIP Home and Community-Based Waiver 4-29
Brain Injury Association of Florida 4-32
Information and Resource Center 4-33
Family and Community Support Program 4-35
Key Community Partners 4-40
The Division of Vocational Rehabilitation 4-40
Exceptional Student Education Programs 4-41
Florida Alliance for Assistive Services and Technology 4-42
Protection and Advocacy Services 4-43
Centers for Independent Living 4-44
Summary of Key Findings 4-45

Community Input 5-1
Overview 5-1
Focus Groups 5-1
Introduction 5-1
Methodology 5-1
Focus Group Questions and Answers 5-7
Selected Populations Questions 5-15
Facilitator Observations 5-21
Interviews with TBI Leaders and Community Partners 5-24
Introduction 5-24
Methodology 5-24
Interview Analysis 5-25
Summary 5-44
Provider Survey 5-45
Introduction 5-45
Methodology 5-45
Survey Findings 5-47
Summary 5-53
Summary of Key Findings 5-54

Table of Contents (Continued)

Resource Summary 6-1
Introduction 6-1
Methodology 6-1
Summary of Resources 6-3
Acute Care Facilities 6-6
Rehabilitation Resource 6-6
Employment Services 6-7
Prevention and Education Services 6-8
Long-Term Community Support Services 6-8
Population and Geography Implications 6-10
Summary of Key Findings 6-10

Conclusion 7-1
Demographic and Socioeconomic Findings 7-1
Traumatic Brain Injury Findings 7-2
Traumatic Brain Injury System Findings 7-4
Community Input 7-6
Resource Summary 7-7

Appendix A: Identification of Traumatic Brain Injury Cases A-1

Appendix B: TBI Incidence 2005 Tables B-1

Appendix C: Average Annual TBI-related Deaths 1999-2005 Tables C-1

Appendix D: Average Annual TBI-related Hospitalizations 1999-2005 Tables D-1

Appendix E: TBI-related Emergency Department Visits 2005 Tables E-1

Appendix F: BSCIP New Injury Central Registry Referrals 2002-2005 Tables F-1

Appendix G: BSCIP Trust Fund Clients Served 2002-2005 Tables G-1

Appendix H: Focus Group Moderators' Guides F-1

Appendix I: Key Informant Interview Protocols I-1

Appendix J: Provider Survey Tool J-1

Appendix K: Resource Summary Tool K-1

Appendix L: TBI Resource List L-1

List of Tables

Executive Summary

Table 1: Total Population by BSCIP Region and Florida, 2006 and 2015. 4
Table 2: TBI-Related Disability Prevalence Estimates for Florida and BSCIP Regions, 2006 and 2015..... 9

Demographic and Socioeconomic Profile

Table 2-1: Brain and Spinal Cord Injury Program Service Regions by County 2-2
Table 2-2: Total Population by BSCIP Region and Florida, 2006. 2-3
Table 2-3: Population Projections by BSCIP Region and Florida, 2000–2015 2-4
Table 2-4: Total Population by Age Group by BSCIP Regions and Florida, 2006 2-6
Table 2-5: Population Projections by Age Group by BSCIP Region and Florida, 2000–2015 2-8
Table 2-6: Total Population by Race by BSCIP Region and Florida, 2006. 2-10
Table 2-7: Population Projections by Race by BSCIP Region and Florida, 2000–2015 2-11
Table 2-8: Population by Hispanic Ethnicity by BSCIP Regions and Florida, 2006. 2-12
Table 2-9: Population Projections by Hispanic Ethnicity by BSCIP Region and Florida, 2000–2015..... 2-13
Table 2-10: Total Population by Gender by BSCIP Regions and Florida, 2006. 2-14
Table 2-11: Population Projections by Gender by BSCIP Region and Florida, 2000–2015. 2-14
Table 2-12: Population Density and Rural Population by BSCIP Regions and Florida, 2006..... 2-15
Table 2-13: Population Density and Rural Population by BSCIP Regions and Florida, 2015..... 2-17
Table 2-14: Per Capita and Median Household Income by Region and Florida, 2006. 2-18
Table 2-15: Federal Poverty Levels, 2006. 2-19
Table 2-16: Estimated Number of Persons in Poverty by Level by BSCIP Region and Florida, 2006. 2-20
Table 2-17: Unemployment Rates by BSCIP Regions and Florida, 2006. 2-21
Table 2-18: Population by Educational Attainment by BSCIP Regions and Florida, 2006. 2-22

Traumatic Brain Injury Profile

Table 3-1: TBI-Related Disability Prevalence Estimates for the United States, Florida and BSCIP Regions, 2006. 3-2
Table 3-2: TBI-Related Disability Prevalence Projections for Florida and BSCIP Regions, 2000-2015 3-2
Table 3-3: Crude and Age-Adjusted TBI Rates for BSCIP Region, Florida and the United States, 2005. 3-6
Table 3-4a: Crude and Age-Adjusted Total TBI Rates per 100,000 for Florida by Age, Race and Gender, 2005..... 3-13
Table 3-4b: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 2005..... 3-14
Table 3-4c: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 2005..... 3-15
Table 3-4d: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 2005..... 3-16
Table 3-4e: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 2005..... 3-17
Table 3-4f: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 2005..... 3-18
Table 3-4g: Crude and Age-Adjusted Total TBI Rates per 100,000 for United States by Age and Gender, 1995-2001 3-19

List of Tables (Continued)

Table 3-5: Rates by Hispanic Ethnicity by BSCIP Region and Florida, 2005 3-19
Table 3-6a: Crude and Age-Adjusted Total TBI Rates per 100,000 for Florida by Cause, 2005. 3-22
Table 3-6b: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 1 by Cause, 2005. 3-22
Table 3-6c: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 2 by Cause, 2005 3-23
Table 3-6d: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 3 by Cause, 2005 3-23
Table 3-6e: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 4 by Cause, 2005 3-24
Table 3-6f: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 5 by Cause, 2005 3-24
Table 3-7a: Crude and Age-Adjusted Total TBI Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 2005. 3-25
Table 3-7b: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 2005. 3-26
Table 3-7c: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 2005. 3-26
Table 3-7d: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 2005. 3-27
Table 3-7e: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 2005. 3-27
Table 3-7f: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 5 by Motor Vehicle Traffic External Causes, 2005. 3-28
Table 3-8: Average Annual Crude and Age-Adjusted TBI-Related Death Rates for BSCIP Region, Florida and the United States, 1999-2005. 3-31
Table 3-9a: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for Florida by Age, Race and Gender, 1999-2005. 3-39
Table 3-9b: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 1999-2005. 3-39
Table 3-9c: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 1999-2005. 3-40
Table 3-9d: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 1999-2005. 3-40
Table 3-9e: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 1999-2005. 3-41
Table 3-9f: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 1999-2005. 3-41
Table 3-9g: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for the United States by Age, Race and Gender, 1995-2001. 3-42
Table 3-10: Average Annual Crude Death Rates by Hispanic Ethnicity for BSCIP Regions and Florida, 1999-2005 3-42
Table 3-11a: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for Florida by Cause, 1999-2005. 3-45
Table 3-11b: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 1 by Cause, 1999-2005. 3-45
Table 3-11c: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 2 by Cause, 1999-2005. 3-46
Table 3-11d: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 3 by Cause, 1999-2005. 3-46

List of Tables (Continued)

Table 3-11e: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 4 by Cause, 1999-2005. 3-47
Table 3-11f: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 5 by Cause, 1999-2005. 3-47
Table 3-11g: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for United States by Cause, 1995-2001. 3-48
Table 3-12a: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 1999-2005. 3-49
Table 3-12b: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-49
Table 3-12c: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 1999-2005 3-50
Table 3-12d: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-50
Table 3-12e: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-51
Table 3-12f: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 5 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-51
Table 3-12g: Average Annual Crude TBI-Related Death Rates per 100,000 for United States by Motor Vehicle-Traffic External Causes, 1995- 2001. 3-52
Table 3-13: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates for BSCIP Region, Florida and the United States, 1999-2005 3-56
Table 3-14a: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for Florida by Age, Race and Gender, 1999-2005. 3-64
Table 3-14b: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 1999-2005. 3-65
Table 3-14c: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 1999-2005. 3-66
Table 3-14d: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 1999-2005. 3-67
Table 3-14e: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 1999-2005. 3-68
Table 3-14f: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 1999-2005. 3-69
Table 3-14g: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for United States by Age, Race and Gender, 1995-2001. 3-70
Table 3-15: Average Annual Crude Hospitalizations Rates by Hispanic Ethnicity for BSCIP Regions and Florida, 1999-2005. 3-71
Table 3-16a: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for Florida by Cause, 1999-2005. 3-74
Table 3-16b: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 1 by Cause, 1999-2005. 3-74
Table 3-16c: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 2 by Cause, 1999-2005. 3-75
Table 3-16d: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 3 by Cause, 1999-2005. 3-75
Table 3-16e: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 4 by Cause, 1999-2005. 3-76
Table 3-16f: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 5 by Cause, 1999-2005. 3-76
Table 3-16g: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for United States by Cause, 1995-2001. 3-77

List of Tables (Continued)

Table 3-17a: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 1999-2005. 3-78

Table 3-17b: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-78

Table 3-17c: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-79

Table 3-17d: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-79

Table 3-17e: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-80

Table 3-17f: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 5 by Motor Vehicle-Traffic External Causes, 1999-2005. 3-80

Table 3-17g: Average Annual Crude TBI-Related Hospitalization Rates per 100,000 for United States by Motor Vehicle-Traffic External Causes, 1995-2001. 3-81

Table 3-18: Crude and Age-Adjusted TBI-Related ED Visit Rates for BSCIP Region, Florida and the United States, 2005 3-85

Table 3-19a: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for Florida by Age, Race and Gender, 2005. 3-91

Table 3-19b: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 2005. 3-92

Table 3-19c: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 2005. 3-93

Table 3-19d: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 2005. 3-94

Table 3-19e: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 2005. 3-95

Table 3-19f: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 2005. 3-96

Table 3-19g: Average Annual Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for United States by Age, Race and Gender, 1995-2001. 3-97

Table 3-20: Crude ED Visit Rates by Hispanic Ethnicity for BSCIP Regions and Florida, 2005. 3-98

Table 3-21a: Crude and Age-Adjusted ED Visit Rates per 100,000 for Florida by Cause, 2005. 3-100

Table 3-21b: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 1 by Cause, 2005. 3-100

Table 3-21c: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 2 by Cause, 2005. 3-101

Table 3-21d: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 3 by Cause, 2005 3-101

Table 3-21e: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 4 by Cause, 2005 3-102

Table 3-21f: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 5 by Cause, 2005. 3-102

Table 3-21g: Average Annual Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for United States by Cause, 1995-2001 3-103

List of Tables (Continued)

Table 3-22a: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 2005 3-104
Table 3-22b: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 2005. 3-104
Table 3-22c: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 2005. 3-105
Table 3-22d: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 2005. 3-105
Table 3-22e: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 2005. 3-106
Table 3-22f: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 5 by Motor Vehicle-Traffic External Causes, 2005. 3-106

Traumatic Brain Injury System Profile

Table 4-1: BSCIP Service Regions Counties and Population, 2006 4-3
Table 4-2: Average Annual New TBIs Reported to the CR, Total TBIs and Average Annual TBI Hospitalizations by BSCIP Region and Florida 4-5
Table 4-3: Central Registry New Injury Referrals by Referral Source, 2002- 2005 4-8
Table 4-4: Average Annual New Injuries, total TBI and TBI-related Hospitalizations by Gender, Race, Ethnicity and Age 4-11
Table 4-5: Average Annual New TBI Injury Referrals to CR by Cause of Injury for BSCIP Regions and Florida, 2002-2005 4-13
Table 4-6: Percentage of Average Annual New TBI Injury CR Referrals by Rancho Scale Scores, 2002-2005 4-14
Table 4-7: Trust Fund Allocations and Expenditures by BSCIP Region and Florida, 2002- 2006 4-16
Table 4-8: Percentage of Average Annual BSCIP Trust Fund Clients, New TBIs Reported to the CR, Total TBIs, TBI-related Hospitalizations and Florida Population by BSCIP Region 4-19
Table 4-9: BSCIP Trust Fund Clients by Referral Source, 2002-2005 4-22
Table 4-10: Average Annual TBI BSCIP Trust Fund Clients Served, Average Annual New Injuries, Total TBI and TBI-related Hospitalizations by Gender, Race, Ethnicity and Age 4-26
Table 4-11: Average Annual TBI Trust Fund Clients Served by Cause of Injury for BSCIP Regions and Florida, 2002-2005 4-27
Table 4-12: BSCIP Home and Community-Based Waiver Participants by Age Group, Gender and BSCIP Region, 2003-2005 4-30
Table 4-13: Service Units and Service Cost by Core Service for BSCIP Home and Community-Based Medicaid Waiver, 2003-2005 4-31
Table 4-14: BIAF Information and Resource Contacts by Type, 2003-2006 4-34
Table 4-15: BIAF Information and Resource Contacts by Gender, 2003-2006 4-34
Table 4-16: BIAF Information and Resource Contacts by Age Group, 2003-2006 4-34
Table 4-17: BIAF Information and Resource Contacts by Race/Ethnicity, 2003-2006 4-35
Table 4-18: BIAF Information and Resource Contacts by BSCIP Region, 2003-2006 4-35
Table 4-19: BIAF Family and Community Support Program Contacts by Gender, 2003-2006 4-36
Table 4-20: BIAF Family and Community Support Program Contacts by Age Group, 2003-2006 ...4-37
Table 4-21: BIAF Family and Community Support Program Contacts by Race/Ethnicity, 2003-2006. 4-37
Table 4-22: BIAF Family and Community Support Program Contacts by BSCIP Region, 2003-2006 4-38
Table 4-23: BIAF Family and Community Support by Identified Need, 2003-2006 4-39

List of Tables (Continued)

Table 4-24: Total Students Enrolled in the ESE Traumatic Brain Injured Program by BSCIP Region 4-41
Table 4-25: FAAST Vendors by Category, 2007 4-43
Table 4-26: PATBI Program Contacts by BSCIP Region and Florida, October 2005-September 2006 4-44

Community Input

Table 5-1: Percentage of Providers Who Identified Services as Frequently Needed. 5-47
Table 5-2: Percentage of Providers Who Identified Services as Unavailable 5-48
Table 5-3: Comparison of Perceived Service Need and Perceived Service Availability 5-49
Table 5-4: Providers Perception of the Top Three Most Needed Services by BSCIP Region....5-49
Table 5-5: Provider Perception of the Top Three Most Unavailable Services by BSCIP Region 5-50
Table 5-6: Percentage of Providers Who Identified Services as Frequently Needed by Provider Service Delivery Population 5-51
Table 5-7: Percentage of Providers Who Identified Services as Unavailable by Provider Service Delivery Population 5-52

Resource Summary

Table 6-1: Total Services Identified for Individuals with TBI....6-3
Table 6-2: Total Resources for Individuals with TBI by Service Area and BSCIP Region....6-5
Table 6-3: Acute Medical Services for Individuals with TBI by BSCIP Region 6-6
Table 6-4: Rehabilitation Services Types for Individuals with TBI by BSCIP Region 6-7
Table 6-5: Employment Services for Individuals with TBI by BSCIP Region 6-8
Table 6-6: Prevention and Education Services for Individuals with TBI by BSCIP Region....6-8
Table 6-7: Long-Term Community Support Services for Individuals with TBI by BSCIP Region 6-9
Table 6-8: Total Resources, Population and TBI Population by BSCIP Region and Florida, 2006....6-10
Table 6-9: Total Resources, Population and TBI Population by BSCIP Region and Florida, 2006....6-11
Table 6-10: Total TBI-Related Resources, Counties with TBI-Related Resources and Square Miles by BSCIP Region and Florida, 2006 6-12

List of Figures

Executive Summary

Figure 1: Brain and Spinal Cord Injury Program Service Regions 2
Figure 2: Age Distribution of Florida, 2006 5
Figure 3: Population Density (Individuals per Square Mile) by County in Florida, 2006 and 2015. ... 7
Figure 4: Age-Adjusted TBI-Related Deaths, Hospitalizations, Emergency Department Visits and Total TBIs Rates (per 100,000) for Florida and the United States 11
Figure 5: Age-Adjusted TBI Rates per 100,000 for Florida Counties and BSCIP Regions, 1999-2005 12
Figure 6: Total TBIs, TBI-Related Deaths, Hospitalizations and ED Visits Rates (per 100,000) by Age Group in Florida, 2005 13
Figure 7: Percentage of Total TBIs by Age Group for Florida, 2005. 14
Figure 8: Total TBI Rates (per 100,000) by Race and Age Group for Florida, 2005. 15
Figure 9: Total TBI Rates by Gender (per 100,000) for Florida and the United States 16
Figure 10: Total TBI Crude Rates (per 100,000) by Gender and Age Group for Florida, 2005 17
Figure 11: Percentage of TBI Causes by Total TBIs, TBI-related Deaths, Hospitalizations, and ED Visits for Florida 19
Figure 12: Total TBI Age-Adjusted Rates (per 100,000) by Cause of Injury for Florida and the United States 20
Figure 13: Total TBI Rates (per 100,000) by Age Group and Cause, 2005 21
Figure 14: Percentage of Total New TBIs Reported to CR, Total TBIs and TBI-related Hospitalizations by BSCIP Region 24
Figure 15: Total Number of Referrals to CR by County of Residence and County of Injury, 2002-2005. 25
Figure 16: Percentage of Total New TBIs Reported to the CR, Total TBIs and TBI-related Hospitalizations by Age Group. 26
Figure 17: Percentage of Average Annual New TBI Injury Central Registry Referrals, Total TBIs and TBI-related Hospitalizations by Cause. 27
Figure 18: Percentage of Total BSCIP Trust Fund Allocation by the Percentage of Total Population, Total TBI and TBI-related hospitalizations by Region 29
Figure 19: Average Annual Percentage of Total TBI BSCIP Trust Fund Clients Served, New Injury CR Referrals, Total TBIs and TBI-related Hospitalizations by BSCIP Region 30
Figure 20: Average Annual Percentage of Total TBI BSCIP Trust Fund Clients Served, New TBIs Reported to CR, Total TBIs and TBI-related Hospitalizations by Age Group. 31
Figure 21: Total Number of TBI BSCIP Clients Served by County of Residence and County of Injury, 2002-2005. 32
Figure 22: Percentage of Average Annual BSCIP TBI Trust Fund Clients Served, New TBI Injury Central Registry Referrals, Total TBIs and TBI-related Hospitalizations by Cause. 33
Figure 23: BIAF Family and Community Support Specialists Areas, 2006. 23
Figure 24: Density of TBI-Related Services by County. 42

Demographic and Socioeconomic Profile

Figure 2-1: Brain and Spinal Cord Injury Program Service Regions 2-2
Figure 2-2: Percentage Increase in Population by BSCIP Region and Florida, 2000–2015. 2-4
Figure 2-3: Percentage of Population by Age Group by BSCIP Region and Florida, 2006 2-7
Figure 2-4: Population by Hispanic Ethnicity by BSCIP Region and Florida, 2006. 2-12
Figure 2-5: Population Density by County in Florida, 2006. 2-16
Figure 2-6: Population Density by County in Florida, 2015. 2-17

List of Figures (Continued)

Figure 2-7: Percentage of Persons in Living in Poverty by Level of Poverty by BSCIP Region and Florida, 2006.....2-20

Traumatic Brain Injury Profile

Figure 3-1: Age-Adjusted Rates for Total TBI, Deaths, Hospitalizations and ED Visits for Florida and the United States 3-4
Figure 3-2: Percentage of Total TBIs and Total Population by BSCIP Region, 2005 3-5
Figure 3-3: Age-Adjusted TBI Rates by County and BSCIP Regions, 2005 3-6
Figure 3-4: Total TBIs, Deaths, Hospitalizations and ED Visits Rates by Age Group in Florida.....3-7
Figure 3-5: Percentage of Total TBIs by Age Group for Florida, 2005. 3-8
Figure 3-6: Total TBI Rates by Race and Age Group for Florida, 2005. 3-10
Figure 3-7: Total TBI Crude Rates by Gender and Age Group for Florida, 2005.....3-12
Figure 3-8: Percentage of Total TBIs in Florida by Cause, 2005. 3-20
Figure 3-9: Total TBI Rates for Florida by Age Group and Cause, 2005. 3-25
Figure 3-10: Percentage of TBI-Related Deaths and Florida Population by BSCIP Region, 1999-2005. 3-30
Figure 3-11: Age-Adjusted Death Rates by County and BSCIP Regions, 1999-2005. 3-33
Figure 3-12: Average Annual Crude Death Rates for BSCIP Regions and Florida, 1999-2005. 3-33
Figure 3-13: Average Annual Age-Adjusted Death Rates for BSCIP Regions and Florida, 1999-2005. 3-34
Figure 3-14: Percentage of Average Annual Deaths by Age Group for Florida, 1999-2005. 3-35
Figure 3-15: Average Annual Crude Death Rates by Race and Age Group for Florida, 1999-2005. 3-37
Figure 3-16: Average Annual Crude Death Rates by Gender and Age Group for Florida, 1999-2005 3-38
Figure 3-17: Average Annual Age-Adjusted Death Rates per 100,000 for Florida by Cause, 1999-2005. 3-48
Figure 3-18: Percentage of Average TBI-Related Hospitalizations and Average Florida Population by BSCIP Region, 1999-2005. 3-54
Figure 3-19: Age-Adjusted Hospitalization Rates by County and BSCIP Region, 1999-2005. 3-55
Figure 3-20: Average Annual Crude Hospitalization Rates for BSCIP Regions and Florida, 1999-2005 3-57
Figure 3-21: Average Annual Age-Adjusted Hospitalization Rates for BSCIP Regions and Florida, 1999-2005 3-57
Figure 3-22: Percentage of Average Annual Hospitalizations by Age Group for Florida, 1999-2005 3-60
Figure 3-23: Average Annual Crude Hospitalization Rates by Race and Age Group for Florida, 1999-2005 3-61
Figure 3-24: Average Annual TBI-Related Crude Hospitalization Rates by Gender and Age Group for Florida, 1999-2005 3-62
Figure 3-25: Average Annual Age-Adjusted Hospitalization Rates per 100,000 for Florida by Cause, 1999-2005. 3-77
Figure 3-26: Percentage of ED Visits and Florida Population by BSCIP Region, 2005. 3-83
Figure 3-27: Age-Adjusted ED Visit Rate by County and BSCIP Region, 2005.....3-84
Figure 3-28: Percentage ED Visits by Age Group for Florida, 2005.....3-87
Figure 3-29: Crude ED Visit Rates by Race and Age Group for Florida, 2005 3-88
Figure 3-30: Crude ED Visit Rates by Gender and Age Group for Florida, 2005.....3-90
Figure 3-31: Age-Adjusted ED Visit Rates per 100,000 by Cause for Florida and the United States, 2005.....3-103

List of Figures (Continued)

Traumatic Brain Injury Systems Profile

Figure 4-1: Brain and Spinal Cord Injury Program Service Regions 4-3
Figure 4-2: Percentage of New Injury Referrals, Total TBIs, TBI Hospitalizations by BSCIP Region 4-6
Figure 4-3: Total Number of New Injury Referrals to CR by Current County of Residence, 2002-2005. 4-7
Figure 4-4: Total Number of New Injury Referrals to CR by County of Injury, 2002-2005 4-7
Figure 4-5: Percentage of New Injury CR Referrals by Age Group, 2002-2005. 4-10
Figure 4-6: Percentage of Average Annual New TBI Injury CR Referrals by Cause, 2002-2005 4-12
Figure 4-7: Percentage of Average Annual New TBI Injury CR Referrals by Glasgow Coma Scale, 2002-2005 4-14
Figure 4-8: Percentage of Total Trust Fund Allocation by Region, 2002-2006. 4-17
Figure 4-9: Percentage of Total Trust Fund Allocation by Population, Total TBIs and TBI-related Hospitalizations by Region, 2006. 4-17
Figure 4-10: Percentage of Trust Fund Clients Served, Total TBIs, TBI-related Hospitalizations and Florida Population by BSCIP Region. 4-20
Figure 4-11: Total Number of Trust Fund TBI Clients Served by County of Residence, 2002-2005 4-21
Figure 4-12: Total Number of Trust Fund TBI Clients Served by County of Injury, 2002- 2005. 4-21
Figure 4-13: Percentage of Average Annual TBI Trust Fund Clients by Age Group, 2002-2005. 4-24
Figure 4-14: Percentage of Average Annual TBI Trust Fund Clients by Cause, 2002-2005....4-27
Figure 4-15: Percentage of Average Annual TBI Trust Fund Clients Served by Glasgow Coma Scale, 2002-2005 4-28
Figure 4-16: BIAF Family and Community Support Specialists Areas, 2006. 4-33

Resource Summary

Figure 6-1: Density of TBI-Related Services by County. 6-4
Figure 6-2: Resources for Individuals with TBI by Service Area and BSCIP Region. 6-5

Executive Summary

Introduction

Traumatic brain injury (TBI) is recognized as a significant public health problem in the United States and Florida. By Florida Statute, a TBI is defined as an insult to the skull, brain, or its covering that results from external trauma and that produces an altered state of consciousness or anatomic, motor, sensory, cognitive, or behavioral deficit.[1] The severity of the injury may range from mild to severe, based on the classification of the change in mental status or consciousness after the injury. Often called the "invisible" epidemic because the disability is often not apparent to the public, the long-term consequences can be quite enormous. Consequences can include: memory loss, difficulty with judgment and recognition of limitations, anxiety and/or depression, loss of social networking, feelings of isolation, slowness or difficulty with speech, decreased physical coordination, decreased anger management, decreased safety awareness and difficulty initiating, planning and completing tasks.

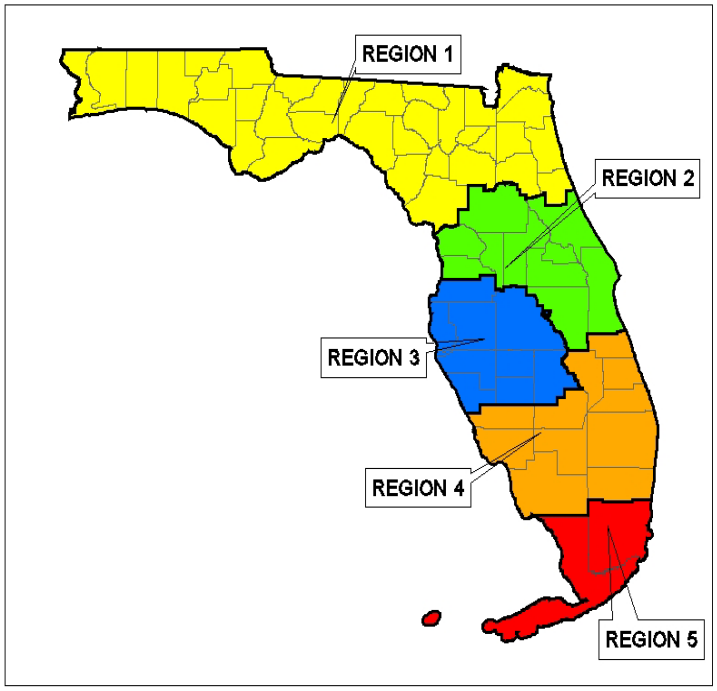
The most recent estimate suggests that approximately 1.4 million TBIs occur in the United States each year resulting in approximately 50,000 deaths, 235,000 hospitalizations and 1.1 million treated and released from emergency departments.[2] This estimate does not include the unknown number of injuries that are not seen in emergency departments or receive no medical care. Additionally, it does not take into account injury severity. The Centers for Disease Control and Prevention (CDC) estimate that at least 5.3 million Americans, approximately 2 percent of the population, are living with long-term or lifelong disabilities resulting from a TBI.[3]

- To date, approximately 370,000 Floridians (2 percent of the population) are living with long-term disabilities resulting from a TBI. It is estimated that by 2015 over 435,000 people in Florida will be living with TBI-related disabilities.
- Approximately 93,000 TBIs occurred in Florida during 2005, which resulted in 3,900 deaths, 17,600 hospitalizations and 71,500 treated and released from emergency departments (ED).
- Age-adjusted rates for TBIs, TBI-related deaths and ED visits were higher in Florida compared to their respective national rates, while Florida's rate for TBI-related hospitalizations is lower than the national rate.

Florida is often recognized for its system of identifying and serving individuals with moderate-to-severe TBIs. Mandated by the Florida legislature (Florida Statute 381), the Florida Department of Health, Brain and Spinal Cord Injury Program (BSCIP) is charged with assisting individuals with moderate-to-severe TBI, from time of injury through community reintegration, in accessing federal, state, third party and community resources.[1] BSCIP is supported by the Brain and Spinal Cord Injury Trust Fund, which receives money from traffic-related fines, surcharges for driving or boating under the influence, temporary license fees and a percentage of funds from the motorcycle specialty tag. These funds are used as a payor of last resort for individuals with moderate-to-severe brain injuries to access services including case management, acute care, inpatient and outpatient rehabilitation, transitional living, assistive technology, home and vehicular modification and long-term community-based supports funded under contract with

specific not-for-profit agencies. BSCIP divides its case management and other client-related activities as well as public awareness and outreach activities among five regions. Figure 1 identifies the counties within each BSCIP region. Each region varies in terms of number of counties and geographic area. BSCIP also manages the Central Registry, which by state mandate collects information on all individuals with new moderate-to-severe brain or spinal cord injuries. Data are collected from all public and private health agencies, attending physicians and public and private social agencies.

Figure 1: Brain and Spinal Cord Injury Program Service Regions.



Region 1:
Alachua, Baker, Bay, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Escambia, Flagler, Franklin, Gadsden, Gilchrist, Gulf, Hamilton, Holmes, Jackson, Jefferson, Lafayette, Leon, Levy, Liberty, Madison, Nassau, Okaloosa, Putnam, Santa Rosa, St. Johns, Suwannee, Taylor, Union, Wakulla, Walton, Washington

Region 2:
Brevard, Citrus, Hernando, Lake, Marion, Orange, Osceola, Seminole, Sumter, Volusia

Region 3:
Desoto, Hardee, Highlands, Hillsborough, Manatee, Pasco, Pinellas, Polk, Sarasota

Region 4:
Broward, Charlotte, Collier, Glades, Hendry, Indian River, Lee, Martin, Okeechobee, Palm Beach, St. Lucie

Region 5:
Miami-Dade, Monroe

Source: Florida Department of Health, Brain and Spinal Cord Injury Program.
Prepared by: WellFlorida Council Inc., 2007.

Though impressive, its ability to meet the needs of ALL individuals with TBI regardless of level of severity in Florida is unknown. Florida has not conducted a needs assessment for individuals with TBI in over ten years, and the state's brain injury Action Plan is over five years old. Additionally, Florida recognizes that previous needs assessments did not target underrepresented or underserved populations. In response, Florida's Department of Health, Brain and Spinal Cord Injury Program (BSCIP), was awarded a Health Resources and Services Administration (HRSA) Traumatic Brain Injury State Implementation Grant (HRSA-06-083) in 2006 to conduct Project ACTION.

Project Description

Project ACTION, "Assessing Communities to Identify Ongoing Needs," is charged with developing an evolving and dynamic system of services for individuals with TBI through the creation and implementation of a comprehensive, consumer-directed strategic plan that addresses the needs of Florida's TBI population and their families. This three-year project was designed by the Project ACTION Executive Committee, which consists of staff from BSCIP and Brain

Injury Association of Florida (BIAF), the primary TBI entities in the state. The primary project activities include:

- Establishment of a Oversight Committee (OC);
- Development and implementation of a comprehensive needs and resource assessment for individuals with TBI across a broad spectrum of injuries and in culturally distinct populations;
- Creation of a five-year strategic plan to guide the provision, development and management of TBI services;
- Development and implementation of community-based, culturally sensitive resources based on the strategic plan.

Contracted by BSCIP, BIAF is administering the objectives and activities for Project ACTION. WellFlorida Council (formerly the North Central Florida Health Planning Council), contracted by BIAF, was tasked with the development and implementation of the comprehensive needs and resource assessment for individuals with TBI in Florida under the guidance of the OC.

The findings from *Traumatic Brain Injury in Florida: A Needs and Resource Assessment*, presented in this summary identify the needs of a continuum of individuals with TBI including mild, moderate and severe brain injury across all age groups and in culturally distinct populations. The assessment includes the following sections:

- Demographic and Socioeconomic Profile;
- Traumatic Brain Injury Profile;
- Traumatic Brain Injury Systems Profile;
- Consumer and Community Input;
- Resource Summary;
- Conclusion.

Demographic and Socioeconomic Profile

Demographic and socioeconomic characteristics are often strong predictors of healthcare access and health outcome. Indicators presented in this section are some of the most influential in determining the extent of a community's overall health and will help by creating a profile for the people of Florida, which includes individuals with TBI, to identify the demographic and socioeconomic barriers and opportunities to improve health.

Age, race and gender are all factors that contribute to, or at the very least, help describe aspects of healthcare access and health outcome in the United States. Additionally, age, race and gender are linked to increased risk of TBI or increased morbidity and mortality from TBI. The CDC reports: males are about twice as likely as females to sustain a TBI; individuals ages 0-4 years and ages 15-19 years are at highest risk for TBI; adults age 75 years or older have the highest rates of TBI-related hospitalization and death; blacks have the highest death rate from TBI-related causes[2]; and TBI-related hospitalization rates are highest among blacks and American Indians/Alaska Natives.[4] Reviewing Florida's population characteristics by age, race and gender allows for factoring into health needs analyses the differences and disparities that exist between

population groups or geographies and more importantly how these differences may impact the TBI population in Florida.

Population

Florida's current population is nearly 18.5 million, with the largest percentage of the population located in BSCIP Region 4 (26.0 percent) (Table 1). The population of Florida is projected to increase approximately 21.5 percent by 2015, with the largest increase projected in BSCIP Region 2 (27.0 percent).

Table 1: Total Population by BSCIP Region and Florida, 2006 and 2015.

Area	2006 Population		2015 Population	
	Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	18.3	3,970,134	18.2
BSCIP Region 2	3,780,193	20.5	4,626,558	21.3
BSCIP Region 3	3,971,460	21.5	4,561,812	21.0
BSCIP Region 4	4,799,835	26.0	5,751,702	26.4
BSCIP Region 5	2,546,333	13.8	2,857,297	13.1
Florida	18,478,309	100.0	21,767,503	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: ESRI Business Solutions, 2006; University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

Age, Race, Ethnicity and Gender

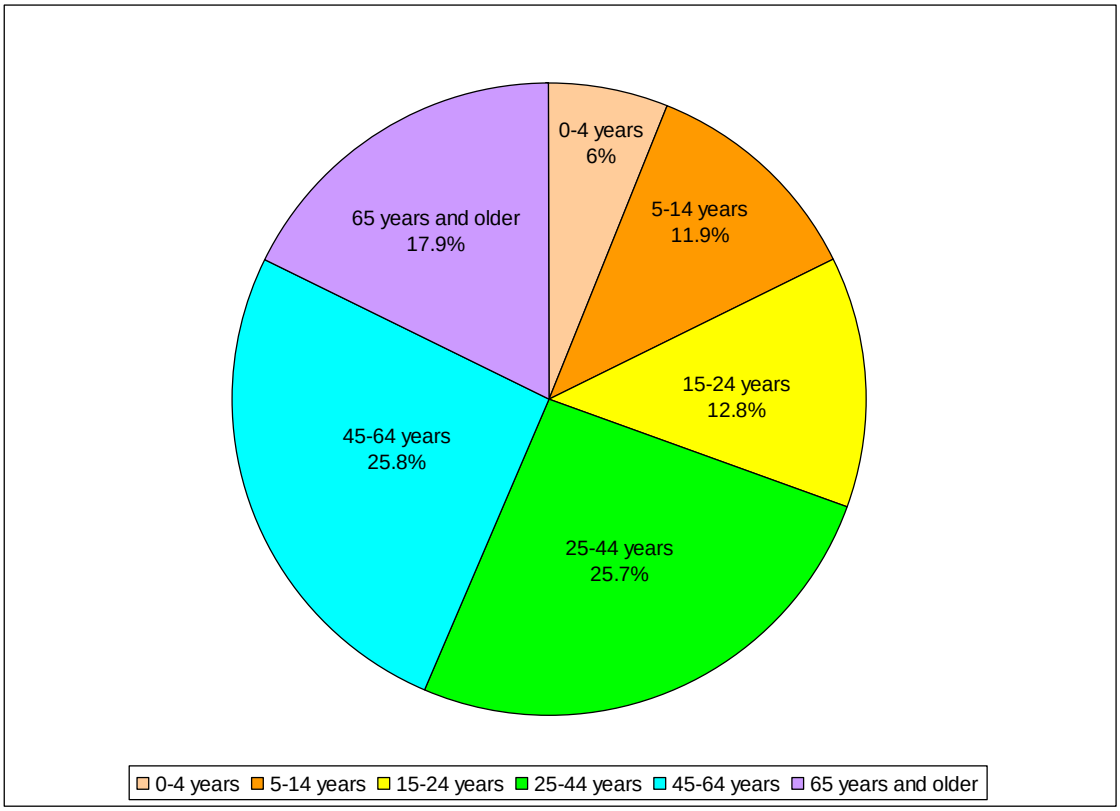
Figure 2 displays the age distribution for the population of Florida in 2006. Individuals 24-44 years of age and 45-64 years of age represent the largest proportion of the population, 26 percent in each group. The age group 0-4 years, which has the highest risk for TBI, currently represents the smallest proportion of Florida's population (6 percent), but is expected to grow to 17.6 percent by 2015. The elderly population in Florida, ages 65 years or more, currently represents approximately 18 percent of the population and is expecting the greatest amount of growth of all age groups, 36.1 percent, by 2015.

Differences in the age distributions of the population for BSCIP regions exist when compared to the state.

- BSCIP Region 1 contains a larger percentage of individuals under the age of 65 years than the state and has the greatest percentage of individuals 15-24 years of age in the state.
- The age distribution in BSCIP Region 2 is the most similar to the age distribution of the state.
- BSCIP Regions 3 and 4 have a larger percentage of people in age groups 45-64 years and 65 years and older than the state.

- BSCIP Region 5 has a larger percentage of the population under the age of 44 years compared to the state and houses the greatest percentage of age groups 0-4 years, 5-14 years and 25-44 years in the state.

Figure 2: Age Distribution of Florida, 2006.



Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Inc., 2007.

As stated above, in the United States, blacks have the highest death rate from TBI[2]; and TBI-related hospitalization rates are highest among blacks and American Indians/Alaska Natives.[4] Currently, Florida's population is 75.7 percent white and 15.5 percent black compared to 73.0 percent white and 12.6 percent black, nationally. The percentage of the population in Florida that identifies their race as Asian or all "other" races is 8.8 percent. The population of Florida is anticipating a 12.7 percent increase in the number of whites, a 28.9 percent increase in the number of blacks and a 41.9 percent increase in the number of all other races by 2015. BSCIP Region 5 is the only region that is expecting a decrease in the percentage of white residents (18.8 percent) by 2015.

- BSCIP Region 3 has the largest percentage of white residents (80.3 percent) and BSCIP Region 5 has the smallest percentage of white residents (70.9 percent).
- BSCIP Region 1 has the greatest percentage of black residents, representing 21.4 percent of its total population.

Health disparities exist between individuals who are non-Hispanic and those of Hispanic descent. The Office of Minority Health, in the United States Department of Health and Human Services,

Hispanic/Latino profile notes that the health of Hispanics is often shaped by language/cultural barriers, lack of access to preventive care and lack of health insurance.[5] Nationally, 14.8 percent of the population identifies themselves as Hispanic compared to 20 percent of Florida's population. The number of individuals who identify as being of Hispanic ethnicity is projected to increase by 41.8 percent in Florida by 2015.

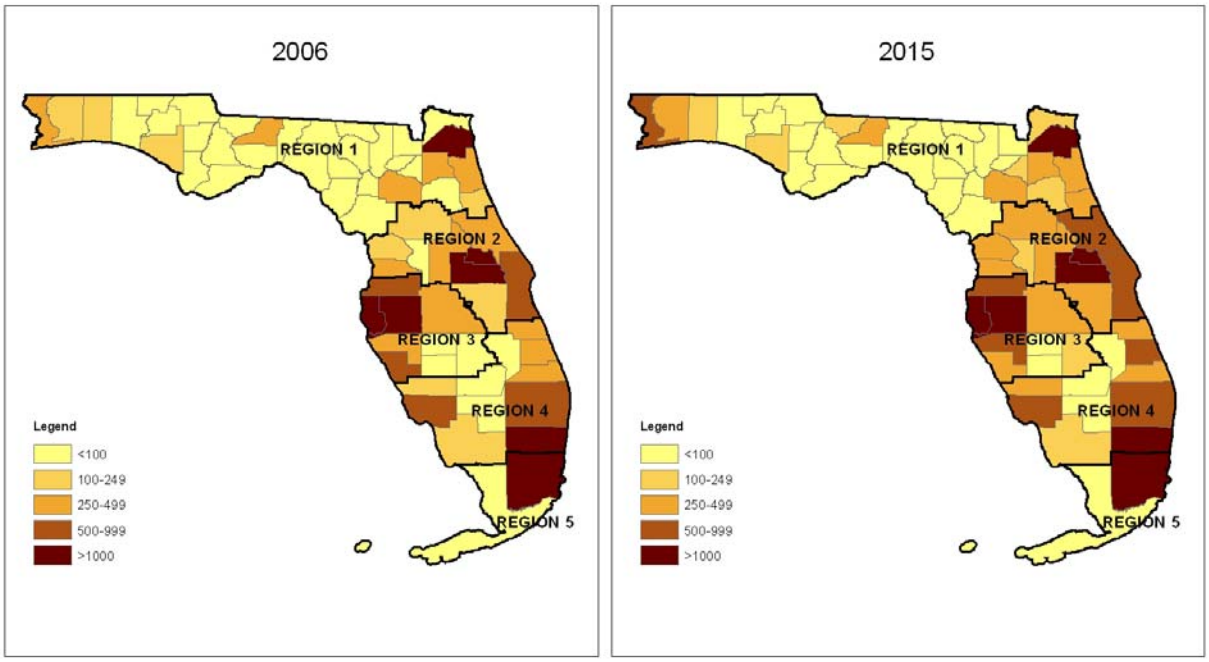
- Currently, Region 5 has a substantially higher percentage (62.1 percent) of individuals of Hispanic background compared to the state and other BSCIP regions.
- Regions 1 through 4 are projecting between 49 percent and 63 percent growth in the size of their Hispanic population by 2015.
- Only BSCIP Region 5 is not expecting an increase in the percentage of non-Hispanic residents by 2015.

Males are approximately two times more likely to experience a TBI than females.[2] In Florida, 51.2 percent of residents are female and 48.8 percent are male. Like the state, each BSCIP region has a slightly higher percentage of females than males. The projected population increase in Florida and each BSCIP region is not impacted by gender, as the population growth is consistent across genders through 2015.

Rural Population

Living in a rural area is a health risk factor because of many associated factors that can negatively impact health and access to healthcare. The Florida Department of Health, Office of Rural Health, has identified issues that impact the rural residents in Florida: disproportionately high mortality rates for selected diseases and population groups; large populations of uninsured/underinsured persons; recruitment/retention problems for emergency medical services; shortage of health personnel; limited physical and/or financial access to services; and significant financial hardships typically suffered by hospitals.[6] These issues exaggerate barriers for accessing healthcare. The definition of "rural" used in this assessment is from the Florida Department of Health, Office of Rural Health: "An area with a population density of less than 100 individuals per square mile or an area defined by the most recent United States Census as rural."[7] Currently, 33 of 67 counties in Florida are rural, but by 2015 only 28 of 67 counties will be classified as rural (Figure 3). Though the populations in urban and rural areas are both increasing, the population in urban areas is increasing at a slightly faster pace than in rural areas. Region 1 contains 71.4 percent of the rural counties in the state. These rural counties in Region 1 contain 22 percent of the population in this region.

Figure 3: Population Density (Individuals per Square Mile) by County in Florida, 2006 and 2015.



Source: ESRI Business Solutions, 2006; University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030. Florida Statistical Abstract 2006, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Economic Characteristics

Lower poverty and better employment have all been shown to impact favorably health access and health outcome. Conversely, higher poverty and poorer employment are definite predictors of a lack of access to healthcare and adverse health outcomes.

Increased income is associated with increased access to healthcare and related services. Per capita income is the total income for a given population divided by the number of people within the population. Florida's income is $26,399 per capita.

- BSCIP Regions 3 and 4 have per capita income levels higher than the state per capita income level. BSCIP Region 5 has the lowest per capita income ($22,706).

Median household income is the amount that divides the income distribution into two equal groups, half of the population having an income above that amount and half of the population having an income below that amount. The median household income in Florida is $46,736.

Approximately 12.5 percent of Florida's population is estimated to be living in poverty (i.e., 100 percent of the federal poverty level) and 18.6 percent of residents are estimated to be between 100 percent and 200 percent of the federal poverty level.

- BSCIP Region 5 has the greatest percentage of residents at or below 200 percent of the federal poverty level and BSCIP Region 4 has the lowest percentage of residents at or below 200 percent of the federal poverty level.

Being employed with health benefits or being the spouse or dependent of someone whose employer provides health insurance is still the most common way to obtain private health insurance in the United States. Unemployed individuals are thus vastly less likely to have private health insurance coverage. Current unemployment rates in Florida, from the Florida Research and Economic Database, are 3.2 percent of the number of people in the labor force. BSCIP Region 5 has the highest percentage of unemployment (3.8 percent) compared to the other regions.

Educational Attainment

Today's complex healthcare systems and treatment guidelines are often difficult to navigate and understand. Generally, persons with higher educational levels utilize healthcare systems somewhat more effectively and efficiently than their counterparts without higher levels of educational attainment. In addition, research has suggested that educational level also has a bearing on health outcome.

Approximately 20 percent of Florida residents (age 25 and over) have no high school diploma and just over 50 percent have earned a high school diploma as their highest level of educational attainment. In Florida, 29.4 percent of the population have earned a college degree or higher.

- BSCIP Region 5 has the greatest percentage of residents without a high school diploma and the smallest percentage who earned a high school diploma as their highest level of educational attainment.

Traumatic Brain Injury Profile

The traumatic brain injury profile describes individuals with TBIs in Florida, including the prevalence and incidence of TBI in Florida and each BSCIP region. The CDC published report, "Traumatic Brain Injury In the United States: Emergency Department Visits, Hospitalizations and Deaths," presents the most comprehensive measures of the incidence of TBI in the United States to date because it incorporates emergency department visits.[2] Emergency department visits account for approximately 80 percent of all TBIs and a large percentage of mild TBIs. The TBI incidence rates for Florida were calculated using the methodology presented in this report. The methodology used in this report does not take into account injury severity which would help to identify the most severely injured.

The TBI incidence rates for Florida were calculated using the methodology presented in this report including vital statistics, hospital discharge and emergency department (ED) visit data for the state of Florida. Data on TBIs in Florida and each BSCIP region are presented, including analyses by age, gender, race, ethnicity and common causes. The national data included in this report is based on the aforementioned CDC report; therefore, all data is from1995 through 2001.

Prevalence of Traumatic Brain Injury-Related Disability

From most recent TBI-related disability estimates, established in 1996, at least 5.3 million people in the United States, approximately two percent of the population, currently present long-term or lifelong need for help to perform activities of daily living as a result of a TBI.[3] This model incorporates estimates on the incidence of TBI, injury severity levels and the likelihood of TBI-related disability for given levels of severity reflecting the proportion of the population who had ever been hospitalized for a TBI that resulted in prolonged disability. This figure does not take into account individuals who visited emergency departments or outpatient clinics and those whose injuries have gone undetected. Although, underestimating the prevalence of TBI-related disability it remains the best model to date.

Table 2 shows the prevalence of TBI-related disability in Florida and each BSCIP region based on the 2006 population and 2015 population projections. Prevalence is the proportion of persons with a particular disease or condition within a given population at a given time. Currently, 369,566 people (2 percent) are living with a TBI-related disability in Florida. By 2015, this is expected to increase to approximately 435,350 people. The prevalence of TBI-related disabilities mirrors the population distribution.

- Like the general population, the greatest number of people with TBI-related disabilities live in BSCIP Region 4 (95,997 people) and the fewest in BSCIP Region 5 (50,927 people).
- Through 2015, BSCIP Region 2 is anticipating the greatest increase in the percentage of individuals living with TBI-related disabilities and BSCIP Region 5 is expecting the smallest increase.

Table 2: TBI-Related Disability Prevalence Estimates for Florida and BSCIP Regions, 2006 and 2015.

Area	2006 TBI-Related Disability Prevalence		2015 TBI-Related Disability Prevalence	
	Number	Percent	Number	Percent
BSCIP Region 1	67,610	18.3	79,403	18.2
BSCIP Region 2	75,604	20.5	92,531	21.3
BSCIP Region 3	79,429	21.5	91,236	21.0
BSCIP Region 4	95,997	26.0	115,034	26.4
BSCIP Region 5	50,927	13.8	57,146	13.1
Florida	369,566	100.0	435,350	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: ESRI Business Solutions, 2006; University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030; Thurman, et al., 1999.
Prepared by: WellFlorida Council Inc., 2007.

Incidence of Traumatic Brain Injury

Incidence of TBI is defined as the proportion of new brain injuries within a selected population during a given time period. Incidence data are presented in two ways, crude and age-adjusted rates. Crude rates show the number of TBIs in a given population during a defined time-frame. Age-adjusted rates are used to compare TBI rates between different geographic areas. Age-adjusted rates are those rates that would have been observed if the age distribution of the compared areas were the same as that of the standard population. The standard population used in this study is the 2000 United States population.

In 2005, there were approximately 93,000 TBIs in Florida, which included 71,400 ED visits (76.8 percent), 17,700 hospitalizations (19.0 percent) and 3,900 deaths (4.2 percent). Nationally, an average of 1.4 million TBIs occur each year, which includes 1.1 million ED visits (79.6 percent), 235,000 hospitalizations (16.8 percent) and 50,000 deaths (3.6 percent). The rate of TBI in Florida during 2005 (515.8) is greater than the national average annual TBI rate (506.4). When adjusting for differences in age, the rate for TBI in Florida (511.5) remains higher than the national rate for TBI (504.8).

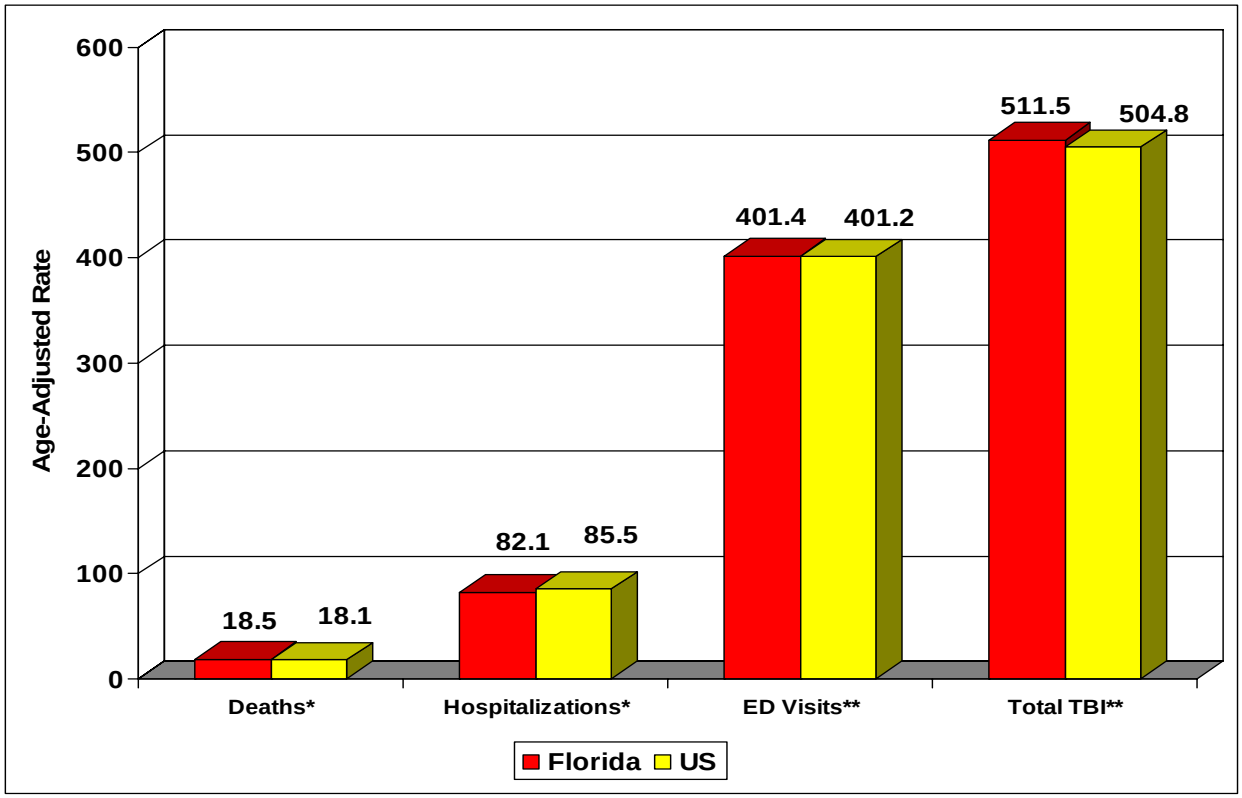
- In 2005, the greatest number of TBIs occurred in BSCIP Region 4 (26,889) compared to BSCIP Region 5 with the fewest (10,149), which corresponds with the population distribution of the state.
- Compared to the percentage of the population that lived in BSCIP Regions 3 and 4 during 2005, there were a greater percentage of total TBIs that occurred within these regions. The opposite trend was true in BSCIP Region 5, where a smaller percentage of total TBIs occurred compared to the percentage of the total population that lived in the region.
- Four of the five counties with the largest populations in Florida had the greatest number of TBIs in 2005: Miami-Dade (9,866), Broward (9,125), Hillsborough (6,874) and Palm Beach (6,338). Orange County has the fifth greatest population in the state, but ranked seventh in total TBIs reported in 2005.

Figure 4 compares the age-adjusted rates for TBI-related deaths, hospitalizations, ED visits and total TBIs for Florida to the United States.

- From 1999 through 2005, Florida's average annual TBI-related crude death rate (19.8) was greater than the national average annual TBI-related crude death rate (18.1). Like the crude rates, the average annual age-adjusted rate for TBI-related deaths in Florida (18.5) was higher than the average annual age-adjusted TBI-related death rate (18.1) for the United States.
- From 1999 through 2005, Florida's average annual crude TBI-related hospitalization rate (88.1) was higher than the national rate (85.2). But, when adjusting for differences in age, the average annual rate for TBI-related hospitalizations in Florida (82.1) was lower than the average annual national TBI-related hospitalization rate (85.5).
- In 2005, Florida's crude TBI-related ED visit rate (396.2) was lower than the national TBI-related ED visit rate (403.1). When adjusted for differences in age, the 2005

age-adjusted rate for TBI-related ED visits in Florida (401.4) was slightly higher than the age-adjusted average annual national rate (401.2) for TBI-related ED visits.

Figure 4: Age-Adjusted TBI-Related Deaths, Hospitalizations, Emergency Department Visits and Total TBIs Rates (per 100,000) for Florida and the United States.

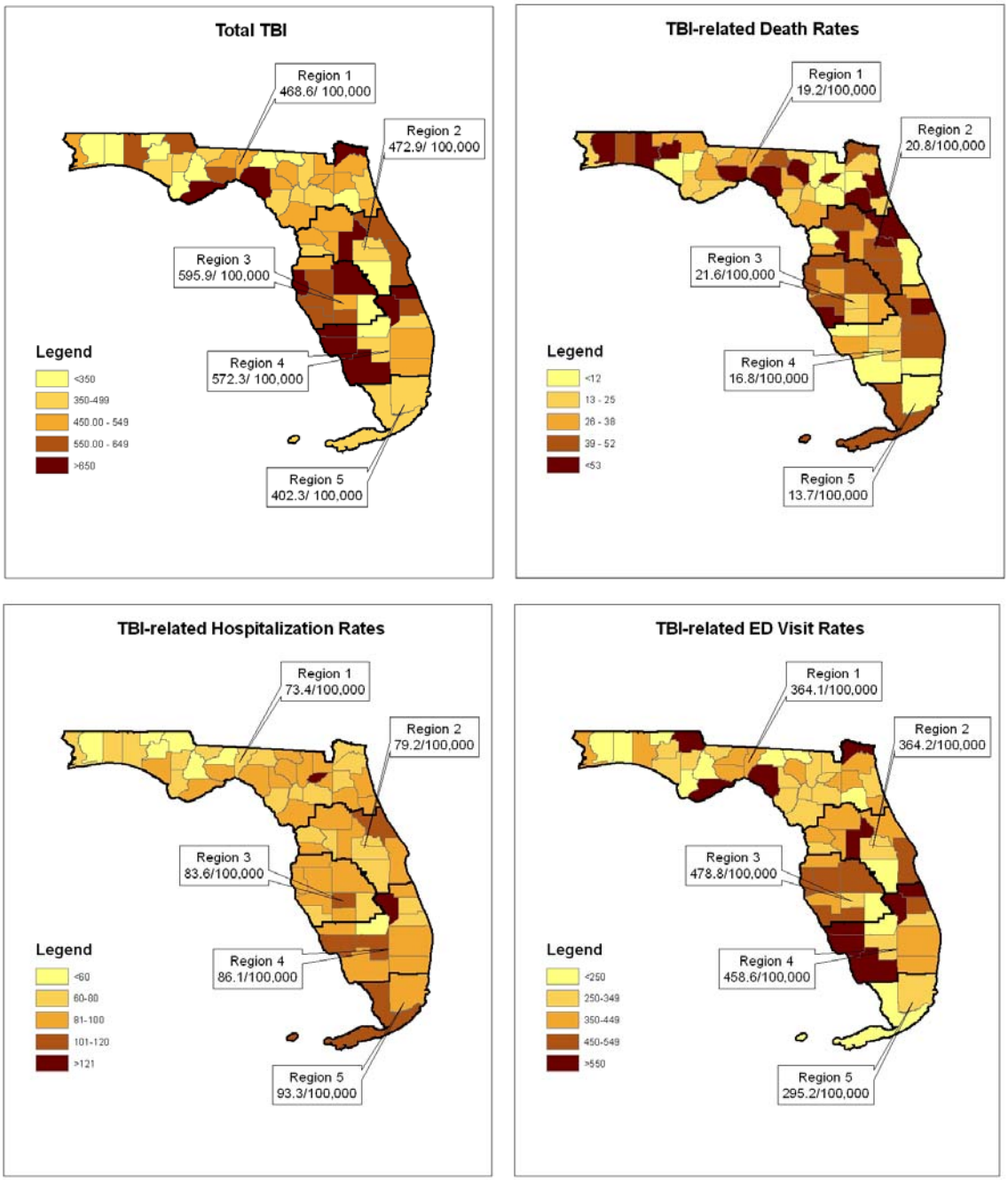


Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; *State of Florida, AHCA, Detailed Discharge Data, 1999-2005; **State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; **State of Florida, AHCA, Detailed Discharge Data, 2005; ***Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

In Florida from 1999 through 2005, an average of 3,331 TBI-related deaths occurred each year, with the most in BSCIP Region 3 (852) compared to BSCIP Region 5 with the fewest (338) and an average of 14,810 TBI-related hospitalizations occurred each year, with the most occurring in BSCIP Region 4 (4,177) compared to BSCIP Region 1 with the fewest (2,253). Statewide, 71,382 TBI-related ED visits occurred during 2005, with the most in BSCIP Region 4 (20,862) compared to BSCIP Region 5 with the fewest (7,375). Figure 5 shows the age-adjusted TBI rates including deaths, hospitalizations and ED visits per 100,000 of the population for each BSCIP region and county.

- Total TBI age-adjusted rates in BSCIP Regions 3 and 4 were higher than the state rate and BSCIP Region 5 had lowest total TBI age-adjusted rate in the state during 2005.
- BSCIP Region 5 had the lowest TBI-related death rate and TBI-related ED visit rate in the state.
- BSCIP Region 1 had the lowest average annual age-adjusted rate for TBI-related hospitalizations in the state.

Figure 5: Age-Adjusted TBI Rates per 100,000 for Florida Counties and BSCIP Regions, 1999-2005.



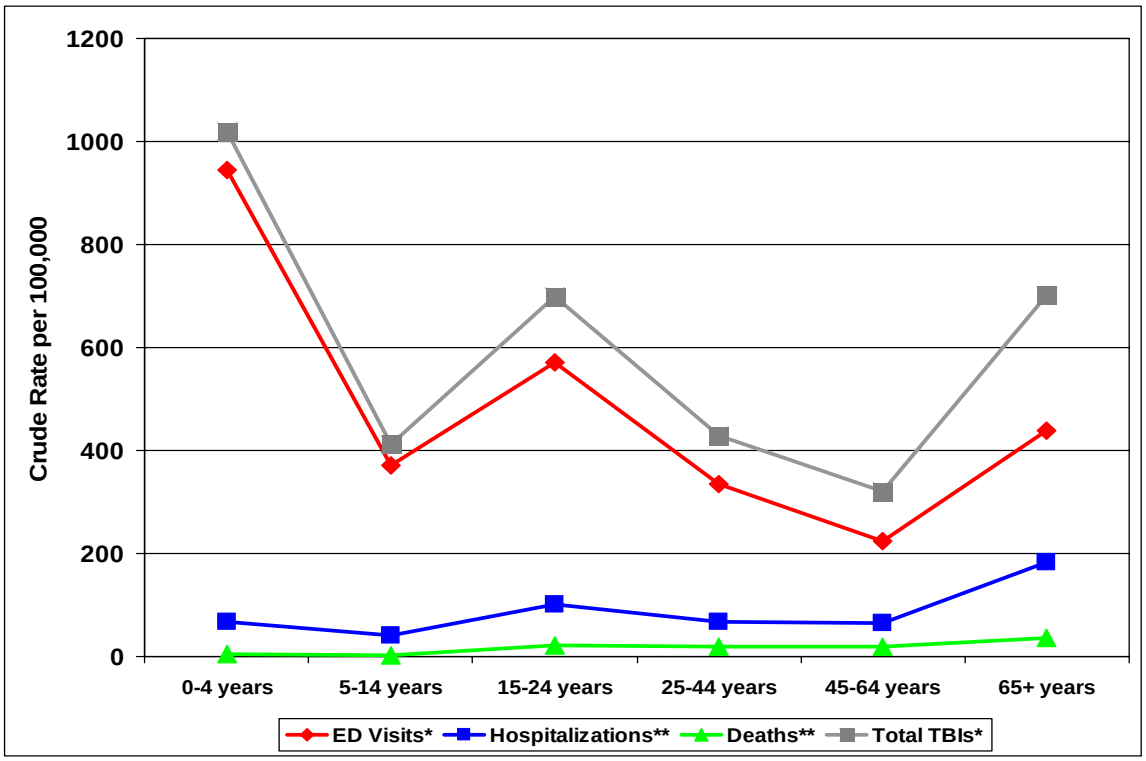
* Total TBI and TBI-related ED visit rates for 2005 only.
** TBI-related deaths and hospitalization rates average from 1999-2005.
*** Age-adjusted to the US Standard Population, 2000.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999- 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 1999- 2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

TBI Rates by Age

Figure 6 shows the rates for TBI-related deaths, hospitalizations, ED visits and total TBIs by age for 2005 in Florida. The groups at greatest risk for all TBIs include children 0-4 years of age (1020.0), young adults 15-24 years of age (699.4) and adults over the age of 65 (700.7). Figure 7 shows the age distribution for all TBIs that occurred in Florida during 2005.

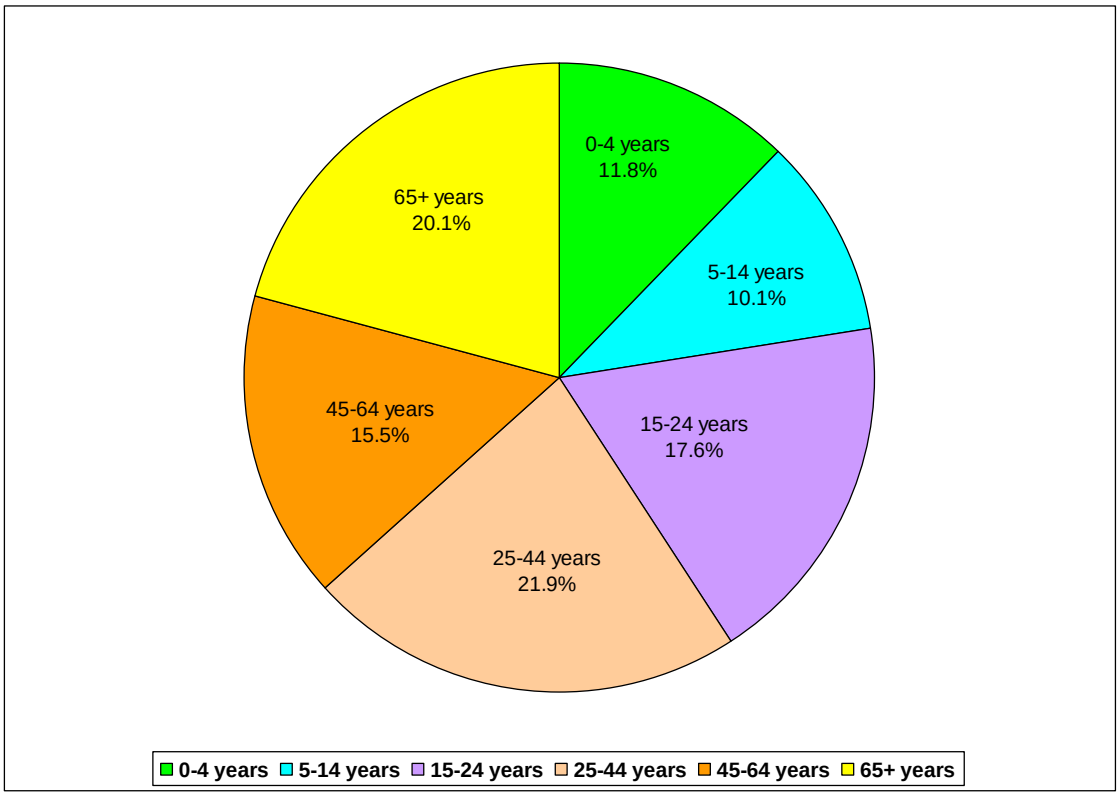
- In 2005, each of the age groups over 15 years of age in Florida was at higher risk for TBI compared to their national counterpart.
- Adults 65 and over were at greatest risk for TBI-related deaths (36.9) and hospitalizations (183.2), which were greater than the national rates for this population (35.5 and 173.5, respectively).
- Individuals 15 to 24 years of age were at second greatest risk for TBI-related deaths (22.5) and hospitalizations (101.3), which was greater than the national rate for TBI-related deaths (25.9) and less than the national rate for TBI-related hospitalizations (112.9).
- Youth 0-4 years of age were at greatest risk for TBI-related ED visits (944.0), which was less than the national rate (1035.0) for this population. Adults 65 years of age and older were at second greatest risk for TBI-related ED visits (439.2), which is 1.8 times greater than the national rate for this population.

Figure 6: Total TBIs, TBI-Related Deaths, Hospitalizations and ED Visits Rates (per 100,000) by Age Group in Florida, 2005.



Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; *State of Florida, AHCA, Detailed Discharge Data, 2005; *State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 7: Percentage of Total TBIs by Age Group for Florida, 2005.



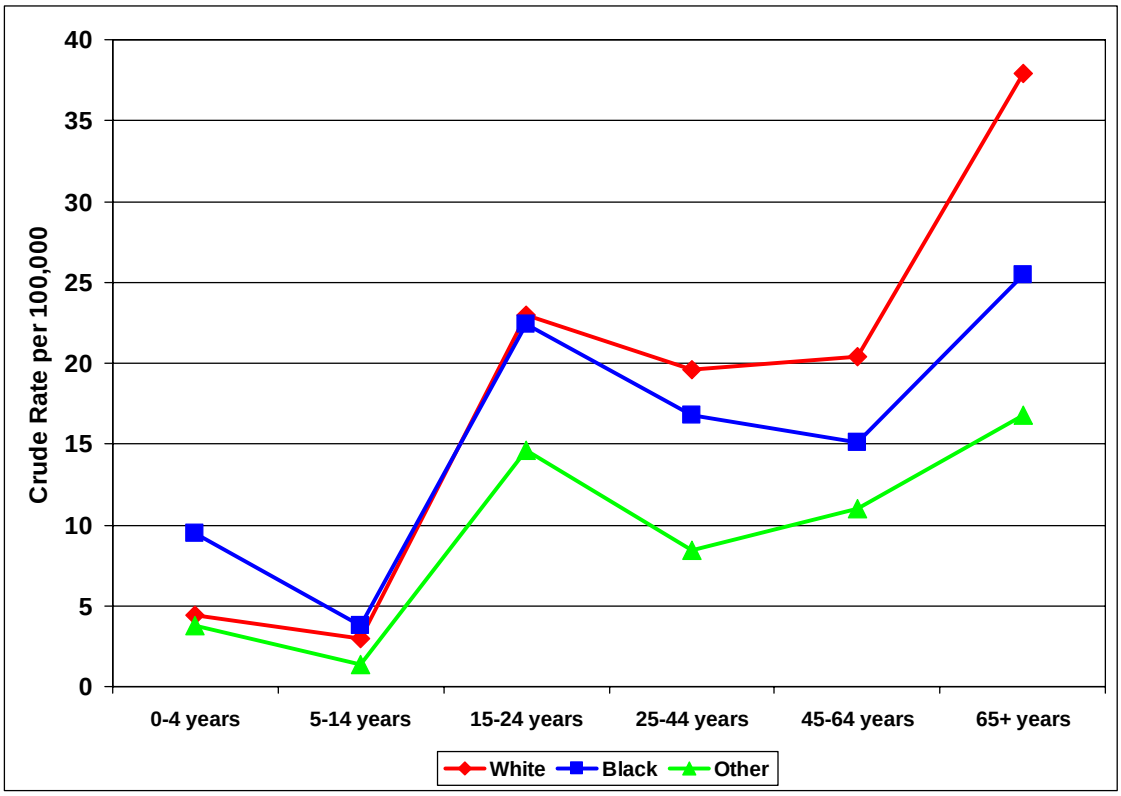
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Date, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

TBI Rates by Race and Ethnicity

In Florida, 82.3 percent of all TBIs that occurred in 2005 were to whites, 14.1 percent were to blacks and 2.8 percent were to individuals who were classified as all other races. During 2005, individuals classified as other races had the highest crude rate of total TBIs (525.1) in Florida, followed by whites (524.4). Blacks, who are at greatest risk for TBI hospitalizations and deaths in the United States, were at the lowest risk for all TBIs (445.8) in Florida. Similar to the crude rates, individuals identified as other races had the highest age-adjusted rate for TBI (539.2) compared to whites (522.3) and blacks (440.5) in Florida during 2005. Figure 8 displays the 2005 crude rates for total TBI by race and age groups in Florida.

- Individuals identified as other races had the highest rate of TBI in the youngest and oldest age groups, compared to whites and blacks.
- For young adults, 15-24 years of age, whites were at greatest risk for TBI (735.9) compared to all other races.

Figure 8: Total TBI Rates (per 100,000) by Race and Age Group for Florida, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

When looking at TBI-related deaths, hospitalizations and ED visits alone:

- From 1999 through 2005, whites (21.1) were at greatest risk for TBI-related deaths, which is unlike the national picture where blacks are at greatest risk for TBI-related deaths (19.3). This trend remains when comparing age-adjusted TBI-related death rates.
- Nationally, blacks (72.4) are more likely to be hospitalized from TBI-related causes than other races. In Florida, from 1999 through 2005, individuals classified as all other races (99.8) were more likely to be hospitalized for TBI-related issues than whites (90.1) or blacks (65.6). The same trend exists for age-adjusted rates.
- Nationally, blacks (485.6) are most likely to have visited the ED from TBI-related causes than other races. During 2005, individuals in Florida who were white (399.1) were most likely to be treated and released from the ED for TBI-related issues than other races (397.6) or blacks (364.1). The same trend exists for age-adjusted rates.

In 2005, 15 percent of all TBIs were sustained by individuals who identify themselves as Hispanic, resulting in a rate of 402.9 per 100,000 of the population. The rate was highest in BSCIP Region 3 (505.4) and lowest in BSCIP Region 1 (276.9).

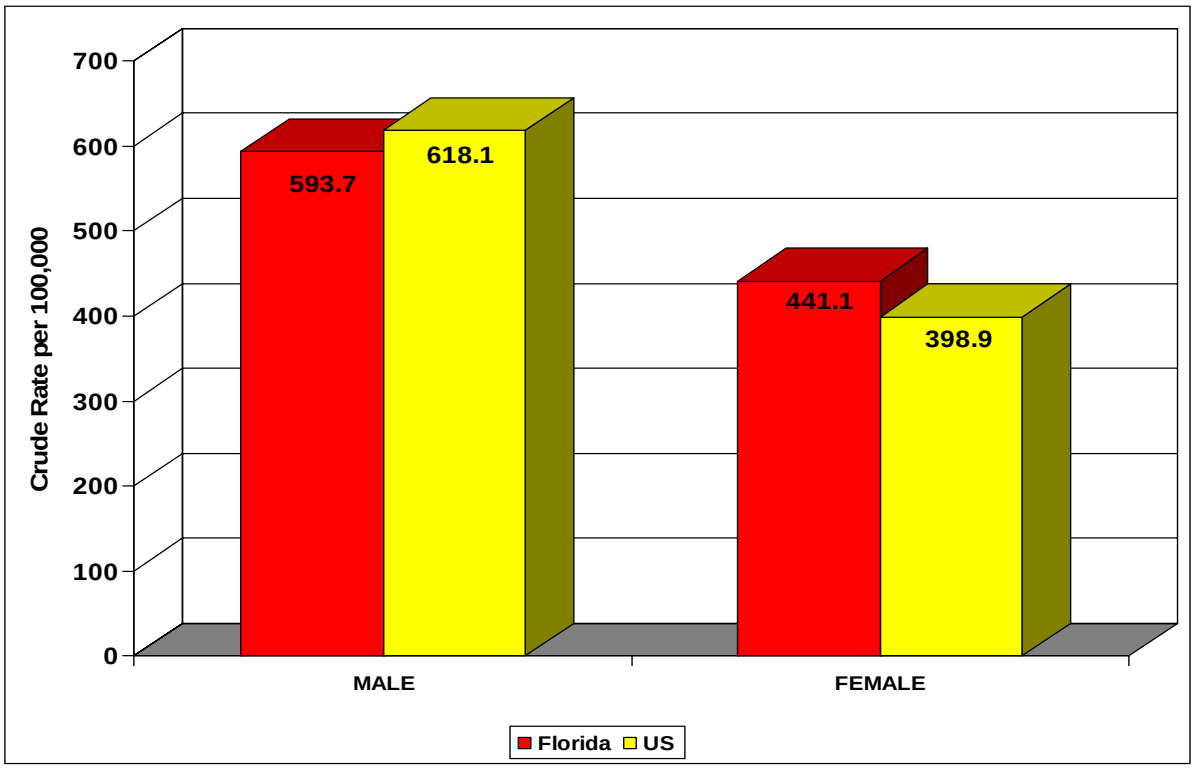
- From 1999 through 2005, the average annual TBI-related death rate for Hispanics in Florida was 13.4 per 100,000 of the population. The average annual TBI-related death rate was highest in BSCIP Region 3 (20.1) and lowest in BSCIP Region 5 (11.6).
- From 1999 through 2005, the average annual hospitalization rate for Hispanics in Florida was 68.5 per 100,000 of the population. BSCIP Region 5 had the highest rate of TBI-related hospitalizations in Florida (81.0) and BSCIP Region 1 had the lowest (34.1).
- The 2005 ED visit rate for Hispanics in Florida was 310.3 per 100,000 of the population. BSCIP Region 4 had the highest rate of TBI-related ED visits in Florida (411.5) compared to BSCIP Region 1 with the lowest (207.5).

TBI Rates by Gender

Males are 1.4 times more likely to have a TBI than females in the United States; in Florida, males were 1.3 times more likely to experience a TBI than females during 2005. The crude rate for TBI for males (593.7) in Florida was higher than the rate for females (441.1) (Figure 9).

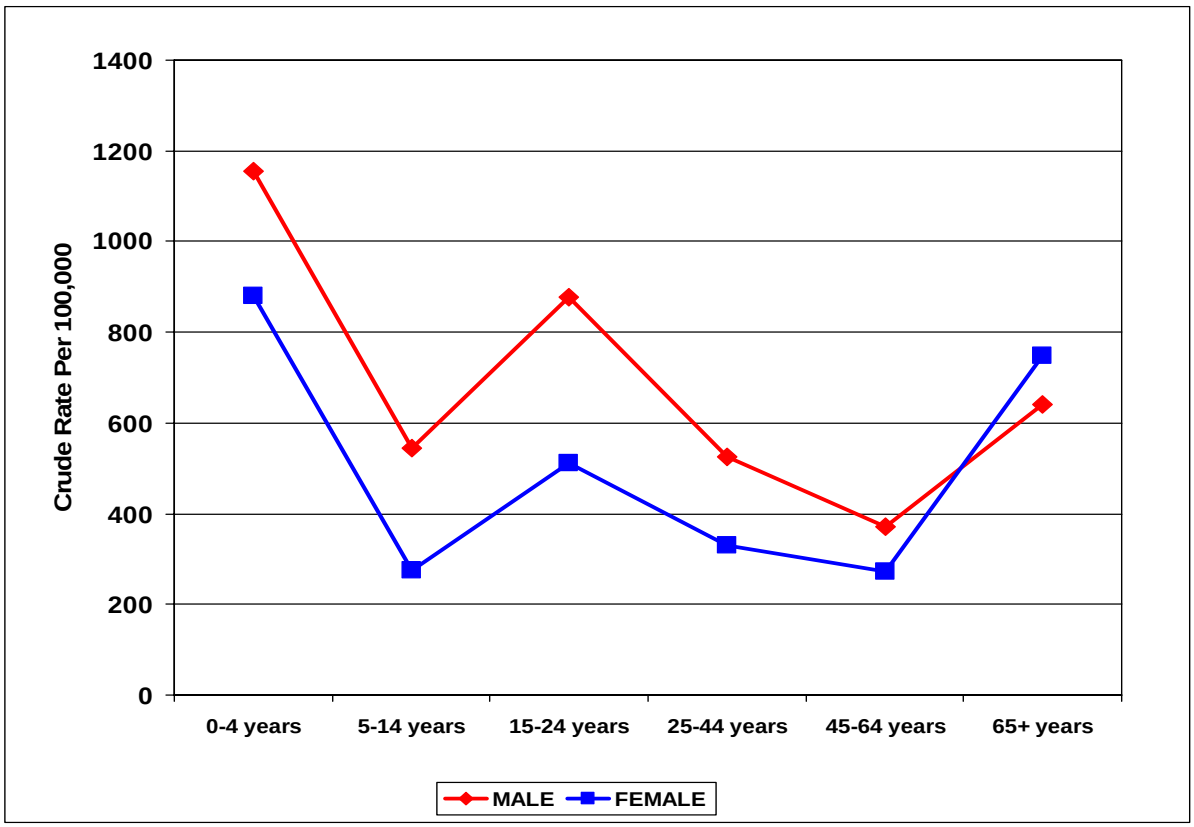
Across all age groups in Florida, except the 65 years of age and older age group, males are more likely to experience a TBI than females (Figure 10). Males 0-4 years of age were at highest risk for TBI in Florida during 2005 (1,155.5) followed by females in the same age group (879.5). The 2005 age-adjusted rate for TBI for males in Florida was 601.0 per 100,000 of the population, which was 1.4 times higher than the rate for females.

Figure 9: Total TBI Rates by Gender (per 100,000) for Florida and the United States.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 10: Total TBI Crude Rates (per 100,000) by Gender and Age Group for Florida, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

When examining TBI-related deaths, hospitalizations and ED visits alone:

- In Florida, males are approximately three times more likely to die from TBI-related causes than females. From 1999 through 2005, the average annual crude death rates were higher for both genders in Florida (30.0 for males and 10.1 for females) than their respective national rates (27.3 for males and 9.2 for females). When adjusting the TBI-related death rates for age, males in Florida (29.0) were slightly more likely than their national counterparts (28.4) to die from a TBI-related cause. Females in Florida were equal to their national counterparts (8.9) in this regard.
- In Florida, males are approximately 1.7 times more likely to be hospitalized from TBI-related causes than females. From 1999 through 2005, TBI-related hospitalization rates were higher for both genders in Florida (110.4 for males and 66.7 for females) compared to the nation (107.8 for males and 63.4 for females). When adjusted for age, the trend reversed and males and females in Florida (107.2 and 55.1, respectively) were less likely to be hospitalized for TBI than their national counterparts (110.4 and 60.7, respectively).
- In Florida, males were approximately 1.2 times more likely to go to the ED for a TBI-related cause than females. Males have higher rates for TBI-related ED visits than females in Florida as well as in the nation. But, compared to the national rate (362.5), the

ED visit rates were higher for females (354.7) in Florida. The rates for males (439.4) in Florida were lower than the national (482.9) rate. This trend remains after adjusting for differences in the age of the population.

TBI Rates by Cause

Nationally, falls (28 percent), motor vehicle-traffic accidents (20 percent), struck by/against (19 percent) and assaults (11.0 percent) are the primary causes of TBI. During 2005, falls caused 39.6 percent of all TBIs in Florida, followed by motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent). Figure 11 shows the percentage distribution of TBI causes by total TBIs, TBI-related deaths, hospitalizations and ED visits.

- Compared to the United States, there were a greater percentage of TBI-related deaths that resulted from falls and a smaller percentage that resulted from motor vehicle-traffic accidents and assaults from 1999 through 2005. But the leading cause of TBI-related death in the United States and Florida was motor vehicle-traffic accidents.
- Unlike the nation, falls resulted in the most TBI-related hospitalizations in Florida from 1999 through 2005, followed by motor vehicle-traffic accidents and assaults. Nationally, motor vehicle-traffic accidents (35.3 percent), falls (20.5 percent) and assaults (6.1 percent) are the primary causes of TBI-related hospitalizations.
- Falls were the leading cause of TBI-related ED visits in the state and nation, but the percentage of falls in Florida during 2005 was much higher (42 percent) than the national percentage (30.9 percent).

During 2005, rates for TBI were highest for falls (204.3). Motor vehicle-traffic accidents had the second highest rate for TBI in Florida (107.1), followed by assaults (57.2). These rates were higher than their respective rates nationally. Figure 12 shows the age-adjusted total TBI rates by cause for Florida and the United States. Figure 13 shows the rates for primary causes of TBI by age-group.

In Florida, there were 36,803 falls that resulted in TBIs in 2005, which resulted in a rate of 204.3 per 100,000 of the population. The rate for falls was greater in Florida compared to the national rate (144.4). BSCIP Region 4 has the highest total TBI rate (249.6) from falls in the state. Consistent with national trends, the TBI rates resulting from falls in Florida were highest in the youngest (694.2) and oldest populations (485.8).

- From 1999 through 2005, the average annual crude TBI-related death (3.7) and hospitalizations (26.8) rates from falls were greater than the national rates (2.3 and 17.5, respectively). In 2005 the TBI-related ED rate (166.5) was greater than the average annual national rate (124.4). Consistent with national trends, the average annual crude TBI-related death and hospitalization rates resulting from falls in Florida were highest in the 65 years of age and older category and TBI-related ED visits were highest in the 0-4 years of age group. When adjusting for differences in age, the rates remained higher in Florida but the disparity was decreased.

Figure 11: Percentage of TBI Causes by Total TBIs, TBI-related Deaths, Hospitalizations, and ED Visits for Florida.

Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

During 2005, in Florida 19,306 motor vehicle-traffic accidents resulted in TBIs, which resulted in a rate of 107.1 per 100,000 of the population. The rate for motor vehicle-traffic related TBIs was the highest in the 15-24 years of age population (263.8). Occupant motor vehicle accidents resulted in 14,696 TBIs (81.6 per 100,000); pedestrian accidents resulted in 1,189 TBIs (6.6 per 100,000); motorcycle accidents resulted in 1,643 TBIs (9.1 per 100,000); and pedalcycle accidents resulted in 622 TBIs (3.5 per 100,000).

- From 1999 through 2005, the average annual crude TBI-related death rate (5.3) from motor vehicle-traffic accidents was less than the national rate (6.1), but the TBI-related hospitalization rate (24.2) from motor vehicle-traffic accidents was greater than the national rate (21.6). In 2005, the TBI-related ED rate (76.1) was greater than the average annual national rate (73.1). Consistent with national trends, the average annual crude TBI-related death and hospitalization rates and the 2005 TBI-related ED visit rate resulting from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age category. When adjusting for differences in age, the rates for TBI-related

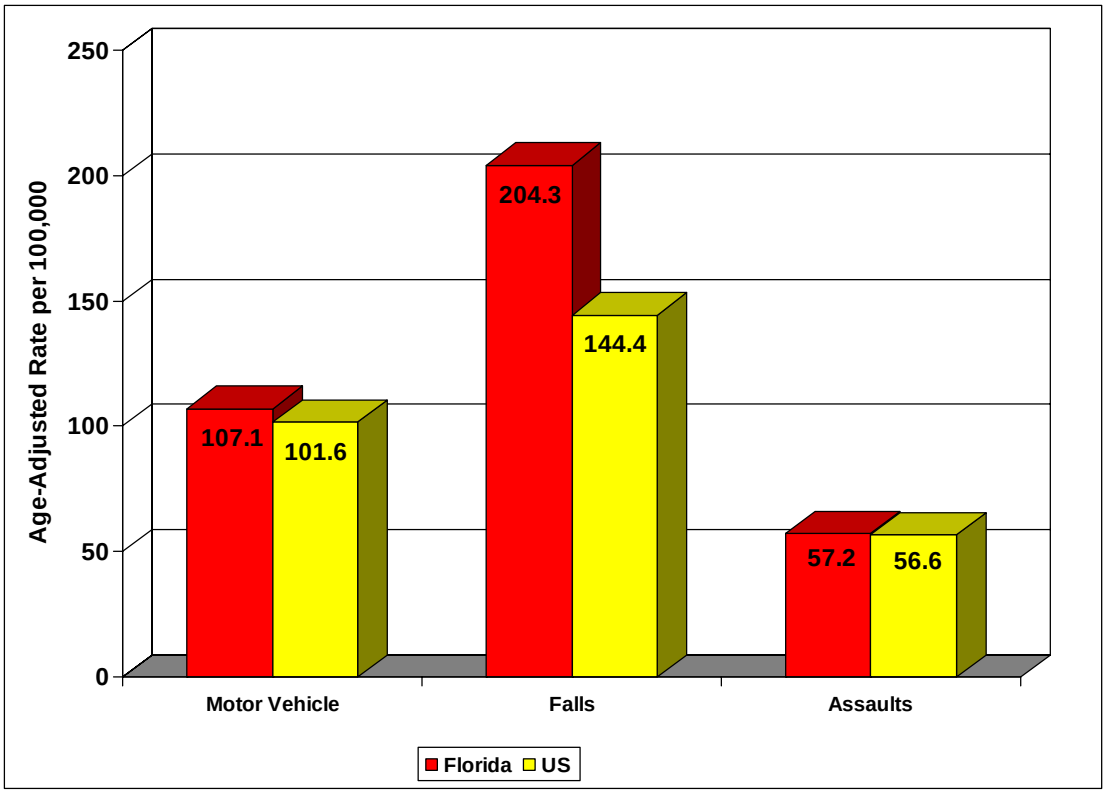
hospitalizations and ED visits were greater in Florida than the nation and the TBI-related death rate was less than the national rate.

- From 1999 through 2005, the average annual crude death rates in Florida for all motor vehicle-traffic categories except occupant accidents were higher than national rates. The average annual rates in Florida for hospitalizations were higher than the national rates in all categories. National averages were not available for ED visits.

During 2005, 10,314 people in Florida experienced an assault that resulted in a TBI (57.2 per 100,000), which is higher than the national rate (56.2 per 100,000). The total TBI rate from assaults was highest in the 15-24 years of age population (141.1).

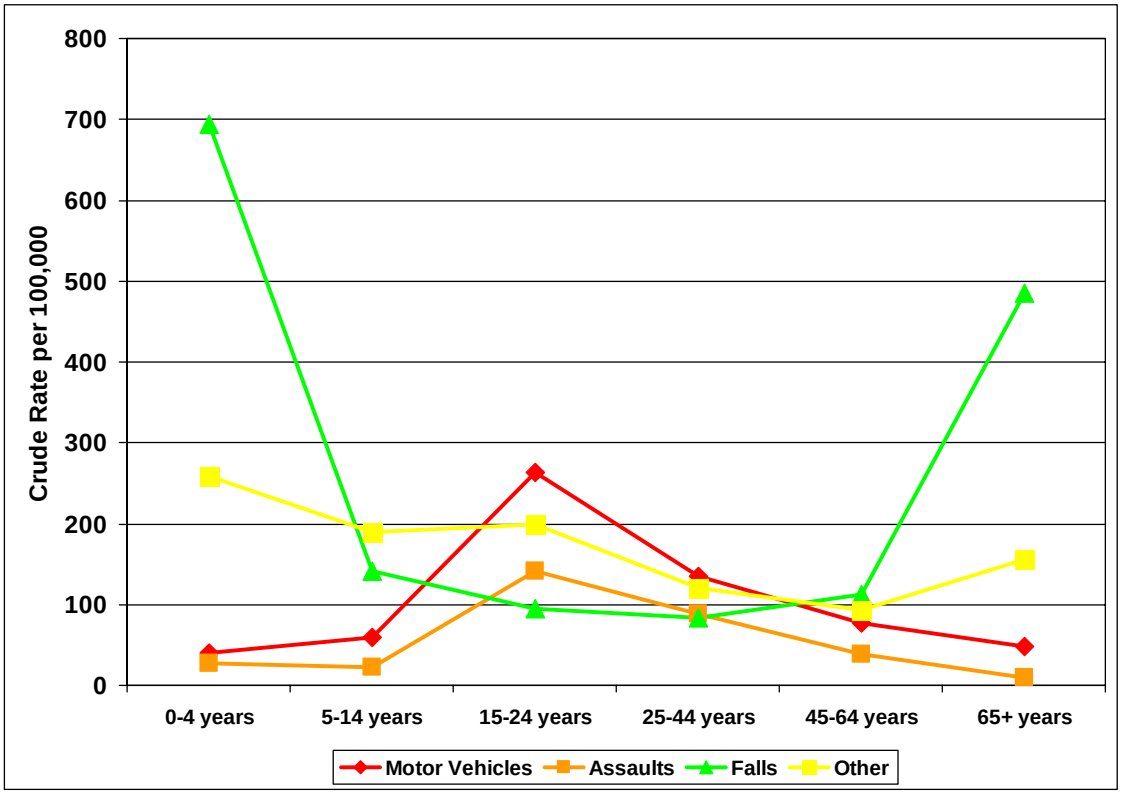
- From 1999 through 2005, the average annual crude TBI-related death and hospitalization rates (1.9 and 6.0, respectively) from assaults were higher than the national rate (1.1 and 5.2, respectively). In 2005, the TBI-related ED rate (49.3) was slightly greater than the average annual national rate (49.1). Consistent with national trends, the average annual crude TBI-related death and hospitalization rates and the 2005 TBI-related ED visit rate resulting from assaults in Florida was highest in the 15-24 years of age category. When adjusting for differences in age, Florida's rates for TBI-related hospitalizations and ED visits remained higher than the respective national rates. TBI-related death rates from assaults were lower than the national rate.

Figure 12: Total TBI Age-Adjusted Rates (per 100,000) by Cause of Injury for Florida and the United States.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 13: Total TBI Rates (per 100,000) by Age Group and Cause, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

TBI Rates by Rural Residency

In Florida, 6.1 percent of the population resides in rural counties. In 2005, the rural population of Florida accounted for 5,191 (5.6 percent) of the total TBIs in the state. The total rate for TBIs in the rural counties of Florida was 461.6, compared to 525.6 in the non-rural counties. BSCIP Region 1, which most closely represents "rural" based on population density, has total TBI rate of 469.8 per 100,000 of the population.

- From 1999 through 2005, the rural population of Florida accounted for an average of 270 TBI-related deaths and 899 TBI-related hospitalizations each year. The average annual crude TBI-related death rate in the rural counties of Florida is 25.5 per 100,000, compared to 19.3 per 100,000 in the non-rural counties and 19.8 per 100,000 for the state. The average annual crude TBI-related hospitalization rate in the rural counties of Florida is 84.4 per 100,000, compared to 87.6 per 100,000 in the non-rural counties and 88.1 per 100,000 for the state. The higher death rates and lower hospitalization rates in rural counties may be due to decreased access to medical care in rural areas including lack of trauma centers and increased response and transport time.
- The 2005 TBI-related ED rate in the rural counties of Florida is 333.2 per 100,000, compared to 407.5 per 100,000 in the non-rural counties and 396.2 per 100,000 for the

state. Therefore, individuals in rural areas utilize emergency department services less frequently for TBI-related causes compared to their non-rural counterparts and the state as a whole. Accurately reporting and diagnosing TBIs in rural emergency departments may be less likely than in more populated areas. This may result in an underreporting of the number of ED TBI-related visits in rural areas.

Traumatic Brain Injury System Profile

The system profile examines some of the primary features in the system of care for individuals with TBI in Florida. The profile includes descriptions of key programs and services as well as various data from these entities. Programs and services included in this analysis are the Florida Department of Health Brain and Spinal Cord Injury Program (BSCIP), Brain Injury Association of Florida (BIAF), Department of Education Division of Vocational Rehabilitation (DVR) and Exceptional Student Education Program (ESE), Florida Alliance for Assistive Services and Technology (FAAST), protection and advocacy and Centers for Independent Living (CIL). This analysis of system components for individuals with TBI will enable the state, stakeholders, consumers and family members to identify current service delivery patterns and ultimately guide decision-making to improve the overall health and access to services for individuals with TBI in Florida.

Brain and Spinal Cord Injury Program

The state of Florida has a government administered program, BSCIP, which is designed to assist individuals and their families who experience a moderate-to-severe traumatic brain injury from time of injury through reintegration back into the community in accessing federal, state, third party and community resources. Since 2000, BSCIP is housed within the Department of Health, Division of Health Access and Tobacco. At this time, the program is funded through the Brain and Spinal Cord Injury Trust Fund, which receives funding from traffic-related fines, surcharges for driving under the influence and boating under the influence, temporary license fees and a percentage of funds from the motorcycle specialty tag. These funds can be used to access services as a payor of last resort including case management, acute care, inpatient and outpatient rehabilitation, transitional living, assistive technology, home and vehicular modification and long-term community-based supports funded under contract with specific not-for-profit agencies. Finally, for those individuals who need lifetime support, BSCIP provides its Home and Community Medicaid Waiver Services, which can provide support for up to 325 individuals (brain and/or spinal cord injuries) annually. BSCIP also houses the Central Registry (CR), mandated by the Florida statute, to collect information about individuals who experience a moderate-to-severe brain or spinal cord injury.

New Brain Injuries

The Central Registry (CR) is mandated (Florida Statute 381.74) to collect information on individuals who sustain a moderate-to-severe brain or spinal cord injury, including the name, age, residence, type of disability of the individual and other information as deemed necessary by the department.[1] Specifically, reporting a moderate-to-severe injury is required if the injury

resulted in external trauma to the skull causing an insult to the brain and resulted in the patient having a Glasgow Coma Scale score of 12 and below or a Rancho Scale score of 8 and below. The law requires that every public health agency, private health agency, public social agency, private social agency, and attending physician report all new traumatic moderate-to-severe brain or spinal cord injuries within five days to the CR. Referral to the Registry may also be initiated by service providers, injury survivors, family members or guardians.

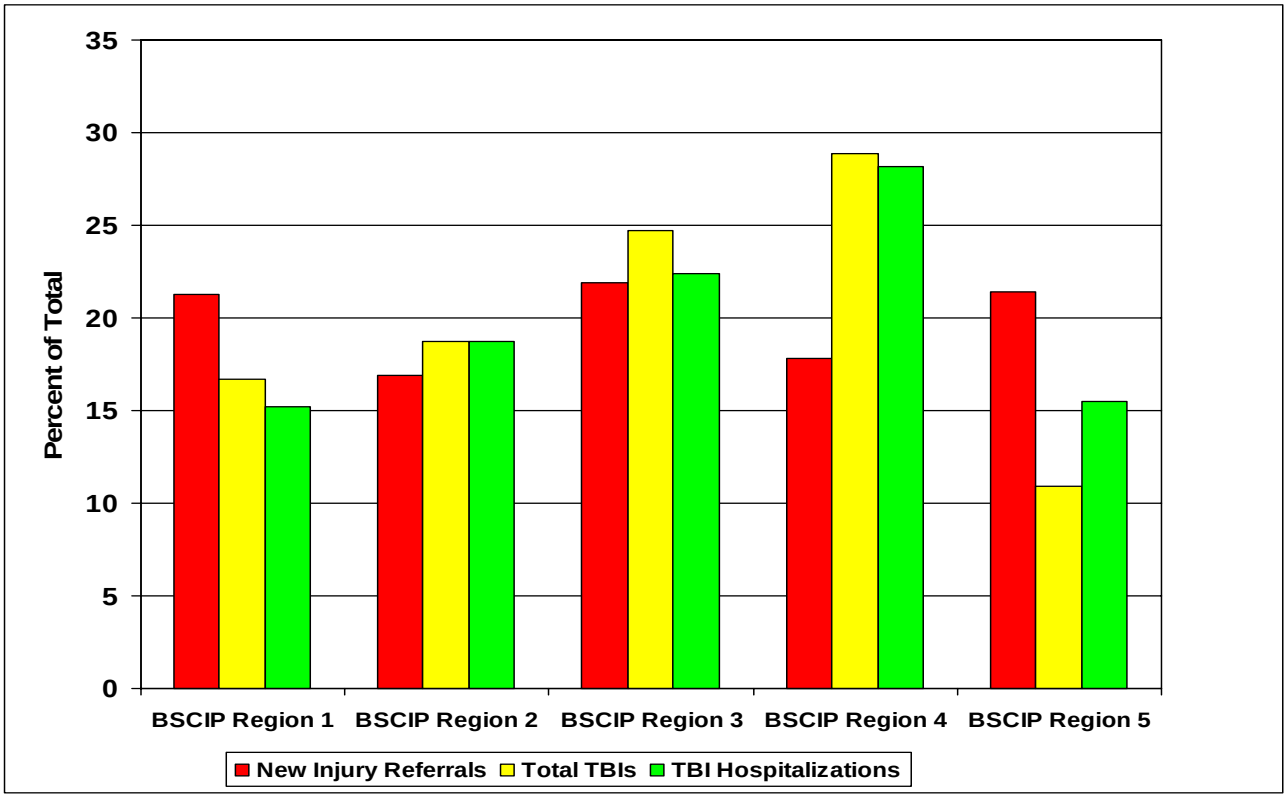
Understanding the relationship between the number of new injuries reported to the CR and the total number of TBIs, specifically moderate-to-severe injuries that occur in Florida is extremely important when making decisions regarding future planning and service delivery needs. Unfortunately, injury severity level information is not available in the Agency for Healthcare Administration hospitalization and emergency department data. Therefore, total TBIs and TBI-related hospitalization data are used as indicators to begin to examine this relationship. The total number of TBIs that occurred in Florida provides information on how well the CR matches the overall incidence of TBI in the state regardless of level of injury and TBI-related hospitalizations is included because it most closely matches the target CR population, it has been estimated that 49 percent of TBI-related hospitalizations are for moderate-to-severe injuries.[8] Information on injury severity in Florida is required to fully understand the relationship described above.

Data presented in this section highlight the average number of reported new TBI injuries from 2002 through 2005 compared to the total number of TBIs in 2005 and the average annual number of TBI-related hospitalizations from 1999 through 2005.

From 2002 through 2005, 9,780 individuals with TBI were referred to the CR (2,445 per year). Approximately, 2.6 percent of all TBIs and 16.5 percent of all TBI-related hospitalizations were reported to the CR. The greatest percentage of annual new TBI injuries reported were from BSCIP Region 3 (21.9 percent) while the greatest percentage of total TBIs and TBI hospitalizations occurred in BSCIP Region 4 (28.9 percent and 28.2 percent, respectively). The percentage of average new TBI injuries reported to the CR by region does not correspond with the number of total TBIs and TBI-related hospitalizations (Figure 14). But as stated above, information on injury severity is required to fully understand this relationship.

- BSCIP Region 3 reported the greatest number of new TBIs to the CR per year (536), while Region 2 reported the fewest number of new TBIs to the CR per year on average (414).
- From 2002 through 2005, BSCIP Region 5 reported the greatest percentage of all TBIs (5.1 percent) to the CR and BSCIP Regions 1 and 5 reported the greatest percentage of all TBI-related hospitalizations (23.1 percent and 22.8 percent, respectively).
- BSCIP Regions 1 and 4 reported the lowest percentage of all TBIs (1.1 percent and 1.6 percent, respectively) to the CR and BSCIP Region 4 reported the lowest percentage of TBI-related hospitalizations (10.4 percent) to the CR.

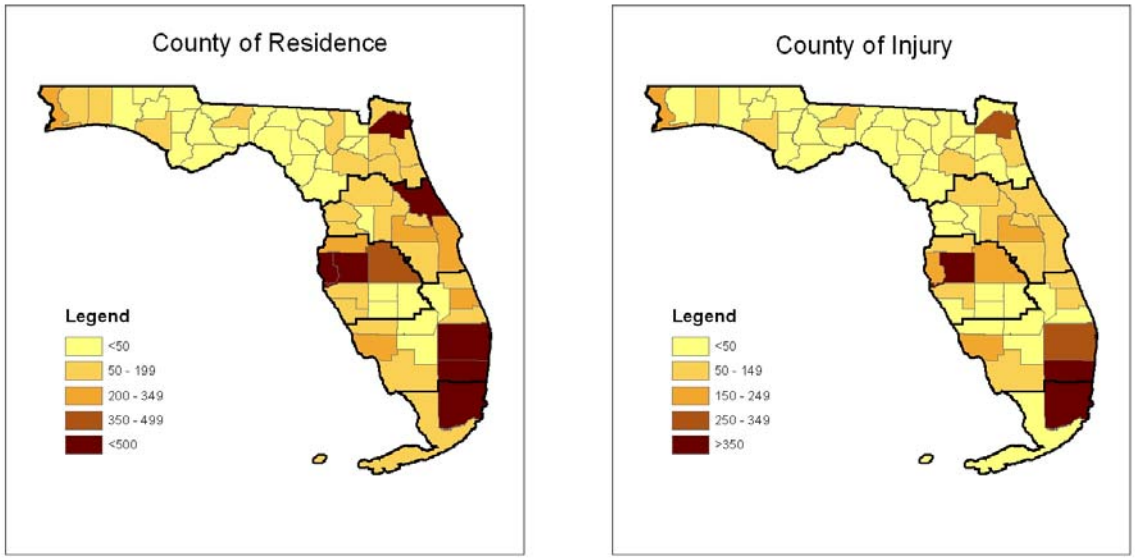
Figure 14: Percentage of Total New TBIs Reported to CR, Total TBIs and TBI-related Hospitalizations by BSCIP Region.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005, accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999- 2005.
Prepared by: WellFlorida Council Inc., 2007.

Figure 15 shows the total number of new TBI injuries reported to the CR by the most current county of residence and county of injury. The largest number of new injuries reported to the CR based on county of residence and county of injury were reported in Miami-Dade County (2,017 and 2,023), which was approximately 3 times greater than the county with the second most reported injuries. The counties with the fewest CR reported injuries based on county of residence and county of injury during this period were in counties identified as rural counties by the Florida Department of Health, Office of Rural Health.

Figure 15: Total Number of Referrals to CR by County of Residence and County of Injury, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Hospitals in Florida reported more than 90.6 percent (8,660) of new injuries to the CR from 2002 through 2005. Rehabilitation centers were the second most common referral source (5.4 percent). All of the 21 trauma centers in the state were listed as the reporting facility for new injury referrals to the CR from 2002 through 2005. Of the 8,860 client referrals made by hospitals, 7,379 (83.3 percent) were from state designated trauma centers.

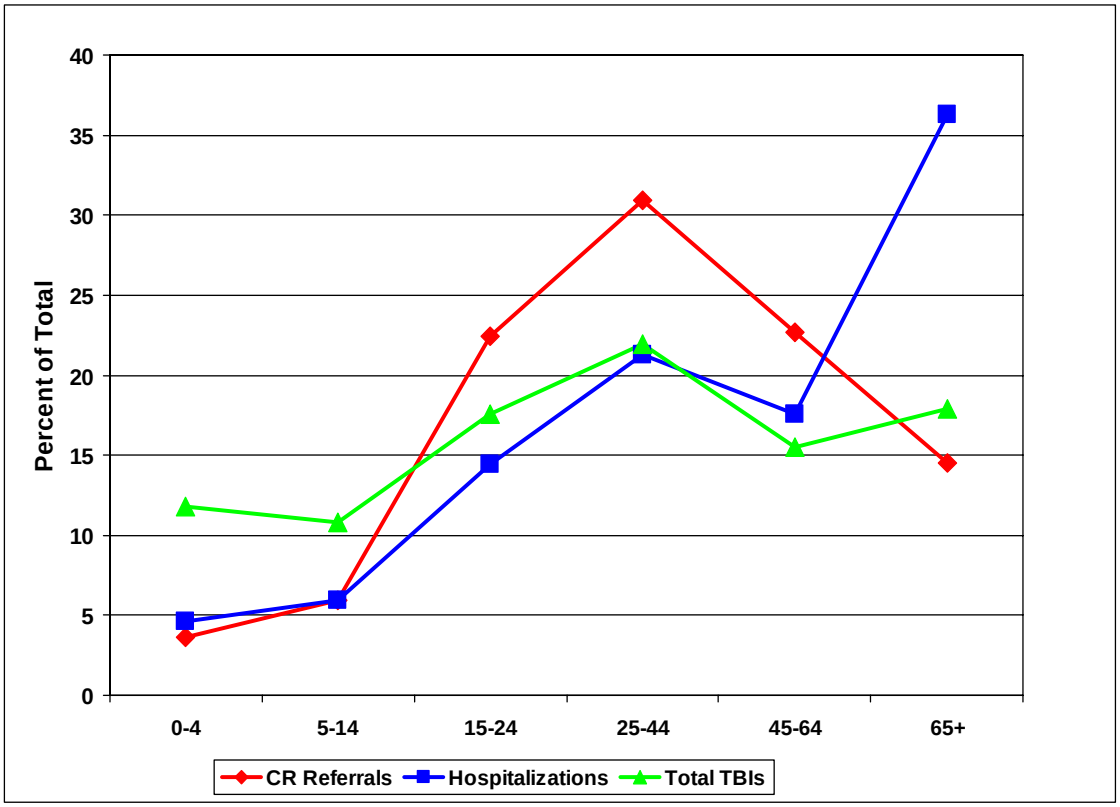
Figure 16 compares the percentage of CR new injury referrals, total TBIs and TBI-related hospitalizations by age group. A greater percentage of individuals 15 through 64 years of age were referred to the CR compared to total TBIs and TBI-related hospitalizations that occurred in the same age group. The largest disparity exists between the percentage of individuals over the age of 65 who were hospitalized for a TBI and the percentage of those individuals who were referred to the CR.

Approximately 81 percent of new injury referrals to the CR from 2002-2005 identified themselves as white, compared to 82.3 percent of all TBIs and 83.4 percent of TBI-related hospitalizations. Referrals to the CR resulted in a greater percentage of new injuries for individuals who identified themselves as black (16.1 percent) compared to the percentage of TBIs and TBI-related hospitalizations that were experienced by individuals who identify as black in Florida and a slightly lower percentage of individuals who identify as other races.

The Hispanic population in Florida accounts for approximately 20 percent of the total population and 19.2 percent of all TBIs, while it represents only 18.8 of the new injury referrals to the CR. When compared to hospitalizations alone (12.0 percent), the percentage of Hispanic new injuries referred to the CR is greater (18.8 percent).

Approximately 73 percent of all new TBI injuries reported to the CR from 2002 through 2005 were male, compared to 56.3 percent of all TBIs in 2005 and 61.2 percent of TBI-related hospitalizations from 1999 through 2005.

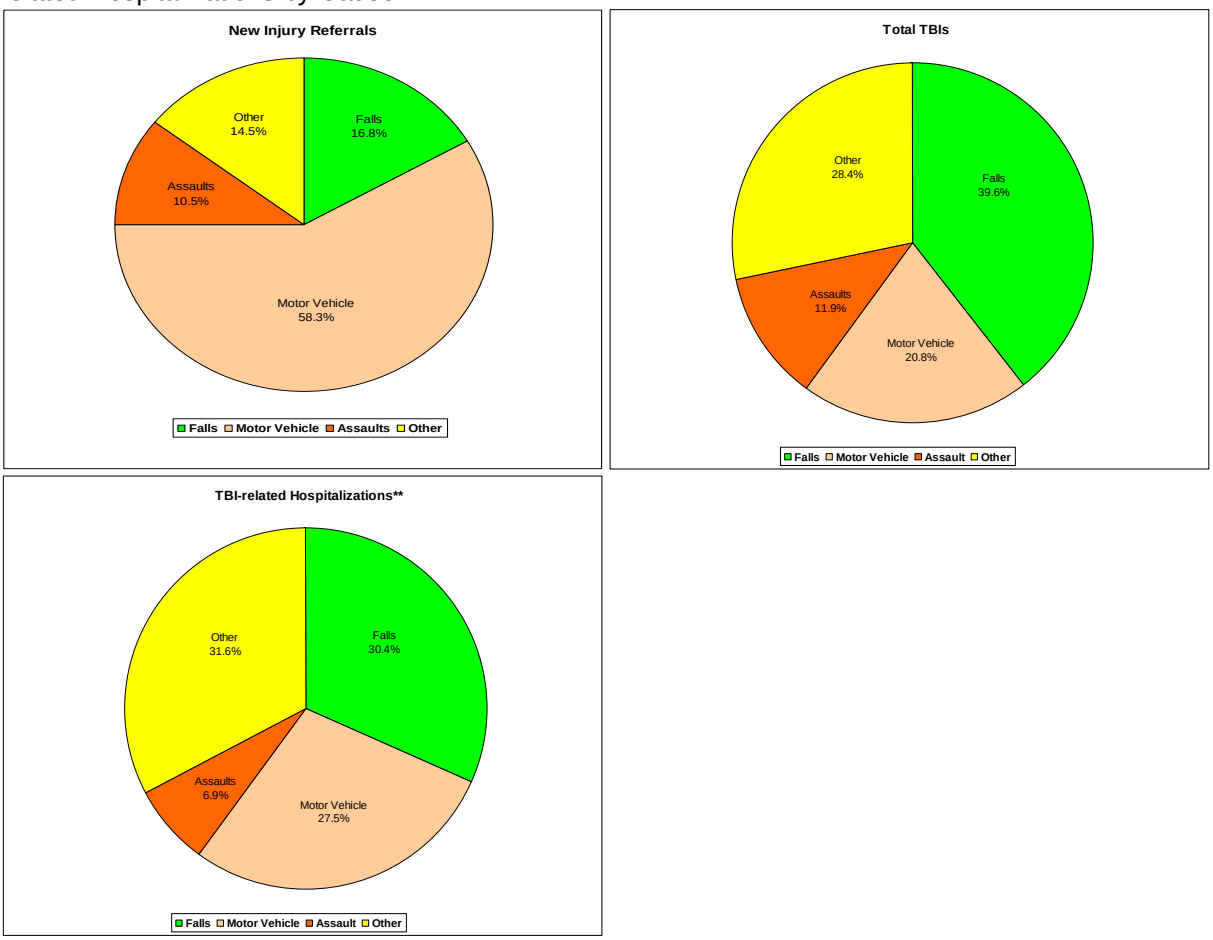
Figure 16: Percentage of Total New TBIs Reported to the CR, Total TBIs and TBI-related Hospitalizations by Age Group.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005, accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999- 2005.
Prepared by: WellFlorida Council Inc., 2007.

In Florida, falls (39.6 percent), motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent) were the primary causes of TBI during 2005. Falls caused 30.4 percent of all TBI-related hospitalizations, followed by motor vehicle-traffic accidents (27.5 percent) and assaults (6.9 percent) from 1999 through 2005. Figure 17 indicates that the primary causes of injury for new TBI injury referrals to the CR from 2002 through 2005: motor vehicle-traffic accidents (58.3 percent), falls (16.8 percent) and assaults (10.5 percent). This is unlike the distribution in the state, where motor vehicle-traffic accidents cause approximately 20.8 percent of all TBIs and 27.5 percent of TBI-related hospitalizations. As stated above, information on injury severity in Florida could clarify this relationship.

Figure 17: Percentage of Average Annual New TBI Injury Central Registry Referrals, Total TBIs and TBI-related Hospitalizations by Cause.



Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed Mar 2007.
Prepared by: WellFlorida Council Inc., 2007.

All brain injuries resulting in the individual having a Glasgow Coma Scale, which quantifies levels of consciousness, score of 12 and below or a Rancho Scale score, which quantifies response to external stimuli and environment, of 8 and below are required to be reported to the CR. For the purposes of this report the Glasgow Coma Scale will be grouped into the following categories: non-injured brain response (15), mild brain injury (13-14), moderate brain injury (9-12), severe brain injury (4-8), and non-responsive (3). New injuries classified as moderate (27.3 percent), severe (35.3 percent) and non-responsive (32.8 percent) represent the great majority of referrals to the CR. Based on CR mandated requirements, 99.4 percent of all referrals to the CR were Rancho levels 8 or lower.

BSCIP Trust Fund

The BSCIP Trust Fund provides services for individuals with TBI that meet the program eligibility requirement. These funds can be used to access services as a payor of last resort including case management, acute care, inpatient and outpatient rehabilitation, transitional living,

assistive technology and home and vehicular modification. The individuals in BSCIP are managed by case managers (21 adult managers and 12 Children's Medical Services (CMS) nurses for individuals injured under the age of 18). Case managers work with eligible clients to access service needs to promote successful reintegration back into the community after the brain injury.

To be eligible for BSCIP services through the Trust Fund an individual must: be referred to the Central Registry, meet the state definition for TBI, be medically stable, be a legal resident of Florida and have a reasonable expectation for community reintegration. The state definition for TBI, defined by Florida statute, is an insult to the skull, brain, or its covering that results from external trauma and that produces an altered state of consciousness or anatomic, motor, sensory, cognitive, or behavioral deficit.[1] Program eligibility is determined once the patient is stable, and requires a moderate-to-severe brain injury resulting in a Rancho score of 4 through 10.

Understanding the relationship between the number of clients served by the program, new injuries reported to the CR and the total number of TBIs, specifically moderate-to-severe injuries that occur in Florida is extremely important when making decisions regarding future planning and service delivery needs. As stated above, injury severity level is not available in the AHCA hospitalization and emergency department data. Therefore, total TBIs and TBI-related hospitalization data are used as indicators to begin to examine this relationship. The relationship can not fully be understood without information on the distribution of injury severity.

Trust Fund Allocation

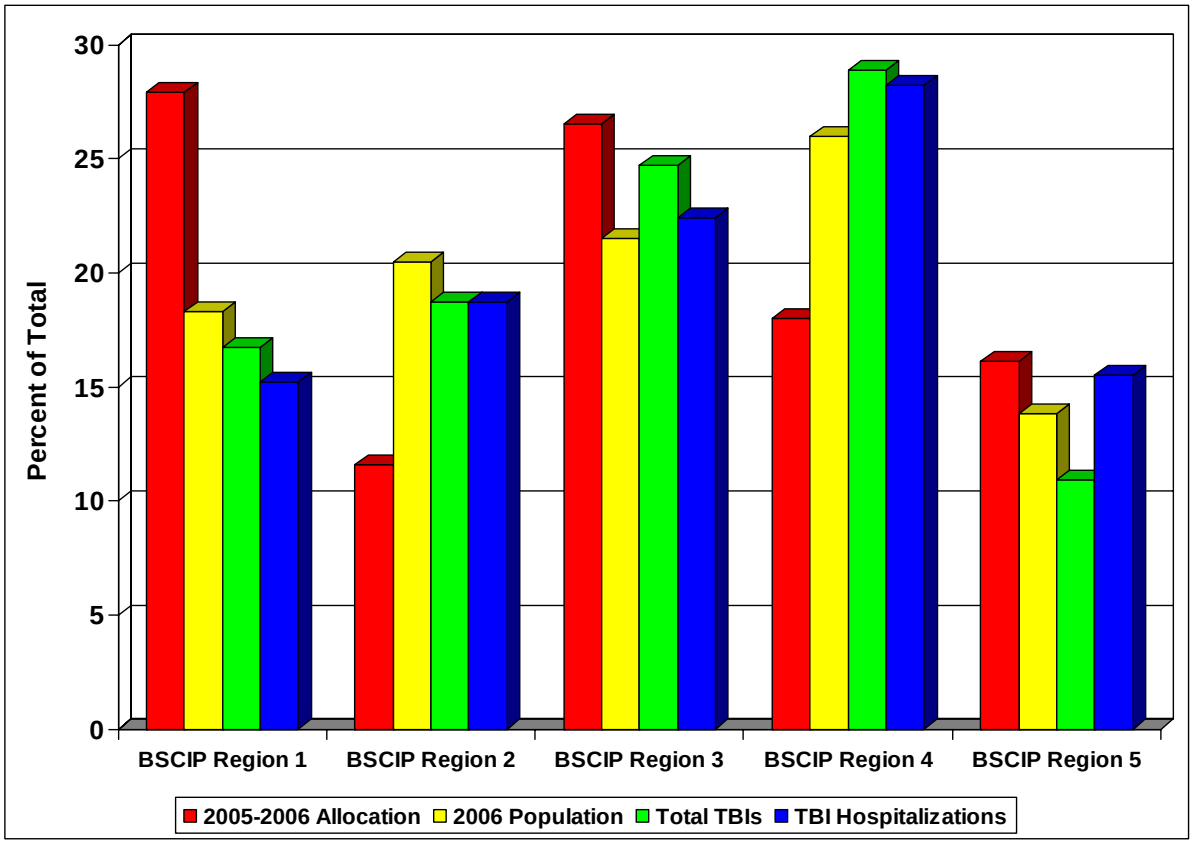
The total Trust Fund allocation for each region, brain and spinal cord injury combined, is based on four client caseload measures, each measure constituting 25 percent of the total budget allocation. Measures include: number of CR referrals during fiscal year, number of client plans written during fiscal year, number of active cases and number of clients reintegrated into the community during the fiscal year. From state fiscal year 2002-2003 through 2005-2006, the total Trust Fund allocation for BSCIP was approximately $25 million and resulted in the expenditure of approximately $20 million. The regional allocations ranged from approximately $800,000 to $2 million per year and corresponding expenditures ranged from approximately $480,000 to $2 million per year. The percentage of the allocation used per year ranged from approximately 50 percent to over 100 percent.

As seen in the previous section of the report, the greater the number of people in a population the greater the number of TBIs that occur. Figure 18 compares the percentage of the total BSCIP Trust Fund allocation for fiscal year 2005-2006 to the percentage of people in the population, percentage of total TBIs and percentage of TBI-related hospitalizations by region. BSCIP Regions 1, 3 and 5 received a greater percentage of the Trust Fund allocation compared to the percentage of the total population that resides in the region. BSCIP Regions 2 and 4 received a smaller percentage of the Trust Fund allocation compared to the percentage of the total population that resides in the region.

When comparing the percentage of Trust Fund allocations with the percentage of total TBIs in 2005 and average annual TBI-related hospitalizations:

- BSCIP Regions 2 and 4 experienced a greater percentage of total TBIs and TBI hospitalizations compared to the percentage of total BSCIP Trust Fund allocation. While the opposite was true in BSCIP Region 1.

Figure 18: Percentage of Total BSCIP Trust Fund Allocation by the Percentage of Total Population, Total TBI and TBI-related hospitalizations by Region.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007; ESRI Business Solutions, 2006; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

BSCIP Trust Fund Clients Served

Data presented in this section include all BSCIP Trust Fund clients with a TBI, including those who sustained both brain and spinal cord injuries. Eligibility criteria for the Trust Fund services include: being a resident of Florida, sustaining a brain injury that meets the state definition and that was referred to the BSCIP Central Registry. Additionally, the individual must be medically stable to be eligible for services and there must be a reasonable expectation that with the provision of appropriate services and support, the person can return to the community.

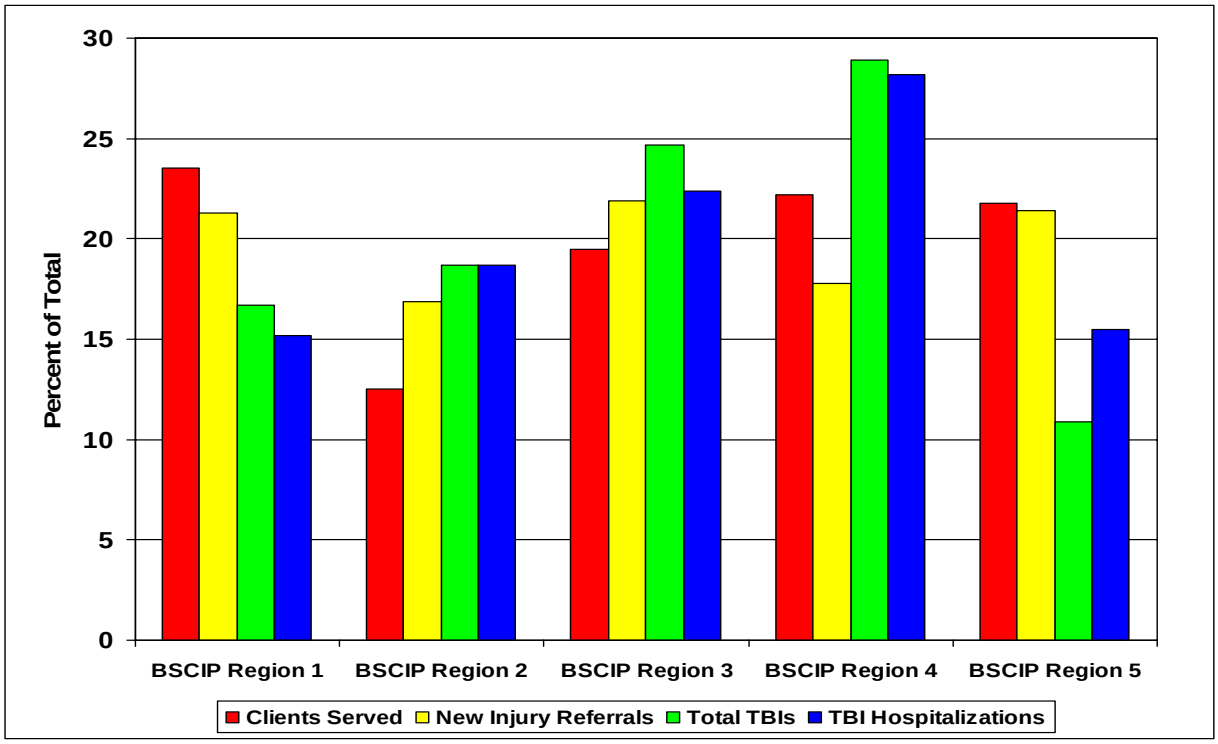
For this report, the data presented includes all Trust Fund clients for calendar years 2002 through 2005. The clients were identified using the Rehabilitation Information Management System (RIMS). Trust Fund clients were included in this analysis if they were identified as having "in-

service" status at any point during the calendar year. Please note total TBIs and TBI-related hospitalizations are used to serve as an indictor, but injury severity information from theses populations are unknown. Injury severity data is necessary to truly understand the relationships described below.

From 2002 through 2005 approximately 6,400 individuals with TBI were served by the BSCIP Trust Fund programs (1,600 per year). Figure 19 compares the percentage of TBI BSCIP Trust Fund clients served to the percentage of TBIs reported to the CR, total TBIs, and TBI-related hospitalizations by BSCIP Region.

- Overall, BSCIP Region 1 served the greatest percentage of Trust Fund clients (23.5 percent), while Region 2 served the smallest percentage of clients (12.5 percent).
- BSCIP Region 2 contained approximately 20 percent of the state's population, 19 percent of all TBIs, 18.7 percent of TBI hospitalizations and 16.9 percent of new injury referral, while representing only 12.5 percent of the BSCIP Trust Fund active clients from 2002 through 2005.
- BSCIP Regions 1 and 5 provided services to a larger percentage of Trust Fund clients than the percentage of new injury referrals, total TBIs, TBI hospitalizations and the percentage of the total population that reside in their respective regions.

Figure 19: Average Annual Percentage of Total TBI BSCIP Trust Fund Clients Served, New Injury CR Referrals, Total TBIs and TBI-related Hospitalizations by BSCIP Region.

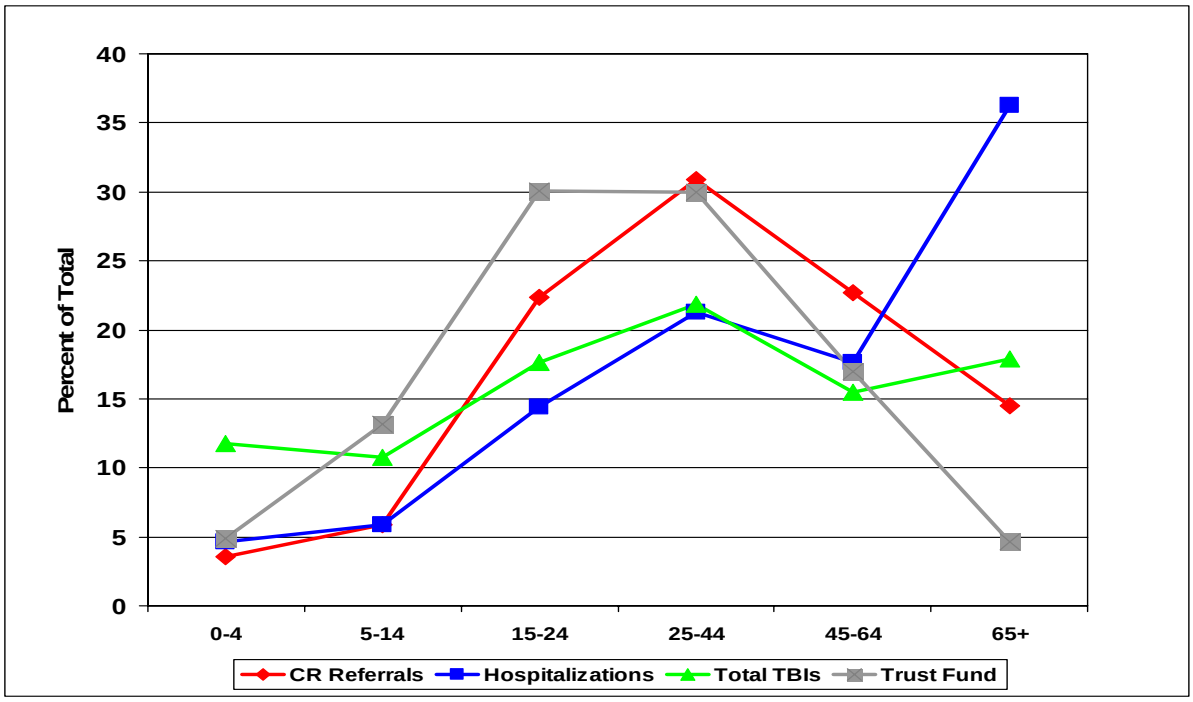


Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data; 2005 State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

Figure 20 compares the percentage of TBI BSCIP Trust Fund clients served from 2002 through 2005 to the percentage of new injuries reported from 2002 through 2005, total TBIs from 2005 and average annual TBI-related hospitalizations from 1999 through 2005 by age group.

- The BSCIP Trust Fund served a greater percentage of individuals between the ages of 5-24 compared to CR referrals, total TBIs and TBI-related hospitalizations.
- Individuals over the age of 45 were less likely to be served by the BSCIP Trust Fund compared to the percentage of new injury referrals in that population.
- The greatest disparity between TBI-related hospitalizations and being served by the BSCIP Trust Fund was in the 65 years of age and older population.

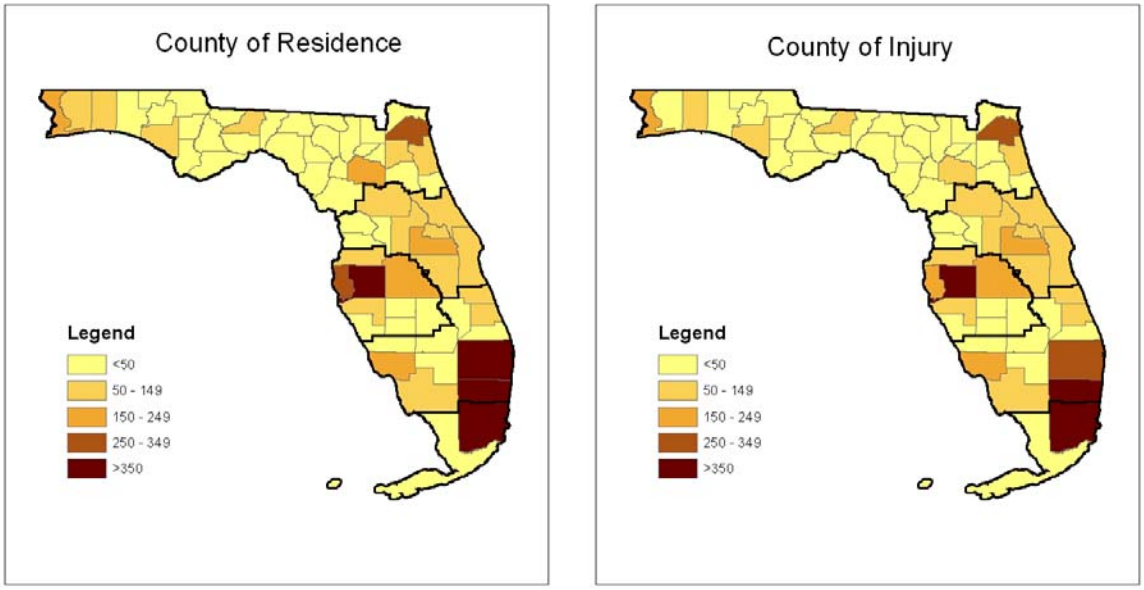
Figure 20: Average Annual Percentage of Total TBI BSCIP Trust Fund Clients Served, New TBIs Reported to CR, Total TBIs and TBI-related Hospitalizations by Age Group.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data; 2005 State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

Figure 21 shows the total BSCIP Trust Fund clients served by county of residence and county of injury. The greatest number of BSCIP Trust Fund clients served based on county of residence and county of injury were reported in Miami-Dade County (1,362 and 1,331, respectively). The counties with the fewest CR referrals based on county of residence and county of injury during this period were all identified as rural counties by the Florida Department of Health, Office of Rural Health.

Figure 21: Total Number of TBI BSCIP Clients Served by County of Residence and County of Injury, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

A referral to the BSCIP Central Registry is required for Trust Fund service eligibility. The Florida Statute 381.74 mandates the collection of information on individuals who experience a moderate-to-severe brain or spinal cord injury from every public health agency, private health agency, public social agency, private social agency, and attending physicians. Hospitals in Florida referred more than 83 percent of the clients who received Trust Fund services from 2002-2005. Rehabilitation centers were the second most common referral source. All of the 21 trauma centers in the state were listed as the referral source for BSCIP Trust Fund clients from 2002- 2005. Of the 5,325 client referrals made by hospitals, 4,051 (76.1 percent) were from hospitals with state designated trauma centers.

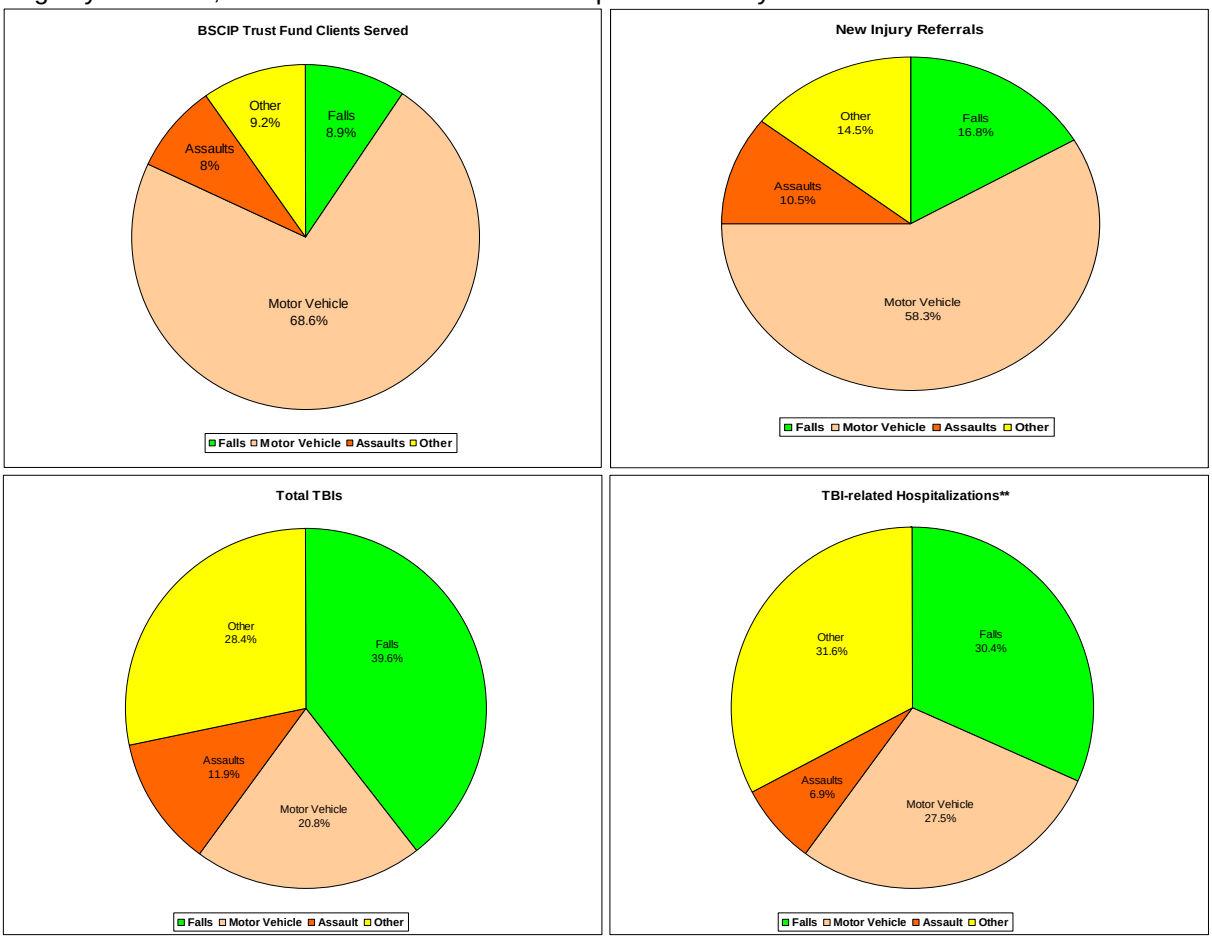
Approximately 80 percent of TBI BSCIP Trust Fund clients served from 2002-2005 identified themselves as white, compared to 82.3 percent of all TBIs, which includes deaths, hospitalizations and ED visits. The BSCIP Trust Fund serves a larger percentage of TBI clients who are black (18.8 percent) compared to the percentage of new injuries referred to the CR (16.1 percent) and total TBIs (14.1 percent) that were experienced by individuals who identify as black. The Trust Fund serves a lower percentage of individuals who identify as all other races (1.3 percent) compared to new injury referrals (2.5 percent) and total TBIs (2.8 percent).

Hispanics in Florida account for approximately 20 percent of the total population, while they represent only 12.6 of the TBI clients served by the BSCIP program. Compared to the percentage of Hispanic individuals with TBI referred to the CR (18.8 percent), the percentage of clients served was smaller (12.6 percent) from 2002- 2005. This decrease may be due to the residency requirement set forth by the Trust Fund program. Since 2002, the number of Hispanic residents served by the BSCIP Trust Fund program has increased each year.

Approximately 70 percent of the clients served by the BSCIP Trust Fund program from 2002 through 2005 were male, averaging 1,127 males and 472 females each year. This distribution was consistent over time and throughout each of the BSCIP regions. The percentage of male clients served was slightly lower than the percentage of males referred to the CR (73.3 percent) during the same time period and greater than the percentage of males for all TBIs (56.3 percent) in Florida in 2005 and for TBI-related hospitalizations (61.2 percent) from 1999-2005.

Figure 22 compares the cause of injury for TBI clients served by the BSCIP Trust Fund program, new TBI injury referrals, total TBIs and TBI-related hospitalizations. The primary causes of injury are motor vehicle-traffic accidents (68.6 percent), falls (8.9 percent) and assaults (8.0 percent) for TBI clients served by the Trust Fund.

Figure 22: Percentage of Average Annual BSCIP TBI Trust Fund Clients Served, New TBI Injury Central Registry Referrals, Total TBIs and TBI-related Hospitalizations by Cause.



Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed Mar 2007.
Prepared by: WellFlorida Council Inc., 2007.

BSCIP Home and Community-Based Medicaid Waiver

Home and community-based waivers are used by states to obtain federal matching funds to provide long-term care to patients to help maintain their ability to live outside of institutional settings. Waiver programs are viewed as beneficial because they provide an alternative for expensive long-term institutionalization by enabling individuals to remain among family and friends. Eligibility for the Waiver eligibility includes: permanent Florida residency, being 18 years of age or older, referred to Central Registry, meeting the state definition for TBI or spinal cord injury or both, being medically stable, meeting at least Level II nursing home level of care, and being financially eligible to receive Florida Medicaid. Core Waiver services include:

- Adaptive health and wellness services;
- Attendant care services;
- Assistive technology and adaptive equipment;
- Behavioral programming;
- Community support coordination;
- Companion services;
- Life skills training;
- Environmental accessibility adaptation;
- Personal adjustment counseling;
- Rehab engineering evaluations;
- Personal care assistance;
- Consumable medical supplies.

The current BSCIP Home and Community-Based Waiver became effective in July 2002 and remains effective until June 2007. The current Waiver provides services to 325 brain and spinal cord injured individuals annually. This program has recently expanded from 300 to 325 slots in an attempt to meet the increased need for services. The program has also implemented a prescreening tool to establish a protocol for placing individuals in the Waiver program when an opening occurs.

Since 2003, the TBI population in the Waiver program has grown each year, from 96 TBI waiver clients in 2003 to 129 TBI Waiver clients in 2005. From 2003 through 2005, the greatest percentage of Waiver participants lived in BSCIP Region 3. BSCIP Region 2, which has the lowest percentage of new injury CR referrals and BSCIP Trust Fund clients served, has the lowest percentage of Waiver clients in 2004 and 2005.

As expected, the percentage of males is greater than the percentage of females in the Waiver program. During all three years, Waiver participants were most likely to be in the 15-24 years and 25-44 years of age groups when injured. These percentages were higher than the new injury referrals and BSCIP Trust Fund clients served, but do represent the most frequently referred and served population groups.

Between 2003 and 2005, 11,477 Medicaid Home and Community-Based Waiver services have been provided to individuals with TBI, resulting in an average of 3,826 services per year. The

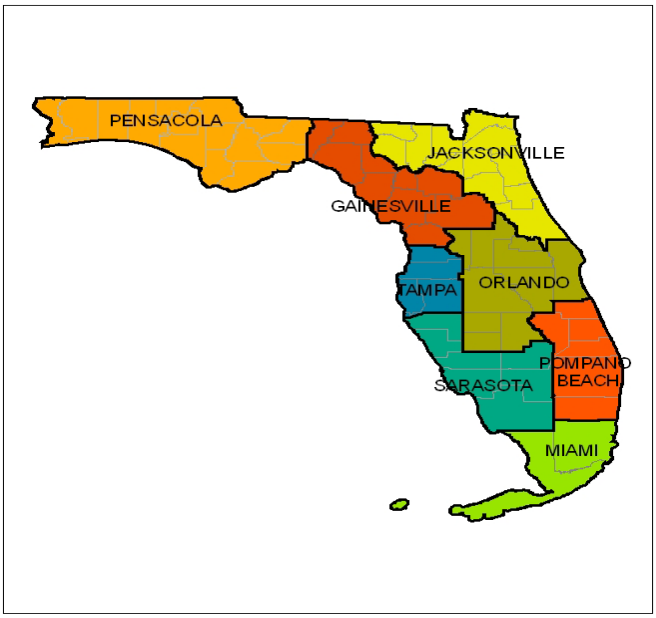
total cost of the services was $7,070,932 over this time period, resulting in an average of $2,356,977 per year.

- Community support coordination (28.9 percent) and companion services (27.3 percent) were the most frequently utilized services by participants in the Waiver program.
- Companion services and personal attendant services were the most costly for participants in the Waiver program; each service accounting for approximately 35 percent of all Waiver service costs from 2003 through 2005.
- Community support coordination, which represented 28.9 percent of all services used by Waiver participants, represented only 5.6 percent of service costs from 2003 through 2005.
- Behavioral programming and assistive technology were reported as needed by focus group participants. However, these services only represented approximately 8.6 percent of all service units and 6.8 percent of service costs.

Brain Injury Association of Florida

The Brain Injury Association of Florida (BIAF) is a nonprofit organization founded in 1985 by the mother of a son who was severely brain injured in a motor vehicle accident. Its mission is to improve the quality of life for persons with brain injuries and their families by creating a better future through brain injury prevention, research, education, support services and advocacy. BIAF assists individuals with brain injuries, their families and professionals by providing statewide information and resource center, education and training opportunities, support services, a toll-free helpline, awareness and prevention programs and advocacy activities. Two important components of BIAF are the Information and Resource Center and the Family and Community Support Program (Figure 23), both of which are funded through contacts with BSCIP.

Figure 23: BIAF Family and Community Support Specialists Areas, 2006.



Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Since 2003, BIAF identified 10,658 contacts for basic information or resources, resulting in an average of 2,662 contacts per year. The individuals who contacted BIAF for information were more likely to be male, white and ages 25-44. Residents from BSCIP Regions 4 (22.4 percent) and 5 (23.9 percent) were most likely to contact BIAF for information.

Since 2003, BIAF served 2,216 individuals by the Family and Community Support Program, an average of 554 individuals per year. Like the individuals who contacted BIAF for information, individuals who contacted BIAF for support services were more likely to be male, white and ages 25-44. Residents from BSCIP Regions 2 (23.0 percent) and 4 (23.1 percent) were more likely to contact BIAF for support services. Unlike the contacts for general information, residents from BSCIP Region 5 were the least likely to contact BIAF for support services (12.8 percent). BSCIP region was determined by county of residence.

Family and Community Support specialists work with clients to provide assistance in areas of need. The areas of assistance needed most often included: medical (28.6 percent), financial (14.4 percent), housing (13.4 percent) and employment (10.0 percent).

Key Community Partners

It is common for individuals with TBI to work with a variety of community providers in order to access the services and support they need. Department of Education Division of Vocational Rehabilitation (DVR) and Exceptional Student Education Program (ESE), Florida Alliance for Assistive Services and Technology (FAAST), protection and advocacy and Centers for Independent Living (CIL) represent a sample of services and providers used by this population. Data were provided by these departments and organizations to help describe the current service utilization of individuals with TBI in their respective organizations.

Division of Vocational Rehabilitation

- DVR works with individuals with disabilities to achieve, find, and maintain employment.
- Individuals with TBI are most likely to participate in the general Vocational Rehabilitation Services, which assist individuals with disabilities to pursue meaningful careers commensurate with their abilities and capabilities.
- In August 2006, an interview was conducted with DVR staff to learn about their experiences working with individuals with TBI. They reported that individuals are most successful in employment when they receive additional external support and that people with TBI tend to take longer in both the eligibility and planning phase of the vocational rehabilitation process compared to other populations.
- During state fiscal year 2005-2006, DVR served 91,737 consumers of which 1,315 (1.43 percent) had sustained a TBI.
- Of all consumers who were gainfully employed during 2005-2006, 163 of 10,637 (1.53 percent) had a TBI.
- At the end of state fiscal year 2005-2006, 1,248 consumers were identified as having head trauma (Code 07). Of the 609 head trauma consumers with closed cases during the year; 19.5 percent (119 consumers) were successfully closed by maintaining employment for 90 days.

Exceptional Student Education and Student Services

- The Bureau of Exceptional Education and Student Services supports school districts and others in their efforts to provide exceptional student education programs for students ages 3 - 21 who have disabilities and students who are gifted. Each school district is responsible for developing and providing services to students who are eligible for exceptional student education (ESE) programs.
- The Traumatic Brain Injured Program represents less than 1 percent of the entire ESE program throughout the state of Florida. Please note that individuals with TBI may be served in other ESE programs and are not captured in the data presented.

Florida Alliance for Assistive Services and Technology

- Florida Alliance for Assistive Services and Technology (FAAST) works with people with and without disabilities throughout the state to provide: hands on assistive technology demonstrations and trainings; financing for assistive technology purchases; assistive device lending programs; community outreach to rural and underserved groups; accessible, affordable housing; and advocacy and education on consumer choice.
- In 2005-2006, FAAST served 135 individuals with disabilities in the housing program (not specific to TBI). Through the second quarter of state fiscal year 2006-2007, the housing program served 114 individuals with disabilities.
- As of January 22, 2007 the vendor recruitment program currently recruited 364 service providers for the Brain and Spinal Cord Injury Program compared to 264 vendors during state fiscal year 2004-2005.
- In 2006, 30.9 percent of the nursing homes who completed the nursing home survey (92 of 298) reported caring for an individual with TBI or spinal cord injury. They reported a total of 245 consumers within these facilities, of which 69.8 percent (171) sustained a TBI. Motor vehicle accidents were the most common cause of TBI for residents of the nursing home facilities.

Protection and Advocacy Services

- The federally mandated protection and advocacy services in Florida are provided by the Advocacy Center for Persons with Disabilities, Inc. The goals for the center include: improving conditions in institutional facilities; increasing community access to resources, entitlements and services; increasing access to education and related services; increasing opportunities for employment; increasing physical and programmatic access to the community; expanding opportunities for self-determination; improving intake and referral services; and expanding community outreach and education.
- From October 2005 through September 2006, 56 information and referral service requests for 51 individuals were made to the Protection and Advocacy TBI program (PATBI), representing 26 of the 67 counties in Florida.
- From October 2005 through September 2006, 29 case service requests were made to the PATBI program for 28 individuals from 14 of the 67 counties.
- Healthcare was the most common issue for PATBI cases (10 cases).

- An interview with a representative from the Advocacy Center for Persons with Disabilities identified the following as common issues for individuals with TBI: lack of affordable residential and outpatient treatment; the BSCIP Home and Community Medicaid Waiver waiting list; finding accessible, affordable housing; transportation services; community support coordination; and guardianship issues.

Centers for Independent Living

- There are 16 Centers for Independent Living (CILs) in Florida each working to support persons with disabilities through the development of an independent living plan including long and short-term goals
- This project surveyed the executive directors for each CILs in Florida. Findings indicate:

    - The percentage of the consumers with cognitive disabilities who sustained a TBI varied by center from less than one percent to approximately 30 percent.
    - CILs identified employment, transportation and housing services as the most frequently requested services by persons with TBI.
    - Three of the centers reported having programs specific for persons with TBI. Two of the centers reported that the funding for these programs comes from BIAF.

Community Input

This section describes three critical areas of public perspective including the findings from a series of 17 focus groups conducted throughout the state targeting individuals with TBI, caregivers and selected underrepresented/underserved populations; the results from interviews with key leaders who are knowledgeable about the needs of individuals with TBI in the state of Florida and are likely to be influential over the opinions of others about the concerns for these individuals; and the results of a service provider survey, in which providers shared their opinions about the needs of individuals with TBI.

- The focus groups included 142 consumers and caregivers. Of the 131 participants providing demographic information, 45 percent were survivors of a TBI and the remaining 55 percent were caregivers. Ages ranged from 17-89 years. Females represented 62.5 percent of participants. Only 9 percent participants identified themselves as something other than white and 4.5 percent reported they were of Hispanic background.
- Interviews were conducted with 26 key leaders. Of the interview participants, eight noted working primarily with selected underserved and under-represented populations: youth, rural residents, individuals of Hispanic descent and individuals with mild TBI. Participants also included caregivers and survivors.
- Surveys were completed by 58 providers including BSCIP case managers, BIAF Family and Community Support specialists, CMS nurses, physicians, psychologists and therapists. Approximately 45 percent (26) of the respondents reported working with adults only and 14 percent (8) worked with only children and youth. Each BSCIP was represented by at least 9 respondents.

The following are the key observations derived from an analysis of the comments and insights gathered during the community input phase of the needs assessment:

- Focus group participants, TBI leaders and service providers expressed satisfaction with Florida's trauma system and its ability to save the lives of those injured.

- Access to the appropriate rehabilitation and therapies was viewed by participants as the most helpful for individuals with TBI. These services included physical, occupational, speech, cognitive, counseling and neuropsychological therapies. Leaders and focus group participants commented on the importance of accessing these services long-term. Participants expressed difficulty when trying to access behavioral, cognitive and neuropsychological therapies.

- Other key services needs include access to affordable and accessible housing, financial assistance, transportation services, employment services and alcohol and drug addiction services. Caregivers, leaders and providers were more likely than survivors themselves to discuss the availability of housing for individuals with TBI. Housing included safe residential and transitional living treatment facilities for those dealing with significant cognitive and behavioral issues and less restrictive, affordable and accessible housing for those who would qualify. Focus group participants reported difficulty accessing benefits including Social Security and Medicaid. Those with private insurance also had significant financial strains. Many consumers and caregivers said that without transportation, access to other services would not matter because they would not be able to get there. Alcohol and other drug addiction services were identified by providers, leaders, and caregivers as needed. Participants felt that this is an area often overlooked and that current providers are not trained to work with the TBI patient.

- Access to support groups and support networks was also identified as an important need for individuals with TBI and their families. Survivors and caregivers who participated in the focus groups found the support to be helpful and stressed the need for additional opportunities for support from other survivors and families. The support groups and support networks often serve as a resource to survivors and families for information regarding services and supports.

- The lack of public and professional awareness and knowledge of brain injury was perceived as a key issue for participants. The lack of qualified, knowledgeable providers was a common theme throughout the focus groups and key informant interviews. Providers included medical professionals, therapists, counselors and other service providers such as personal attendants, transportation service providers and community agency personnel. Participants felt it was very important to work with providers who know and understand brain injury, but these individuals are very hard to find. Focus group participants felt that the lack of public awareness impacted their ability to access services, engage in socialization activities and employment. The term "invisible disability" was heard numerous times while gathering the community perspectives. TBI leaders commented on the importance of increasing public awareness of TBI to help with advocacy activities and ultimately to increase funding and resources.

- Participants felt there is limited access to information and education. Focus group participants often commented on not knowing where to go for services and the limited connectivity of services. Many people mentioned the need for a central point of information. Service providers, like community agencies, are not aware of the resources available to individuals with TBI, making linkage and referral difficult. The lack of information and education was identified by key leaders as one of the weaknesses in the current system of care for individuals with TBI.

- The lack of long-term support and services was a primary issue identified by focus group participants, key informants and service providers. Participants commented on the void in services once the patient is discharged from the hospital, rehabilitation, or BSCIP case management services. Participants felt that having access to long-term support could reduce some of the challenging issues that arise during points of transition. TBI leaders stressed that the long-term needs of individuals are dynamic and change over time. Therefore, continued access to care and resources is critical.

- Community leaders, caregivers, survivors and providers commented on BSCIP. Strengths of this program include having a centralized state department designated for brain injury; the Trust Fund that provides case management and financial support for survivors; the Central Registry, which serves as the immediate entrée to the service delivery system; dedicated staff who work with survivors and families; and the Medicaid Waiver program to help access long-term support for those who qualify. Overwhelmingly, the weaknesses identified with this program were the lack of long-term support and follow-up services, restrictive service eligibility requirements and missed referrals to Central Registry.

- Many participants commented on the strong organizations and partnerships working in the area of brain injury in Florida. BIAF was mentioned most frequently as a resource to survivors, caregivers and providers. Referral to BIAF was often viewed as the linkage to long-term community support services. Many focus group participants commented on working with Family and Community Support specialists to identify resources in the community to help with their long-term care needs.

- Participants overwhelmingly agreed that caregivers were not adequately prepared to deal with the behavioral issues brought on by the TBI. Caregivers reported using peer support, such as attending support groups and talking with other caregivers, to deal with the behavioral challenges. Suggestions for preparing caregivers include: education, regular reassessment of behavioral issues and an increase in the number of behavior specialists trained to work with the TBI population.

- Caregivers placed an emphasis on the need for long-term life planning for their loved one; guardianship issues; long-term accessible, affordable housing including residential and transitional living treatment facilities; and barriers to accessing services or information because of HIPAA restrictions. They expressed the need for transportation assistance with increased frequency compared to other populations.

Summary of the community perspectives on the selected underrepresented and/or underserved populations:

- Leaders provided insight into the Hispanic culture that may impact access to services. These include: the tendency to have strong family support networks, the tendency to be private and not talk about their issues with people they do not know and a possible fear of accessing government services. Suggestions for reducing the barriers when working with individuals of Hispanic descent include: providing materials in Spanish, using local churches and hiring individuals from within the culture to provide services and resources. The insight provided by leaders validated the focus group recruitment barriers.

- Individuals with mild TBI and leaders who work with this population stressed the importance of appropriate diagnosis and identification of the injury. They emphasized the importance of increasing education about mild brain injuries and prevention activities. They acknowledge that most providers do not understand their needs because of the lack of knowledge about brain injury and mild brain injury. TBI leaders also discussed the limited access to services faced individuals with mild TBI because of the classification of their injury.

- Parents and leaders in the TBI community emphasized the importance of working with the public education system to better meet the needs of their children. They stressed the importance of the schools and therapists working together, educating and training school staff about TBI and appropriate interventions and strategies and increasing flexibility to increase the likelihood of success for their children. Leaders in the TBI community and providers discussed the importance of working to appropriately identify students with TBI in the schools to increase the likelihood of providing appropriate interventions and strategies.

- Barriers to services for rural residents include: transportation issues, limited providers and specialists and isolation issues. Survivors and caregivers emphasized the importance of support groups and the need for socialization and recreation activities. Leaders in the TBI community stressed using alternative methods to reach the survivors in their home or community.

Resource Summary

To fully describe traumatic brain injury (TBI) in Florida, it is necessary to examine the service resources currently available to survivors and family members. This summary is designed to highlight the primary areas of service for individuals with TBI designated by the Health Resources and Services Administration (HRSA), Traumatic Brain Injury Needs and Resources Assessment Tool[9] including acute medical, rehabilitation, employment, prevention, education, and long-term community support services. Knowing the services that are currently available will help with future planning for individuals with TBI in Florida.

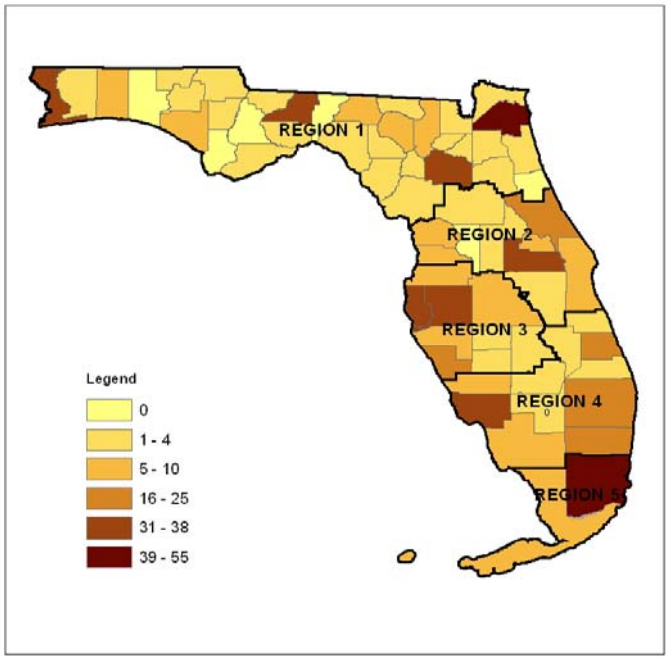
The purpose of the summary is to create a snapshot of the current delivery system in Florida for individuals with TBI. The summary is designed to quantify the extent of resources available in

each of the designated service areas. Services were not examined with regard to quality and effectiveness.

A total of 611 total resources were identified by participants for individuals with TBI. Of the counties in Florida, 91 percent (61of 67) have at least one resource available for individuals with TBI. BSCIP Region 1 (210 resources) identified the greatest number of resources for individuals with TBI. It is important to note that, BSCIP Region 1 is the largest geographical region. BSCIP Region 5 identified the fewest number of resources, but this is the smallest region in regards to population and geographic size.

The counties with the most TBI related resources include: Miami-Dade (55 resources); Duval (39 resources); Orange and Pinellas (38 resources each); and Escambia, Hillsborough and Leon (35 resources each). The aforementioned counties contain 45 percent of all the TBI related services. Five of the six counties without TBI-related services are located in BSCIP Region 1 and all are identified as a rural county by the Department of Health, Office of Rural Health. Figure 24 shows the density of TBI related services by county in Florida.

Figure 24: Density of TBI-Related Services by County.



Prepared by: WellFlorida Council Inc, 2007.

Long-term community support services represent more than 53 percent (325 resources) of resources and are also the most available resource in each BSCIP region. Employment services (139 resources) are the second most available resource in the state and in each region. Acute care medical facilities represent the smallest percentage of resources in the state (9.7 percent) and in each region.

- Acute care facilities are available in 26 of the 67 (38.8 percent) counties in Florida. The most acute medical care facilities (22 facilities) are in BSCIP Region 1 and the fewest are in BSCIP Region 2 (2 facilities). Ten of the facilities are BSCIP acute care designated

facilities and 19 are state designated trauma centers. Two of the 21 state certified trauma centers in Florida were not identified as resources by respondents are Holmes Regional Medical Center in Melbourne and North Broward Medical Center in Deerfield Beach.

- In Florida, 108 rehabilitation resources are available, representing 53.7 percent (36 of the 67) counties. Outpatient rehabilitation services are the most available type of rehabilitation service in Florida, with services at 61.6 percent of rehabilitation resources. Only 6.5 percent of the resources offer community re-entry programs.
- In Florida, 139 employment services are available for individuals with TBI. Employment services are available in 70.1 percent (47 of 67) of the counties in Florida. Over 90 percent of the counties in BSCIP Regions 2 through 5 have employment services available to individuals with TBI. In BSCIP Region 1, 48.6 percent of the counties (17 of 35) have employment services available. The Division of Vocational Rehabilitation (DVR) is the most frequently identified employment service available (81 locations). Of the 139 employment services, 93.5 percent (130) offer job placement services and 84.9 percent (118) provide vocational training.
- There are 89 prevention and education resources available in Florida. Of the 67 counties in Florida, 26 (38.8 percent) have prevention and/or education services available. The primary prevention activities for intentional and/or unintentional injuries (27 resources) included resources such as the local chapters of Florida SafeKids Coalitions. Education services are provided by 68 resources. Education providers include: the DVR, local YMCA organizations, CILs, and the Children's Medical Services Early Steps Program.
- Throughout the state, 325 resources for long-term community support are available for individuals with TBI. Long-term community support services are available in 68.7 percent (46 of the 67) of the counties in Florida. The most long-term community support services are available in BSCIP Region 1 (102 resources) and the fewest are in BSCIP Region 5 (28 resources).

Comparing the distribution of TBI-related resources to the total population and TBI population distribution in the state provides insight into potential service inequities or gaps in service. Disparities between population size and resource density within BSCIP regions exist across the state. BSCIP Region 1 contains a greater percentage of TBI-related resources (34 percent) that were identified through the Resource Summary than percentage of the total and TBI-related disability (18.3 percent) populations. All of the other regions have a gap between the percentage of the total and TBI populations within the region and the percentage of TBI-related resources available identified through the Resource Summary.

In Florida, 43.3 percent of counties have 5 or more TBI-related resources. Only 13.4 percent have more than 30 TBI-related resources. Over 55 percent of all the TBI-related resources are located within the nine counties with 30 or more resources. These counties are some of the most populated counties in the state including: Miami-Dade, Orange, Hillsborough, Duval, Pinellas, Lee, Escambia, Leon and Alachua.

- BSCIP Region 1 is the largest in terms of the number of counties and geographic area, representing approximately 43.8 percent of the state's geography and houses only 34.4 percent of all TBI-related resources in the state. This region is considered most rural based on the number of people per square mile. Only 25.7 percent of the counties in this

region have five or more TBI-related resources. Four counties in the region contain more than 66.6 percent of the TBI-related resources in this region.

- BSCIP Region 2 contains 10 counties and represents approximately 16.3 percent of Florida's geographic area. This region houses 14.4 percent of the TBI-related resources in the state. Orange County alone contains over 43 percent of the resources identified in this region. Sumter County is the only county in the region without TBI-related services.
- BSCIP Region 3 represents 13.9 percent of the state's geography, while containing 20.6 percent of the available TBI-related resources. Of the nine counties in the region, six contain more than five resources. Hillsborough and Pinellas counties contain more than 30 TBI-related resources. All counties in this region have at least one TBI-related resource.
- BSCIP Region 4 represents 20.5 percent of the state's geography and contains 20.6 percent of the available TBI-related resources. Of the eleven counties in the region, six contain more than five resources. Lee County contains more than 30 TBI-related resources and both Broward and Palm Beach counties contain more than 20 TBI-related resources. All counties in this region have at least one TBI-related resource.
- BSCIP Region 5 represents 5.5 percent of the state's geography, while containing 10.0 percent of the available TBI-related resources. Both of the counties in the region contain more than 5 resources, but Miami-Dade County contains 55 of the 61 TBI-related resources in the region. Miami-Dade County has more TBI-related services available than any other county in the state.

When addressing the issue of service capacity, it is important to include discussion of how the projected population increase may impact the demand for services within given geographies. For the purpose of this report, service capacity will be defined as the number of resources within the given geography. Florida is anticipating a 21.5 percent increase in total and TBI-related disability populations by 2015. To maintain the existing service capacity level given the projected population increase, the total amount of resources in Florida would need to increase by 17 percent. BSCIP Region 4, which is expecting the largest increase in population, would need to increase capacity by approximately 24 TBI-related resources to maintain the current service capacity. TBI-related disability growth in BSCIP Region 2 is expected to exceed the state growth rate with 24.3 percent growth. To maintain service capacity levels, 14 TBI-related resources are needed.

By 2015 seven counties in Florida are projected to increase the number of people in the county per square mile to over 100, therefore losing their rural county designation by the Florida Department of Health, Office of Rural Health. These counties may experience additional hardships while trying to increase service capacity to meet the increased service demands because existing infrastructure might not be in place.

Conclusion

Traumatic Brain Injury in Florida: A Needs and Resource Assessment, was conducted to identify the needs of a continuum of individuals with TBI including mild, moderate and severe brain injury across all age groups and in culturally distinct populations. The findings from the study

will be used to guide the creation and implementation of a comprehensive, consumer-directed strategic plan that addresses the needs of Florida's TBI population and their families.

Florida's current population is nearly 18.5 million, with the largest percentage of the population located in BSCIP Region 4 (26.0 percent). The population of Florida is projected to increase approximately 21.5 percent by 2015, with the largest increase projected in BSCIP Region 2 (27.0 percent). Some of the increases in population include populations that are at increased risk for TBI such as: age group 0-4 years and age group 65 years or more and all other races and Hispanics.

Currently, 369,566 people (2 percent) are living with a TBI-related disability in Florida. By 2015, this is expected to increase to approximately 435,350 people. In 2005, there were approximately 93,000 TBIs in Florida, which included 71,400 emergency department (ED) visits (76.8 percent), 17,700 hospitalizations (19.0 percent) and 3,900 deaths (4.2 percent). Florida's age-adjusted rate for all TBIs, TBI-related deaths and TBI-related ED visits were higher than the national rate, while the rate for TBI-related hospitalization was slightly less than the national rate.

- In 2005, the groups at greatest risk for all TBIs include children 0-4 years of age, young adults 15-24 years of age and adults over the age of 65.
- In Florida, 82.3 percent of all TBIs that occurred in 2005 were to whites, 14.1 percent were to blacks and 2.8 percent were to individuals who were classified as other races. During 2005, individuals classified as other races had the highest rate of total TBIs in Florida, followed by whites and blacks.
- In 2005, 15 percent of all TBIs were sustained by individuals who identify themselves as Hispanic, resulting in a rate of 402.9 per 100,000 of the population.
- In Florida, males were 1.2 times more likely to experience a TBI than females during 2005.
- During 2005, falls caused 39.6 percent of all TBIs in Florida, followed by motor vehicle accidents (20.8 percent) and assaults (11.1 percent). The rates for TBI were highest for falls, followed by motor vehicle-traffic accidents and assaults. These rates were higher than their respective rates nationally.
- In 2005, the rural population of Florida accounted for 5,191 (5.6 percent) of the total TBIs in the state. The total rate for TBI in the rural counties of Florida was less than the rate for the non-rural counties.

The loosely defined TBI system in Florida includes the state government administered Brain and Spinal Cord Injury Program, Brain Injury Association of Florida (BIAF), and key community partners such as Division of Vocational Rehabilitation (DVR), Department of Education Exceptional Student Education Services, Florida Alliance for Assistive Services and Technology (FAAST), protection and advocacy and Centers for Independent Living (CILs). BSCIP and BIAF are the primary entities for TBI in the state. The community partners that individuals with TBI depend on for services serve multiple disability populations. Therefore, the individuals with TBI represent only a portion of the consumers they serve. Providing education and training about appropriate interventions and strategies to work with this population is vital. Additionally, it is hypothesized that the number of people with TBI served by these agencies is underestimated

because of inappropriate identification and/or classification. Therefore, strengthening partnerships with community partners is vital to increasing access to services and resources.

TBI survivors, caregivers, community leaders and stakeholders shared their thoughts and opinions about the needs of individuals with TBI in Florida. The following are the key observations derived from an analysis of the comments and insights gathered during the community input phase of the needs assessment:

- Access to appropriate rehabilitation and therapies was viewed by participants as the most helpful for individuals with TBI.
- The primary service needs include access to affordable and accessible housing including residential and transitional living facilities, financial assistance, transportation services, employment services and alcohol and drug addiction services. Access to support groups and support networks was also identified as an important need for individuals with TBI and their families.

The lack of public and professional awareness and knowledge of brain injury was perceived as a key issue for participants. Also, participants felt there was limited access to information and education including not knowing where to go for services and the limited connectivity of services. Many participants discussed the lack of long-term support and services, and commented on the void in services once patients are discharged from hospitals, rehabilitation, or BSCIP case management services. Participants felt that having access to long-term community supports could reduce some of the challenges that arise during points of transition. Participants overwhelmingly agreed that caregivers were not adequately prepared to deal with the behavioral issues brought on by the TBI.

Community leaders, caregivers, survivors and providers commented on BSCIP. Strengths of this program include having a centralized state department designated for brain injury; the Trust Fund, which provides case management and financial support for survivors; the Central Registry, which serves as the immediate entrée to the service delivery system; dedicated staff who work with survivors and families; and the Medicaid Waiver program to help access long-term support for those who qualify. Overwhelming weaknesses identified with this program were the lack of long-term support and follow-up services, restrictive service eligibility requirements and missed referrals to Central Registry.

Many participants commented on the strong organizations and partnerships working in the area of brain injury in Florida. BIAF was mentioned most frequently as a resource to survivors, caregivers and providers. Referral to BIAF was often viewed as the linkage to long-term community support services. Many focus group participants commented on working with Family and Community Support specialists to identify resources in the community to help with their long-term care needs.

The following is a summary of the community perspectives on the selected underrepresented and/or underserved populations:

- Leaders provided insight into the Hispanic culture that may impact access to services.

- Individuals with mild TBI and leaders who work with this population stressed the importance of appropriate diagnosis and identification of the injury.
- Parents and leaders in the TBI community emphasized the importance of working with the public education system to better meet the needs of their children.
- Barriers to services for rural residents include: transportation issues, limited providers and specialists and isolation issues.

Through the Resource Summary, 611 total resources were identified by participants for individuals with TBI. Of the counties in Florida, 91 percent (61 of 67) have at least one resource available for individuals with TBI. The counties with the most TBI-related resources include: Miami-Dade (55 resources); Duval (39 resources); Orange and Pinellas (38 resources each); and Escambia, Hillsborough and Leon (35 resources each). The aforementioned counties contain 45 percent of all the TBI related services statewide.

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[1] Florida Statute. Title XXIX, Public Health Chapter 381Public Health: General Provisions; 2006.
[2] Langlois JA, Ruthland-Brown W, Thomas KE. Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention; 2006.
[3] Thurman D, Alverson C, Dunn K, Guerrero J, Sniezek J. Traumatic brain injury in the United States: a public health perspective. Journal of Head Trauma Rehabilitation. 1999;14(6):602-15.
[4] Langlois JA, Kegler SR, Butler JA, et al. Traumatic brain injury-related hospital discharges: results from a fourteen state surveillance system, 1997. Morbidity and Mortality Weekly Reports. 2003:52(SS-04):1–18.
[5] U.S. Department of Health and Human Services, The Offices of Minority Health. Hispanic/Latino Profile. http://www.omhrc.gov/templates/browse.aspx?lvl=2&lvlID=54. Accessed Feb 2007.
[6] Florida Department of Health. Office of Rural Health. Rural Health Plan; 2002.
[7] Florida Statute. Title XXXIX. Public Health: General Provisions, Office of Rural Health 381.0405; 2006.
[8] National Center for Injury Prevention and Control. Report to Congress on mild traumatic brain injury in the United States: steps to prevent a serious public health problem. Atlanta, GA: Centers for Disease Control and Prevention. 2003.
[9] U.S. Department of Health and Human Services, Health Resources and Services Administration, Material and Child Health Bureau, Federal Traumatic Brain Injury Program. Traumatic brain injury needs and resource assessment tool; 2006.

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Introduction

Traumatic brain injury (TBI) is recognized as a significant public health problem in the United States and Florida. By Florida Statute, a TBI is defined as an insult to the skull, brain, or its covering that results from external trauma and that produces an altered state of consciousness or anatomic, motor, sensory, cognitive, or behavioral deficit.[1] The severity of the injury may range from mild to severe, based on the classification of the change in mental status or consciousness after the injury. Often called the "invisible" epidemic because the disability is often not apparent to the public, the long-term consequences can be quite enormous. Consequences can include: memory loss, difficulty with judgment and recognition of limitations, anxiety and/or depression, loss of social networking, feelings of isolation, slowness or difficulty with speech, decreased physical coordination, decreased anger management, decreased safety awareness and difficulty initiating, planning and completing tasks.

The most recent estimates suggest that approximately 1.4 million TBIs occur in the United States each year of which 50,000 die, 235,000 are hospitalized and 1.1 million are treated and released from the emergency department.[2] This estimate does not include the unknown number of people who sustain an injury but are not seen in an emergency department or who receive no medical care. Additionally, the data does not include information on those who receive treatment from federal, military or Veterans Administration hospitals. The Centers for Disease Control and Prevention (CDC) estimate that at least 5.3 million Americans, approximately 2 percent of the population, are living with long-term or lifelong disabilities resulting from a TBI.[3]

In 2005 approximately 93,000 TBIs occurred in Florida that resulted in approximately 3900 death, 17,600 hospitalizations and 71,500 emergency department visits. Like the national incidence measures, this number does not include those who were not seen in the emergency department or who received no medical care. The total age-adjusted rate for all TBIs in Florida was 511.5 per 100,000, which was higher than the national total age-adjusted rate for all TBIs (504.8). Florida's average annual age-adjusted rate for TBI-related deaths (18.5) and emergency department visits (401.4) were greater than the national rates (18.5 and 401.4, respectively), while the rate for TBI-related hospitalization (82.1) was lower (85.5).

Based on the best prevalence estimates to date, in Florida approximately 370,000 people, approximately 2 percent of the population, are living with long-term disabilities from a TBI. It is estimated that by 2015 over 435,000 people in Florida will be living with TBI-related disabilities. It is safe to say that this estimate underestimates the burden of TBI in Florida because, like the national estimate, it is based on the number of injuries that resulted in hospitalization; it does not include those who sought medical attention from the emergency department, outpatient clinics, or Veteran's Administration facilities, as well as those who did not seek medical attention.

Florida is often recognized for its system of identifying and serving individuals with moderate-to-severe traumatic brain injuries. Mandated by the Florida Legislature (Florida Statute 381), the Florida Department of Health, Brain and Spinal Cord Injury Program (BSCIP) is charged with

assisting individuals with moderate-to-severe traumatic brain injury, from time of injury through community reintegration, in accessing federal, state, third party and community resources.[1] BSCIP is supported by the Brain and Spinal Cord Injury Trust Fund, which receives money from traffic-related fines, surcharges for driving or boating under the influence, temporary license fees and a percentage of funds from the motorcycle specialty tag. These funds are used as a payor of last resort for individuals with moderate-to-severe brain injuries to access services including case management, acute care, inpatient and outpatient rehabilitation, transitional living, assistive technology, home and vehicular modification and long-term community-based supports funded under contract with specific not-for-profit agencies. BSCIP also houses the Central Registry, which collects information on all individuals with new moderate-to-severe brain or spinal cord injuries. Data are collected from all public and private health agencies, attending physicians and public and private social agencies.

Though this TBI system is impressive, its ability to meet the needs of all individuals with traumatic brain injuries, regardless of injury severity, in Florida is unknown. The state of Florida has not conducted a needs assessment for individuals with TBI in over ten years and the state's brain injury Action Plan is over five years old. Additionally, the state of Florida recognizes that previous needs assessments did not target under-represented or underserved individuals. In response, the state of Florida Department of Health, Brain and Spinal Cord Injury Program (BSCIP), was awarded a Health Resource and Services Administration (HRSA) Traumatic Brain Injury State Implementation Grant (HRSA-06-083) in 2006 to form Project ACTION, "Assessing Community to Identify Ongoing Needs."

Project Description

Project ACTION is charged with developing an evolving and dynamic system of services for individuals with traumatic brain injury through the creation and implementation of a comprehensive, consumer-directed strategic plan that addresses the needs of Florida's entire TBI population and their families. This three-year project is designed by the Project ACTION Executive Committee, which consists of staff from BSCIP and Brain Injury Association of Florida (BIAF), the primary TBI entities within the state. The primary project activities include:

- Establishment of an Oversight Committee;
- Development and implementation of a comprehensive needs and resource assessment for individuals with TBI across a broad spectrum of injuries and in culturally distinct populations;
- Creation of a five-year strategic plan to guide the provision, development and management of TBI services in Florida;
- Development and implementation of community-based, culturally sensitive resources based on the newly created strategic plan.

Contracted by the BSCIP, Brain Injury Association of Florida (BIAF) is administering the objectives and activities for Project ACTION. WellFlorida Council (formerly the North Central Florida Health Planning Council), contracted by BIAF, was tasked with the development and implementation of the comprehensive needs and resource assessment for individuals with TBI in Florida under the guidance of the Oversight Committee.

The Oversight Committee was coordinated by the project's Executive Committee. The purpose of the committee is to oversee the project to ensure that its plans, activities and ultimately its decisions are sensitive to the needs of the consumers. The Oversight Committee contains eight members: two consumers, three service providers and three policy makers. Each participant was nominated based on their knowledge of individuals with traumatic brain injury including service needs, cultural issues and appropriate interventions and activities.

This report contains the findings from the statewide needs and resource assessment for individuals with TBI in Florida, which was conducted during project year one. The needs and resource assessment was guided by the Oversight Committee to ensure that it was designed and implemented in the most appropriate, effective and culturally sensitive manner.

The findings from *Traumatic Brain Injury in Florida: A Needs and Resource Assessment*, identify the needs of a continuum of individuals with TBI including mild, moderate and severe brain injury across all age groups and in culturally distinct populations. The assessment includes the following sections:

- Demographic and Socioeconomic Profile;
- Traumatic Brain Injury Profile;
- Traumatic Brain Injury Systems Profile;
- Consumer and Community Input;
- Resource Summary;
- Conclusion.

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[1] Florida Statute. Title XXIX, Public Health Chapter 381Public Health: General Provisions; 2006.
[2] Langlois JA, Ruthland-Brown W, Thomas KE. Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2006.
[3] Thurman D, Alverson C, Dunn K, Guerrero J, Sniezek J. Traumatic brain injury in the United States: a public health perspective. Journal of Head Trauma Rehabilitation. 1999;14(6):602-15.

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Demographic and Socioeconomic Profile

Introduction

The demographic and socioeconomic characteristics of Florida residents are reviewed in this section. Demographic and socioeconomic characteristics are often strong predictors of healthcare access and health outcome. Indicators selected for review in this section are some of the most influential in determining the extent of a community's overall health and will help in determining the overall impact of traumatic brain injury in the community.

Data in this section are presented for Florida and each of the Florida Department of Health, Brain and Spinal Cord Injury Program (BSCIP) regions. The region level of analysis was selected because BSCIP, which assists individuals with moderate-to-severe TBI from time of injury through community rehabilitation in accessing federal, state, third party and community resources, divides its case management and other client-related activities as well as public awareness and outreach activities among five regions (Figure 2-1). Table 2-1 lists the counties within each BSCIP region. Data indicators include population breakdown by age, race, gender and rural residency; population growth and projections; poverty status; unemployment rates; and educational attainment.

It is estimated that 2 percent of the population are living with a disability resulting from a TBI.[1] The information provided in this section helps to establish a profile for the people of Florida, which includes individuals with TBI, to determine the demographic and socioeconomic barriers and opportunities to the improvement of health. The demographic and socioeconomic profile for the each region will provide additional insights into understanding barriers and opportunities for improving the health of Florida's residents.

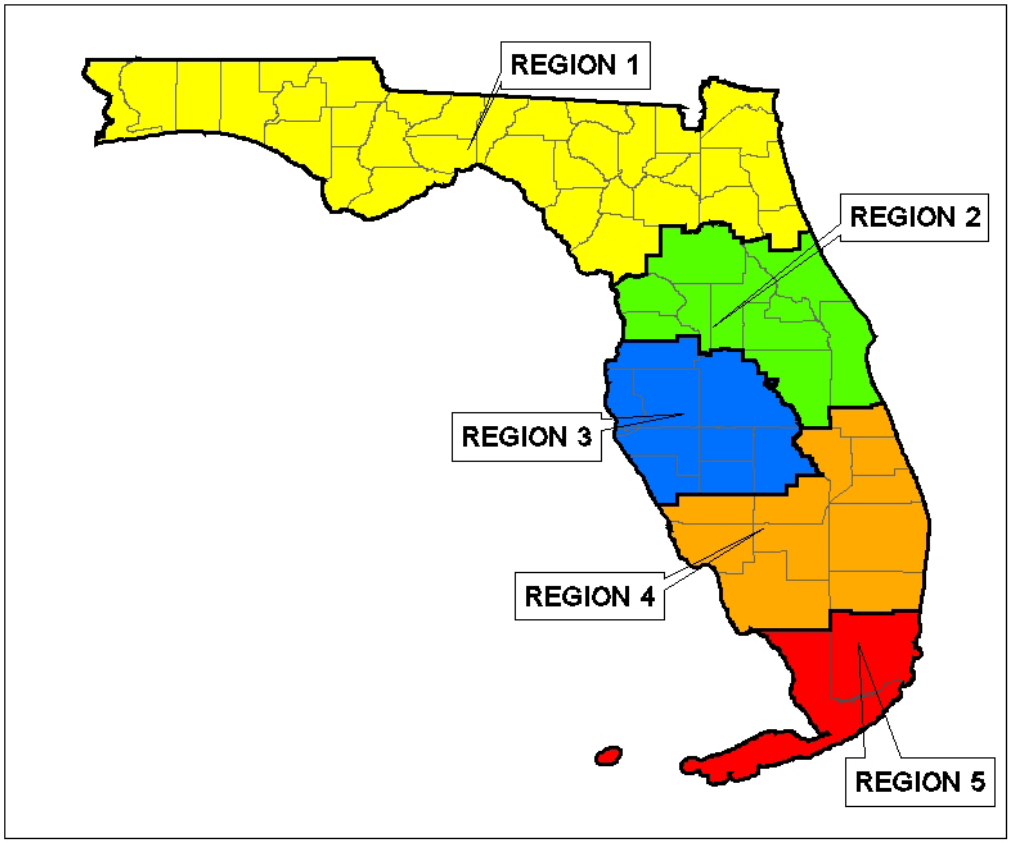
Population

Clearly, the sheer number of people in a community is the leading determinant of the demand for healthcare services and, more specifically, TBI-related services. Florida, with a population of nearly 18.5 million (Table 2-2), is located in the southeastern United States. Most of the state is a large peninsula with the Gulf of Mexico on the west and the Atlantic Ocean on the east. The state is bordered by Georgia and Alabama on the north and Alabama on the west. Tallahassee is the state capital and Jacksonville is the largest city in the state with approximately 780,000 people. Miami is the largest metropolitan area in the state.

Population data elements are presented for the state and each BSCIP region. Each region varies in terms of number of counties and geographic area. BSCIP Region 1 is the largest in terms of the number of counties (35) and geographic area (greater than 23,000 square miles). In the

population information presented, the BSCIP region data is estimated by summing the data element in question for each of the counties within the respective BSCIP region.

Figure 2-1: Brain and Spinal Cord Injury Program Service Regions.



Source: Florida Department of Health, Brain and Spinal Cord Injury Program.
Prepared by: WellFlorida Council Inc., 2007.

Table 2-1: Brain and Spinal Cord Injury Program Service Regions by County.

Area	Counties
Region 1	Alachua, Baker, Bay, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Escambia, Flagler, Franklin, Gadsden, Gilchrest, Gulf, Hamilton, Holmes, Jackson, Jefferson, Lafayette, Leon, Levy, Liberty, Madison, Nassau, Okaloosa, Putnam, Santa Rosa, St. Johns, Suwannee, Taylor, Union, Wakulla, Walton, Washington
Region 2	Brevard, Citrus, Hernando, Lake, Marion, Orange, Osceola, Seminole, Sumter, Volusia
Region 3	Desoto, Hardee, Highlands, Hillsborough, Manatee, Pasco, Pinellas, Polk, Sarasota
Region 4	Broward, Charlotte, Collier, Glades, Hendry, Indian River, Lee, Martin, Okeechobee, Palm Beach, St. Lucie
Region 5	Miami- Dade, Monroe

Source: Florida Department of Health, Brain and Spinal Cord Injury Program.
Prepared by: WellFlorida Council Inc., 2007.

Population Growth and Distribution

Florida is one of the nation's fastest growing states and the population is expected to continue to grow. The total population of Florida in 2006 was approximately 18.5 million. As seen in Table 2-2, BSCIP Region 4 houses the largest percentage (26.0 percent) of the state's population, while Region 5 contains the smallest percentage (13.8 percent) of the population of Florida. BSCIP Region 1, though representing 43.8 percent of the states geography, contains only 18.3 percent of the state's population.

Table 2-2: Total Population by BSCIP Region and Florida, 2006.

Area	2006 Population	
	Number	Percent
BSCIP Region 1	3,380,488	18.3
BSCIP Region 2	3,780,193	20.5
BSCIP Region 3	3,971,460	21.5
BSCIP Region 4	4,799,835	26.0
BSCIP Region 5	2,546,333	13.8
Florida	18,478,309	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

When making decisions about health and health services it is important to examine future population trends. An increase in population within a given area results in an increase in the demand for services and ultimately an increase in the need for service capacity to meet these demands. The prevalence of TBI in a given area is directly linked to the number of people within that area; therefore, as the population of Florida and each BSCIP region increases, the prevalence of TBI within that given area will increase as well. Future population projections for Florida and each BSCIP region are provided by the Bureau of Economic and Business Research at the University of Florida (Table 2-3 and Figure 2-2). Regional totals were computed by summing the values from each county within its respective region.

The population in Florida is projected to increase approximately 11.2 percent by 2010 and to increase by an additional 10.3 percent by 2015.

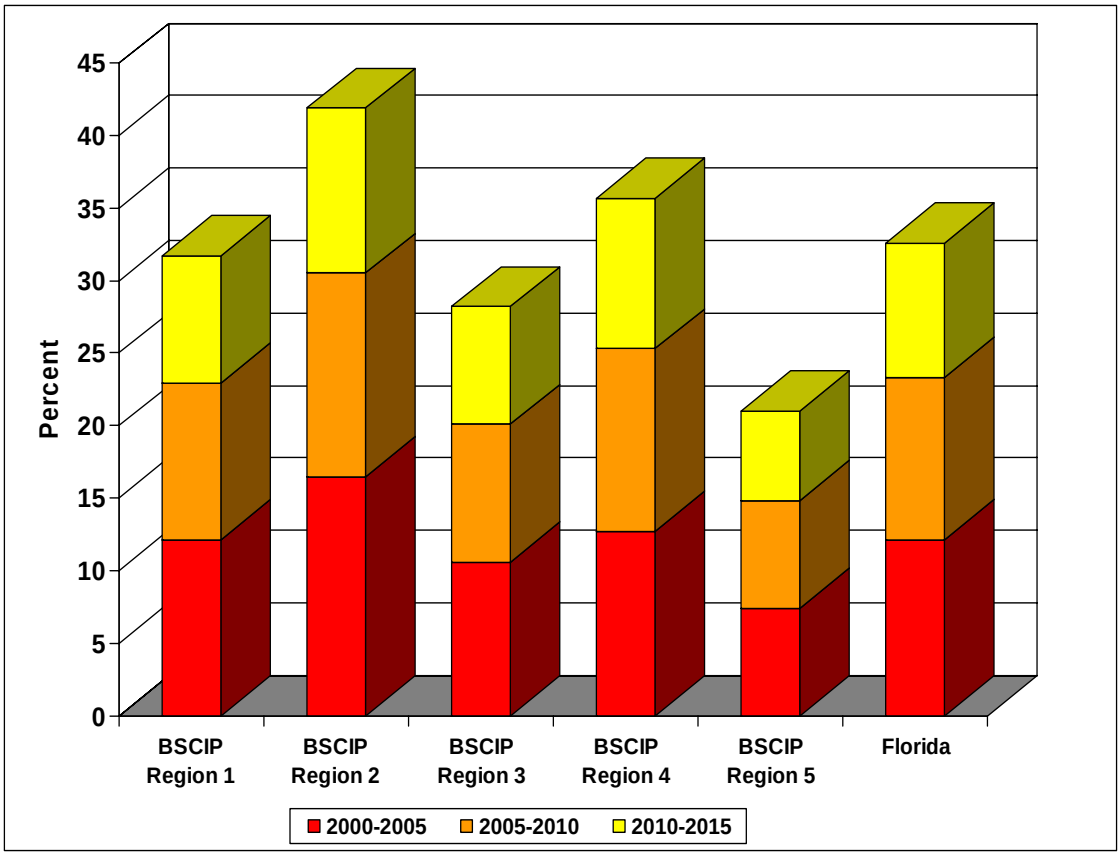
- The largest increase in population through 2015 is projected in BSCIP Region 2 (27.0 percent).
- BSCIP Region 5 is expected to have the smallest increase in total population (14.1 percent) through 2015.
- The total population growth in BSCIP Regions 2 and 4 are expected to exceed the state population growth rate (27.0 percent and 24.3 percent, respectively).

Table 2-3: Population Projections by BSCIP Region and Florida, 2000–2015.

Area	Population by Year				Percent Change	
	2000	2005	2010	2015	2005 - 2010	2005 - 2015
BSCIP Region 1	2,935,391	3,291,557	3,648,012	3,970,134	10.8	20.6
BSCIP Region 2	3,125,282	3,642,370	4,153,061	4,626,558	14.0	27.0
BSCIP Region 3	3,485,591	3,853,654	4,220,823	4,561,812	9.5	18.4
BSCIP Region 4	4,103,163	4,626,158	5,208,398	5,751,702	12.6	24.3
BSCIP Region 5	2,332,951	2,504,488	2,690,054	2,857,297	7.4	14.1
Florida	15,982,378	17,918,227	19,920,348	21,767,503	11.2	21.5

Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

Figure 2-2: Percentage Increase in Population by BSCIP Region and Florida, 2000–2015.



Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

Population by Age, Race, Ethnicity and Gender

Age, race and gender are all factors that contribute to, or at the very least, help describe aspects of healthcare access and health outcome in the United States. Additionally, age, race and gender

are linked to increased risk of traumatic brain injury and increased morbidity and mortality from TBI. The Centers for Disease Control and Prevention (CDC) notes: males are about twice as likely as females to sustain a TBI; individuals ages 0-4 years and ages 15-19 years are at highest risk for TBI; adults age 75 years or older have the highest rates of TBI-related hospitalization and death; African Americans have the highest death rate from TBI[2]; and TBI hospitalization rates are highest among African Americans and American Indians/Alaska Natives.[3] Reviewing population characteristics based on age, race and gender allows for factoring into health needs analyses the differences and disparities that exist between population groups.

Age

As stated above, individuals 0-4 years old and 15-19 years old are at the greatest risk for TBI and adults over the age of 75 have the highest rates for TBI-related hospitalization and death.[2] Examining the age distribution of Florida and each BSCIP region will help to identify locations with populations most at risk for TBI. Table 2-4 and Figure 2-3 describe the age distribution in Florida and each BSCIP region. The population is divided into the following categories: 0-4 years, 5-14 years, 15-24 years, 25-44 years, 45-64 years and 65 years and older. These categories were used to replicate the age categories used in the most recent CDC annual update, "Incidence of Traumatic Brain Injury in the United States."[4]

As expected, because of the greater number of years within the groups, age groups 24-44 years and 45-64 years represented the largest proportion of the population with approximately 26 percent of the total population in each group. The age group 0-4, which has the highest risk for TBI, represents the smallest proportion of Florida's population with 6 percent. The elderly population in Florida, aged 65 or more, represents approximately 18 percent of the population.

To identify service needs for a given area, it is important to understand age distribution of the population within the area. Currently:

- BSCIP Region 1 has a greater percentage of population under the age of 65 than the state and it has the greatest percentage of individuals 15-24 years of age in the state.
- The age distribution in BSCIP Region 2 is most similar to the age distribution of Florida.
- BSCIP Regions 3 and 4 have a larger percentage of people in the 45-64 and 65 and older age groups than the state.
- BSCIP Region 5 has a greater percentage of the population under the age of 44 than the state and it has the greatest percentage of individuals in the 0-4 years, 5-14 years and 25-44 years age groups in the state.

Examining projected changes to the age distribution over time is important when planning for future health service needs. Changes in the age distribution over time can impact the types of health service needs within a given population. For example, an increase in the population of people over the age of 65 in Florida would likely result in an increase in TBI-related deaths and hospitalizations. Changes to the service delivery system would need to occur to account for the projected population increase. Population projections are provided by the Bureau of Economic and Business Research at the University of Florida. Please note that the age categories below are different than in the previous section. The data from University of Florida is grouped into the

following age categories (0-4 years, 5-17 years, 18-64 years and 65 years and older). Table 2-5 summarizes the population projections by age for each BSCIP region and Florida through 2015. By the year 2015, Florida's population is expected to increase approximately 20 percent, with the greatest increase in the 65 and older population, 36.1 percent.

- Percentage of children ages 0-4 in Florida is projected to grow 17.6 percent by 2015. BSCIP Region 2 is expecting the greatest growth in this population (26.8 percent) and BSCIP Region 5 is expecting the least amount of growth (4.7 percent).
- The 5-17 years of age group is anticipating 13.6 percent growth in Florida. Similar to the 0-4 years of age group, Region 2 is expecting the largest increase. Region 5 is anticipating the least amount of growth in this age group.
- A 20 percent increase in the number of individuals ages 18- 64 expected in Florida by 2015. BSCIP Regions 2 and 4 are expecting the most growth in this population with 25.7 percent and 23.5 percent, respectively.
- The greatest population increase (36.1 percent) in Florida is expected in the 65 and older age group by 2015. BSCIP Region 1 is expecting a 52.3 percent increase in this population.

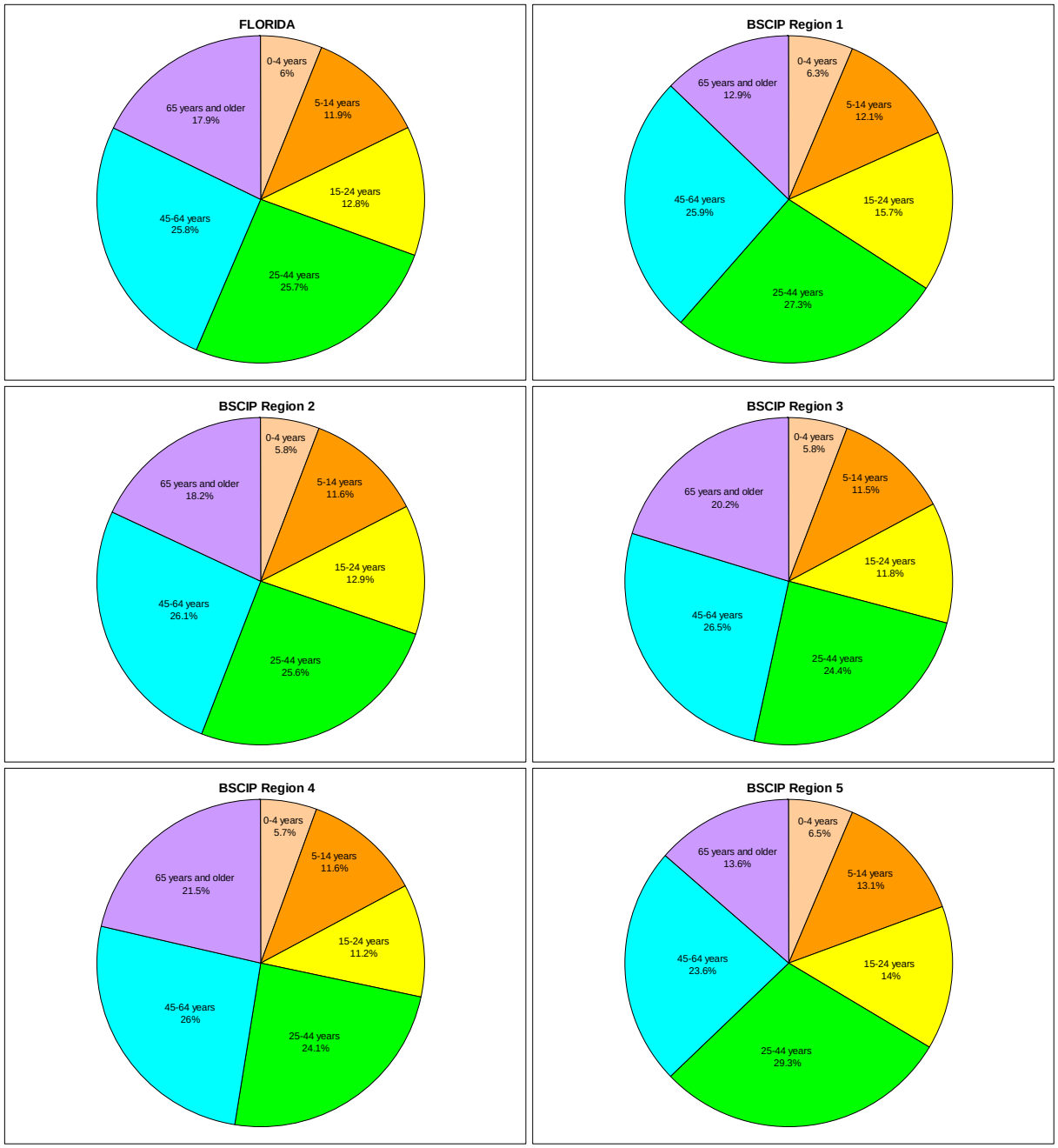
Table 2-4: Total Population by Age Group by BSCIP Regions and Florida, 2006.

Area	Total Population	0-4		5-14		15-24	
		Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	212,283	6.3	409,725	12.1	529,236	15.7
BSCIP Region 2	3,780,193	219,265	5.8	438,352	11.6	486,440	12.9
BSCIP Region 3	3,971,460	228,796	5.8	456,131	11.5	466,729	11.8
BSCIP Region 4	4,799,835	274,175	5.7	555,610	11.6	537,598	11.2
BSCIP Region 5	2,546,333	166,093	6.5	332,431	13.1	355,266	14.0
Florida	18,478,309	1,101,307	6.0	2,189,680	11.9	2,372,615	12.8

Area	25-44		45-64		65+	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	921,636	27.3	874,035	25.9	435,018	12.9
BSCIP Region 2	966,524	25.6	985,157	26.1	688,321	18.2
BSCIP Region 3	968,395	24.4	1,050,495	26.5	801,325	20.2
BSCIP Region 4	1,155,141	24.1	1,249,283	26.0	1,032,936	21.5
BSCIP Region 5	746,084	29.3	601,312	23.6	345,229	13.6
Florida	4,756,317	25.7	4,758,165	25.8	3,300,226	17.9

Please note that due to rounding the sum of the individual groups may not equal the county total.
Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Figure 2-3: Percentage of Population by Age Group by BSCIP Region and Florida, 2006.



Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 2-5: Population Projections by Age Group by BSCIP Region and Florida, 2000–2015.

Area	Age Group	Population by Year				Percent Change	
		2000	2005	2010	2015	2005 - 2010	2005 - 2015
BSCIP Region 1	0 –4	183,234	204,060	223,276	238,205	9.4	16.7
	5 –17	528,382	558,693	586,860	622,255	5.0	11.4
	18 -64	1,866,734	2,117,509	2,338,751	2,483,230	10.4	17.3
	65+	357,041	411,295	499,125	626,444	21.4	52.3
	Total	2,935,391	3,291,557	3,648,012	3,970,134	10.8	20.6
BSCIP Region 2	0 –4	179,484	208,845	239,225	264,752	14.5	26.8
	5 –17	532,007	610,797	662,705	714,673	8.5	17.0
	18 - 64	1,860,706	2,197,552	2,520,281	2,761,314	14.7	25.7
	65+	553,085	625,176	730,850	885,819	16.9	41.7
	Total	3,125,282	3,642,370	4,153,061	4,626,558	14.0	27.0
BSCIP Region 3	0 –4	198,965	221,065	239,222	255,718	8.2	15.7
	5 –17	558,388	618,005	655,111	688,345	6.0	11.4
	18 -64	2,012,935	2,260,938	2,491,593	2,646,981	10.2	17.1
	65+	715,303	753,646	834,897	970,768	10.8	28.8
	Total	3,485,591	3,853,654	4,220,823	4,561,812	9.5	18.4
BSCIP Region 4	0 –4	234,926	264,380	293,120	319,771	10.9	21.0
	5 –17	658,138	747,033	810,701	867,695	8.5	16.2
	18 -64	2,340,117	2,686,924	3,051,877	3,319,149	13.6	23.5
	65+	869,982	927,821	1,052,700	1,245,087	13.5	34.2
	Total	4,103,163	4,626,158	5,208,398	5,751,702	12.6	24.3
BSCIP Region 5	0 –4	149,214	171,855	175,754	180,008	2.3	4.7
	5 –17	423,604	437,699	461,980	483,125	5.5	10.4
	18 -64	1,447,933	1,557,026	1,675,073	1,762,779	7.6	13.2
	65+	312,200	337,908	377,247	431,385	11.6	27.7
	Total	2,332,951	2,504,488	2,690,054	2,857,297	7.4	14.1
Florida	0 –4	945,823	1,070,205	1,170,597	1,258,454	9.4	17.6
	5 –17	2,700,519	2,972,227	3,177,357	3,376,093	6.9	13.6
	18 -64	9,528,425	10,819,949	12,077,575	12,973,453	11.6	19.9
	65+	2,807,611	3,055,846	3,494,819	4,159,503	14.4	36.1
	Total	15,982,378	17,918,227	19,920,348	21,767,503	11.2	21.5

Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council, Inc., 2007.

Race and Ethnicity

Race is associated with increased risk of hospitalization and death from TBI. CDC reports that blacks are the most likely to be hospitalized for TBI (73.9 per 100,000) compared to whites (63.8 per 100,000) and American Indians/Alaskan Natives/Asians and Pacific Islanders combined (59.9 per 100,000).[2] Blacks are also more likely to die from a TBI-related cause compared to their counterparts.[3] Examining the racial makeup of Florida and each BSCIP region will help to understand TBI-related deaths and hospitalization rates within the given areas.

Table 2-6 describes the racial makeup of the population in Florida and each BSCIP region. Florida's population is 75.7 percent white. BSCIP Region 3 has the greatest percentage of white residents with 80.3 percent. BSCIP Region 5 has the lowest percentage of white residents with 70.9 percent. The black population in Florida comprises 15.5 percent of the state's total population. BSCIP Region 1 has the greatest percentage of black residents, representing 21.4 percent of the total population. The percentage of the population in Florida that identifies their race as Asian or other is 8.8 percent.

The population projections through 2015 by race are presented in Table 2-7. Population projections are provided by the Bureau of Economic and Business Research at the University of Florida. Please note that the race categories below are different than in the previous section because the race classifications provided by the University of Florida were not consistent with the previous data source. For that reason, the individuals who identify themselves as Asian are included in the "all others" race category. As noted earlier, Florida's population is projected to increase by approximately 21.5 percent by 2015, which includes a 28.9 percent increase in blacks, 12.7 percent increase in whites and a 41.9 percent increase in all other races.

The percentage of individuals categorized as "all others" is anticipated to have the greatest increase in population through 2015 in the state and each region. The percentage of blacks is also projected to increase greatly in each region through 2015 with Regions 2 and 4 anticipating the greatest amount of growth, 38.0 percent and 35.2 percent, respectively. Region 5 is the only region in the state expecting a decrease in the percentage of the population who are white. By 2015 Region 5 is anticipating an 18.8 percent decrease in the white residents. All other regions are anticipating growth in the white population, but not to the extent of blacks and all other races.

Table 2-6: Total Population by Race by BSCIP Region and Florida, 2006.

Area	Total Population	White		Blacks	
		Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	2,440,664	72.2	723,075	21.4
BSCIP Region 2	3,780,193	2,940,054	77.8	473,888	12.5
BSCIP Region 3	3,971,460	3,189,440	80.3	447,936	11.3
BSCIP Region 4	4,799,835	3,616,534	75.3	741,928	15.5
BSCIP Region 5	2,546,333	1,805,466	70.9	475,132	18.7
Florida	18,478,309	13,993,623	75.7	2,860,442	15.5
Area	**Total Population**	**Asian**		**Other**	
		Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	83,428	2.5	133,321	3.9
BSCIP Region 2	3,780,193	91,304	2.4	274,947	7.3
BSCIP Region 3	3,971,460	80,415	2.0	253,669	6.4
BSCIP Region 4	4,799,835	94,341	2.0	347,032	7.2
BSCIP Region 5	2,546,333	37,867	1.5	227,868	8.9
Florida	18,478,309	386,197	2.1	1,238,047	6.7

Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Health disparities exist between individuals who are non-Hispanic and those who are of Hispanic descent. The Office of Minority Health, in the United States Department of Health and Human Services, notes that Hispanic's health is often shaped by language/cultural barriers, lack of access to preventive care and lack of health insurance.[5] The CDC identifies that Hispanics bear a disproportionate burden of disease, injury, death and disability when compared with non-Hispanic whites. In 2003, unintentional injuries were the third leading cause of death for Hispanics compared to the fifth leading cause in non-Hispanics.[6] These disparities make understanding the population distribution of Hispanics in Florida extremely important when planning for health access and healthcare.

As seen in Table 2-8 and Figure 2-4, nearly 20 percent of Florida's total population is of Hispanic ethnicity. The percentage of individuals of Hispanic ethnicity in BSCIP Region 5 is substantially higher (62.1 percent) than the state as a whole. The percentage of individuals in BSCIP Region 1 of Hispanic ethnicity is substantially lower (4.9 percent) than the state.

The population projections through 2015 by ethnicity are presented in Table 2-9. Population projections are provided by the Bureau of Economic and Business Research at the University of Florida. As noted earlier, Florida's population is projected to increase by approximately 21.5 percent by 2015, which includes a 41.8 percent increase in the percentage of Hispanic residents.

The proportion of individuals who identify as being of Hispanic ethnicity is projected to increase through 2015 in each BSCIP region. Regions 1 through 4 are projecting growth of approximately 50 percent or more in the Hispanic population. Region 5 is the only region not anticipating growth in the percentage of the non-Hispanic population.

Table 2-7: Population Projections by Race by BSCIP Region and Florida, 2000–2015.

Area	Race	Population by Year				Percent Change	
		2000	2005	2010	2015	2005 -2010	2005 -2015
BSCIP Region 1	Black	579,503	671,963	757,876	838,866	12.8	24.8
	White	2,169,333	2,370,746	2,583,540	2,770,128	9.0	16.8
	All Others	186,555	248,848	306,596	361,140	23.2	45.1
	Total	2,935,391	3,291,557	3,648,012	3,970,134	10.8	20.6
BSCIP Region 2	Black	357,520	447,892	536,009	617,980	19.7	38.0
	White	2,337,919	2,563,597	2,790,178	2,995,775	8.8	16.9
	All Others	429,843	630,881	826,874	1,012,803	31.1	60.5
	Total	3,125,282	3,642,370	4,153,061	4,626,558	14.0	27.0
BSCIP Region 3	Black	356,110	424,687	488,348	553,342	15.0	30.3
	White	2,702,409	2,849,890	3,005,600	3,135,415	5.5	10.0
	All Others	427,072	579,077	726,875	873,055	25.5	50.8
	Total	3,485,591	3,853,654	4,220,823	4,561,812	9.5	18.4
BSCIP Region 4	Black	615,217	742,731	877,860	1,004,215	18.2	35.2
	White	2,842,142	3,012,489	3,225,784	3,412,618	7.1	13.3
	All Others	645,804	870,938	1,104,754	1,334,869	26.8	53.3
	Total	4,103,163	4,626,158	5,208,398	5,751,702	12.6	24.3
BSCIP Region 5	Black	449,774	489,329	529,975	565,414	8.3	15.5
	White	539,653	480,924	434,481	390,644	(9.7)	(18.8)
	All Others	1,343,524	1,534,235	1,725,598	1,901,239	12.5	23.9
	Total	2,332,951	2,504,488	2,690,054	2,857,297	7.4	14.1
Florida	Black	2,358,124	2,776,602	3,190,068	3,579,817	14.9	28.9
	White	10,591,456	11,277,646	12,039,583	12,704,580	6.8	12.7
	All Others	3,032,798	3,863,979	4,690,697	5,483,106	21.4	41.9
	Total	15,982,378	17,918,227	19,920,348	21,767,503	11.2	21.5

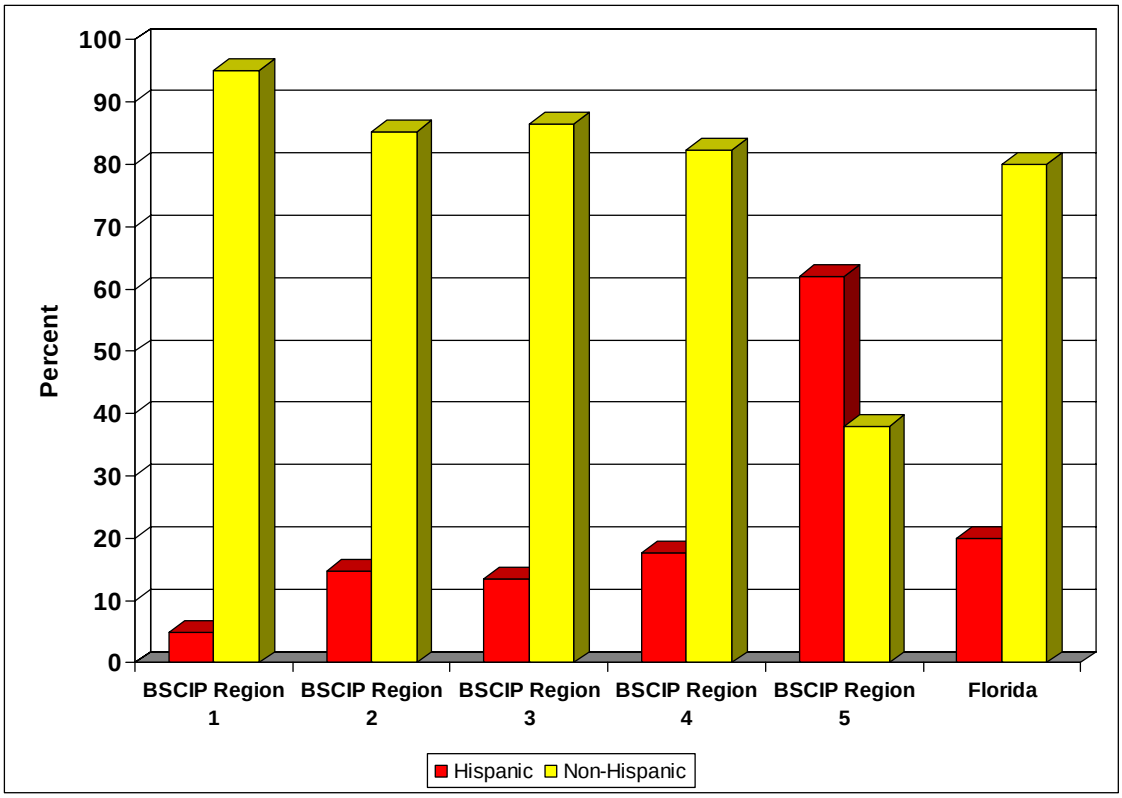
Numbers in parentheses represent decreases in population.
Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

Table 2-8: Population by Hispanic Ethnicity by BSCIP Regions and Florida, 2006.

Area	Total Population	Hispanic		Non-Hispanic	
		Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	167,237	4.9	3,213,251	95.1
BSCIP Region 2	3,780,193	560,349	14.8	3,219,844	85.2
BSCIP Region 3	3,971,460	537,093	13.5	3,434,367	86.5
BSCIP Region 4	4,799,835	848,098	17.7	3,951,737	82.3
BSCIP Region 5	2,546,333	1,582,040	62.1	964,293	37.9
Florida	18,478,309	3,695,662	20.0	14,782,647	80.0

Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Figure 2-4: Population by Hispanic Ethnicity by BSCIP Region and Florida, 2006.



Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 2-9: Population Projections by Hispanic Ethnicity by BSCIP Region and Florida, 2000–2015.

Area	Ethnicity	Population Year				Percent Change	
		2000	2005	2010	2015	2005 - 2010	2005 - 2015
BSCIP Region 1	Hispanic	108,640	152,938	192,149	228,072	25.6	49.1
	Non-Hispanic	2,826,751	3,138,619	3,455,863	3,742,062	10.1	19.2
	Total	2,935,391	3,291,557	3,648,012	3,970,134	10.8	20.6
BSCIP Region 2	Hispanic	351,408	528,213	699,173	860,298	32.4	62.9
	Non-Hispanic	2,773,874	3,114,157	3,453,888	3,766,260	10.9	20.9
	Total	3,125,282	3,642,370	4,153,061	4,626,558	14.0	27.0
BSCIP Region 3	Hispanic	354,842	488,957	619,206	746,633	26.6	52.7
	Non-Hispanic	3,130,749	3,364,697	3,601,617	3,815,179	7.0	13.4
	Total	3,485,591	3,853,654	4,220,823	4,561,812	9.5	18.4
BSCIP Region 4	Hispanic	563,566	766,661	975,557	1,180,254	27.2	53.9
	Non-Hispanic	3,539,597	3,859,497	4,232,841	4,571,448	9.7	18.4
	Total	4,103,163	4,626,158	5,208,398	5,751,702	12.6	24.3
BSCIP Region 5	Hispanic	1,304,290	1,488,648	1,673,076	1,841,807	12.4	23.7
	Non-Hispanic	1,028,661	1,015,840	1,016,978	1,015,490	0.1	(0.0)
	Total	2,332,951	2,504,488	2,690,054	2,857,297	7.4	14.1
Florida	Hispanic	2,682,746	3,425,417	4,159,161	4,857,064	21.4	41.8
	Non-Hispanic	13,299,632	14,492,810	15,761,187	16,910,439	8.8	16.7
	Total	15,982,378	17,918,227	19,920,348	21,767,503	11.2	21.5

Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

Gender

Males are approximately two times more likely to experience a TBI than their female counterparts.[2] Because of this phenomenon, communities with a greater percentage of men may have increased rates of TBI. Table 2-10 describes the gender distribution in Florida and the BSCIP regions. In Florida, 51.2 percent of residents are female and 48.8 percent are male. Like the state, each BSCIP region has a slightly higher percentage of females than males. Table 2-11 shows population projections through 2015 by gender. The increase in the population in Florida and each BSCIP region is not impacted by gender, as the population growth is consistent across genders.

Table 2-10: Total Population by Gender by BSCIP Regions and Florida, 2006.

Area	Total Population	Males		Females	
		Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	1,674,086	49.5	1,706,794	50.5
BSCIP Region 2	3,780,193	1,849,285	48.9	1,931,227	51.1
BSCIP Region 3	3,971,460	1,924,660	48.5	2,046,800	51.5
BSCIP Region 4	4,799,835	2,327,577	48.5	2,472,258	51.5
BSCIP Region 5	2,546,333	1,236,274	48.6	1,310,059	51.4
Florida	18,478,309	9,011,882	48.8	9,467,139	51.2

Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 2-11: Population Projections by Gender by BSCIP Region and Florida, 2000–2015.

Area	Gender	Population by Year				Percent Change	
		2000	2005	2010	2015	2005 -2010	2005 -2015
BSCIP Region 1	Females	1,481,873	1,659,767	1,837,737	2,004,496	10.7	20.8
	Males	1,453,518	1,631,790	1,810,275	1,965,638	10.9	20.5
	Total	2,935,391	3,291,557	3,648,012	3,970,134	10.8	20.6
BSCIP Region 2	Females	1,595,277	1,852,940	2,111,098	2,351,489	13.9	26.9
	Males	1,530,005	1,789,430	2,041,963	2,275,069	14.1	27.1
	Total	3,125,282	3,642,370	4,153,061	4,626,558	14.0	27.0
BSCIP Region 3	Females	1,797,762	1,978,805	2,162,494	2,333,550	9.3	17.9
	Males	1,687,829	1,874,849	2,058,329	2,228,262	9.8	18.9
	Total	3,485,591	3,853,654	4,220,823	4,561,812	9.5	18.4
BSCIP Region 4	Females	2,108,074	2,371,241	2,668,693	2,948,162	12.5	24.3
	Males	1,995,089	2,254,917	2,539,705	2,803,540	12.6	24.3
	Total	4,103,163	4,626,158	5,208,398	5,751,702	12.6	24.3
BSCIP Region 5	Females	1,201,677	1,290,182	1,387,826	1,476,981	7.6	14.5
	Males	1,131,274	1,214,306	1,302,228	1,380,316	7.2	13.7
	Total	2,332,951	2,504,488	2,690,054	2,857,297	7.4	14.1
Florida	Females	8,184,663	9,152,935	10,167,848	11,114,678	11.1	21.4
	Males	7,797,715	8,765,292	9,752,500	10,652,825	11.3	21.5
	Total	15,982,378	17,918,227	19,920,348	21,767,503	11.2	21.5

Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

Population by Rural Residence

Disparities in health among rural residents are well documented. Living in a rural area is a health risk factor because of many associated factors that can negatively impact health and access to healthcare. The Florida Department of Health, Office of Rural Health has identified issues that impact the health of rural residents in Florida: disproportionately high mortality rates relative to urban areas for selected diseases and for particular population groups; large populations of uninsured/underinsured persons; severe recruitment/retention problems for Emergency Medical Services; shortage of health personnel; limited physical and/or financial access to services; and significant financial hardships typically suffered by hospitals.[7] Because of these issues, individuals with TBI who live in the rural areas face exaggerated barriers when accessing healthcare.

The definition of "rural" used in this assessment is provided by the Florida Department of Health, Office of Rural Health. The statutory definition of rural is "an area with a population density of less than 100 individuals per square mile or an area defined by the most recent United States Census as rural."[8] Based on this definition, currently 33 of 67 counties in Florida are identified as rural.

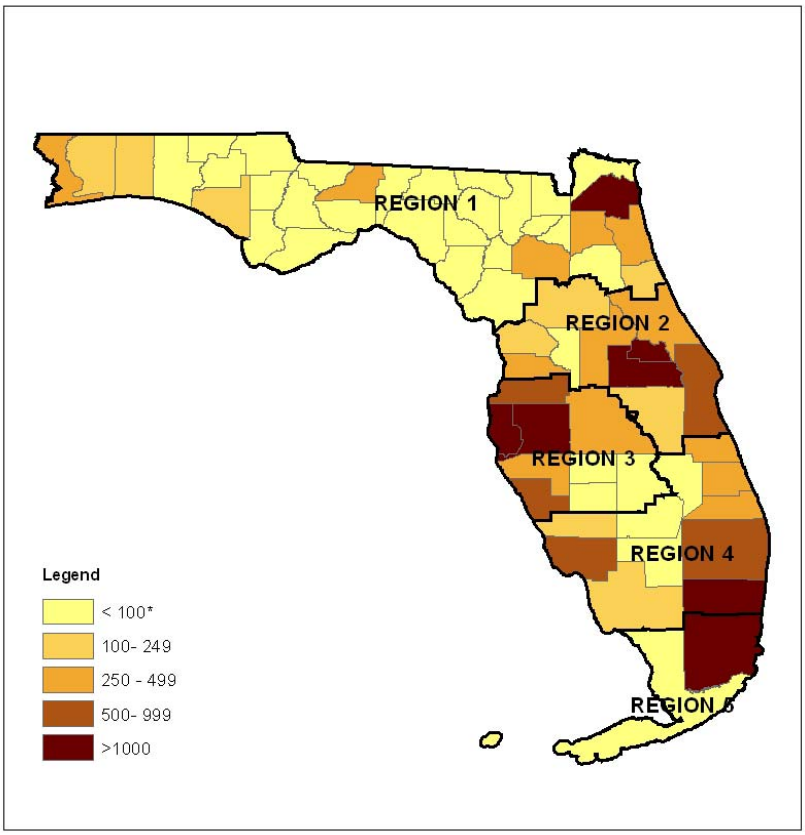
Figure 2-5 shows the population density by county in Florida and Table 2-12 shows the population densities and rural populations by region and for Florida. Regional population density was calculated by dividing the total population of the region by the total number of square miles in the region. The rural regional population is estimated by summing the population of the identified rural counties in the designated geographic area. In Florida, 6.2 percent of the population resides in rural counties. BSCIP Region 1 contains 71.4 percent (25 of 35 counties) of the rural counties in the state. The population density of this region is 143.5 individuals per square mile, making it the most "rural." Even though 71.4 percent of the counties in BSCIP Region 1 are rural, these counties only represent 22 percent of the total population of the region. All other regions have population densities of over 400 individuals per square mile and a rural population of 4 percent or less of the total population.

Table 2-12: Population Density and Rural Population by BSCIP Regions and Florida, 2006.

Area	Total Population	Population Density	Rural Population		Urban Population	
			Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	143.5	744,523	22.0	2,635,965	78.0
BSCIP Region 2	3,780,193	429.5	77,161	2.0	3,703,032	98.0
BSCIP Region 3	3,971,460	529.9	159,645	4.0	3,811,815	96.0
BSCIP Region 4	4,799,835	434.9	88,202	1.8	4,711,633	98.2
BSCIP Region 5	2,546,333	865.6	81,881	3.2	2,464,452	96.8
Florida	18,478,309	343.2	1,151,412	6.2	17,326,897	93.8

Population Density= individuals per square mile.
Source: ESRI Business Solutions, 2006; Florida Statistical Abstract 2006, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 2-5: Population Density by County in Florida, 2006.



* Nassau, Putnam and Sumter Counties are designated rural, but population density is greater than 100 people per square mile. They are included in the <100 category.
Population Density= individuals per square mile.
Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

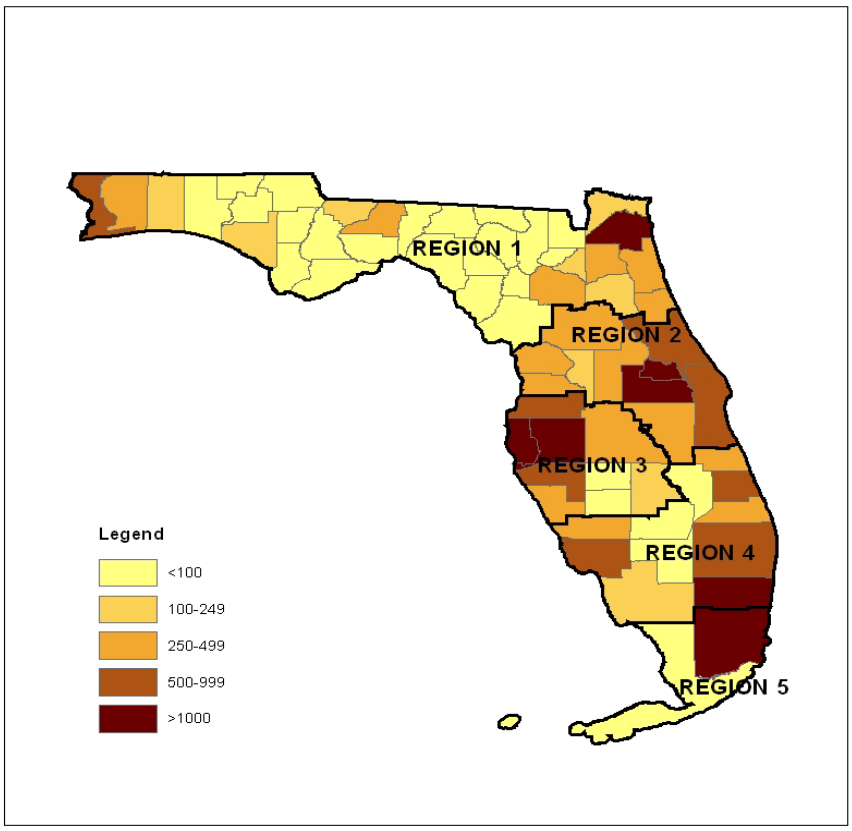
Figure 2-6 displays the projected population densities for each county in 2015 and Table 2-13 shows the projected population densities and rural populations for each BSCIP region and Florida. Based on the Florida Department of Health, Office of Rural Health definition of rural county, 28 of the 67 counties in Florida will qualify for rural county designation by having a population density of less than 100 individuals per square mile in 2015. The population in seven counties is projected to increase to greater than 100 individuals per square mile, which will change the county designation from rural. By 2015, Region 1 is projected to contain 75 percent (21 of 28 counties) of the rural counties in the state. Four counties in this region are projected to lose rural status. The population density of this region is projected to be 171.7 individuals per square mile, making it the most "rural," but the population is projected to increase, by 28.2 individuals per square mile. Even though the region is projected to have 75 percent of the rural counties in the state, this only represents 15.4 percent of the projected total population of the region. All other regions have population densities of over 500 individuals per square mile and a rural population of 3 percent or less. As the population increases, the number of rural counties and the percentage of people living in designated rural areas are projected to decrease. The increase in population in rural areas will potentially increase the need for services and service capacity in those areas.

Table 2-13: Population Density and Rural Population by BSCIP Regions and Florida, 2015.

Area	Total Population	Population Density	Rural Population		Urban Population	
			Number	Percent	Number	Percent
BSCIP Region 1	3,970,134	171.7	609,302	15.4	3,360,832	84.6
BSCIP Region 2	4,626,558	786.5	0	0.0	4,626,558	100
BSCIP Region 3	4,561,812	608.6	70,700	1.5	4,491,112	98.5
BSCIP Region 4	5,751,702	533.9	99,946	1.7	5,651,756	98.3
BSCIP Region 5	2,857,297	971.3	85,756	3.0	2,771,541	97.0
Florida	21,767,503	404.3	865,704	4.0	20,901,799	96.0

Population Density= individuals per square mile
Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030; Florida Statistical Abstract 2006, accessed Mar 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 2-6: Population Density by County in Florida, 2015.



Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030. Florida Statistical Abstract 2006, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Economic Characteristics

The economic status and often the health status, of a region and its residents can be assessed by examining a variety of economic characteristics. Some of the most critical include per capita income, median income, poverty status and employment. Lower poverty and better employment have all been shown to impact favorably health access and health outcome. Conversely, higher poverty and poorer employment are definite predictors of a lack of access to healthcare and adverse health outcomes. In this section, standard measures of income, poverty status and employment are used to describe each BSCIP region and Florida.

Per Capita and Median Household Income

Increased income is associated with increased access to healthcare and related services. Per capita income and median household income are used as indicators of wealth for a given area. Per capita income is the total income for a given population divided by the number of people within the population. Table 2-14 displays the per capita income for Florida and each BSCIP region. Florida's income is $26,399 per capita. BSCIP Regions 3 and 4 have per capita income levels higher than the state per capita income level. BSCIP Region 5 has the lowest per capita income ($22,706).

Median household income is the amount that divides the income distribution into two equal groups, half of the population having an income above that amount and half of the population having an income below that amount. The median household income in Florida is $46,736. Table 2-14 displays the percentage of counties within each BSCIP region with a median household income higher than the state median household income. The percentage of counties in the region with a median household income greater than the state's median household income ranges from 20 percent to 54.5 percent of counties. Please do not compare percentages across region because the number of counties within the BSCIP regions varies significantly, which can impact the percentage distribution within the region.

Table 2-14: Per Capita and Median Household Income by Region and Florida, 2006.

Area	Per Capita Income	Percent*
BSCIP Region 1	$24,198	20.0 (7)
BSCIP Region 2	$25,105	30.0 (3)
BSCIP Region 3	$26,593	22.2 (2)
BSCIP Region 4	$30,767	54.5 (6)
BSCIP Region 5	$22,706	50 (1)
Florida	$26,399	$46,736

*Percent of counties with median household income greater than Florida.
() number of counties with median household income greater than Florida.
Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Poverty

Each year, the United States Department of Health and Human Services (DHHS) establishes national poverty levels (Table 2-15). These levels are established by comparing annual income to "poverty thresholds." The thresholds vary by family size. For example, a family of four living in the 48 contiguous states and District of Columbia is considered to be living in poverty in 2006 if the household income is below $20,000. A poverty rate for a county is the percentage of the county's individuals that have an annual income or live in a household with an annual income below the poverty threshold.

Table 2-15: Federal Poverty Levels, 2006.

Persons in Family Unit	48 Contiguous States and D.C.	Alaska	Hawaii
1	$ 9,800	$12,250	$11,270
2	$13,200	$16,500	$15,180
3	$16,600	$20,750	$19,090
4	$20,000	$25,000	$23,000
5	$23,400	$29,250	$26,910
6	$26,800	$33,500	$30,820
7	$30,200	$37,750	$34,730
8	$33,600	$42,000	$38,640
For each additional person, add	$3,400	$4,250	$3,910

Source: Federal Register, vol. 71, no. 15, accessed Jan 24, 2007.
Prepared by: WellFlorida Council Inc., 2007.

Poverty data is estimated during each decennial census. The latest poverty rates available are for the 2000 United State Census (based on 1999 income). In the analysis that follows, it is assumed that the latest poverty rate from the 2000 United States Census is the best available estimate of the state and local poverty rate. In order to calculate numbers of persons, children and households in poverty (Table 2-16 and Figure 2-8), the 2000 United States Census poverty percentages are used with the 2006 population data.

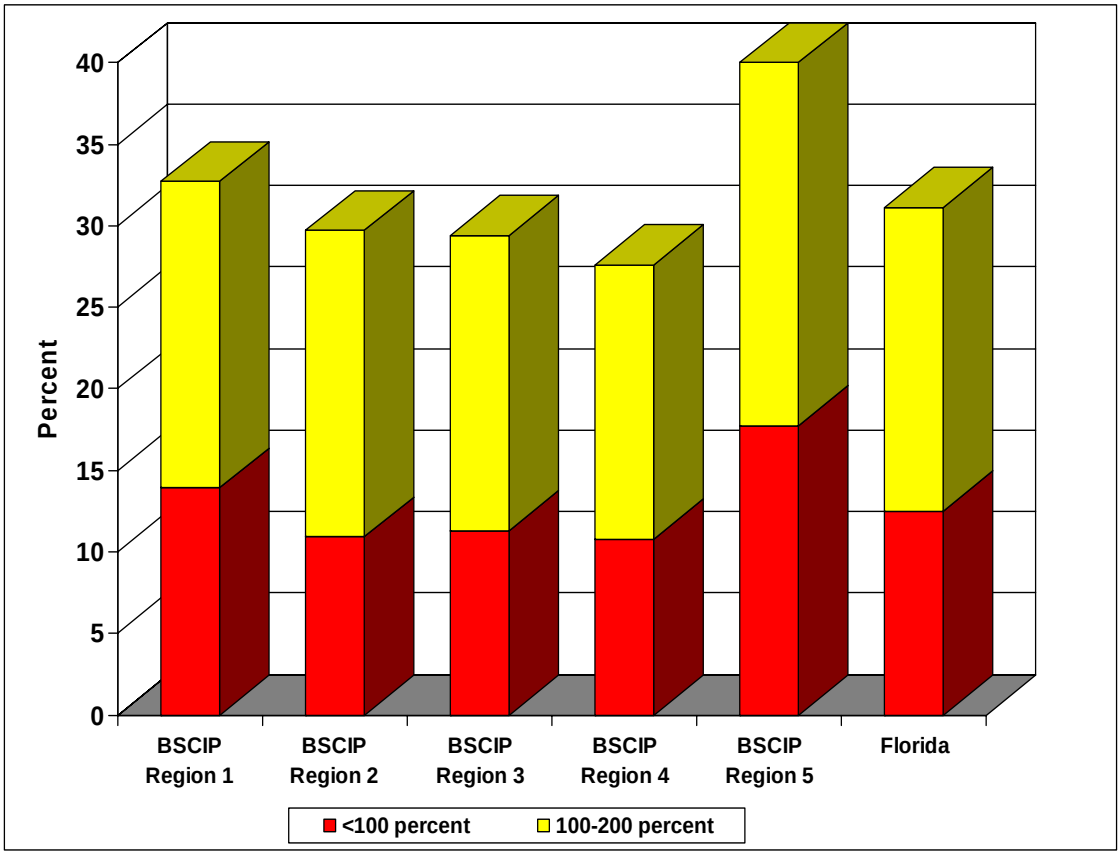
Table 2-16 and Figure 2-7 show that, in terms of poverty rate, 12.5 percent of Florida's population is estimated to be in poverty (i.e., 100 percent of the federal poverty level) and 18.6 percent of residents are estimated to be between 100 and 200 percent of the federal poverty level. BSCIP Region 5 has the greatest percentage of residents at 100 percent of the federal poverty level and between 100 and 200 percent of the federal poverty level, 17.7 percent and 22.3 percent, respectively. BSCIP Region 4 has the lowest percentage of residents at 100 percent of the federal poverty level and between 100 and 200 percent of the federal poverty level, 10.8 percent and 16.8 percent, respectively.

Table 2-16: Estimated Number of Persons in Poverty by Level by BSCIP Region and Florida, 2006.

Area	Total Population	< 100% Poverty		100-199% Poverty		> 200% Poverty	
		Estimated Number	Percent	Estimated Number	Percent	Estimated Number	Percent
BSCIP Region 1	3,380,488	471,483	13.9	635,344	18.8	2,273,661	67.3
BSCIP Region 2	3,780,193	411,874	10.9	710,594	18.8	2,657,726	70.3
BSCIP Region 3	3,971,460	450,426	11.3	718,945	18.1	2,802,089	70.6
BSCIP Region 4	4,799,835	517,888	10.8	805,386	16.8	3,476,561	72.4
BSCIP Region 5	2,546,333	450,803	17.7	567,396	22.3	1,528,134	60.0
Florida	18,478,309	2,312,107	12.5	3,443,102	18.6	12,723,099	68.9

Source: U.S. Department of Commerce, the Bureau of the Census, 2000 Summary File 1; ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Figure 2-7: Persons Living in Poverty by Level of Poverty, by BSCIP Region and Florida, 2006.



Source: U.S. Department of Commerce, Census Bureau, Summary File 3, 2000; ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Employment

Being employed with health benefits or being the spouse or dependent of someone whose employer provides health insurance is still the most common way to obtain private health insurance in the United States. Unemployed individuals are thus vastly less likely to have private health insurance coverage. Table 2-17 displays the unemployment rates for Florida and each BSCIP Region.

Current unemployment rates in Florida are 3.2 percent of the number of people in the labor force. As in the percentage of people living in poverty, BSCIP Region 5 has the highest percentage of unemployment (3.8 percent) compared to each BSCIP region.

Table 2-17: Unemployment Rates by BSCIP Regions and Florida, 2006.

Area	Number in Labor Force	Number of Employed Persons	Number of Unemployed Persons	Unemployment Rate
BSCIP Region 1	1,603,997	1,554,240	49,757	3.1
BSCIP Region 2	1,828,561	1,772,883	55,678	3.0
BSCIP Region 3	1,945,198	1,885,828	59,370	3.1
BSCIP Region 4	2,398,273	2,323,901	74,372	3.1
BSCIP Region 5	1,190,649	1,145,716	44,933	3.8
Florida	8,967,000	8,683,000	284,000	3.2

Source: Labor Market Info, Florida Research & Economic Database, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Educational Attainment

Today's complex healthcare systems and treatment guidelines are often difficult to navigate and understand. Generally, persons with higher educational levels utilize healthcare systems somewhat more effectively and efficiently than their counterparts without higher levels of educational attainment. In addition, research has suggested that educational level also has a bearing on health outcome.

Approximately 20 percent of Florida residents (age 25 and over) have no high school diploma (Table 2-18). BSCIP Region 5 has the greatest percentage (31.5 percent) of residents without a high school diploma. The percentage of people without a high school diploma in the other regions ranged from 17.7 percent to 19.2 percent.

For just over 50 percent of the Florida population, a high school diploma is their highest level of educational attainment. BSCIP Region 5 has the smallest percentage (40.3 percent) of residents who earned a high school diploma as their highest level of educational attainment. The percentage of people receiving a high school diploma as their highest level of educational attainment in the other regions ranged from 50.9 percent to 53.4 percent. A college degree or

higher has been earned by 29.4 percent of the population of Florida. Between 28.1 percent and 31.1 percent of the population in each BSCIP region earned a college degree or higher.

Table 2-18: Population by Educational Attainment by BSCIP Regions and Florida, 2006.

Area	25+ Population	No High School Diploma		High School Diploma *		College Degree or Higher **	
		Estimated Number	Percent	Estimated Number	Percent	Estimated Number	Percent
BSCIP Region 1	2,230,689	405,135	18.2	1,162,965	52.1	662,589	29.7
BSCIP Region 2	2,640,002	466,405	17.7	1,408,873	53.4	764,723	29.0
BSCIP Region 3	2,820,214	541,835	19.2	1,485,279	52.7	793,101	28.1
BSCIP Region 4	3,437,360	619,410	18.0	1,750,589	50.9	1,067,361	31.1
BSCIP Region 5	1,692,624	532,529	31.5	682,909	40.3	477,186	28.2
Florida	12,814,707	2,580,399	20.1	6,473,098	50.5	3,761,210	29.4

* High school diploma includes those that have some college but no college degree.
** College degree includes Associate, Bachelors, Masters, Professional School and Doctorate degrees.
Source: U.S. Department of Commerce, the Bureau of the Census, 2000 Summary File 1; ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council, 2007.

Summary of Key Findings

Population

- Florida's current population is nearly 18.5 million with the largest percentage of the population located in BSCIP Region 4 (26.0 percent). The population of Florida is projected to increase approximately 21.5 percent by 2015 with the largest increase projected in BSCIP Region 2 (27.0 percent).
- BSCIP Region 1 represents 43.8 percent of the state's geography, but contains only 18.3 percent of the state's population.
- The age group 0-4 years, which has the highest risk for TBI, represents the smallest proportion of Florida's population (6.0 percent), but this age group is projected to grow 17.6 percent by 2015.
- The population of individuals 65 and over is projected to increase 36.1 percent by 2015 with the greatest increase (52.3 percent) in BSCIP Region 1.
- Currently, Florida's population is 75.7 percent white and 15.5 percent black. Florida's population is anticipated to have a 12.7 percent increase in whites, a 28.9 percent increase in blacks and a 41.9 percent increase in all other races by 2015.
- Region 5 is the only region that is expecting a decrease in the percentage of white residents (18.8 percent) by 2015.
- Currently, Region 5 has a substantially higher percentage (62.1 percent) of individuals of Hispanic background than the state. But, the proportion of individuals who identify as being of Hispanic ethnicity is projected to increase through 2015 throughout Florida.

- Currently, 33 of 67 counties in Florida are rural, representing 6.2 percent of the population. Region 1 contains 71.4 percent of the rural counties in the state, making up 22 percent of the population in this region.
- The population in urban areas is increasing at a slightly faster pace then that of rural areas, but both are increasing.

Economic Characteristics

- Florida's income is $26,399 per capita and the median household income is $47,736.
- BSCIP Regions 3 and 4 have income per capita levels higher than the state per capita income level. BSCIP Region 5 has the lowest per capita income.
- Approximately 12.5 percent of Florida's population is estimated to be living in poverty (i.e., 100 percent of the federal poverty level) and 18.6 percent of residents are estimated to be between 100 percent and 200 percent of the federal poverty level.
- Current unemployment rates in Florida are 3.2 percent of the number of people in the labor force.
- BSCIP Region 5 has the greatest percentage of residents at or below 200 percent of the federal poverty level and the highest percentage of unemployment (3.8 percent) compared to other regions.
- BSCIP Region 4 has the lowest percentage of residents at or below 200 percent of the federal poverty level.

Educational Attainment

- Approximately 20 percent of Florida residents (age 25 and over) have no high school diploma and just over 50 percent have earned a high school diploma as their highest level of educational attainment.
- BSCIP Region 5 has the greatest percentage of residents without a high school diploma and the smallest percentage who earned a high school diploma as their highest level of educational attainment.
- 29.4 percent of the population of Florida have earned a college degree or higher.

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[1] Thurman DJ, Alverson C, Dunn KA, Guerrero J, Sniezek J. Traumatic brian injury in the United States: a public health perspective. Journal of Head Trauma and Rehabilitation. 1999. 41(6):602-615.
[2] Langlois JA, Rutland-Brown W, Thomas KE. Traumatic brain injury in the United States: emergency department visits, hospitalizations and deaths. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 2006.
[3] Langlois JA, Kegler SR, Butler JA, et al. Traumatic brain injury-related hospital discharges: results from a fourteen state surveillance system, 1997. Morbidity and Mortality Weekly Reports. 2003:52(SS-04):1–18.
[4] Rutland-Brown W, Langlois, J, Thomas, K, and Xi, L. Incidence of traumatic brain injury in the United States, 2003. Journal of Head Trauma and Rehabilitation. 2006; 21(6):544-548.
[5] U.S. Department of Health and Human Services, The Offices of Minority Health. Hispanic/Latino Profile. http://www.omhrc.gov/templates/browse.aspx?lvl=2&lvlID=54. Accessed Feb 2007.
[6] Heron MP, Smith BL. Deaths: leading causes for 2003. National vital statistics reports. Hyattsville (MD): Centers for Disease Control and Prevention, National Center for Health Statistics; Forthcoming.
[7] Florida Department of Health. Office of Rural Health. Rural Health Plan. 2002.
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Traumatic Brain Injury Profile

Introduction

This section of the assessment describes individuals with traumatic brain injuries in Florida, specifically with the intent of quantifying the prevalence and incidence of TBI in Florida and each BSCIP region. Prevalence is the proportion of persons with a particular disease or condition within a given population at a given time. Incidence is the number of new cases of an illness or condition during a specified time period in a given population. In addition to prevalence and incidence measures, data on individuals who sustained TBIs in Florida and each BSCIP region are presented, including analyses by age, race, ethnicity and gender. Details describing the most common causes of TBI are also presented.

This section includes a review of mortality and morbidity TBI-related data including vital statistics, hospitalization and emergency department data. This in-depth analysis of TBI in Florida will enable the state and key stakeholders to identify at-risk populations and geographies, which will ultimately help to facilitate future planning and guide service delivery decisions to improve the lives of individuals with TBI in Florida.

Prevalence of TBI-Related Disability

The prevalence of TBI-related disability is defined as the proportion of persons in the population at a given time who have a disability resulting from a TBI. The most recent TBI-related disability estimates, established in 1996, show that at least 5.3 million people in the United States (approximately two percent of the population) currently present long-term or lifelong need for help to perform activities of daily living as a result of a TBI.[1] This model incorporates estimates on the incidence of TBI, injury severity levels and the likelihood of TBI-related disability for given levels of severity. It reflects the proportion of the population who had ever been hospitalized for TBI that resulted in prolonged disability. This figure does not take into account individuals who visited emergency departments or outpatient clinics and those whose injuries have gone undetected. Therefore, although the prevalence of TBI-related disability may be underestimated, it remains the best model to date.

Table 3-1 estimates the prevalence of TBI-related disability for Florida and each BSCIP region based on 2006 population estimates. As expected, the prevalence of TBI-related disability mirrors the population distribution. In Florida, approximately 369,566 people (2 percent) are living with a TBI-related disability. BSCIP Region 4 contains the greatest number of people living with TBI-related disabilities (95,997) and BSCIP Region 5 has the fewest number of people living with TBI-related disabilities (50,927).

Table 3-1: TBI-Related Disability Prevalence Estimates for the United States, Florida and BSCIP Regions, 2006.

Area	2006 Population		2006 TBI-Related Disability Prevalence	
	Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	18.3	67,610	18.3
BSCIP Region 2	3,780,193	20.5	75,604	20.5
BSCIP Region 3	3,971,460	21.5	79,429	21.5
BSCIP Region 4	4,799,835	26.0	95,997	26.0
BSCIP Region 5	2,546,333	13.8	50,927	13.8
Florida	18,478,309	100.0	369,566	100.0
United States	303,582,361	100.0	6,071,647	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: ESRI Business Solutions, 2006; Thurman et al. 1999.
Prepared by: WellFlorida Council Inc., 2007.

Using population projections, Table 3-2 provides prevalence estimates for TBI-related disability in Florida and the BSCIP regions through 2015. The projections for Florida were provided by the Bureau of Economic and Business Research at the University of Florida. The growth in the prevalence of TBI-related disability mirrors the projected population growth through 2015 that was discussed in the demographic section of this report. By 2015, approximately 435,350 people in Florida will be living with a TBI-related disability, with the greatest concentration in BSCIP Region 4 (115,034 people). BSCIP Region 2 is anticipating the greatest increase in the percentage of TBI-related disabilities and BSCIP Region 5 is expecting the smallest increase in the percentage of the prevalence of TBI-related disability.

Please note that this model underestimates the number of people living with a TBI-related disability by not including individuals who received treatment in the emergency departments or outpatient clinics as well as those who did not access medical care for their injuries.

Table 3-2: TBI-Related Disability Prevalence Projections for Florida and BSCIP Regions, 2000-2015.

Area	Prevalence of TBI-Related Disability				Percent Change	
	2000	2005	2010	2015	2005 - 2010	2005 - 2015
BSCIP Region 1	58,708	65,831	72,960	79,403	10.8	20.6
BSCIP Region 2	62,506	72,847	83,061	92,531	14.0	27.0
BSCIP Region 3	69,712	77,073	84,416	91,236	9.5	18.4
BSCIP Region 4	82,063	92,523	104,168	115,034	12.6	24.3
BSCIP Region 5	46,659	50,090	53,801	57,146	7.4	14.1
Florida	319,648	358,365	398,407	435,350	11.2	21.5

Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030; Thurman et al. 1999.
Prepared by: WellFlorida Council Inc., 2007.

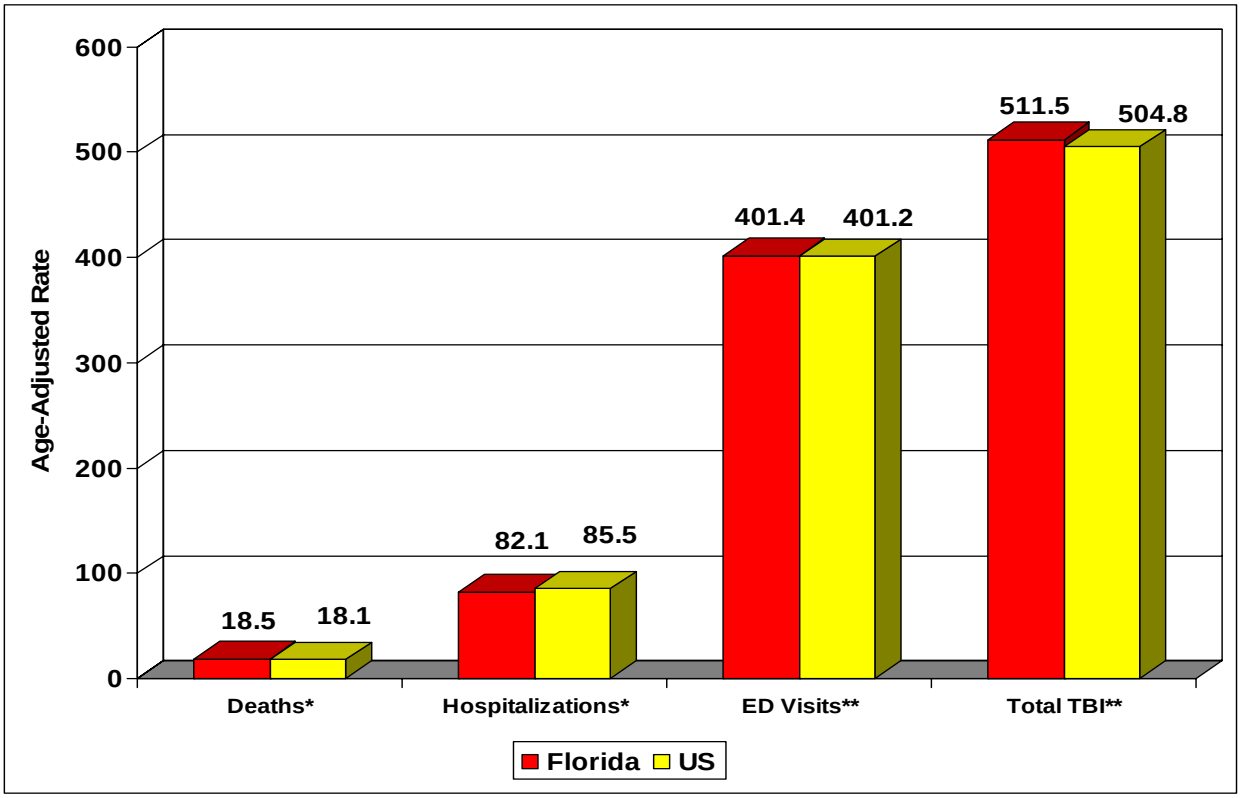
Incidence of TBI

Incidence of TBI is defined as the proportion of new brain injuries within a selected population during a given time period. The CDC published report, "Traumatic Brain Injury In the United States: Emergency Department Visits, Hospitalizations and Deaths," presents the most comprehensive measures of the incidence of TBI in the United States to date.[2] This report incorporates emergency department visits into the incidence rate, which account for approximately 80 percent of all TBIs and a large percentage of mild TBIs. The TBI incidence rates for Florida were calculated using the methodology presented in this report. The methodology used in this report does not take into account injury severity, but it has been estimated through the South Carolina Department of Health Traumatic Brain Injury Surveillance Program that 49 percent of TBI-related hospitalizations and 100 percent of emergency department visits were classified as mild TBI from 1996 through 2000. Therefore, 86.5 percent of all TBIs were diagnosed as mild and 13.5 percent were diagnosed as moderate-to-severe.[3]

The data presented are from three state data sources: Florida Department of Health, Vital Statistics, Public Health Statistics 2005; Agency for Healthcare Administration (AHCA), Detailed Discharge Data 2005; and AHCA, Emergency Department Data 2005. Single-year rates are presented in this section of the report because only one year of ED data is currently available for analysis. Therefore, the stability of this measure over time is questionable until additional data become available. The total number of TBIs was computed by summing all identified TBI-related deaths, hospitalizations, and ED visits during 2005. A detailed description of TBI case identification methodology is provided in each of the sections below (Appendix A). Figure 3-1 summarizes the rates of total TBI, TBI-related deaths, hospitalizations and ED visits for Florida and the United States.

Data for this section are presented in two ways, crude and age-adjusted rates. Crude rates show the number of TBIs in a given population during a defined time-frame. Age-adjusted rates are used to compare TBI rates between different geographic areas. Adjustments are made to account for the differences in age distributions between populations by using a "standard" population. The standard population for purposes of this study is the 2000 United States population. Age-adjusted rates are those rates that would have been observed if the age distribution of the compared areas were the same as that of the standard 2000 United States population. Age-adjusted rates represent a summary or indicator rate of TBI and permit an unbiased comparison regardless of the differences in age distributions of the populations being compared.

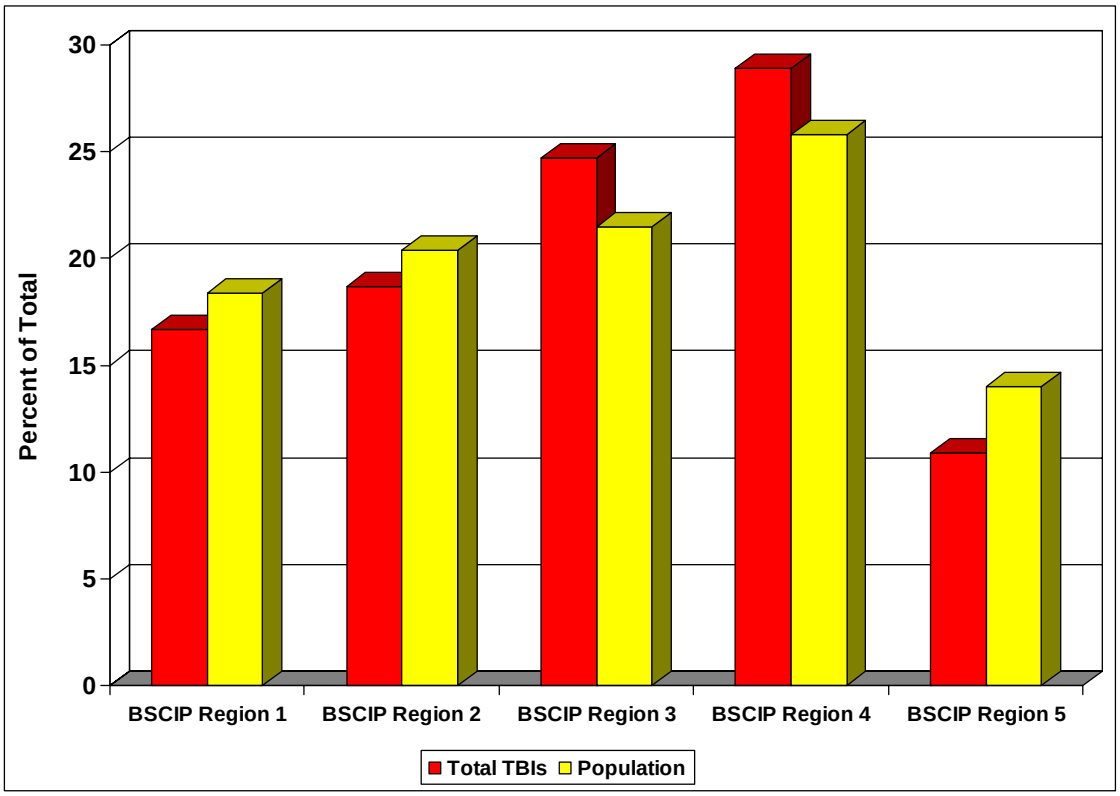
Figure 3-1: Age-Adjusted Rates (per 100,000) for Total TBI, Deaths, Hospitalizations and ED Visits for Florida and the United States.



Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; *State of Florida, AHCA, Detailed Discharge Data, 1999-2005; **State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; **State of Florida, AHCA, Detailed Discharge Data, 2005; **State of Florida, AHCA, Emergency Department Data, 2005;***Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

In 2005, there were 92,948 TBIs in Florida, which included 3,911 deaths (4.2 percent), 17,655 hospitalizations (19.0 percent) and 71,382 ED visits (76.8 percent). Nationally, an average of 1.4 million TBIs occur each year which include 1.1 million ED visits (79.6 percent), 235,000 hospitalizations (16.8 percent) and 50,000 deaths (3.6 percent). In 2005, TBIs in Florida resulted in a greater percentage of deaths and hospitalizations compared to the national averages. Figure 3-2 displays the percentage of total TBIs compared to the percentage of the total Florida population by BSCIP Region. The most TBIs occurred in BSCIP Region 4 (26,889) compared to BSCIP Region 5 with the fewest (10,149) in 2005. BSCIP Regions 3 and 4 experienced a greater percentage of TBIs in the state compared to the percentage of the total population. BSCIP Region 5 contained 10.9 percent of Florida's TBIs, compared to housing 14.0 percent of the total population. Four of the five counties with the largest populations had the greatest number of TBIs in 2005: Miami-Dade (9,866), Broward (9,125), Hillsborough (6,874) and Palm Beach (6,338). Orange County had the fifth greatest population in the state, but ranked seventh in terms of TBIs reported in 2005. Detailed tables for total TBIs in Florida are available in Appendix B.

Figure 3-2: Percentage of Total TBIs and Total Population by BSCIP Region, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Total Crude and Age-Adjusted TBI Rates

Table 3-3 shows the 2005 crude and age-adjusted TBI rates per 100,000 of the population for Florida and each BSCIP region. The national TBI rates presented in this section are from 1995 through 2001, which were average annual rates published by the CDC in the aforementioned report.[2]

Florida's 2005 crude TBI rate (515.8) was greater than the national average annual crude TBI rate (506.4). The crude total TBI rates were highest in BSCIP Regions 3 and 4 in 2005 (594.0 and 577.9, respectively). BSCIP Region 5 had the lowest total crude TBI rate, 403.5 per 100,000 of the population, in the state during 2005.

Florida's age distribution does not mirror that of the nation. For example, a larger percentage of Florida's population (17.9 percent) is elderly (65 years of age and older) compared to the national percentage (12.5 percent). To compare rates across geographies, adjusting rates to the 2000 United States population is necessary.

- The 2005 age-adjusted rate for TBI in Florida was 511.5 per 100,000 of the population, compared to 504.8 per 100,000 of the population nationally. The state and BSCIP

Regions 3 and 4 (595.9 and 572.3, respectively) age-adjusted rates were higher than the average annual age-adjusted TBI rate (504.8) for the United States.

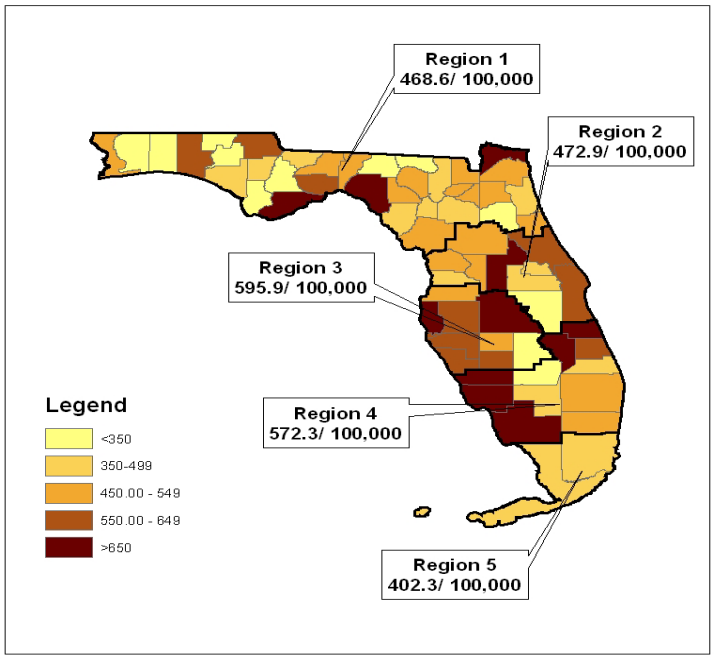
- The 2005 total TBI rates in BSCIP Regions 1 (468.6), 2 (472.9) and 5 (402.3) were lower than the state (511.5) and national age-adjusted rates (504.8).
- Figure 3-3 shows the age-adjusted TBI rates by county.

Table 3-3: Crude and Age-Adjusted TBI Rates for BSCIP Region, Florida and the United States, 2005.

Area	Population	Number TBIs	Rate per 100,000 Population	Age-Adjusted Rate per 100,000 Population**
BSCIP Region 1	3,309,865	15,520	468.9	468.6
BSCIP Region 2	3,668,898	17,380	473.7	472.9
BSCIP Region 3	3,872,485	23,003	594.0	595.9
BSCIP Region 4	4,652,345	26,889	577.9	572.3
BSCIP Region 5	2,514,904	10,149	403.5	402.3
Florida***	18,018,497	92,948.0	515.8	511.5
United States*	275,707,622	1,111,000	506.5	504.8

*United States rates from 1995-2001 population data.
** Age-adjusted to the US Standard Population, 2000.
***Florida rates include all TBIs with unknown region.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-3: Age-Adjusted TBI Rates by County and BSCIP Regions, 2005.



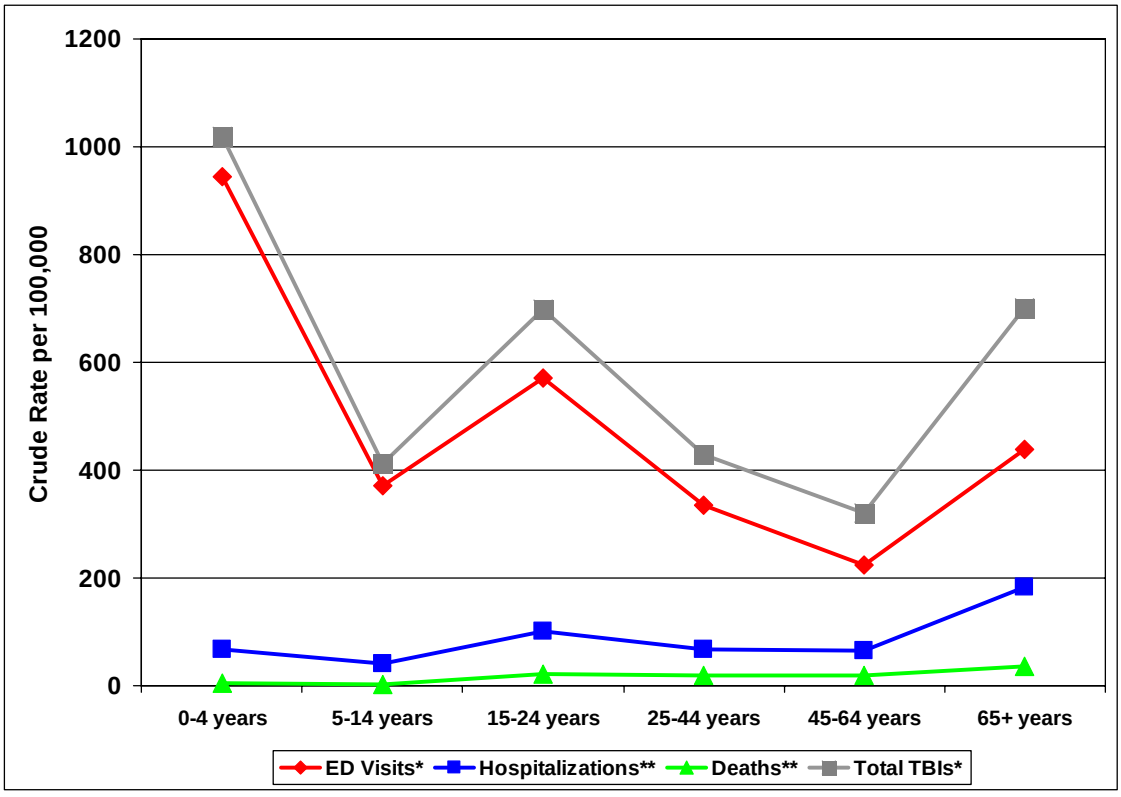
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHC, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Age, Race, Ethnicity and Gender

Figure 3-4 shows the rates for TBI-related deaths, hospitalizations, ED visits and total TBIs by age for 2005. The groups at greatest risk for TBI in Florida included children 0-4 years of age, young adults 15-24 years of age and adults over the age of 65. Similar to the national rates, rates for TBI-related ED visits were greatest in the 0-4 years of age group and TBI-related deaths and hospitalizations rates were highest in the 65 and older population.

Tables 3-4 (a-f) show the crude and age-adjusted total TBI rates for 2005 by age, race and gender for each BSCIP region and Florida. Table 3-4g shows crude and age-adjusted total TBI rates by age and gender for the United States. The national data are provided by the previously mentioned CDC report, which highlights the 1995-2001 average annual crude and age-adjusted total TBI rates.

Figure 3-4: Total TBIs, Deaths, Hospitalizations and ED Visits Rates by Age Group in Florida.

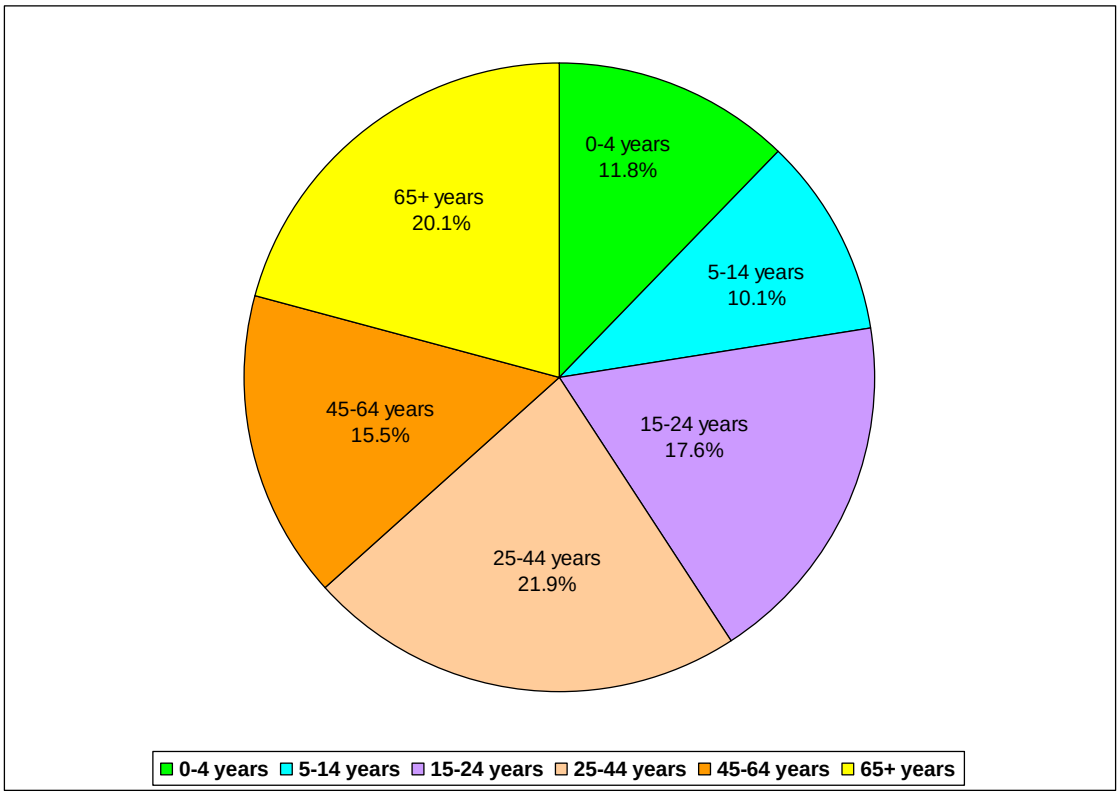


Source: *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; *State of Florida, AHCA, Detailed Discharge Data, 2005; *State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Age

Figure 3-5 depicts the percentage of total TBIs by age group for Florida. Adults, 25-44 years of age, accounted for 21.9 percent of all TBIs in Florida during 2005, followed by adults over the age of 65 (20.1 percent). Youth 5-14 years of age accounted for 10.1 percent of all TBI in Florida during 2005.

Figure 3-5: Percentage of Total TBIs by Age Group for Florida, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

0-4 Years

- There were 10,984 TBIs in 2005 in Florida for children 0-4 years of age, resulting in a rate of 1,020 per 100,000 people. The national annual rate for this age group was 1,120.7 per 100,000 of the population.
- The highest TBI rate (1,214.8) for this population during 2005 was in BSCIP Region 3.
- The lowest TBI rate (624.6) for this population during 2005 was in BSCIP Region 1.

5-14 Years

- There were 9,403 TBIs in the 5-14 years of age population in Florida during 2005, resulting in a rate of 413.2 per 100,000 people. The national annual rate for this age group was 642.4 per 100,000 of the population.
- The 5-14 years of age group had the lowest total TBI rate in the state in 2005.
- In 2005, the highest rate (519.4) for this population was in BSCIP Region 3.

- The lowest rate (344.4) for this population was in BSCIP Region 5.

15-24 Years

- In 2005, 16,329 TBIs occurred for individuals 15-24 years of age in Florida, resulting in a rate of 699.4 per 100,000 people. The national annual rate for this age group was 690.5 per 100,000 of the population.
- BSCIP Region 3 had the highest rate for this group with 863.2 per 100,000 of the population during 2005 compared to Region 5, with the lowest (425.4).

25-44 Years

- There were 20,328 total TBIs in the 25-44 years of age population in Florida during 2005, resulting in a rate of 427.8 per 100,000 people. The national annual rate for this age group was 410.8 per 100,000 of the population.
- BSCIP Regions 2 and 5 (391.4 and 267.9, respectively) had lower total TBI rates than the state.
- BSCIP Region 3 had the highest rate for this age group with 506.2 per 100,000 of the population during 2005.

45-64 Years

- During 2005, adults 45-64 years of age experienced 14,439 TBIs in Florida, resulting in a rate of 319.7 per 100,000 people. The national annual rate for this age group was 263.9 per 100,000 of the population.
- In 2005, the highest rate for this age group was in BSCIP Region 3 (360.9) compared to Region 5, which had the lowest rate (232.4).

65 and Older

- In 2005, 21,459 adults in Florida over the age of 65 sustained a TBI, resulting in a rate of 700.7 per 100,000 people. The national rate for this population was 448.2 per 100,000 people.
- The 65 and older age group has the second highest rate of TBI in the state.
- BSCIP Region 4 had the highest rate of TBI for this population of all the BSCIP regions with 756.3 per 100,000 of the population during 2005.

Rates by Race and Ethnicity

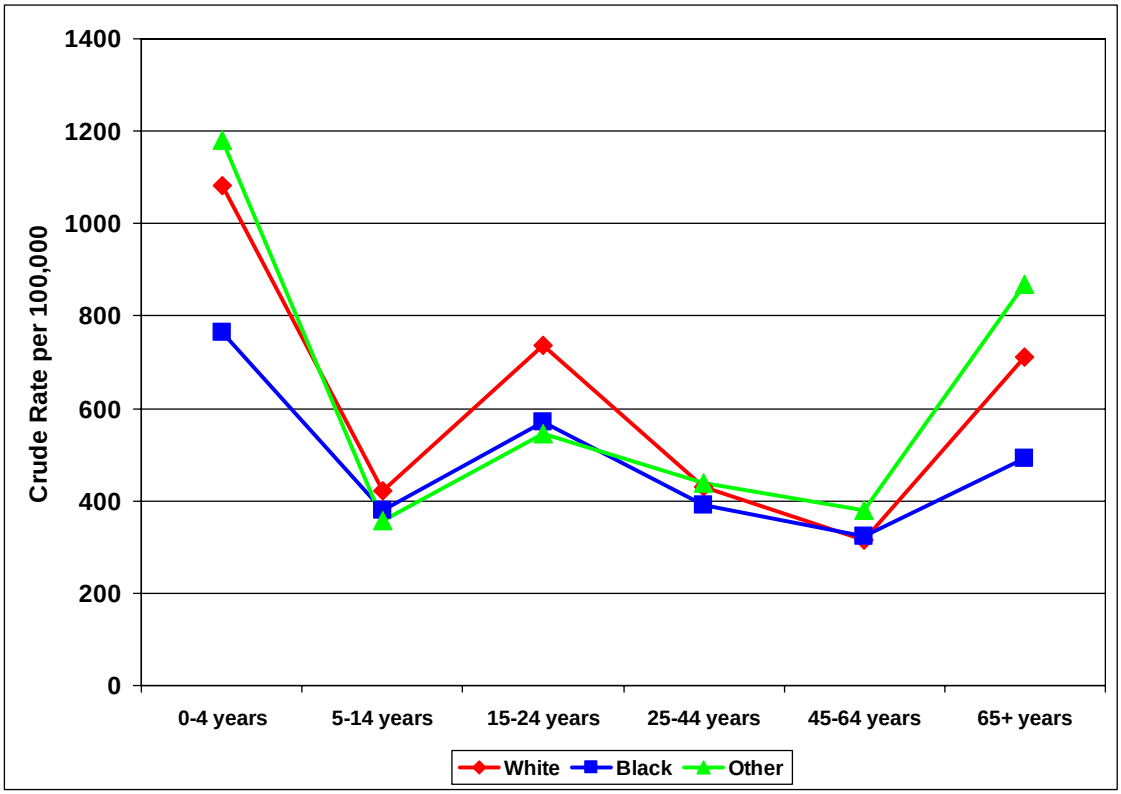
During 2005, individuals classified as "other" races had the highest crude rate of total TBIs (525.1) in Florida. Whites in Florida had the second highest crude rate (524.4) for TBI during 2005. Blacks who are at greatest risk for TBI hospitalizations and deaths in the United States, had the lowest rate for TBI (445.8) in Florida.

- In 2005, BSCIP Region 4 had the highest total TBI crude rate for all "other" races (798.9) and BSCIP Region 1 had the lowest (315.8).
- BSCIP Region 4 had the highest total TBI rate for whites (589.3) in 2005 and BSCIP Region 5 had the lowest (420.6).
- Blacks were at greatest risk for TBI in BSCIP Region 3 (608.8) and at lowest risk in BSCIP Region 5 (309.3).

Figure 3-6 displays the 2005 crude rates for total TBI by race and age groups in Florida.

- Individuals identified as "other" races had the highest rate of TBI in the youngest and oldest age groups, compared to whites and blacks.
- Whites, 15-24 years of age, were at greatest risk for TBI (735.9) compared to all other races.
- The disparity that exists between races is smaller in the 5-14, 25-44 and 45-64 age groups.

Figure 3-6: Total TBI Rates by Race and Age Group for Florida, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Similar to the crude rates, individuals identified as "other" races had the highest age-adjusted rate for TBI (539.2), compared to whites (522.3) and blacks (440.5) in Florida during 2005.

- When adjusted for age, in BSCIP Regions 2 and 3, whites (482.5 and 594.5, respectively) have the greatest risk for TBI compared to the other regions, which is unlike the state.

As noted in the previous section, the Office of Minority Health, in the United States Department of Health and Human Services, reports that the health of Hispanics is often shaped by language/cultural barriers, lack of access to preventive care and lack of health insurance.[4] Being of Hispanic background has been associated with increased burden of morbidity and mortality.[5] In 2005, 15 percent of all TBIs were sustained by individuals who were identified as being of

Hispanic ethnicity. The 2005 crude rate for total TBIs by Hispanic ethnicity are presented for Florida, BSCIP regions and each county in Appendix B. Table 3-5 shows the 2005 crude rates for TBI for Hispanics by BSCIP region and Florida. The rate in Florida for Hispanics in 2005 was 402.9 per 100,000 of the population, which is lower than the total TBI rate for Florida as a whole (515.8). The rate was highest in BSCIP Region 3, 505.4 per 100,000 of the population. BSCIP Region 1 had the lowest rate (276.9) per 100, 000 of the population. Age-adjusted rates were not computed for this population because the age specific data were not available.

Rates by Gender

Males are 1.4 times more likely to have a TBI than females in the United States. This trend exists in Florida as well. During 2005, males were 1.3 times more likely to experience a TBI than females in Florida. The crude rate for TBI for males in Florida was 593.7 per 100,000 and the rate for females was 441.1. In Florida, the rate for TBI for males was less than the national rate (618.1), but the rate for females was higher than the national rate (398.9).

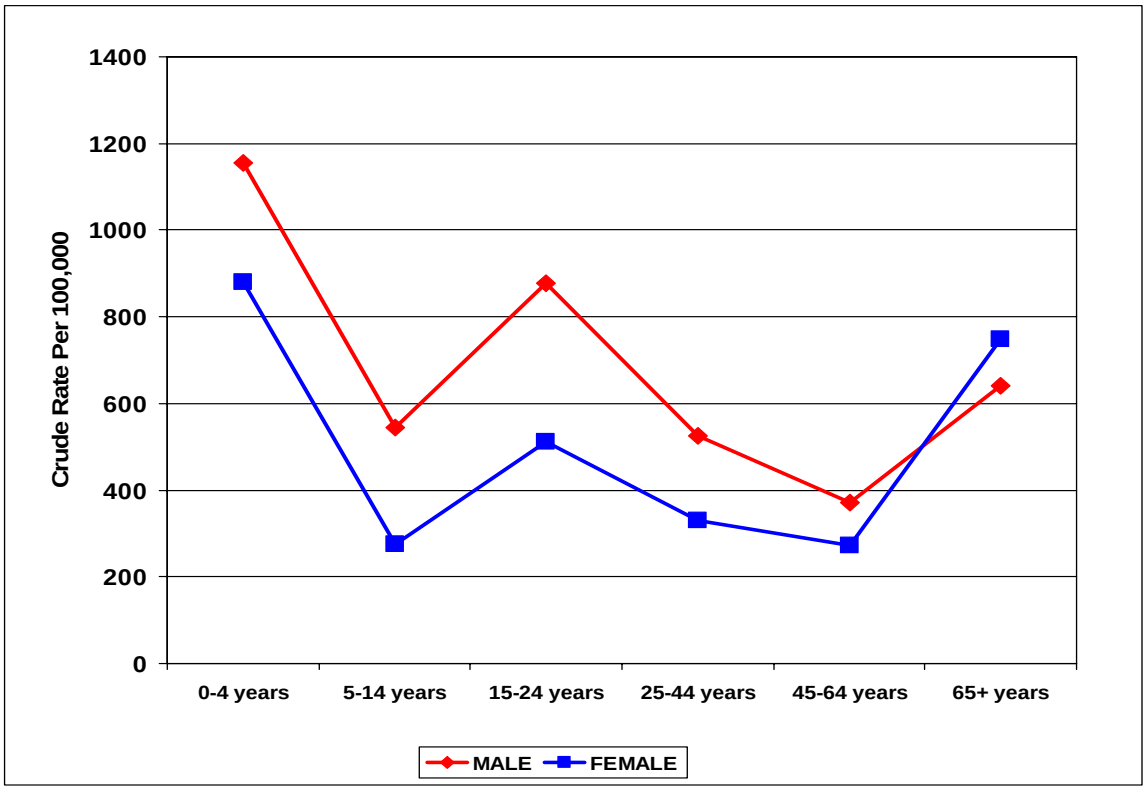
- BSCIP Region 3 had the highest crude TBI rates for males and females in the state. The lowest rates were found in BSCIP Region 5.

Across age groups in Florida, males were more likely to experience a TBI than females, except in the 65 years of age and older population (Figure 3-7). During 2005, the rate for TBI in females in this age group was 747.2 per 100,000 of the population compared to 640.4 per 100,000 for males. For males, the 0-4 years of age group was at highest risk for TBI in Florida during 2005 (1,155.5) followed by the 15-24 years of age group (877.4) in 2005.

The 2005 age-adjusted rate for TBI for males in Florida was 601.0 per 100,000 of the population. This rate was 1.4 times higher than the rate for females in Florida during that same time period.

- BSCIP Region 3 had the highest TBI age-adjusted rate for males and females. The lowest rates for both genders were in BSCIP Region 5.

Figure 3-7: Total TBI Crude Rates by Gender and Age Group for Florida, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4a: Crude and Age-Adjusted Total TBI Rates per 100,000 for Florida by Age, Race and Gender, 2005.

Age	Race							
	All		White		Black		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	10,984	1,020.0	8,535	1,083.0	1,895	764.0	480	1,179.6
5-14	9,403	413.2	7,140	421.7	1,890	378.5	297	357.3
15-24	16,329	699.4	12,755	735.9	2,956	570.9	457	546.7
25-44	20,328	427.8	16,131	430.3	3,367	391.7	631	439.0
45-64	14,439	319.7	11,969	314.0	1,956	323.4	379	379.7
65+	21,459	700.7	19,932	710.3	1,085	493.0	314	867.7
Total	92,948	515.8	76,467	524.4	13,149	445.8	2,558	525.1
Age-Adjusted Rate		511.5		522.3		440.5		539.2

Ages	Gender			
	Males		Females	
	Number	Rate	Number	Rate
0-4	6,330	1,155.5	4,653	879.5
5-14	6,340	543.8	3,063	276.0
15-24	10,481	877.4	5,847	512.9
25-44	12,562	524.0	7,765	329.7
45-64	8,080	371.4	6,357	271.5
65+	8,548	640.4	12,909	747.2
Total	52,342	593.7	40,598	441.1
Age-Adjusted Rate		601.1		418.4

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4b: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 2005.

Age	Race							
	All		White		Black		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	1,283	624.6	869	609.7	357	651.5	47	580.1
5-14	1,496	353.1	1,064	359.1	384	346.8	34	203.2
15-24	3,360	625.1	2,509	659.9	764	554.9	53	269.5
25-44	3,957	439.0	2,972	443.4	863	428.8	91	304.3
45-64	2,680	323.3	2,074	308.4	518	380.4	67	330.7
65+	2,744	664.7	2,429	685.6	276	538.3	30	411.8
Total	15,520	468.9	11,918	473.7	3,162	457.0	322	315.8
Age-Adjusted Rate		468.6		474.3		435.8		421.6

Ages	Gender			
	Males		Females	
	Number	Rate	Number	Rate
0-4	714	683.4	569	563.6
5-14	1,038	479.4	458	221.0
15-24	2,104	766.6	1,256	477.4
25-44	2,377	513.2	1,580	360.5
45-64	1,496	371.5	1,184	277.7
65+	999	555.7	1,745	748.8
Total	8,728	531.9	6,793	407.0
Age-Adjusted Rate		534.0		398.2

Total Crude and Age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4c: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 2005.

Age	Race							
	All		White		Black		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	1,916	911.3	1,498	928.2	303	764.5	105	1,137.8
5-14	1,669	356.4	1,335	363.9	273	332.8	56	289.8
15-24	3,241	683.1	2,670	715.9	454	550.3	99	520.5
25-44	3,779	391.4	3,132	398.4	523	360.3	105	307.6
45-64	2,696	292.2	2,329	290.6	287	292.6	66	286.0
65+	4,078	649.5	3,831	658.6	168	447.1	61	705.0
Total	17,380	473.7	14,796	481.9	2,008	414.0	492	433.7
Age-Adjusted Rates		472.9		482.5		407.9		433.6

Ages	Gender			
	Males		Females	
	Number	Rate	Number	Rate
0-4	1,109	1,037.0	806	780.3
5-14	1,094	456.3	575	251.7
15-24	2,055	843.6	1,186	513.7
25-44	2,301	470.8	1,478	310.0
45-64	1,496	336.0	1,199	251.2
65+	1,688	606.2	2,390	684.0
Total	9,743	540.5	7,635	409.1
Age-Adjusted Rates		549.4		393.5

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4d: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 2005.

Age	Race							
	All		White		Black		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	2,699	1,214.8	2,148	1,222.1	427	1,124.6	104	1,232.4
5-14	2,478	519.4	1,928	509.3	466	577.2	67	374.9
15-24	3,934	863.2	3,221	885.7	588	778.9	85	512.0
25-44	4,933	506.2	4,098	502.9	691	529.5	88	300.8
45-64	3,567	360.9	3,081	352.0	381	412.3	68	329.5
65+	5,391	714.6	5,075	711.5	191	568.5	69	918.3
Total	23,003	594.0	19,552	588.7	2,744	608.8	481	479.5
Age-Adjusted Rates		595.9		594.5		593.8		492.7

Ages	Gender			
	Males		Females	
	Number	Rate	Number	Rate
0-4	1,568	1,387.3	1,131	1,036.2
5-14	1,640	671.0	838	360.1
15-24	2,559	1,095.6	1,374	618.4
25-44	2,975	606.7	1,958	404.3
45-64	1,956	411.4	1,610	313.9
65+	2,077	633.8	3,312	776.1
Total	12,775	677.9	10,224	514.3
Age-Adjusted Rates		697.8		489.0

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4e: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 2005.

Age	Race							
	All		White		Black		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	3,104	1,166.3	2,369	1,266.2	556	808.5	150	1,461.6
5-14	2,619	455.2	1,935	465.3	556	400.1	95	461.2
15-24	4,341	826.4	3,328	881.8	786	610.2	168	880.5
25-44	5,694	483.6	4,451	489.4	889	381.8	282	803.9
45-64	4,106	348.1	3,396	341.4	525	325.8	137	575.0
65+	7,023	756.3	6,637	763.9	254	489.5	100	1,279.4
Total	26,889	578.0	22,117	589.3	3,566	455.8	932	798.9
Age-Adjusted Rate		572.3		589.4		452.4		610.5

Ages	Gender			
	Males		Females	
	Number	Rate	Number	Rate
0-4	1,801	1,330.3	1,303	996.5
5-14	1,794	607.8	825	294.4
15-24	2,835	1,050.1	1,506	589.8
25-44	3,666	619.4	2,027	346.2
45-64	2,337	410.9	1,769	289.6
65+	2,889	710.1	4,134	792.4
Total	15,323	675.6	11,565	485.0
Age-Adjusted Rate		689.5		451.1

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4f: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 2005.

Age	Race							
	All		White		Black		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	1,982	1,146.3	1,651	1,360.5	252	537.5	74	1,587.6
5-14	1,141	344.4	878	372.4	211	242.7	45	522.9
15-24	1,453	425.4	1,027	429.7	364	390.0	52	563.6
25-44	1,964	267.9	1,477	260.0	401	267.7	65	422.6
45-64	1,388	232.4	1,087	232.1	245	209.4	41	341.6
65+	2,220	655.5	1,957	679.5	196	428.7	54	1,097.6
Total	10,149	403.6	8,078	420.6	1,669	309.3	331	604.0
Age-Adjusted Rate		402.3		420.6		311.0		610.5

Ages	Gender			
	Males		Females	
	Number	Rate	Number	Rate
0-4	1,138	1,293.0	844	994.3
5-14	774	455.4	367	227.5
15-24	928	536.5	525	311.4
25-44	1,242	342.1	722	195.1
45-64	794	280.1	594	189.3
65+	892	628.5	1,328	675.0
Total	5,769	473.1	4,380	338.1
Age-Adjusted Rate		477.3		326.7

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-4g: Crude and Age-Adjusted Total TBI Rates per 100,000 for United States by Age and Gender, 1995-2001.

Age	Gender					
	All		Males		Females	
	Number	Number	Rate	Number	Rate	Rate
0-4	216,000	1120.7	133,626	1353.3	82,473	875.1
5-14	258,000	642.4	169,015	821.6	88,571	452.1
15-24	263,000	690.5	160,752	824.0	101,096	544.1
25-44	350,000	410.8	225,999	530.6	123,340	289.5
45-64	154,000	263.9	66,542	234.7	74,161	247.1
65+	155,000	448.2	51,952	366.4	65,207	319.6
Total	1,396,000	506.4	807,886	618.2	561,000	398.9
Age-Adjusted Rate		504.8		NA		NA

Numbers rounded to the nearest thousand.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-5: Rates by Hispanic Ethnicity by BSCIP Region and Florida, 2005.

Region	Number	Rate
BSCIP Region 1	431	276.9
BSCIP Region 2	2,096	390.1
BSCIP Region 3	2,509	505.4
BSCIP Region 4	3,861	496.0
BSCIP Region 5	5,077	338.6
Florida	13,971	402.9

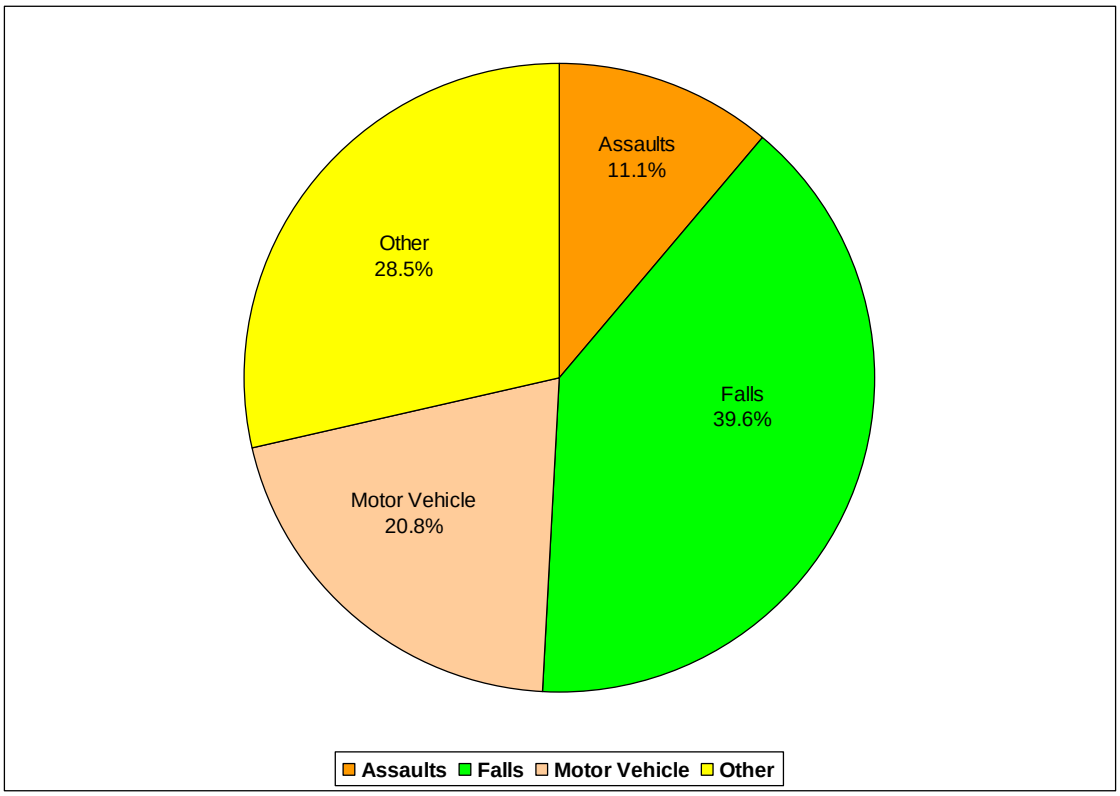
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Cause of Injury

Nationally, falls (28 percent), motor vehicle-traffic accidents (20 percent), struck by/against (19 percent) and assaults (11.0 percent) are the primary causes of TBI. In Florida, falls caused 39.6 percent of all TBIs, followed by motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent) (Figure 3-8). All other causes result in 28.5 percent of all TBIs in Florida, which

include struck by/against, all other causes and unknowns. Tables 3-6 (a-f) highlight the crude and age-adjusted TBI rates for Florida and BSCIP regions by cause. Figure 3-9 displays the rates of total TBIs in Florida by cause for 2005. Detailed tables for each primary cause of TBI are available in Appendix B.

Figure 3-8: Percentage of Total TBIs in Florida by Cause, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Motor Vehicle-Traffic Accidents

During 2005, 19,306 motor vehicle-traffic accidents caused TBIs, which resulted in a rate of 107.1 per 100,000 of the population. The 2005 rate of motor vehicle-traffic accidents that resulted in TBIs in Florida was greater than the national rate of 101.6 per 100,000 of the population. BSCIP Region 3 had the highest rate for motor vehicle-traffic accidents that resulted in TBIs in Florida during 2005 (122.8).

- The 2005 rate for motor vehicle-traffic TBIs was highest in the 15-24 years of age population (263.8). This was true across all BSCIP regions, with the highest rate in BSCIP Region 3 (325.2).
- In Florida, the lowest rates of TBI resulting from motor vehicle-traffic accidents occurred in the youngest and oldest age groups, 0-4 years (40.4) and 65 and older (48.5).

To examine motor vehicle-traffic accidents resulting in TBIs in more detail, the specific external cause of injury categories are described: occupant, pedestrian, motorcycle and pedalcycle (Tables 3-7 a-f). In Florida, occupant motor vehicle-traffic accidents resulted in 14,696 TBIs in 2005 (81.6 per 100,000). Pedestrian accidents resulted in 1,189 TBIs in 2005 (6.6 per 100,000). Motorcycle accidents resulted in 1,643 TBIs in Florida during 2005 (9.1 per 100,000) and pedalcycle accidents resulted in 622 TBIs (3.5 per 100,000).

- BSCIP Region 3 had the greatest crude rates in the state for all types of motor vehicle-traffic accidents resulting in a TBI except for pedestrian accidents.
- BSCIP Region 5 had the highest rate in the state for TBI resulting from pedestrian accidents during 2005.
- Occupant motor vehicle-traffic rates are highest in the 15-24 years of age population (212.6) in Florida. The rates in BSCIP Regions 3 and 4 are higher than the state rates in this population (268.4 and 244.4, respectively).
- Motorcycle TBIs were most likely to occur in the 15-24 age group in Florida during 2005.

Controlling for differences in age, the age-adjusted rate for TBIs in Florida resulting from a motor vehicle-traffic accident was 111.6 per 100,000 of the population in 2005. BSCIP Region 3 had the greatest age-adjusted rate in the state for all types of motor vehicle-traffic accidents that resulted in a TBI.

Falls

In Florida, the total TBI rate resulting from falls was 204.3 per 100,000 of the population (36,803) in 2005. The rate of total TBIs resulting from falls in Florida was greater than the national rate of 144.4 per 100,000 of the population. BSCIP Region 4 had the highest total TBI rate (249.6) from falls in the state. The age-adjusted total TBI rate in Florida resulting from falls was 189.5 per 100,000 of the population in 2005, which controls for difference in the population in regards to age.

- Consistent with national trends, the total TBI rates resulting from falls in Florida were highest in the youngest (694.2) and oldest (485.8) populations.
- BSCIP Regions 4 (825.1) and 5 (872.8) had higher total TBI rates from falls compared to the state in the 0-4 years old population.
- BSCIP Regions 3 (511.9) and 4 (555.3) had higher total TBI rates from falls than the state in the 65 years of age and older population.

Assaults

During 2005, 10,314 people in Florida experienced an assault that resulted in a TBI. Florida's crude total TBI rate (57.2) from assaults was higher than the national rate (56.2). The age-adjusted total TBI rate in Florida resulting from assaults was 61.0 per 100,000 of the population.

- The total TBI rate from assaults was highest in the 15-24 years of age population (141.1) in Florida during 2005.

- BSCIP Region 4 had the highest total TBI rate from assaults in the state (76.7).

Table 3-6a: Crude and Age-Adjusted Total TBI Rates per 100,000 for Florida by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	296	27.5	7,476	694.2	2,777	257.9	435	40.4
5-14	527	23.2	3,218	141.4	4,309	189.3	1,349	59.3
15-24	3,294	141.1	2,218	95.0	4,659	199.6	6,158	263.8
25-44	4,189	88.2	3,964	83.4	5,760	121.2	6,415	135.0
45-64	1,707	37.8	5,044	111.7	4,224	93.5	3,464	76.7
65+	301	9.8	14,878	485.8	4,795	156.6	1,485	48.5
Total	10,314	57.2	36,803	204.3	26,525	147.2	19,306	107.1
Age-Adjusted Rate		61.0		189.5		149.3		111.6

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, ACHA, Detailed Discharge Data, 2005; State of Florida, ACHA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-6b: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 1 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	41	20.0	859	418.2	313	152.4	70	34.1
5-14	102	24.1	418	98.6	688	162.4	288	68.0
15-24	667	124.1	463	86.1	880	163.7	1,350	251.1
25-44	831	92.2	748	83.0	1,099	121.9	1,279	141.9
45-64	363	43.8	921	111.1	758	91.4	638	77.0
65+	46	11.1	1,836	444.7	661	160.1	201	48.7
Total	2,050	61.9	5,245	158.5	4,400	132.9	3,826	115.6
Age-Adjusted Rate		60.8		161.3		134.1		112.5

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, ACHA, Detailed Discharge Data, 2005; State of Florida, ACHA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-6c: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 2 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	58	27.6	1,116	530.8	667	317.3	75	35.7
5-14	80	17.1	504	107.6	882	188.4	203	43.4
15-24	462	97.4	433	91.3	1,254	264.3	1,092	230.2
25-44	620	64.2	651	67.4	1,428	147.9	1,080	111.9
45-64	265	28.7	810	87.8	1,024	111.0	597	64.7
65+	50	8.0	2,567	408.8	1,199	190.9	262	41.7
Total	1,535	41.8	6,082	165.8	6,454	175.9	3,309	90.2
Age-Adjusted Rate		44.6		155.7		178.8		93.8

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, ACHA, Detailed Discharge Data, 2005; State of Florida, ACHA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-6d: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 3 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	77	34.7	1,796	808.4	704	316.9	122	54.9
5-14	119	24.9	906	189.9	1,108	232.2	345	72.3
15-24	860	188.7	537	117.8	1,055	231.5	1,482	325.2
25-44	1,046	107.3	1,040	106.7	1,274	130.7	1,573	161.4
45-64	392	39.7	1,294	130.9	1,020	103.2	861	87.1
65+	64	8.5	3,862	511.9	1,092	144.7	373	49.4
Total	2,558	66.1	9,436	243.7	6,253	161.5	4,756	122.8
Age-Adjusted Rate		74.5		219.5		167.6		133.7

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, ACHA, Detailed Discharge Data, 2005; State of Florida, ACHA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-6e: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 4 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	78	29.3	2,196	825.1	719	270.2	111	41.7
5-14	155	26.9	942	163.7	1,156	200.9	366	63.6
15-24	1,034	196.8	593	112.9	1,108	210.9	1,606	305.7
25-44	1,275	108.3	1,165	99.0	1,516	128.8	1,738	147.6
45-64	497	42.1	1,559	132.2	1,070	90.7	980	83.1
65+	92	9.9	5,156	555.3	1,338	144.1	437	47.1
Total	3,131	67.3	11,613	249.6	6,907	148.5	5,238	112.6
Age-Adjusted Rate		76.7		218.8		153.3		123.6

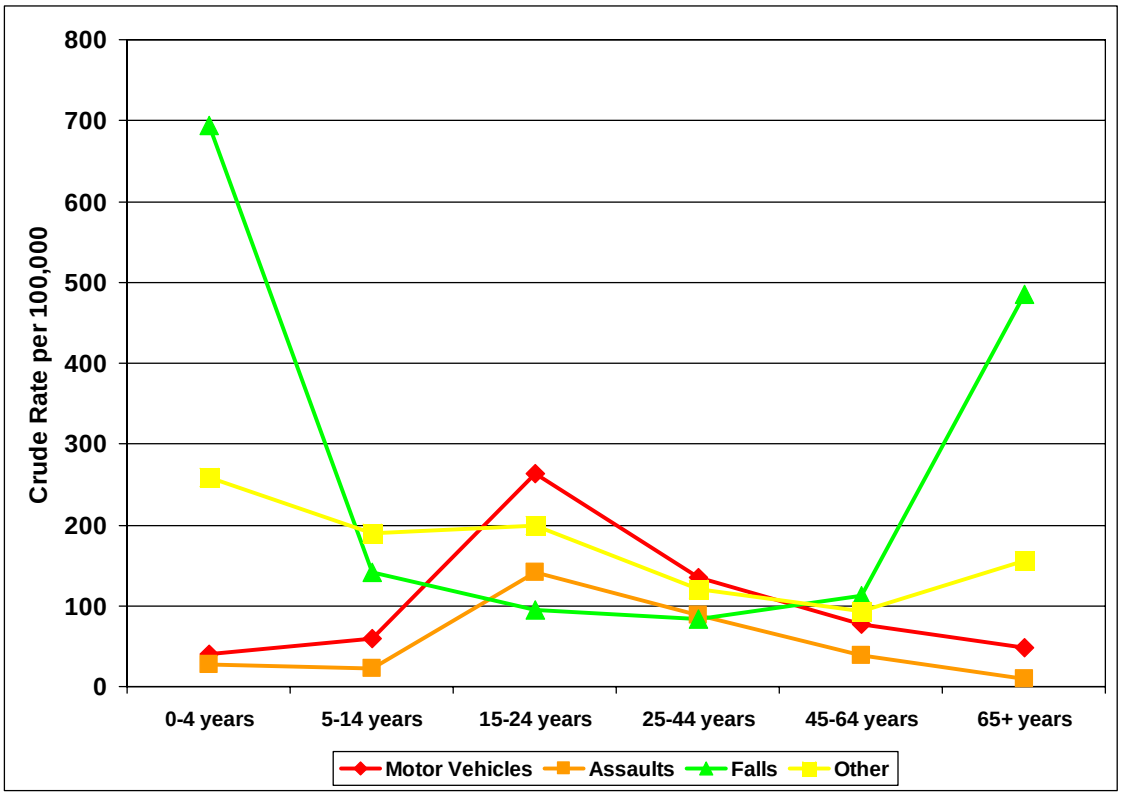
Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, ACHA, Detailed Discharge Data, 2005; State of Florida, ACHA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-6f: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 5 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	42	24.3	1,509	872.8	374	216.3	57	33.0
5-14	71	21.4	448	135.2	475	143.4	147	44.4
15-24	271	79.3	192	56.2	362	106.0	628	183.9
25-44	417	56.9	360	49.1	442	60.3	745	101.6
45-64	190	31.8	460	77.0	352	58.9	386	64.6
65+	49	14.5	1,456	429.9	504	148.8	211	62.3
Total	1,040	41.4	4,426	176.0	2,509	99.8	2,174	86.4
Age-Adjusted Rate		41.7		173.6		100.2		86.8

Total Crude and age-adjusted rates include those with unknown ages.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, ACHA, Detailed Discharge Data, 2005; State of Florida, ACHA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-9: Total TBI Rates for Florida by Age Group and Cause, 2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-7a: Crude and Age-Adjusted Total TBI Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	351	32.6	54	5.0	5	0.5	4	0.4	21	2.0
5-14	898	39.5	162	7.1	79	3.5	143	6.3	67	2.9
15-24	4,963	212.6	250	10.7	442	18.9	127	5.4	376	16.1
25-44	4,844	101.9	314	6.6	711	15.0	160	3.4	386	8.1
45-64	2,514	55.7	251	5.6	347	7.7	144	3.2	208	4.6
65+	1,126	36.8	158	5.2	59	1.9	44	1.4	98	3.2
Total	14,696	81.6	1,189	6.6	1,643	9.1	622	3.5	1,156	6.4
Age-Adjusted Rate		85.0		6.7		9.6		3.6		6.7

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-7b: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	57	27.7	7	3.4	2	1.0	1	0.5	3	1.5
5-14	188	44.4	36	8.5	21	5.0	28	6.6	15	3.5
15-24	1,105	205.6	47	8.7	77	14.3	27	5.0	94	17.5
25-44	1,011	112.2	51	5.7	117	13.0	22	2.4	78	8.7
45-64	468	56.5	46	5.5	51	6.2	26	3.1	47	5.7
65+	164	39.7	9	2.2	5	1.2	4	1.0	19	4.6
Total	2,993	90.4	196	5.9	273	8.2	108	3.3	256	7.7
Age-Adjusted Rate		87.7		5.9		8.2		3.2		7.5

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-7c: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	58	27.6	11	5.2	1	0.5	0	0.0	5	2.4
5-14	136	29.0	22	4.7	9	1.9	22	4.7	14	3.0
15-24	867	182.7	41	8.6	95	20.0	20	4.2	69	14.5
25-44	800	82.9	53	5.5	157	16.3	18	1.9	52	5.4
45-64	426	46.2	45	4.9	80	8.7	17	1.8	29	3.1
65+	204	32.5	21	3.3	10	1.6	6	1.0	21	3.3
Total	2,491	67.9	193	5.3	352	9.6	83	2.3	190	5.2
Age-Adjusted Rate		70.6		5.4		10.1		2.4		5.3

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-7d: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	101	45.5	12	5.4	2	0.9	1	0.5	6	2.7
5-14	239	50.1	41	8.6	13	2.7	39	8.2	13	2.7
15-24	1,223	268.4	59	12.9	112	24.6	31	6.8	57	12.5
25-44	1,211	124.3	71	7.3	185	19.0	46	4.7	60	6.2
45-64	633	64.0	54	5.5	92	9.3	46	4.7	36	3.6
65+	283	37.5	47	6.2	17	2.3	12	1.6	14	1.9
Total	3,690	95.3	284	7.3	421	10.9	175	4.5	186	4.8
Age-Adjusted Rate		104.1		7.6		12.0		4.8		5.2

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-7e: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	86	32.3	18	6.8	0	0.0	1	0.4	6	2.3
5-14	232	40.3	40	7.0	28	4.9	47	8.2	19	3.3
15-24	1,284	244.4	66	12.6	105	20.0	40	7.6	111	21.1
25-44	1,291	109.7	98	8.3	175	14.9	56	4.8	118	10.0
45-64	704	59.7	74	6.3	98	8.3	40	3.4	64	5.4
65+	342	36.8	35	3.8	20	2.2	18	1.9	22	2.4
Total	3,939	84.7	331	7.1	426	9.2	202	4.3	340	7.3
Age-Adjusted Rate		93.0		7.6		10.2		4.7		8.1

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-7f: Crude and Age-Adjusted Total TBI Rates per 100,000 for BSCIP Region 5 by Motor Vehicle Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	49	28.3	6	3.5	0	0.0	1	0.6	1	0.6
5-14	103	31.1	23	6.9	8	2.4	7	2.1	6	1.8
15-24	484	141.7	37	10.8	53	15.5	9	2.6	45	13.2
25-44	531	72.4	41	5.6	77	10.5	18	2.5	78	10.6
45-64	282	47.2	32	5.4	25	4.2	15	2.5	32	5.4
65+	132	39.0	46	13.6	7	2.1	4	1.2	22	6.5
Total	1,581	62.9	185	7.4	170	6.8	54	2.1	184	7.3
Age-Adjusted		63.1		7.3		6.9		2.2		7.3

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Rural Population

As mentioned in the previous section, disparities in health among rural residents are well documented. Because of the barriers all rural residents face, individuals with TBI who live in the rural areas may face exaggerated barriers when accessing healthcare. The definition of "rural" used in this assessment is provided by the Florida Department of Health, Office of Rural Health. The statutory definition of rural is "an area with a population density of less than 100 individuals per square mile or an area defined by the most recent United States Census as rural."[6] Based on this definition, currently 33 of 67 counties in Florida are identified as rural.

Rural counties contain 6.1 percent of Florida's population. The rural population of Florida accounted for 5,191 (5.6 percent) of the total TBIs in the state during 2005. The total rate for TBI in the rural counties of Florida was 461.6, compared to 525.6 in the non-rural counties. BSCIP Region 1, which most closely represents "rural" based on population density, had a total TBI rate of 469.8 per 100,000 of the population. This rate was lower than all other regions except BSCIP Region 5 (403.5). Based on what is known about the healthcare issues individuals who live in rural areas face, the questions becomes whether the lower rate of TBI in these areas were due decreased risk of injury or decreased likelihood of seeking medical attention and/or receiving correct diagnosis of the injury.

Limitations

This methodology acknowledges the potential for the duplication of counts when combining the mutually exclusive data sets from emergency department (ED) visits, hospitalizations, and deaths, but assumes the effects to be quite small on the true incidence of TBI. The researchers estimate: hospital readmissions to equal approximately 4 percent of hospital admissions; transfer between hospitals equal to approximately 2 percent or 3 percent of hospital admissions; and ED

readmissions are estimated to be between 5 percent and 6 percent of all ED admissions.[2] Additionally, eliminating deaths that occurred while either in the ED or hospital were eliminated from their respective data sources as well as those admitted to the hospital after the visiting the ED helped to decrease the potential for duplication, each method is described in detail later in this section.

The incidence of TBI in Florida presented above underestimates the true burden of TBI on the state. This method does not include those who were treated by a physician during an office visit or in other outpatient settings as well as those who received no medical attention for their injuries. It is estimated that 439,000 TBIs are treated by physicans during office visits and 89,000 are treated in other outpatient medical settings in the United States.[7] Those who received no medical attention for their injuries are estimated to include an additional 25 percent of all mild and moderate TBIs.[8] Finally, the data presented does not include information from federal, military or Veterans Administration hospitals.

Finally, this method does not take into account the severity of injury. The severity of injury should be taken into consideration when making programmatic and planning decisions for individuals with TBI. The South Carolina Department of Health Traumatic Brain Injury Surveillance Program estimated that 49 percent of TBI-related hospitalizations and 100 percent of emergency department visits were classified as mild TBI from 1996 through 2000. Therefore, 86.5 percent of all TBIs were diagnosed as mild and 13.5 percent were diagnosed as moderate-to-severe.[3]

TBI-Related Deaths

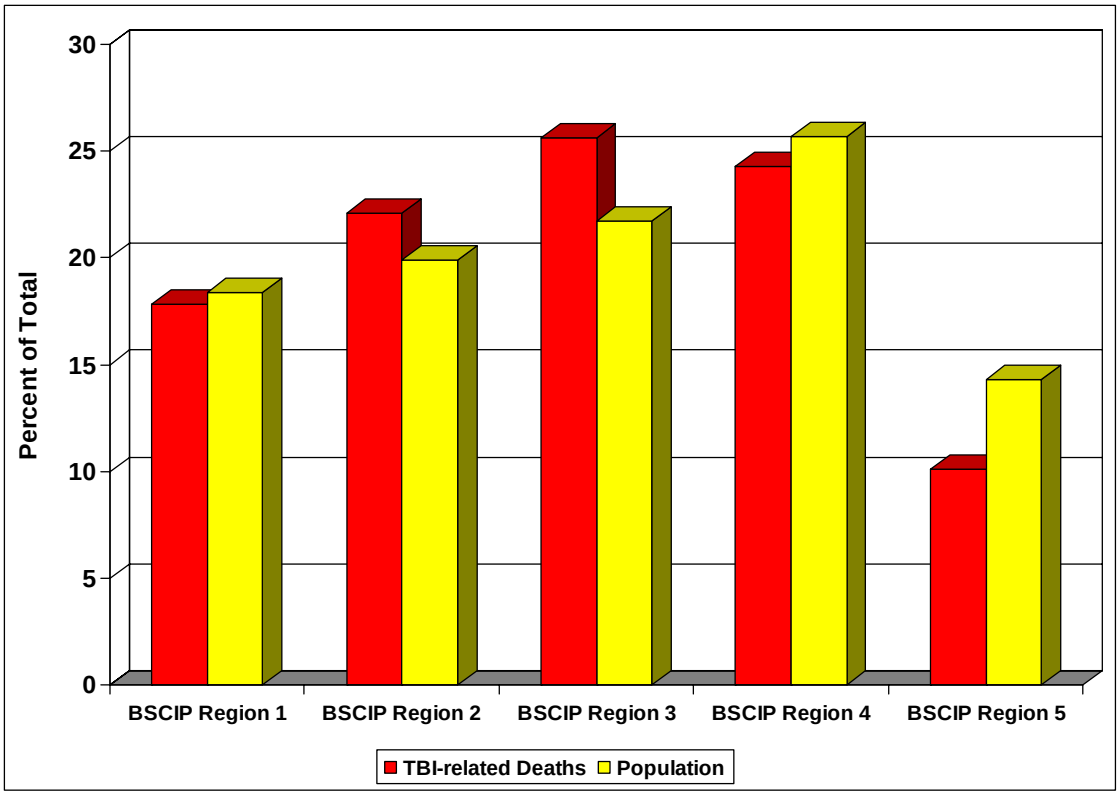
TBI-related deaths were identified from the Florida Department of Health, Office of Vital Statistics, Public Health Statistics, Multiple Cause of Death data using the methodology presented in the "Traumatic Brain Injury In the United States: Emergency Department Visits, Hospitalizations and Deaths" report.[2] Death data were obtained for calendar years 1999 through 2005. TBI-related deaths cases were identified by the presence of an ICD-10 diagnosis code for TBI listed anywhere in the sequence of events leading to death on Part One of the death certificate. Each death record was counted once regardless of the number of TBI diagnosis codes listed. The external cause of injury code (e-code) was obtained from the underlying cause of death field. The first e-code listed on the death certificate was used in the analysis. TBI-related ICD-10 codes and external cause of injury codes for TBI are listed in Appendix A. The national TBI-related death rates presented in this section are from the aforementioned CDC report.

The data below are presented in two ways, crude and age-adjusted mortality rates. Crude mortality rates show the number of deaths in a given population during a defined time-frame. Age-adjusted mortality rates are used in order to compare mortality rates between different geographic areas. Adjustments are made to account for the differences in age-group distributions between populations by using a "standard" population. The standard population for purposes of this study is the 2000 United States population. Age-adjusted rates are those rates that would have been observed if the age distribution of the compared areas were the same as that of the standard 2000 United States population. Age-adjusted rates represent a summary or indicator

rate of TBI-related deaths and permit an unbiased comparison regardless of the differences in age distributions of the populations being compared.

In Florida, there was an average of 3,331 TBI-related deaths each year from 1999 through 2005. The most TBI-related deaths occurred in BSCIP Region 3 (852 per year) compared to BSCIP Region 5 with the fewest (338 per year). Figure 3-10 compares the percentage of the total average annual TBI-related deaths to the percentage of the total average annual Florida population by BSCIP region. The greatest disparity between the percentage of TBI-related deaths and population were in BSCIP Regions 3 (3.9 percent) and 5 (4.2 percent). BSCIP Region 3 had a greater percentage of average annual TBI-related deaths compared to the average annual population and BSCIP Regions 5 had lower percentage of average annual TBI-related deaths compared to the average annual Florida population which lived in the region.

Figure 3-10: Percentage of TBI-Related Deaths and Florida Population by BSCIP Region, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Average Annual Crude and Age-Adjusted Death Rates

Table 3-8 shows the average annual crude and age-adjusted TBI-related death rates per 100,000 of the population for Florida and each BSCIP region from 1999 through 2005. Seven-year average annual crude and age-adjusted TBI-related death rates for each county are available in Appendix C. The average annual deaths and population totals were calculated by summing total deaths and total population for the seven years and dividing by seven. Age-adjusted rates are standardized to the 2000 United States population. The national TBI-related death data

presented in this section are average rates from 1995 through 2001, which were the average annual rates published by the CDC.[2]

The Florida average annual TBI-related crude death rate (19.8) was greater than the national average annual TBI-related crude death rate (18.1). BSCIP Regions 2 and 3 average annual TBI-related crude death rates (22.0 and 23.4, respectively) were higher than Florida's average annual TBI-related crude death rate (19.8). BSCIP Region 5 had the lowest average annual TBI-related crude death rate, 14.0 per 100,000 of the population, in the state.

As stated above, the population age-distribution of Florida does not mirror that of the nation. To compare rates across geographies, rates were standardized to the 2000 United States population.

- The average annual age-adjusted rate for TBI-related deaths in Florida (18.5) and BSCIP Regions 1 through 3 (19.2, 20.8, 21.6, respectively) were higher than the average annual age-adjusted TBI-related death rate (18.1) for the United States.
- The average annual age-adjusted TBI-related death rates in BSCIP regions 4 (17.0) and 5 (13.7) were lower than the state (18.5) and national (18.1) age-adjusted rates.
- Figure 3-11 shows the age-adjusted TBI-related death rates by county.

Table 3-8: Average Annual Crude and Age-Adjusted TBI-Related Death Rates for BSCIP Region, Florida and the United States, 1999-2005.

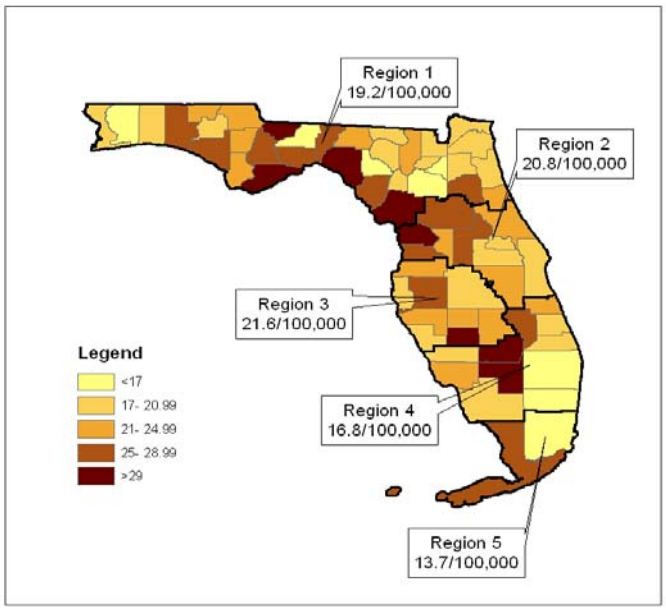
Area	Average Population	Average Number Deaths**	Average Rate per 100,000 Population	Age-Adjusted Rate per 100,000 Population***
BSCIP Region 1	3,087,516	594	19.2	19.2
BSCIP Region 2	3,350,034	736	22.0	20.8
BSCIP Region 3	3,646,321	852	23.4	21.6
BSCIP Region 4	4,330,318	811	18.7	17.0
BSCIP Region 5	2,405,106	338	14.0	13.7
Florida	16,819,243	3,331	19.8	18.5
United States*	275,707,622	49,900	18.1	18.1

*United States rates from 1995-2001 population data.
**Average number of deaths is rounded to the nearest whole number.
*** Age-adjusted to the US Standard Population, 2000.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

To look at TBI-related deaths over time, three-year average annual crude death rates were created by dividing the total TBI-related deaths for the three-year period by the average population total within the time period. Figure 3-12 displays the average annual crude TBI-related death rates from 1999 through 2005 for Florida and each BSCIP region. Over time, BSCIP Region 5 has the lowest average annual crude TBI-related death rate compared to the other regions and the state. BSCIP Region 2 was the only region that demonstrated an increase in TBI-related deaths in each of three-year periods reported. A detailed table is available in Appendix C.

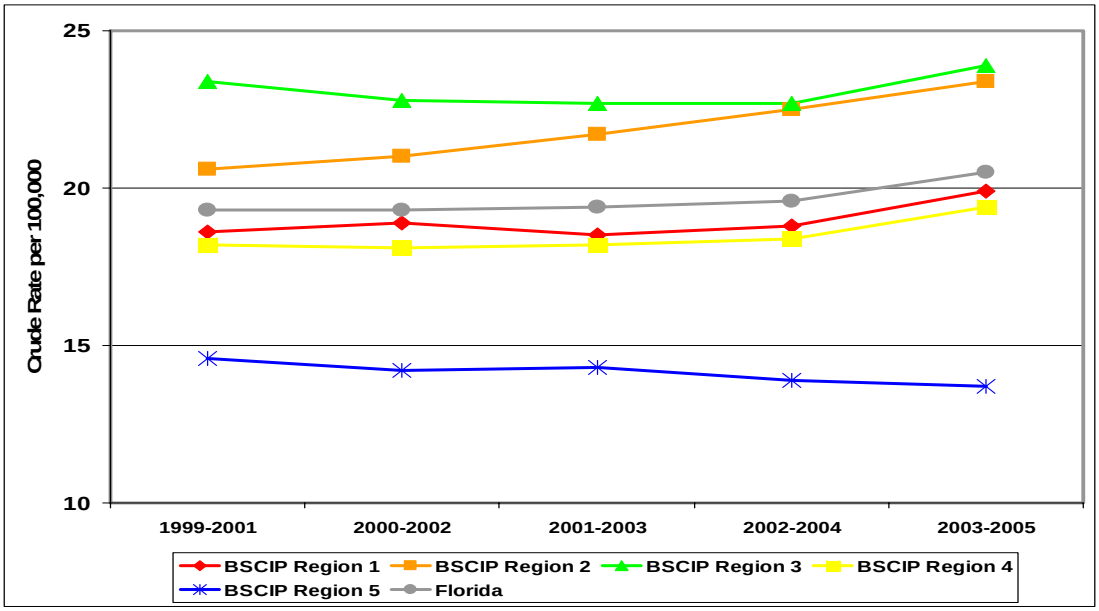
Figure 3-13 displays age-adjusted TBI-related death rates from 1999 through 2005 for Florida and each BSCIP region. The three-year average rates were created by dividing the total TBI-related deaths for the three-year period by the average population totals for the defined period. Similar to the crude rates, BSCIP Region 5 has the lowest age-adjusted TBI-related death rate compared to the other regions and the state and BSCIP Region 2 demonstrated an increase in TBI-related deaths rates during each of three-year periods. A detailed table is available in Appendix C.

Figure 3-11: Age-Adjusted Death Rates by County and BSCIP Regions, 1999-2005.



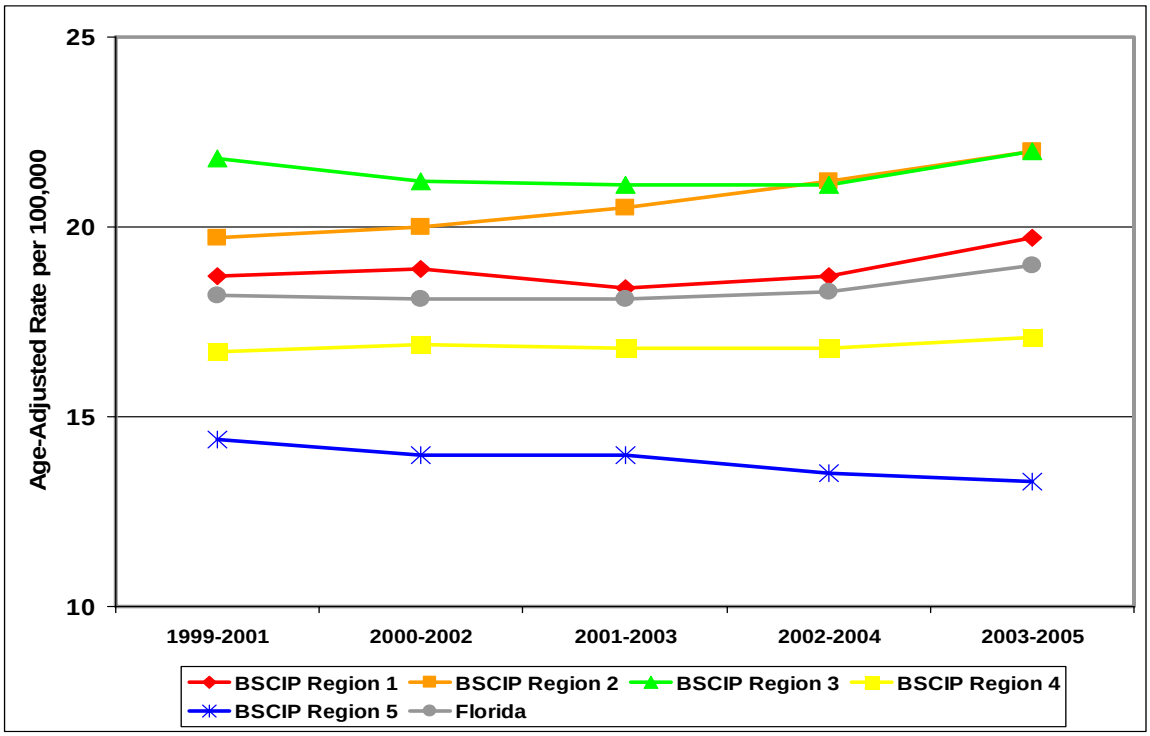
Note: Rates are average annual seven-year rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-12: Average Annual Crude Death Rates for BSCIP Regions and Florida, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-13: Average Annual Age-Adjusted Death Rates for BSCIP Regions and Florida, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Age, Race, Ethnicity and Gender

Tables 3-9 (a-g) show the average annual crude and age-adjusted TBI-related death rates for 1999-2005 by age, race and gender for each BSCIP region, Florida and the United States.

Rates by Age

Figure 3-14 depicts the percentage of average annual TBI-related deaths by age group. Individuals 65 and older accounted for 32.4 percent of all TBI-related deaths in Florida from 1999 through 2005. Youth under the age of 15 accounted for less than 5 percent of all TBI-related deaths in Florida is that same time period.

<u>0-4 Years</u>

- There was an average of 55 TBI-related deaths per year in the 0-4 years of age population in Florida, resulting in a rate of 5.5 per 100,000 people from 1999 through 2005. The national annual death rate for this age group was 5.7 per 100,000 of the population.
- The highest average annual crude TBI-related death rate (7.1) for this population was in BSCIP Region 3.

- The lowest average annual crude TBI-related death rate (2.6) for this population was in BSCIP Region 5.

5-14 Years

- There was an average of approximately 67 TBI-related deaths per year in the 5-14 years of age population in Florida, resulting in a rate of 3.1 per 100,000 people from 1999 through 2005. The national annual death rate for this age group was 3.9 per 100,000 of the population.
- The 5-14 years of age group had the lowest average annual crude TBI-related death rate in the state and each region.
- The highest death rate (3.8) for this population was in BSCIP Region 1.
- The lowest death rate (2.0) for this population was in BSCIP Region 5.

15-24 Years

- There was an average of approximately 475 TBI-related deaths per year in the 15-24 years of age population in Florida, resulting in a rate of 22.5 per 100,000 people from 1999 through 2005. The national annual death rate for this age group was 25.9 per 100,000 of the population.
- This age group had the second highest average annual crude TBI-related death rate in the state (22.5) and each BSCIP region.
- BSCIP Region 3 had the highest death rate for this group with 28.9 per 100,000 of the population.
- BSCIP Region 5 had the lowest death rate for this population with 14.8 per 100,000 people.

25-44 Years

- There was an average of approximately 870 TBI-related deaths per year in the 25-44 years of age population in Florida, resulting in a rate of 18.8 per 100,000 people from 1999 through 2005. The national annual death rate for this age group was 18.0 per 100,000 of the population.
- BSCIP Regions 4 and 5 (16.4 and 12.3, respectively) had a lower average annual TBI-related death rate than the national rate.
- BSCIP Region 3 had the highest death rate for this age group with 23.5 per 100,000 of the population.

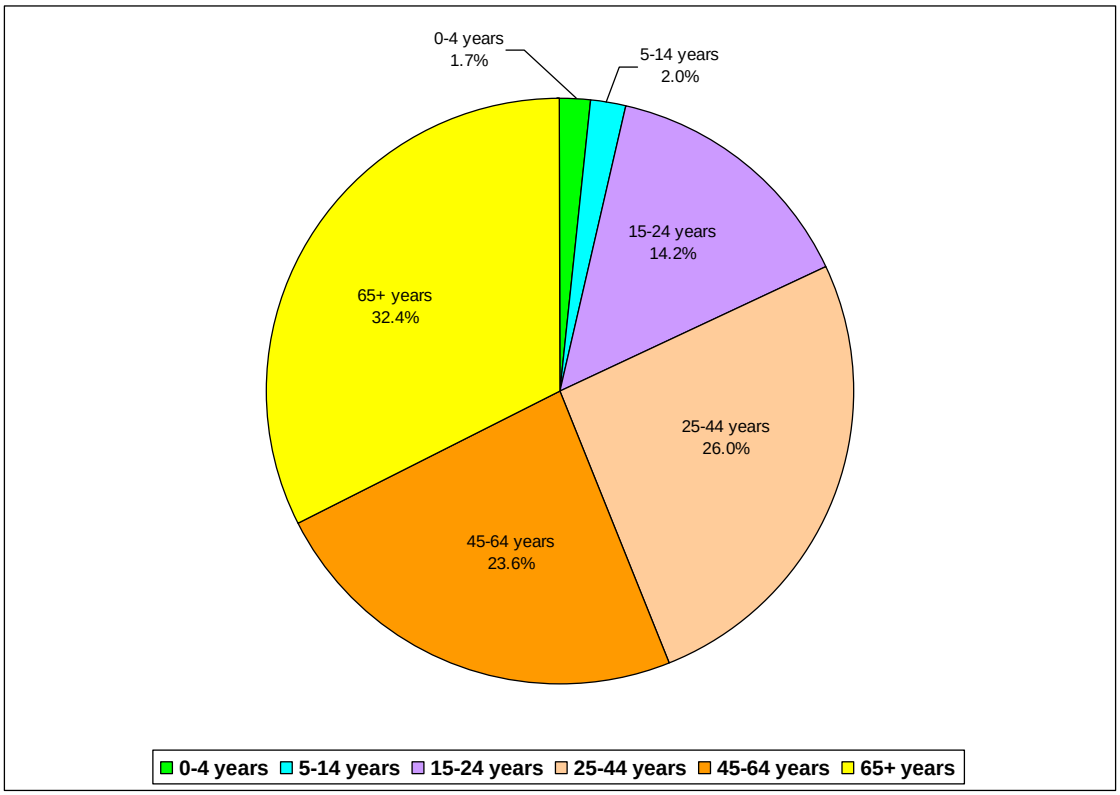
45-64 Years

- There was an average of approximately 786 TBI-related deaths per year in the 45-64 years of age population in Florida, resulting in a rate of 19.6 per 100,000 people from 1999 through 2005. The national annual death rate for this age group was 16.6 per 100,000 of the population.
- BSCIP Region 3 had the highest death rate for this group with 22.2 per 100,000 of the population.
- BSCIP Region 5 had the lowest death rate for this population with 13.6 per 100,000.

65 and Older

- Approximately 1,080 adults over the age of 65 died from a TBI each year, resulting in a rate of 36.9 per 100,000 people from 1999 through 2005. The national annual death rate for this population was 35.5 per 100,000 people.
- The 65 and older age group had the highest average annual crude TBI-related death rate in the state and in each region compared to other population groups.
- Four of five BSCIP regions had higher TBI-related death rates than the national rate.
- BSCIP Regions 1 and 2 had the highest death rate for this population of all the BSCIP regions with 39.3 per 100,000 of the population.

Figure 3-14: Percentage of Average Annual Deaths by Age Group for Florida, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Race and Ethnicity

Unlike the national data, white residents had a higher TBI-related crude death rate compared to other races in Florida from 1999 through 2005. National data suggests that blacks are more likely to die from TBI-related causes than other races. Compared to the national rate (18.3), whites in Florida had a higher average annual crude TBI-related death rate (21.1). The average annual crude TBI-related death rates for blacks (15.1) and all "other" races (8.9) in Florida were less than their respective national rates (19.3 and 11.2, respectively).

- BSCIP Region 3 had the highest average annual crude TBI-related death rate for white residents (24.4) and BSCIP Region 5 had the lowest (14.2).

- BSCIP Region 3 had the highest average annual crude death rate for black residents (18.6) and BSCIP Region 4 had the lowest (13.1).
- BSCIP Region 2 had the highest average annual crude death rate for all "other" races residents (10.9) and BSCIP Region 5 had the lowest (5.2).

Figure 3-15 displays average annual crude TBI-related death rates by race and age groups in Florida.

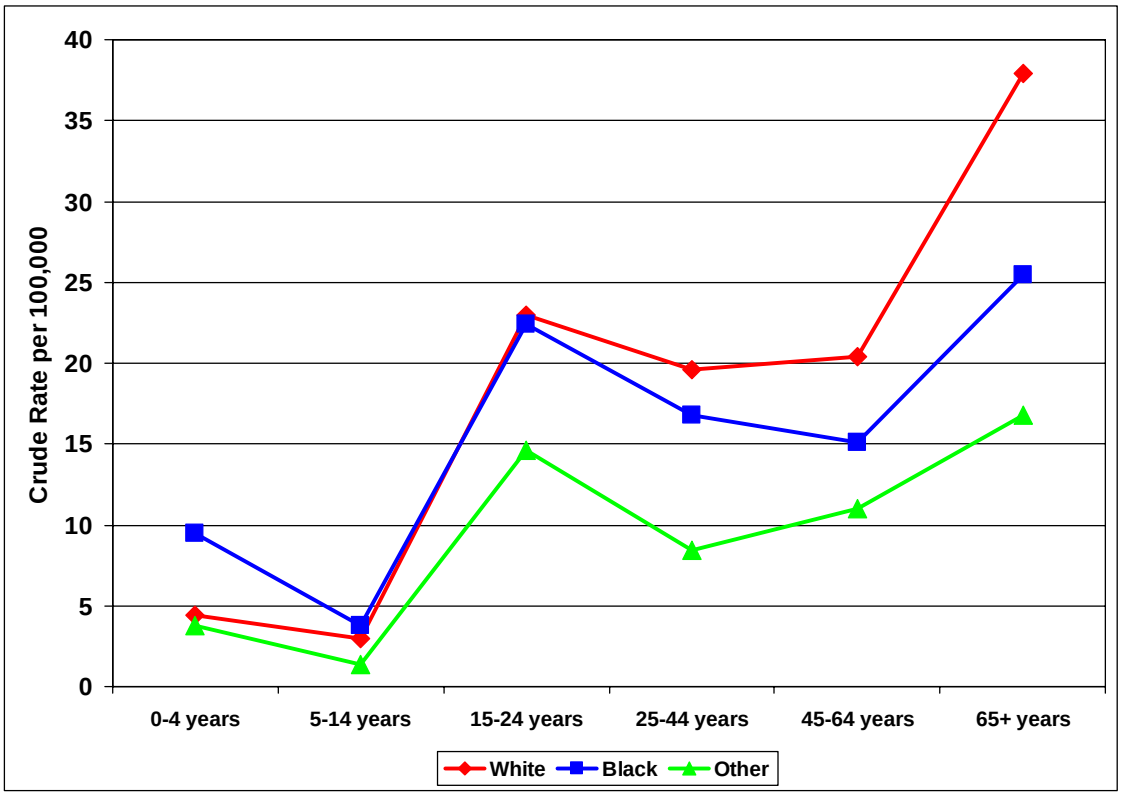
- Black youth ages 0-4 had a higher average annual crude TBI-related death rate (9.5) compared to their white (4.4) and "other" races (3.8) counterparts.
- Black youth ages 5-14 also had a higher average annual crude TBI-related death rate (3.8) compared to their white (3.0) and "other" races (1.4) counterparts.
- For all other age groups, whites had higher death rates from TBI-related causes than their counterparts. The greatest disparity existed in the 65 and older age groups with the white rate of 37.9 per 100,000, the black rate of 25.5 per 100,000 and "other" races rate of 16.8 per 100,000.

Similar to the crude rates, whites had the highest age-adjusted death rate from TBI (19.0), compared to blacks (16.0) and "other" races (9.6) in Florida from 1999 through 2005. This is unlike the national picture, where blacks had the highest age-adjusted TBI-related death (19.9) rate.

- BSCIP Region 3 had the highest age-adjusted death rate for each race (22.1 for whites, 19.8 for blacks and 10.8 for all "other" races).

In 2003, unintentional injuries were the third leading cause of death for Hispanics compared to the fifth leading cause in non-Hispanics.[5] Average annual crude TBI-related death rates by ethnicity are presented for Florida, BSCIP region and each county in Appendix C. Table 3-10 describes the average annual crude TBI-related death rate for Hispanics by BSCIP region and Florida. The average annual death rate for Hispanics in Florida was 13.4 per 100,000 of the population from 1999 through 2005. The average annual TBI-related death rate was highest in BSCIP Region 3 (20.1 per 100,000 of the population). BSCIP Region 5 had the lowest rate (11.6). Age-adjusted rates were not computed for this population because age-specific data were not available.

Figure 3-15: Average Annual Crude Death Rates by Race and Age Group for Florida, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Gender

Males have a higher average annual crude TBI-related death rate than females in Florida as well as in the nation. But, the average annual crude death rates were higher for both genders in Florida (30.0 for males and 10.1 for females) than their respective national rates (27.3 for males and 9.2 for females). In Florida, males were approximately three times more likely to die from TBI-related causes than females from 1999 through 2005.

- BSCIP Region 3 had the highest average annual TBI-related crude death rate for males and females. The lowest rates were found in BSCIP Region 5 for males and females.

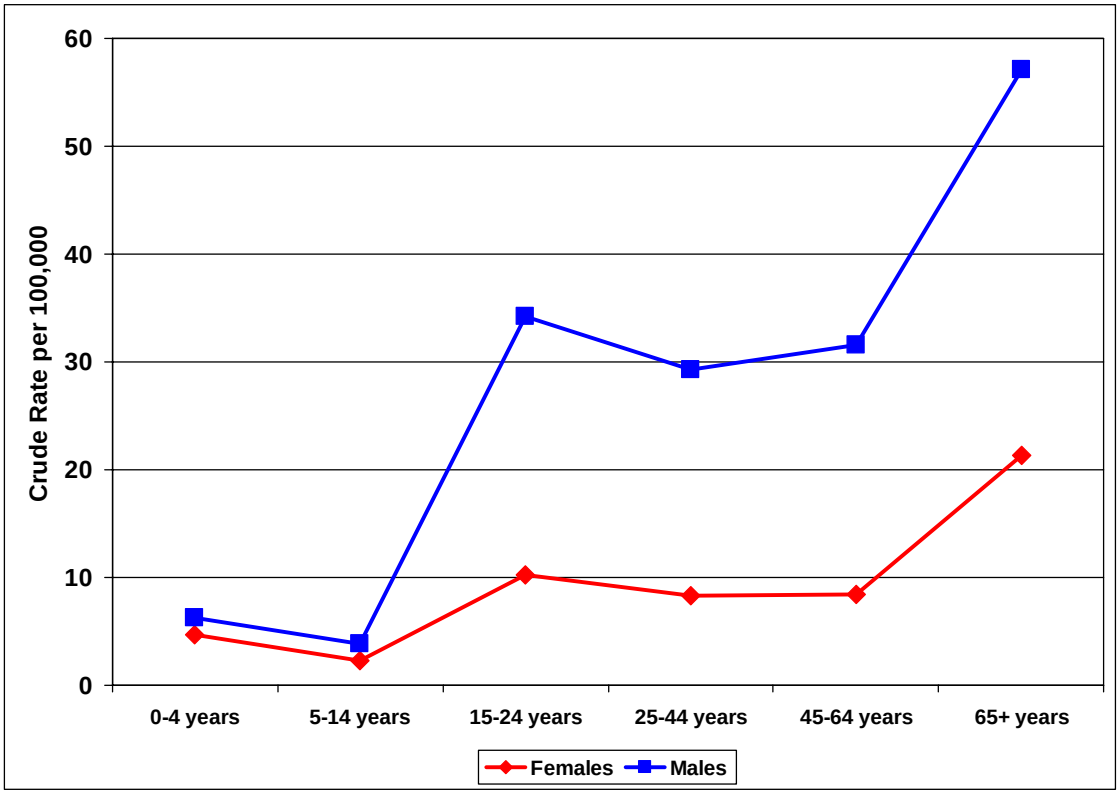
Across age groups in Florida, males were more likely to die from TBI-related cause than females (Figure 3-16). Males in the 65 and older age group had the highest average annual TBI-related death rate (57.1) followed by males in the 15-24 years of age group with 34.2 deaths per 100,000 of the population. Within the younger population groups (0-4 years and 5-14 years) the disparity between TBI-related death rates by gender was the smallest. In the older population groups, the disparity in the rate for TBI-related deaths widens. Males in the 45-64 years of age group were 3.7 times more likely to die from a TBI-related death than females in that same age group.

The average annual age-adjusted death rate from 1999 through 2005 for males in Florida (29.0) was slightly higher than the national average age-adjusted rate (28.4). The average annual age-

adjusted death rate from 1999 through 2005 for females in Florida was equal to the national rate (8.9).

- BSCIP Region 3 had the highest average annual TBI-related age-adjusted death rate for males and females. The lowest rates were found in BSCIP Region 5 for both genders.

Figure 3-16: Average Annual Crude Death Rates by Gender and Age Group for Florida, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9a: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for Florida by Age, Race and Gender, 1999-2005.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	55.3	5.5	33.0	4.4	20.9	9.5	1.3	3.8	32.4	6.3	22.9	4.7
5-14	66.9	3.1	48.0	3.0	17.9	3.8	1.0	1.4	43.0	3.9	23.9	2.3
15-24	474.9	22.5	363.1	23.0	101.4	22.4	10.3	14.6	369.6	34.2	105.3	10.3
25-44	868.1	18.8	722.6	19.6	134.0	16.8	10.9	8.4	678.3	29.3	189.9	8.3
45-64	786.0	19.6	700.1	20.4	76.3	15.1	9.0	11.0	610.6	31.6	175.4	8.4
65+	1,080.3	36.9	1,025.7	37.9	49.0	25.5	5.0	16.8	727.3	57.1	352.9	21.3
Total	3,337.4	19.8	2,897.0	21.1	400.0	15.1	37.4	8.9	2,465.4	30.0	871.6	10.1
Age-Adjusted Rate		18.5		19.0		16.0		9.6		29.0		8.9

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9b: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 1999-2005.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	11.9	6.1	7.0	5.1	4.3	8.6	0.4	6.2	7.0	7.1	4.9	5.1
5-14	15.9	3.8	10.9	3.7	4.3	4.0	0.7	4.8	9.7	4.6	6.1	3.0
15-24	98.4	20.3	75.0	21.4	21.9	18.4	1.6	9.5	77.6	31.2	20.9	8.8
25-44	169.7	19.2	133.7	20.0	32.4	17.2	3.3	12.1	129.1	28.5	40.6	9.4
45-64	148.3	20.3	129.1	21.6	16.7	14.6	2.1	12.7	115.1	32.4	33.1	8.9
65+	149.6	39.3	137.3	42.0	11.0	23.2	1.3	20.7	100.7	61.4	48.9	22.6
Total	594.7	19.3	493.9	20.8	90.6	14.5	9.4	10.6	440.0	28.8	154.7	9.9
Age-Adjusted Rate		19.2		20.1		15.0		11.3		29.8		9.6

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9c: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 1999-2005.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	12.4	6.4	7.1	4.7	5.0	15.0	0.3	3.8	7.3	7.4	5.1	5.5
5-14	15.7	3.7	11.6	3.4	4.1	5.6	0.0	0.0	10.7	4.9	5.0	2.4
15-24	104.7	25.1	82.9	24.9	18.3	26.1	3.6	22.7	78.4	36.5	26.3	13.0
25-44	198.6	21.8	172.1	22.7	23.0	18.2	3.1	10.8	152.9	33.3	45.7	10.1
45-64	174.1	21.5	158.3	22.3	13.1	16.4	2.7	14.5	133.3	34.4	40.9	9.7
65+	230.7	39.3	221.7	40.5	8.4	25.9	0.6	8.0	159.7	61.2	71.0	21.7
Total	737.6	22.0	654.7	23.1	72.3	17.4	10.3	10.9	542.9	33.1	194.6	11.4
Age-Adjusted Rate		20.8		21.3		17.9		10.8		32.2		9.6

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9d: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 1999-2005.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	14.7	7.1	9.4	5.6	5.0	14.6	0.3	4.0	8.6	8.0	6.1	6.0
5-14	15.0	3.4	11.3	3.2	3.6	4.8	0.1	0.9	9.9	4.3	5.1	2.4
15-24	119.6	28.9	100.1	29.9	17.4	26.7	2.0	14.4	93.4	44.0	26.1	13.0
25-44	223.7	23.5	196.4	24.4	24.9	21.0	2.3	8.7	174.1	36.6	49.6	10.4
45-64	197.6	22.2	180.7	22.7	14.1	18.4	2.6	15.1	150.0	35.2	47.6	10.3
65+	281.6	38.2	271.1	38.6	9.1	30.8	1.1	18.0	185.1	58.1	96.3	23.0
Total	853.6	23.4	770.3	24.4	74.1	18.6	8.4	9.8	622.0	35.2	231.3	12.3
Age-Adjusted Rate		21.6		22.1		19.8		10.8		33.5		10.6

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9e: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 1999-2005.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	12.1	4.9	6.4	3.6	5.4	9.1	0.3	3.3	7.6	6.0	4.6	3.8
5-14	13.7	2.6	10.4	2.7	3.3	2.5	0.0	0.0	8.0	2.9	5.7	2.2
15-24	104.3	22.4	76.1	22.5	25.6	22.8	2.6	16.1	81.1	33.7	23.1	10.3
25-44	187.3	16.4	157.6	17.6	28.3	13.2	1.4	4.5	148.3	26.0	39.0	6.8
45-64	191.3	18.4	173.1	19.4	16.7	12.7	1.4	7.4	150.3	30.0	41.0	7.6
65+	302.1	33.5	290.1	34.1	10.7	24.4	1.0	15.6	201.9	51.0	100.3	19.8
Total	812.9	18.8	715.1	20.2	90.3	13.1	6.7	6.7	599.0	28.4	213.9	9.6
Age-Adjusted Rate		17.0		17.4		14.3		7.7		26.6		8.0

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9f: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 1999-2005.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	4.1	2.6	3.0	2.6	1.1	2.8	0.0	0.0	2.0	2.5	2.1	2.8
5-14	6.6	2.0	3.9	1.7	2.6	2.8	0.1	1.7	4.7	2.8	1.9	1.2
15-24	47.9	14.8	29.0	12.8	18.3	20.9	0.6	6.8	39.0	23.9	8.9	5.6
25-44	88.7	12.3	62.6	11.2	25.4	16.9	0.7	4.8	73.7	20.5	15.0	4.1
45-64	74.4	13.6	58.6	13.5	15.6	15.1	0.1	1.4	61.7	23.6	12.7	4.4
65+	115.9	35.9	105.0	37.4	9.7	25.2	1.0	26.4	79.4	59.0	36.4	19.3
Total	337.9	14.0	262.1	14.2	72.7	14.2	2.6	5.2	260.9	22.3	77.0	6.2
Age-Adjusted Rate		13.7		13.2		15.3		6.3		23.1		5.6

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-9g: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for the United States by Age, Race and Gender, 1995-2001.

Ages	Race								Gender			
	All		White		Black		Other		Males		Females	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1,099	5.7	757	5.0	286	9.1	56	5.3	626	6.3	473	5.0
5-14	1,585	3.9	1,225	3.9	292	4.4	69	3.2	1,015	4.9	1,225	3.9
15-24	9,848	25.9	7,524	25.0	1,956	34.0	368	16.7	7,752	39.7	7,524	25.0
25-44	15,339	18.0	12,258	17.7	2,565	23.2	514	10.8	11,999	28.2	12,258	17.7
45-64	9,703	16.6	8,371	16.9	1,063	17.2	269	10.4	7,542	26.6	8,371	16.9
65+	12,283	35.5	11,328	36.8	246	8.7	246	26.5	7,952	56.1	11,328	36.8
Total	49,900	18.1	41,498	18.3	6,878	19.3	1,524	11.2	36,922	27.3	12,978	9.2
Age-Adjusted Rate		18.1		18.1		19.9		12.4		28.4		8.9

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-10: Average Annual Crude Death Rates by Hispanic Ethnicity for BSCIP Regions and Florida, 1999-2005.

Region	Average Number	Rate
BSCIP Region 1	15.6	12.1
BSCIP Region 2	62.4	14.1
BSCIP Region 3	84.3	20.1
BSCIP Region 4	83.9	12.6
BSCIP Region 5	164.0	11.6
Florida	410.1	13.4

Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; ERSI, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Cause of Injury

Nationally, motor vehicle-traffic accidents (33.7 percent), assaults (13.0 percent) and falls (12.9 percent) are the primary causes of TBI-related deaths. The cause of injury is classified by the external cause of injury code (e-code) obtained from the underlying cause of death field on the death certificate. Tables 3-11 (a-g), highlight the average annual crude and age-adjusted TBI-related death rates for Florida, BSCIP regions and the United States by cause. In Florida, motor vehicle-traffic accidents caused 26.6 percent of all TBI-related deaths, followed by falls (18.8 percent) and assaults (9.76 percent) during 1999 through 2005. All other causes resulted in 44.8

percent of TBI-related deaths, which included struck by/against, all other causes and unknowns. Detailed tables for each cause of death are available in Appendix C.

Motor Vehicle-Traffic Accidents

In Florida, the average annual crude TBI-related death rate from motor vehicle-traffic accidents was 5.3 per 100,000 of the population resulting in approximately 890 deaths per year. The average annual rate of motor vehicle-traffic TBI-related deaths in Florida was less than the national rate of 6.1 per 100,000 of the population. BSCIP Regions 2 and 3 had higher average annual TBI-related death rates from motor vehicle-traffic accidents (6.6 and 7.2, respectively) than the national rate.

- As in the United States (12.8), the average annual crude TBI-related death rate from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age category (11.4). This was true across all BSCIP regions, with the highest rate in BSCIP Region 3 (16.8).
- In Florida, the fewest TBI-related deaths from motor vehicle-traffic accidents occurred in the youngest age groups, 0-4 and 5-14 years of age, with average annual crude TBI-related death rates for 2.0 for both groups; this was consistent with national rates.

To examine motor vehicle-traffic TBI-related deaths in more detail, the specific external cause of injury categories (occupant, pedestrian, motorcycle and pedalcycle) are described (Tables 3-12 a-g). In Florida, occupant motor vehicle-traffic accidents resulted in approximately 545 TBI-related deaths per year (3.2 per 100,000), which was equal to the national rate. Pedestrian accidents resulted in approximately 169 deaths per year (1.0 per 100,000). Rates for motorcycle (126 deaths) and pedalcycle (49 deaths) were less than 1 per 100,000. The national average annual crude TBI-related death rates for those categories were: pedestrian (0.7 per 100,000), motorcycle (0.3 per 100,000) and pedalcycle (0.1 per 100,000).

- BSCIP Regions 2 and 3 had greater crude rates than the state for occupant motor vehicle-traffic deaths, pedestrian motor vehicle-traffic deaths and motorcycle motor vehicle-traffic deaths from 1999 through 2005.
- BSCIP Region 5 had lower crude death rates than the state rate for all motor vehicle-traffic causes from 1999 though 2005.
- Occupant motor vehicle-traffic average annual crude death rates were highest in the 15-24 years of age population (8.7) in Florida from 1999 through 2005. The rates in BSCIP Regions 2 and 3 were higher than the state rates in this population (11.1 and 12.4, respectively).
- Motorcycle deaths were most likely to occur in the 25-44 age group in Florida and each BSCIP region.

Controlling for differences in the population, the age-adjusted average annual TBI-related death rate in Florida resulting from motor vehicle-traffic accidents was 5.4 per 100,000 of the population. The national age-adjusted rate was 6.1 per 100,000 of the population. Since 1999, average three-year age-adjusted TBI-related death rates in Florida from motor vehicle-traffic accidents have increased (Figure 3-17). BSCIP Region 5 was the only region that did not have

an increase in age-adjusted TBI-related death rates by motor vehicle-traffic accident deaths in each of the five time periods.

- BSCIP Regions 2 and 3 had higher age-adjusted rates than the state for occupant motor vehicle-traffic deaths, pedestrian motor vehicle-traffic deaths and motorcycle motor vehicle-traffic deaths.
- BSCIP Region 5 had lower age-adjusted death rate than the state rate for all motor vehicle-traffic causes.

Falls

In Florida, the average annual crude TBI-related death rate from falls was 3.7 per 100,000 of the population, resulting in approximately 630 deaths per year. The rate of TBI-related deaths from falls in Florida was greater than the national rate of 2.3 per 100,000 of the population. BSCIP Regions 3 and 4 had higher average annual TBI-related death rates from falls (4.5 and 4.5, respectively) than the state rate.

- Consistent with national trends, the average annual crude TBI-related death rate resulting from falls in Florida was highest in the 65 years of age and older category (16.5). But, was higher than the national rate (12.9).
- BSCIP Regions 3 (17.4), 4 (17.3) and 5 (17.1) had average annual crude TBI-related death rates from falls that were higher than the state for the 65 years and older population.
- All other population groups were much less likely to die from a TBI as a result of a fall. These rates ranged from less than 1 per 100,000 of the population to 2.5 per 100,000 of the population for the state of Florida.

The age-adjusted average annual TBI-related death rate in Florida resulting from falls was 2.9 per 100,000 of the population. The national age-adjusted rate was 2.4 per 100,000 of the population. Since 1999, annual age-adjusted TBI-related death rates from falls in Florida, using average three-year rates, have increased (Figure 3-17). This is true for each BSCIP region as well.

Assaults

Approximately 326 people in Florida died from an assault that resulted in a TBI each year from 1999 through 2005. Florida's average crude TBI-related death rate from assaults (1.9) was higher than the national rate (1.1).

- The average annual crude TBI-related death rates from assaults by age group ranged from 0.3 per 100,000 of the population to 3.4 per 100,000 of the population in Florida, with the highest rate in the 15-24 years of age group.
- BSCIP Region 1 was the only area in the state in which the 15-24 years of age group did not have the highest rate of average annual crude TBI-related deaths by assault.
- The highest rate of average annual TBI-related death rates from assaults in Florida was in BSCIP Region 1 with 2.4 per 100,000 of the population.

The age-adjusted average annual TBI-related death rate in Florida resulting from assaults was 2.0 per 100,000 of the population. The national age-adjusted rate was 2.3 per 100,000 of the population. Since 1999, age-adjusted TBI-related death rates from assaults in Florida, using average three-year rates, have decreased slightly (Figure 3-17).

Table 3-11a: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for Florida by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	20.7	2.1	1.0	0.1	13.9	1.4	19.7	2.0
5-14	7.0	0.3	0.6	0.0	15.7	0.7	43.6	2.0
15-24	72.4	3.4	6.1	0.3	157.0	7.5	239.3	11.4
25-44	128.4	2.8	36.4	0.8	404.1	8.8	299.1	6.5
45-64	68.1	1.7	99.0	2.5	435.4	10.8	183.4	4.6
65+	27.9	1.0	484.1	16.5	466.0	15.9	102.3	3.5
Total	325.9	1.9	628.6	3.7	1,493.6	8.9	889.4	5.3
Age-Adjusted Rate		2.0		2.9		8.3		5.4

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-11b: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 1 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	6.3	3.2	0.0	0.0	3.1	1.6	2.4	1.3
5-14	2.0	0.5	0.0	0.0	4.9	1.2	9.0	2.2
15-24	14.4	3.0	1.6	0.3	36.9	7.6	45.6	9.4
25-44	29.3	3.3	7.0	0.8	83.1	9.4	50.3	5.7
45-64	14.3	2.0	16.3	2.2	88.7	12.2	29.0	4.0
65+	6.3	1.7	60.3	15.9	72.1	19.0	10.9	2.9
Total	73.0	2.4	85.3	2.8	289.3	9.4	147.1	4.8
Age-Adjusted Rate		2.3		2.9		9.3		4.7

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-11c: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 2 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	4.6	2.4	0.3	0.1	2.9	1.5	4.7	2.4
5-14	1.7	0.4	0.1	0.0	3.9	0.9	10.0	2.3
15-24	12.3	2.9	1.0	0.2	31.4	7.5	60.0	14.4
25-44	24.4	2.7	7.4	0.8	91.1	10.0	75.6	8.3
45-64	15.0	1.9	17.9	2.2	93.7	11.6	47.6	5.9
65+	6.1	1.0	83.6	14.2	116.7	19.9	24.3	4.1
Total	64.6	1.9	110.6	3.3	339.9	10.1	222.6	6.6
Age-Adjusted Rate		2.0		2.6		9.4		6.8

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-11d: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 3 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	4.7	2.3	0.3	0.1	4.3	2.1	5.4	2.6
5-14	1.7	0.4	0.1	0.0	2.4	0.5	10.7	2.4
15-24	15.1	3.7	2.1	0.5	32.7	7.9	69.6	16.8
25-44	27.3	2.9	8.3	0.9	98.3	10.3	89.9	9.4
45-64	13.1	1.5	23.4	2.6	107.7	12.1	53.3	6.0
65+	4.9	0.7	128.7	17.4	115.3	15.6	32.7	4.4
Total	67.1	1.8	163.1	4.5	361.1	9.9	262.1	7.2
Age-Adjusted Rate		2.0		3.0		9.0		7.5

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-11e: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 4 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	4.0	1.6	0.3	0.1	2.7	1.1	5.1	2.1
5-14	0.3	0.1	0.1	0.0	2.7	0.5	10.6	2.0
15-24	18.6	4.0	0.7	0.2	38.3	8.2	46.7	10.0
25-44	27.0	2.4	10.7	0.9	91.4	8.0	58.1	5.1
45-64	14.7	1.4	28.1	2.7	107.7	10.3	40.7	3.9
65+	6.9	0.8	156.1	17.3	115.1	12.8	24.0	2.7
Total	71.6	1.7	196.7	4.5	358.3	8.3	186.3	4.3
Age-Adjusted Rate		1.8		2.9		7.6		4.6

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-11f: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 5 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1.1	0.7	0.1	0.1	0.9	0.5	2.0	1.3
5-14	1.3	0.4	0.1	0.0	1.9	0.6	3.3	1.0
15-24	12.0	3.7	0.7	0.2	17.7	5.5	17.4	5.4
25-44	20.4	2.8	3.0	0.4	40.0	5.5	25.3	3.5
45-64	11.0	2.0	13.3	2.4	37.6	6.8	12.6	2.3
65+	3.7	1.1	55.3	17.1	46.6	14.4	10.3	3.2
Total	49.6	2.1	72.7	3.0	144.7	6.0	70.9	2.9
Age-Adjusted Rate		2.1		2.8		5.9		2.9

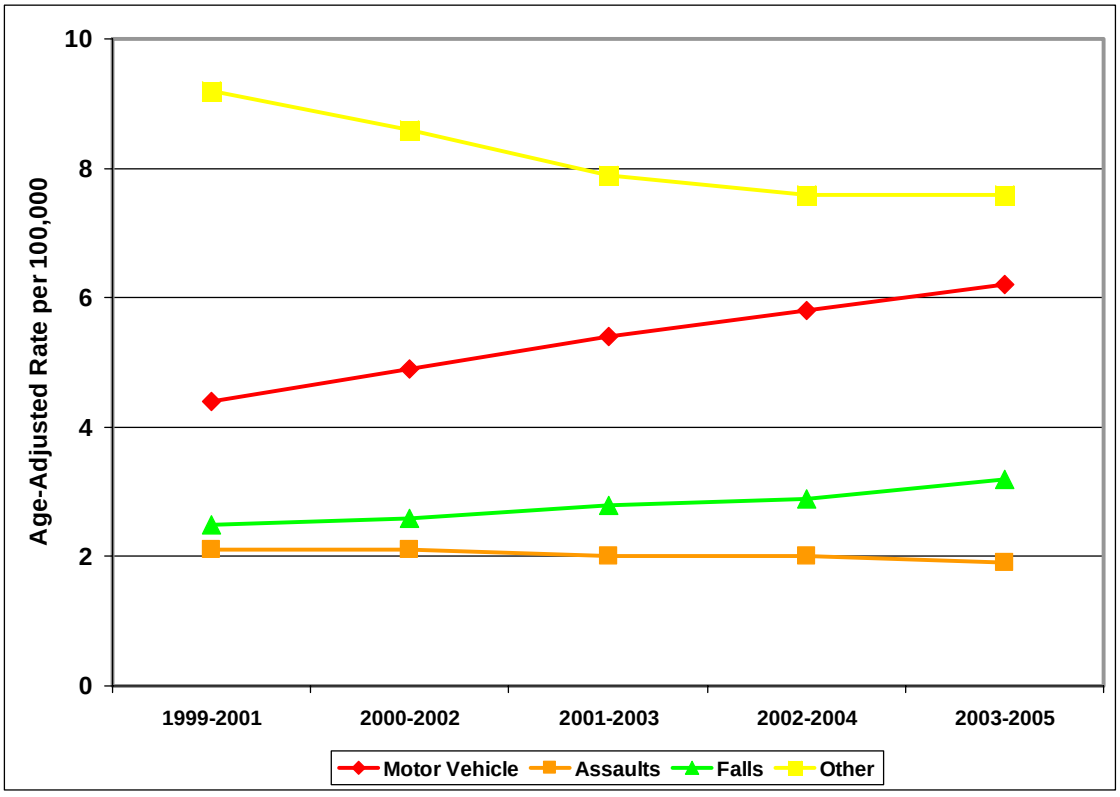
Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-11g: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for United States by Cause, 1995-2001.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	348	1.8	37	0.2	348	1.8	499	2.6
5-14	183	0.5	33	0.1	183	0.5	982	2.4
15-24	1,885	4.9	143	0.4	1,885	4.9	4,888	12.8
25-44	2,693	3.2	637	0.7	2,693	3.2	5,602	6.6
45-64	974	1.2	1,123	1.9	974	1.2	2,777	4.8
65+	397	1.1	4,452	12.9	397	1.1	2,041	5.9
Total	6,499	2.4	6,426	2.3	20,176	40.4	16,800	6.1
Age-Adjusted Rate		2.3		2.4		NA		6.1

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-17: Average Annual Age-Adjusted Death Rates per 100,000 for Florida by Cause, 1999-2005.



Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005.; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12a: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 1999-2005.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	11.4	1.1	8.0	0.8	0.0	0.0	0.3	0.0
5-14	24.9	1.2	11.9	0.6	0.9	0.0	6.0	0.3
15-24	183.0	8.7	23.9	1.1	25.6	1.2	6.9	0.3
25-44	173.1	3.8	50.6	1.1	60.7	1.3	14.7	0.3
45-64	89.3	2.2	42.9	1.1	34.1	0.8	17.1	0.4
65+	63.4	2.2	29.9	1.0	4.7	0.2	4.3	0.1
Total	545.3	3.2	168.9	1.0	126.0	0.7	49.3	0.3
Age-Adjusted Rate		3.3		1.0		0.8		0.3

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12b: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 1999-2005.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1.6	0.8	0.9	0.4	0.0	0.0	0.0	0.0
5-14	5.7	1.4	2.4	0.6	0.0	0.0	0.9	0.2
15-24	37.1	7.7	3.9	0.8	3.4	0.7	1.1	0.2
25-44	30.9	3.5	7.1	0.8	9.9	1.1	2.4	0.3
45-64	16.9	2.3	3.9	0.5	5.7	0.8	2.6	0.4
65+	7.3	1.9	1.9	0.5	1.1	0.3	0.6	0.2
Total	99.4	3.2	20.0	0.6	20.1	0.7	7.6	0.2
Age-Adjusted Rate		3.1		0.6		0.6		0.2

Avg Num: average number of TBI-related deaths.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12c: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 1999-2005.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	3.0	1.6	1.7	0.9	0.0	0.0	0.0	0.0
5-14	5.3	1.2	3.0	0.7	0.1	0.0	1.6	0.4
15-24	46.3	11.1	6.0	1.4	5.9	1.4	1.9	0.4
25-44	43.7	4.8	14.1	1.5	14.9	1.6	2.9	0.3
45-64	23.7	2.9	10.6	1.3	9.3	1.1	4.0	0.5
65+	17.3	2.9	5.1	0.9	0.6	0.1	1.3	0.2
Total	139.3	4.2	41.0	1.2	30.7	0.9	11.6	0.3
Age-Adjusted Rate		4.3		1.2		1.0		0.3

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12d: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 1999-2005.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	3.6	1.7	1.9	0.9	0.0	0.0	0.0	0.0
5-14	6.1	1.4	2.6	0.6	0.3	0.1	1.7	0.4
15-24	51.1	12.4	7.6	1.8	8.7	2.1	2.1	0.5
25-44	49.7	5.2	16.7	1.8	18.9	2.0	4.6	0.5
45-64	24.3	2.7	15.4	1.7	8.4	0.9	5.1	0.6
65+	21.1	2.9	9.0	1.2	1.4	0.2	1.1	0.2
Total	156.0	4.3	53.7	1.5	37.7	1.0	14.7	0.4
Age-Adjusted Rate		4.6		1.5		1.1		0.4

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12e: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 1999-2005.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	2.0	0.8	2.9	1.2	0.0	0.0	0.3	0.1
5-14	5.7	1.1	3.0	0.6	0.4	0.1	1.4	0.3
15-24	35.7	7.7	4.6	1.0	4.9	1.0	1.6	0.3
25-44	33.4	2.9	8.6	0.8	13.0	1.1	3.1	0.3
45-64	18.1	1.7	9.7	0.9	8.4	0.8	4.4	0.4
65+	14.3	1.6	7.4	0.8	1.4	0.2	0.9	0.1
Total	109.4	2.5	37.0	0.9	28.1	0.6	11.7	0.3
Age-Adjusted Rate		2.7		0.8		0.7		0.3

Avg Num: average number of TBI-related deaths.
Those with unknown ages are included in the total, total rates and age adjusted rates.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12f: Average Annual Crude and Age-Adjusted TBI-Related Death Rates per 100,000 for BSCIP Region 5 by Motor Vehicle-Traffic External Causes, 1999-2005.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1.3	0.8	0.7	0.4	0.0	0.0	0.0	0.0
5-14	2.0	0.6	0.9	0.3	0.0	0.0	0.4	0.1
15-24	12.7	3.9	1.9	0.6	2.7	0.8	0.1	0.0
25-44	15.4	2.1	4.0	0.6	4.1	0.6	1.7	0.2
45-64	6.1	1.1	3.3	0.6	2.1	0.4	1.0	0.2
65+	3.3	1.0	6.4	2.0	0.1	0.0	0.4	0.1
Total	40.9	1.7	17.1	0.7	9.1	0.4	3.7	0.2
Age-Adjusted Rate		1.7		0.7		0.4		0.2

Avg Num: average number of TBI-related deaths.
Source: State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-12g: Average Annual Crude TBI-Related Death Rates per 100,000 for United States by Motor Vehicle-Traffic External Causes, 1995- 2001.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	258	1.3	126	0.7	0	0.0	3	0.0
5-14	426	1.1	236	0.6	11	0.0	107	0.3
15-24	2,868	7.5	266	0.7	209	0.5	60	0.2
25-44	2,892	3.4	563	0.7	472	0.6	104	0.1
45-64	1,345	2.3	418	0.7	191	0.3	61	0.1
65+	1,030	3.0	383	1.1	19	0.1	28	0.1
Total	8,819	3.2	1,998	0.7	903	0.3	365	0.1
Age-Adjusted Rate		NA		NA		NA		NA

Avg Num: average number of TBI-related deaths; age-adjusted rates not provided.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Rural Population

As mentioned in the previous section, disparities in health among rural residents are well documented. Because of the barriers all rural residents face, individuals with TBI who live in the rural areas may face exaggerated barriers when accessing healthcare. The definition of "rural" used in this assessment is provided by the Florida Department of Health, Office of Rural Health. The statutory definition of rural is "an area with a population density of less than 100 individuals per square mile or an area defined by the most recent United States Census as rural."[6] Based on this definition, currently 33 of 67 counties in Florida are identified as rural.

The rural population of Florida accounted for an average of 270 TBI-related deaths each year (8.1 percent) in the state from 1999 through 2005, compared to 6.1 percent of the total population. The average annual crude TBI-related death rate in the rural counties of Florida was 25.5 per 100,000, compared to 19.3 per 100,000 in the non-rural counties and 19.8 per 100,000 for the state. BSCIP Region 1 which most closely represents rural, based on population density, had an average annual TBI-related death rate of 19.2 per 100,000 of the population. Access to medical care in rural areas is difficult to obtain. These counties do not have trauma centers which handle the most severely injured, which results in longer transport to trauma centers. Often delayed care in life-threatening situations can result in death. Additionally, as mentioned in the previous section, the Florida Department of Health, Office of Rural Health identified barriers to the recruitment and retention of EMS personnel. Therefore, obtaining and maintaining individuals adequately trained in TBI is difficult, which may decrease the likelihood for successful outcomes.

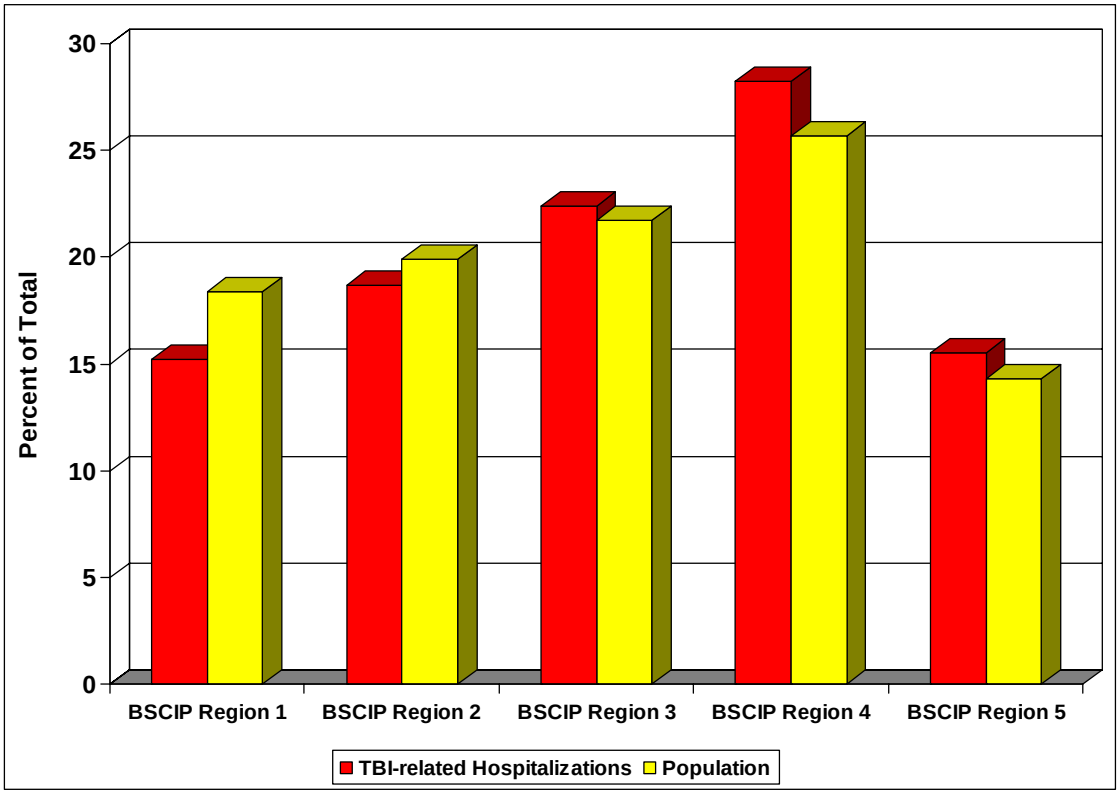
TBI-Related Hospitalizations

TBI-related hospitalizations were identified from the Florida Agency for Healthcare Administration (AHCA) Detailed Discharge Data by the methodology presented in the "Traumatic Brain Injury In the United States: Emergency Department Visits, Hospitalizations and Deaths" report.[2] Hospitalization data were obtained for calendar years 1999 through 2005. TBI-related hospitalizations cases were identified if one of the diagnosis fields contained an ICD-9 diagnosis code for TBI. The external cause of injury code (e-code) was located within the diagnosis fields. The first e-code listed in the diagnosis fields was used in the analysis. Individuals who died during hospitalization were excluded from analysis to eliminate duplication of count in the death data. ICD-9 codes and external cause of injury codes for TBI are listed in Appendix A. The national TBI-related hospitalization data presented in this section of the report is from the aforementioned CDC report.[2]

Like the death data, the hospitalization data are presented in two ways, crude and age-adjusted hospitalization rates. Crude rates show the number of hospitalizations in a given population during a defined time-frame and the age-adjusted hospitalization rates are used in order to compare hospitalization rates between different geographic areas. Adjustments are made to account for the differences in age-group distributions between populations using a standard population. For purposes of this study, the standard population is the 2000 United States population. Age-adjusted rates represent a summary or indicator rate for TBI-related hospitalizations and permit an unbiased comparison regardless of the differences in age distribution of populations.

Approximately 235,000 TBI-related hospitalizations occur in the United States each year. In Florida, an average of 14,810 TBI-related hospitalizations occurred each year from 1999 through 2005, representing 6.3 percent of all TBI-related hospitalizations in the nation. The most TBI-related hospitalizations occurred in BSCIP Region 4 (4,177 per year) compared to BSCIP Region 1 with the fewest (2,253 per year). Figure 3-18 shows the percentage of total TBI-related hospitalizations compared to the percentage of the total population by BSCIP region. The largest disparity between the percentage of TBI-related hospitalizations and total population were in BSCIP Regions 1 (3.2 percent) and 4 (2.5 percent). The percentage of the total average annual TBI-related hospitalizations was higher in BSCIP Regions 4 and 5 than the percentage of the total average population of Florida within their respective region. Since the prevalence estimates for TBI mirror the population (2 percent of the population), the trends presented above remain true when comparing the prevalence of TBI-related disability to TBI-related hospitalizations. The greatest disparity between TBI-related hospitalizations and the prevalence of TBI-related disability were in BSCIP Regions 1 and 4.

Figure 3-18: Percentage of Average TBI-Related Hospitalizations and Average Florida Population by BSCIP Region, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Average Annual Crude and Age-Adjusted Hospitalization Rates

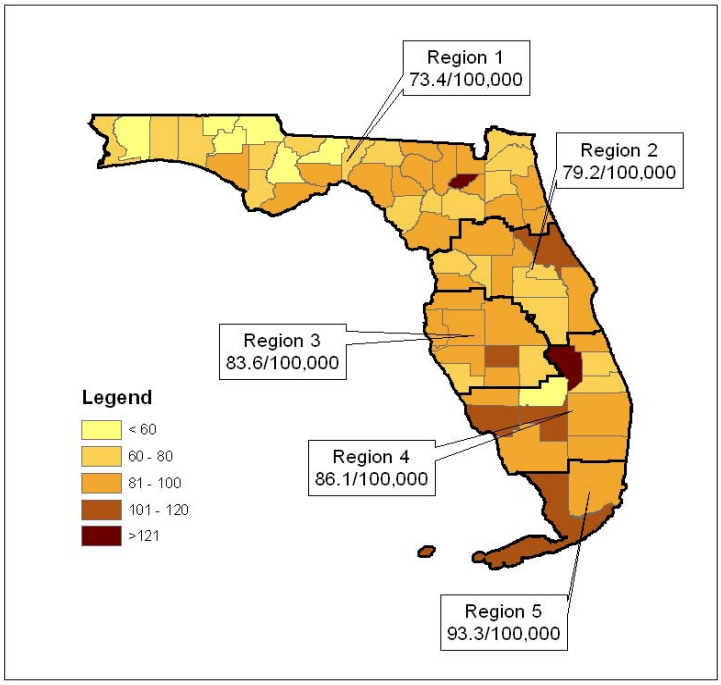
Table 3-13 shows the average annual crude and age-adjusted TBI-related hospitalization rates per 100,000 of the population for Florida and each BSCIP region from 1999 through 2005. Seven-year average annual crude and age-adjusted TBI-related hospitalization rates for each county are available in Appendix D. Average annual hospitalizations and average population were calculated by summing total hospitalizations and population for the seven years and dividing by seven. The average annual hospitalization rates were determined per 100,000 of the population. Age-adjusted rates are standardized to the 2000 United States population. The national TBI-related hospitalization data presented in this section represent the average rates from 1995 through 2001, which are the most recent average annual rates published by the CDC.

The Florida average annual crude TBI-related hospitalization rate (88.1) was higher than the national TBI-related hospitalization rate (85.2). BSCIP Regions 3, 4 and 5 had average annual TBI-related crude hospitalization rates (90.9, 96.5 and 95.2, respectively) that were higher than the average annual state TBI-related hospitalization rate (88.1). BSCIP Region 1 had the lowest average annual TBI-related crude hospitalization rate of 73.0 per 100,000 of the population in the state.

As stated earlier, Florida's population age distribution does not mirror that of the nation. Therefore, to compare the rates across geographies, standardizing rates to the 2000 United States population is necessary.

- The age-adjusted average annual rate for TBI-related hospitalizations in Florida (82.1) was lower than the age-adjusted average annual national rate (85.5) for TBI-related hospitalizations.
- The average annual age-adjusted rates for TBI-related hospitalizations in BSCIP Regions 3 through 5 (83.6, 86.1 and 93.3, respectively) were higher than the state age-adjusted rate for TBI-related hospitalizations (82.1).
- BSCIP Region 1 had the lowest average annual age-adjusted rate for TBI-related hospitalizations (73.4) in the state.
- Figure 3-19 displays the age-adjusted hospitalizations rate by county and BSCIP region.

Figure 3-19: Age-Adjusted Hospitalization Rates by County and BSCIP Region, 1999-2005.



Note: Rates are average annual seven-year rates.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

To look at TBI-related hospitalization rates over time, three-year average annual crude hospitalization rates were created by dividing the average number of TBI-related hospitalizations for the three-year period by the average population totals within that time period. Figure 3-20 displays the average annual crude TBI-related hospitalization rates from 1999 through 2005 for Florida and each BSCIP region. Over time, each region and the state has demonstrated an increase in TBI-related hospitalization rates. BSCIP Region 4 had the highest TBI-related hospitalization rates from 2001-2003 through 2003-2005, even though BSCIP Region 5 had the highest overall TBI-related hospitalization rate from 1999 through 2005. A detailed table is available in Appendix D.

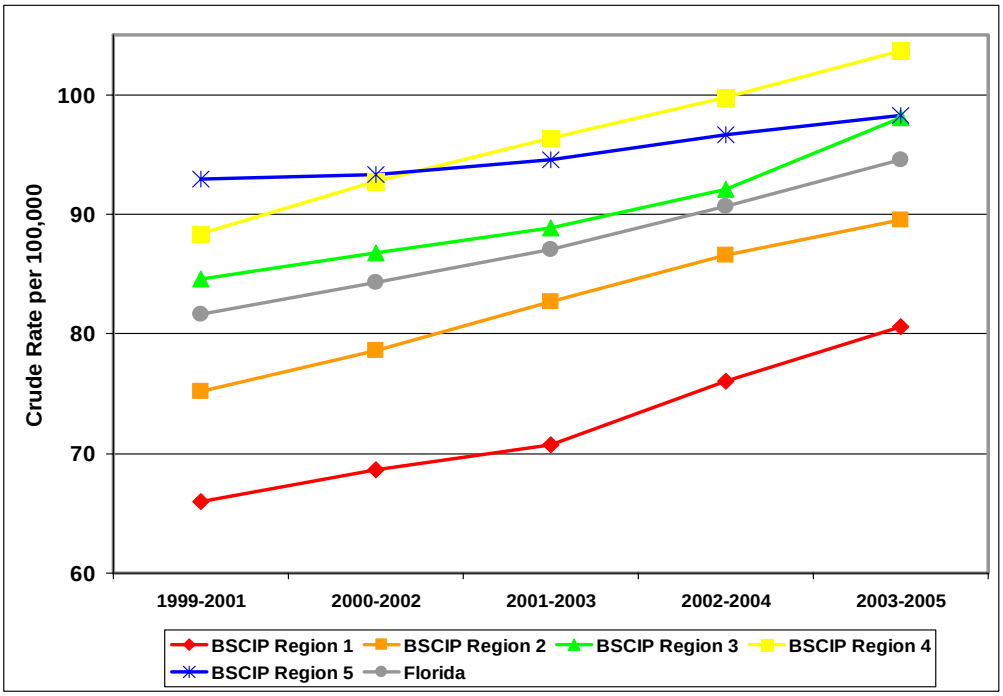
Figure 3-21 displays age-adjusted TBI-related hospitalization rates from 1999 through 2005 for Florida and each BSCIP region. To look at age-adjusted TBI-related hospitalization rates over time, three-year average rates were created by dividing the average number of TBI-related hospitalizations for the three-year period by the average population totals for that time period. Similar to the crude rates, each region and the state have demonstrated an increase in average annual age-adjusted TBI-related hospitalization rates. A detailed table is located in Appendix D.

Table 3-13: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates for BSCIP Region, Florida and the United States, 1999-2005.

Area	Average Population	Average Number Hospitalizations**	Average Rate per 100,000 Population	Age-Adjusted Rate per 100,000 Population***
BSCIP Region 1	3,087,516	2,253	73.0	73.4
BSCIP Region 2	3,350,034	2,774	82.8	79.2
BSCIP Region 3	3,646,321	3,314	90.9	83.6
BSCIP Region 4	4,330,318	4,177	96.5	86.1
BSCIP Region 5	2,405,106	2,289	95.2	93.3
Florida	16,819,243	14,810	88.1	82.1
United States*	275,707,622	235,000	85.2	85.5

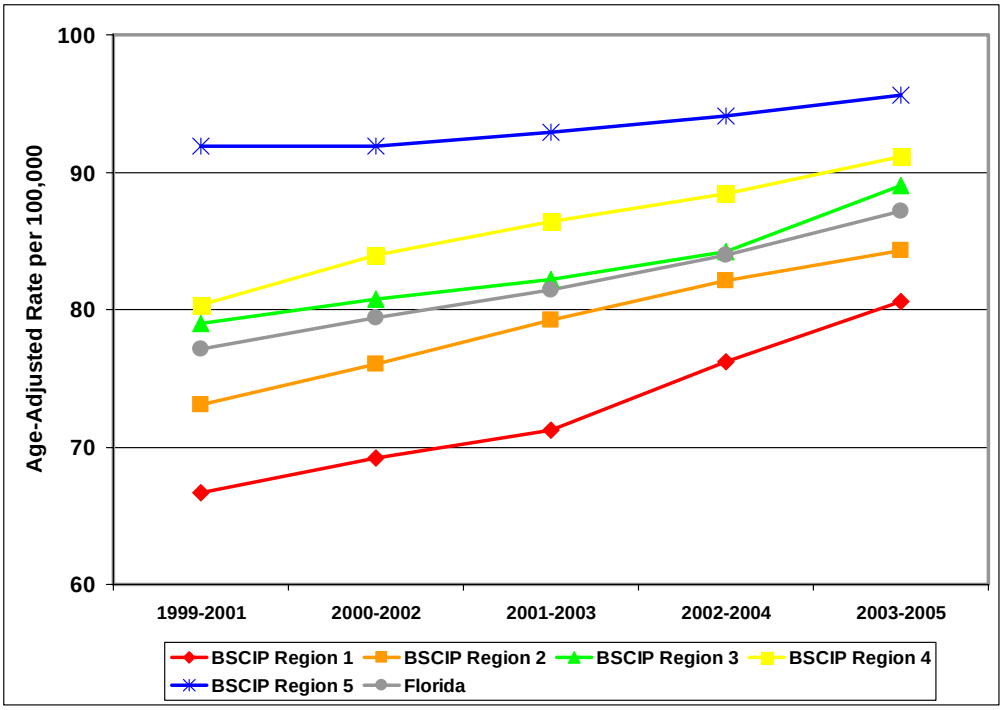
*United States rates from 1995-2001 population data
** Average number of hospitalizations are rounded to the nearest whole number; numbers may not sum due to rounding.
*** Age-adjusted to the US Standard Population, 2000.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-20: Average Annual Crude Hospitalization Rates for BSCIP Regions and Florida, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-21: Average Annual Age-Adjusted Hospitalization Rates for BSCIP Regions and Florida, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Age, Race, Ethnicity and Gender

Tables 3-14 (a-g) show the average annual crude and age-adjusted TBI-related hospitalization rates for 1999-2005 by age, race and gender for each BSCIP region, Florida and the United States.

Rates by Age

Figure 3-22 depicts the percentage of average annual TBI-related hospitalizations by age group. Individuals 65 years of age and older accounted for 36.3 percent of all TBI-related hospitalizations in Florida from 1999 through 2005. Youth under the age of 15 accounted for approximately 10 percent of all TBI-related hospitalizations in Florida.

0-4 Years

- There was an average of 680 TBI-related hospitalizations per year in the 0-4 years of age population in Florida, resulting in a rate of 67.9 per 100,000 people from 1999 through 2005. The national annual hospitalization rate for this age group was 79.9 per 100,000 of the population.
- The highest average annual crude TBI-related hospitalization rate (75.7) for this population was in BSCIP Region 5.
- The lowest average annual crude TBI-related hospitalization rate (57.8) for this population was in BSCIP Region 1.

5-14 Years

- There was an average of approximately 867 TBI-related hospitalizations per year in the 5-14 years of age population in Florida, resulting in a rate of 40.4 per 100,000 people from 1999 through 2005. The national annual hospitalization rate for this age group was 54.8 per 100,000 of the population.
- The 5-14 years of age group had the lowest average annual crude TBI-related hospitalization rate in the state and in each region.
- The highest hospitalization rate (42.7) for this population was in BSCIP Region 5.
- The lowest hospitalization rate (34.5) for this population was in BSCIP Region 1.

15-24 Years

- There was an average of approximately 2,133 TBI-related hospitalizations per year in the 15-24 years of age population in Florida, resulting in a rate of 101.3 per 100,000 people from 1999 through 2005. The national annual hospitalization rate for this age group was 112.9 per 100,000 of the population.
- This age group had the second highest average annual crude TBI-related hospitalization rate in the state and in each BSCIP region.
- BSCIP Region 5 had the highest hospitalization rate for this group with 91.1 per 100,000 of the population.
- BSCIP Region 1 had the lowest hospitalization rate for this population with 78.6 per 100,000 people.

25-44 Years

- There was an average of approximately 3,155 TBI-related hospitalizations per year in the 25-44 years of age population in Florida, resulting in a rate of 68.4 per 100,000 people from 1999 through 2005. The national annual hospitalization rate for this age group was 69.2 per 100,000 of the population.
- BSCIP Regions 2, 3 and 4 (70.0, 71.1 and 72.1, respectively) had a higher average annual TBI-related hospitalization rate than the state rate.
- BSCIP Region 1 had the lowest hospitalization rate for this group with 62.4 per 100,000 of the population.

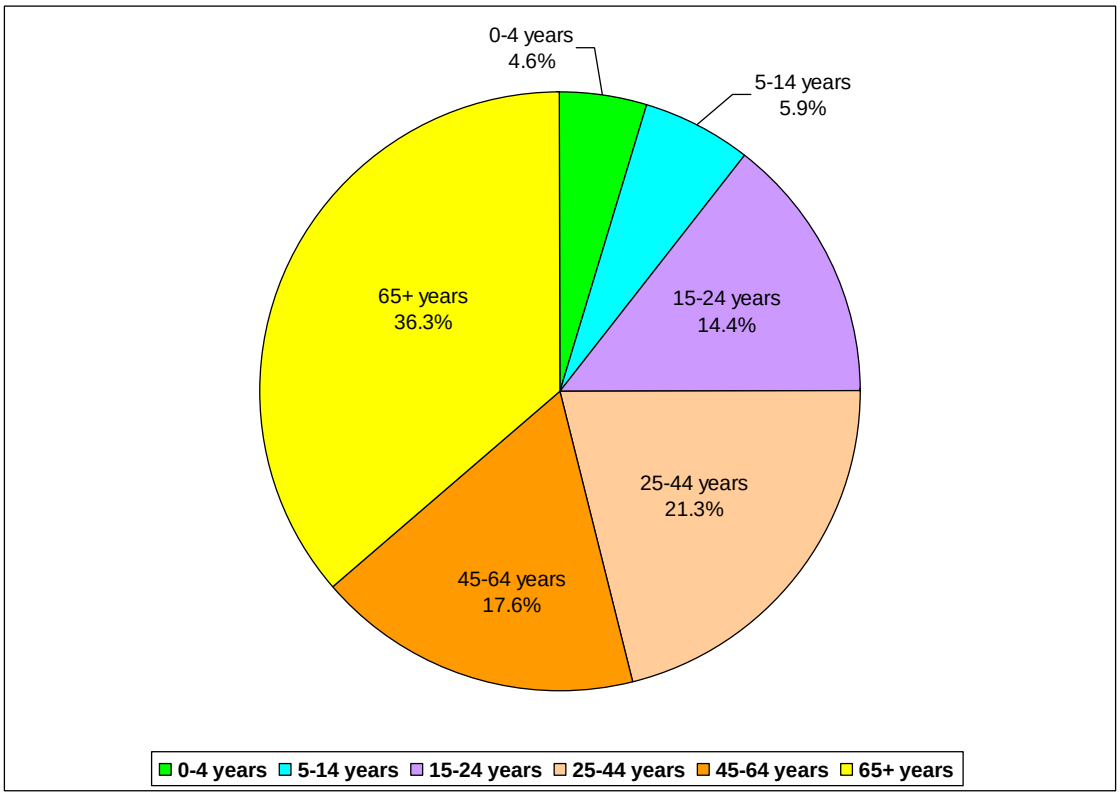
45-64 Years

- There was an average of approximately 2,606 TBI-related hospitalizations per year in the 45-64 years of age population in Florida, resulting in a rate of 64.9 per 100,000 people from 1999 through 2005. The national annual hospitalization rate for this age group was 58.3 per 100,000 of the population.
- BSCIP Region 5 had the highest hospitalization rate for this group with 72.5 per 100,000 of the population.
- BSCIP Region 1 had the lowest hospitalization rate for this population with 58.4 per 100,000.

65 and Older

- Approximately 5,370 adults over the age of 65 were hospitalized for a TBI each year from 1999 through 2005, resulting in a rate of 183.2 per 100,000 people. The national annual hospitalization rate for this population was 173.5 per 100,000 people.
- The 65 and older age group had the highest average annual crude TBI-related hospitalization rate in the state and in each region compared to other population groups.
- BSCIP Regions 4 and 5 had higher TBI-related hospitalization rates (193.0 and 270.3, respectively) than the state rate.
- BSCIP Region 2 had the lowest hospitalization rate for this population of all the BSCIP regions with 153.5 per 100,000 of the population.

Figure 3-22: Percentage of Average Annual Hospitalizations by Age Group for Florida, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Race and Ethnicity

In Florida, 83.4 percent of all TBI-related hospitalizations were by whites from 1999 through 2005. Blacks accounted for 11.7 percent of all TBI-related hospitalizations in Florida. Nationally, whites accounted for 62.0 percent and blacks accounted for 11.0 percent of all TBI-related hospitalizations.

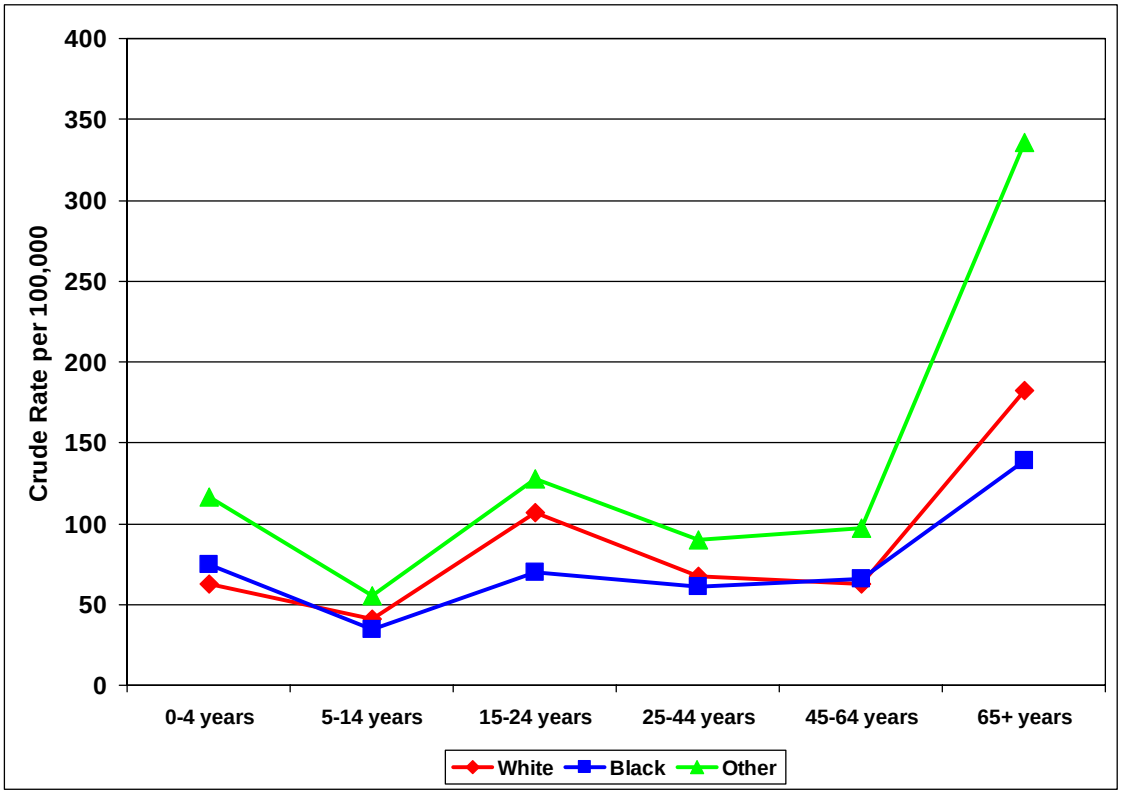
The national data suggests that blacks (72.4 per 100,000) were more likely to be hospitalized from TBI-related causes than other races. In Florida, individuals who are classified as all "other" races (99.8 per 100,000) were more likely to be hospitalized for TBI-related issues than whites (90.1 per 100,000) or blacks (65.6 per 100,000). National data are not reported for all "other" races because of differences in the categorization of data.

- BSCIP Region 5 had the highest average annual crude TBI-related hospitalization rate for white residents (99.8) and BSCIP Region 1 has the lowest (76.5).
- BSCIP Region 5 had the highest average annual crude hospitalization rate for black residents (72.0) and BSCIP Region 1 has the lowest (58.3).
- BSCIP Region 4 had the highest average annual crude hospitalization rate for all "other" races residents (182.8) and BSCIP Region 1 has the lowest (49.7).

Figure 3-23 displays average annual crude TBI-related hospitalization rates by race and age groups in Florida.

- The "other" race category had a greater average annual crude TBI-related hospitalization rate in each age group compared to their white and black counterparts.

Figure 3-23: Average Annual Crude Hospitalization Rates by Race and Age Group for Florida, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

Similar to the crude rates, other races had the highest age-adjusted hospitalization rate from TBI (128.4) compared to whites (81.6) and blacks (71.4). This was unlike the national picture, where blacks had the highest age-adjusted TBI-related hospitalization rate (73.9).

The CDC identifies that Hispanics bear a disproportionate burden of disease, injury, death and disability when compared with non-Hispanic whites.[5] Average annual crude TBI-related hospitalization rates by Hispanic ethnicity are presented for Florida, BSCIP region and county in Appendix D. Table 3-15 describes the average annual crude TBI-related hospitalization rate for Hispanics by BSCIP region and Florida from 1999 through 2005. The average annual hospitalization rate for Hispanics in Florida was 68.5 per 100,000 of the population compared to 82.1 per 100,000 for Florida as a whole. BSCIP Region 5 had the highest rate of TBI-related hospitalizations in Florida, 81.0 per 100,000 of the population. BSCIP Region 1 had the lowest rate at 34.1 per 100, 000 of the population. Age-adjusted rates were not computed for this population because age-specific data were not available.

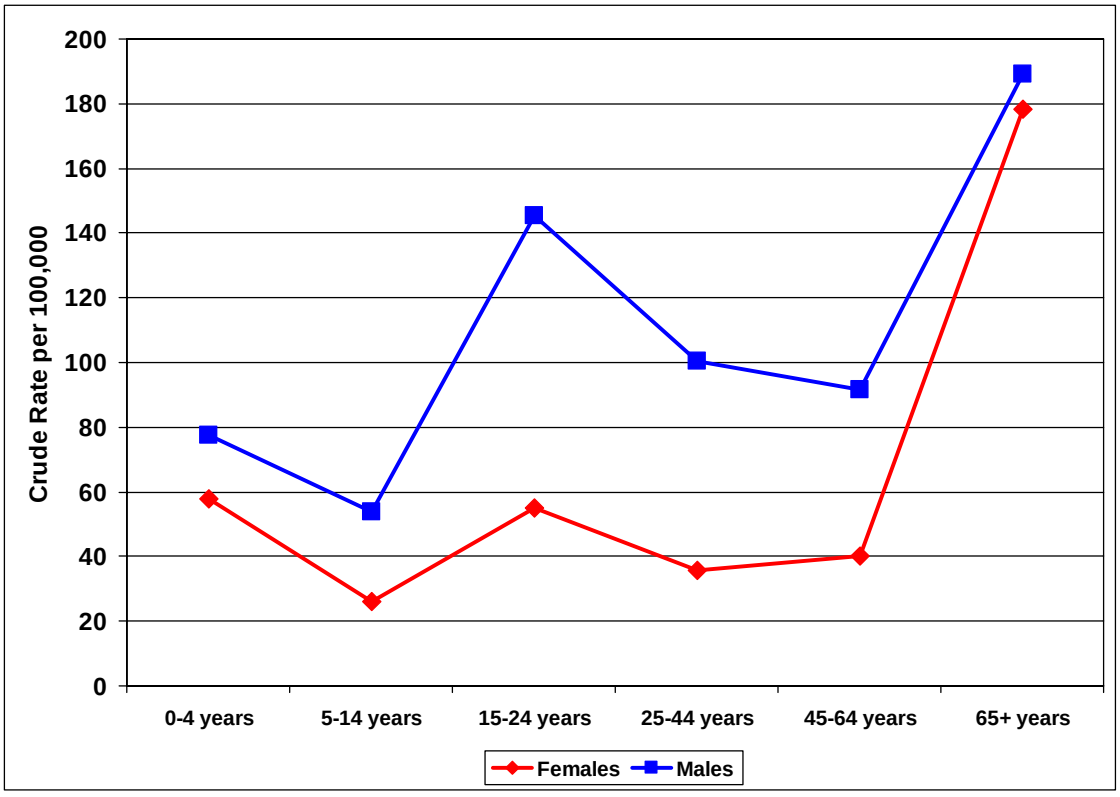
Rates by Gender

Males were approximately two times more likely to experience a TBI than their female counterparts in the United States.[2] Males had a higher average annual crude TBI-related hospitalization rate than females in Florida as well as in the nation. But, the hospitalization rates were higher for both genders in Florida (110.4 for males and 66.7 for females) than the national rates (107.8 for males and 63.4 for females). In Florida, males were approximately 1.7 times more likely to be hospitalized from TBI-related causes than females from 1999 through 2005.

- BSCIP Region 4 had the highest average annual TBI-related crude hospitalization rate for males (121.4) and BSCIP Region 5 had the highest average annual TBI-related crude hospitalization rate for females (73.2). The lowest rates were found in BSCIP Region 1 for both genders.

Across age groups in Florida, males were more likely to be hospitalized from a TBI than females (Figure 3-24). Males in the 65 and older age group had the highest average annual TBI-related hospitalization rate (189.3) followed by males in the 15-24 years of age group with 145.2 hospitalizations per 100,000 of the population. The disparity between males and females was the smallest in the 65 and older population (189.3 for males and 178.5 for females). The disparity was greatest in the 25-44 age group, in which males were 2.81 times more likely to be hospitalized for a TBI than females.

Figure 3-24: Average Annual TBI-Related Crude Hospitalization Rates by Gender and Age Group for Florida, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

The average annual age-adjusted hospitalization rate for males in Florida (107.2) was lower than the national average age-adjusted rate (110.4). The average annual age-adjusted hospitalization rate for females (55.1) in Florida was lower than the national age-adjusted hospitalization rate (60.7).

- BSCIP Region 5 had the highest average annual TBI-related age-adjusted hospitalization rate for males and females from 1999 through 2005. The lowest rates were found in BSCIP Region 1 for both genders.

Table 3-14a: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for Florida by Age, Race and Gender, 1999-2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	680.1	67.9	466.7	62.3	162.4	74.3	39.4	116.1
5-14	867.0	40.4	649.0	40.6	164.6	34.7	40.7	55.3
15-24	2,132.7	101.3	1,687.4	106.7	317.7	70.0	90.3	128.0
25-44	3,154.9	68.4	2,495.7	67.7	489.1	61.4	115.6	89.6
45-64	2,605.6	64.9	2,151.6	62.7	333.9	66.0	79.9	97.3
65+	5,370.1	183.2	4,946.9	182.6	266.0	138.6	100.3	336.1
Total	14,810.4	88.1	12,397.3	90.1	1,733.7	65.6	466.1	111.2
Age-Adjusted Rate		82.1		81.6		71.4		128.4

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	397.3	77.6	282.9	57.7
5-14	591.7	53.8	275.1	26.3
15-24	1,568.3	145.2	564.1	55.0
25-44	2,332.4	100.6	822.4	35.8
45-64	1,766.3	91.5	839.1	40.2
65+	2,411.1	189.3	2,958.4	178.5
Total	9,067.1	110.4	5,742.1	66.7
Age-Adjusted Rate		107.2		55.1

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-14b: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 1999-2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	112.0	57.8	73.0	53.2	32.0	64.3	4.3	61.8
5-14	142.4	34.5	110.6	37.9	27.0	25.4	2.4	16.3
15-24	381.6	78.6	302.6	86.5	65.3	55.0	8.3	50.1
25-44	552.4	62.4	422.7	63.1	109.9	58.1	12.7	46.8
45-64	426.1	58.4	345.6	57.8	68.7	59.9	7.3	43.3
65+	638.3	167.9	561.0	171.8	61.7	130.4	9.0	144.7
Total	2,252.9	73.0	1,815.4	76.5	364.6	58.3	44.0	49.7
Age-Adjusted Rate		73.4		75.3		66.3		55..1

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	65.0	65.7	47.0	49.5
5-14	92.1	43.6	50.3	24.9
15-24	273.1	109.9	108.4	45.8
25-44	402.7	88.9	149.7	34.6
45-64	282.0	79.5	144.1	38.5
65+	274.4	167.3	363.9	168.4
Total	1389.4	90.8	863.4	55.5
Age-Adjusted Rate		93.9		53.2

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-14c: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 1999-2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	123.3	63.9	88.7	58.3	25.3	75.7	6.0	80.8
5-14	168.4	39.2	135.9	40.1	24.6	33.1	5.9	35.5
15-24	436.0	104.3	369.6	111.3	50.4	71.9	12.0	76.3
25-44	639.3	70.0	532.7	70.3	83.0	65.7	15.4	52.8
45-64	505.0	62.4	431.3	60.7	48.6	60.8	18.3	97.7
65+	902.1	153.5	829.3	151.4	41.3	126.9	18.0	253.5
Total	2,774.1	82.8	2,387.4	84.1	273.1	65.6	75.6	79.8
Age-Adjusted Rate		79.2		79.3		70.0		92.4

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	68.6	69.5	54.7	58.1
5-14	111.9	50.8	56.6	27.0
15-24	311.3	144.8	124.7	61.4
25-44	463.3	101.0	176.0	38.7
45-64	341.4	88.0	163.6	38.9
65+	435.6	167.0	466.6	142.8
Total	1,732.0	105.5	1,042.1	61.0
Age-Adjusted Rate		104.6		54.3

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-14d: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 1999-2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	157.1	75.3	116.3	69.6	29.6	86.2	7.6	105.3
5-14	187.4	42.1	143.3	40.3	31.0	41.4	8.9	56.8
15-24	476.6	115.2	388.4	116.1	52.1	79.9	21.7	156.6
25-44	676.7	71.1	556.4	69.0	78.3	66.1	23.6	90.2
45-64	601.6	67.7	517.0	65.0	51.1	66.6	18.0	105.8
65+	1,214.9	164.6	1,141.3	162.6	35.7	120.4	18.6	293.2
Total	3,314.3	90.9	2,862.7	90.6	277.9	69.6	98.3	114.1
Age-Adjusted Rate		83.6		81.5		73.6		126.7

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	89.7	84.2	67.4	66.1
5-14	128.9	56.4	58.6	27.0
15-24	348.1	164.0	128.1	63.6
25-44	495.4	104.0	181.3	38.2
45-64	405.1	95.2	196.3	42.3
65+	535.6	167.9	678.7	162.0
Total	2,002.9	113.3	1,310.4	69.8
Age-Adjusted Rate		110.6		56.8

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-14e: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 1999-2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	167.6	67.6	107.3	59.7	44.7	74.9	14.1	165.6
5-14	228.0	42.9	166.1	43.3	44.4	34.5	14.0	77.3
15-24	543.6	116.5	407.1	120.3	85.4	76.3	39.4	246.7
25-44	822.4	72.1	631.1	70.4	121.6	56.9	53.0	168.7
45-64	674.7	64.8	548.0	61.5	88.3	67.3	26.9	139.2
65+	1,740.7	193.0	1,628.1	191.1	65.4	149.3	34.9	545.3
Total	4,177.0	96.5	3,487.9	98.5	449.9	65.3	182.3	182.8
Age-Adjusted Rate		86.1		84.6		74.1		213.0

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	101.3	79.9	66.3	54.7
5-14	158.7	58.3	69.3	26.8
15-24	413.6	171.5	130.0	57.7
25-44	624.7	109.4	197.7	34.7
45-64	463.0	92.6	211.7	39.1
65+	797.1	201.6	943.6	186.2
Total	2,558.4	121.4	1,618.6	72.8
Age-Adjusted Rate		122.1		65.3

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-14f: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 1999-2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	120.1	75.7	81.4	71.8	30.9	74.5	7.4	188.8
5-14	140.3	42.7	92.9	40.5	37.6	41.5	9.4	111.0
15-24	294.1	91.1	219.0	96.5	64.3	73.4	8.9	105.2
25-44	463.0	64.0	351.7	63.0	96.4	64.3	10.9	72.3
45-64	397.7	72.5	309.3	71.1	77.1	74.7	9.4	91.8
65+	873.4	270.3	786.6	280.2	61.9	160.2	19.7	520.1
Total	2,288.7	95.2	1,840.9	99.8	368.1	72.0	65.7	131.6
Age-Adjusted Rate		93.3		93.4		78.8		160.4

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	72.7	89.6	47.4	61.1
5-14	99.9	59.6	40.3	25.1
15-24	221.4	135.5	72.7	45.6
25-44	345.7	96.3	117.3	32.2
45-64	274.6	105.1	123.1	42.9
65+	367.9	273.2	505.6	268.2
Total	1382.1	118.4	906.4	73.2
Age-Adjusted Rate		107.2		65.3

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-14g: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for United States by Age, Race and Gender, 1995-2001.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	15,000	79.9	9,000	56.7	3,000	95.7	NA	NA
5-14	22,000	54.8	14,000	44.5	3,000	45.7	NA	NA
15-24	43,000	112.9	27,000	89.6	4,000	69.4	NA	NA
25-44	59,000	69.2	34,000	49.0	8,000	72.2	NA	NA
45-64	34,000	58.3	20,000	40.3	4,000	64.7	NA	NA
65+	60,000	173.5	41,000	133.0	3,000	106.0	NA	NA
Total	235,000	85.2	146,000	64.3	26,000	72.4	64,000	23.3
Age-Adjusted Rate		85.5		63.8		73.9		NA

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	9,000	95.4	6,000	63.7
5-14	15,000	72.9	14,000	44.5
15-24	31,000	158.9	27,000	89.6
25-44	43,000	100.9	34,000	49.0
45-64	23,000	81.1	20,000	40.3
65+	25,000	176.3	41,000	133.0
Total	146,000	107.8	89,000	63.4
Age-Adjusted Rate		110.4		60.7

Avg Num: average number of TBI-related hospitalizations.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-15: Average Annual Crude Hospitalizations Rates by Hispanic Ethnicity for BSCIP Regions and Florida, 1999-2005.

Region	Average Number	Rate
BSCIP Region 1	44.0	34.1
BSCIP Region 2	245.6	55.6
BSCIP Region 3	277.6	66.3
BSCIP Region 4	385.3	57.9
BSCIP Region 5	1,145.6	81.0
Florida	2,098.7	68.5

Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Cause of Injury

Nationally, motor vehicle-traffic accidents (35.3 percent), falls (20.5 percent) and assaults (6.1 percent) were the primary causes of TBI-related hospitalizations. The cause of injury is classified by the external cause of injury code (e-code) obtained from the diagnosis fields on the hospitalization discharge record. Tables 3-16 (a-g), highlight the average annual crude and age-adjusted TBI-related hospitalization rates for Florida, the BSCIP regions and the United States by cause. In Florida, falls caused 30.4 percent of all TBI-related hospitalizations, followed by motor vehicle-traffic accidents (27.5 percent) and assaults (6.9 percent) from 1999 through 2005. All other causes resulted in 35.2 percent of TBI-related hospitalizations, which include struck by/against, all other causes and unknowns. Detailed tables for each cause of hospitalization are available in Appendix D.

Motor Vehicles-Traffic Accidents

In Florida, the average annual crude TBI-related hospitalization rate from motor vehicle-traffic accidents was 24.2 per 100,000 of the population, resulting in approximately 4,067 hospitalizations per year from 1999 through 2005. The average annual rate of motor vehicle-traffic TBI-related hospitalizations in Florida was greater than the national rate of 21.6 per 100,000 of the population. BSCIP Regions 2, 3 and 5 had higher average annual TBI-related hospitalization rates from motor vehicle-traffic accidents (25.4, 25.3 and 25.3, respectively) than the state.

- As in the United States (49.9), the average annual crude TBI-related hospitalization rate from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age category (52.3). This was true across all BSCIP regions, with the highest rate in BSCIP Region 3 (59.8).

- In Florida, the fewest TBI-related hospitalizations from motor vehicle-traffic accidents occurred in the youngest age group, 0-4 years of age (11.5), which was consistent with national rates (8.6).

To examine motor vehicle-traffic TBI-related hospitalizations from 1999 through 2005 in more detail, the specific external cause of injury categories (occupant, pedestrian, motorcycle and pedalcycle) are described (Tables 3-17 a-g). In Florida, occupant motor vehicle-traffic accidents resulted in approximately 2,725 TBI-related hospitalizations per year (16.2 per 100,000), which was higher than the national rate (15.1). Motorcycle accidents resulted in approximately 482 hospitalizations per year (2.9 per 100,000), which was two times the national rate. Pedestrian accidents resulted in approximately 466 hospitalizations per year (2.8 per 100,000). Rates for pedalcycle (204 hospitalizations) and other motor vehicle-traffic accidents (190 hospitalizations) were approximately 1 per 100,000. The national average annual crude TBI-related hospitalization rates for those categories were: pedestrian (2.5 per 100,000), motorcycle (1.5 per 100,000) and pedalcycle (0.8 per 100,000). Detailed tables are available in Appendix D.

- Pedestrian TBI-related hospitalization rates were approximately 1.5 times (4.5 per 100,000) more likely in BSCIP Region 5 compared to the state average annual age-adjusted rate (2.8 per 100,000).
- Motorcycle hospitalizations were most likely to occur in BSCIP Region 2 (3.7 per 100,000), compared to the average annual age-adjusted rates in the state or any other BSCIP region.
- Occupant motor vehicle-traffic average annual crude hospitalization rates were highest in the 15-24 years of age population (39.1) in Florida. The rates in BSCIP Regions 2, 3 and 4 were higher than the state rates in this population (42.7, 46.4 and 39.8, respectively).

Controlling for differences in the population, the age-adjusted average annual TBI-related hospitalization rate in Florida resulting from motor vehicle-traffic accidents was 24.8 per 100,000 of the population from 1999 through 2005. The national age-adjusted rate was 21.5 per 100,000 of the population. Since 1999, age-adjusted TBI-related hospitalization rates in Florida from motor vehicle-traffic accidents, using average three-year age-adjusted rates, have remained relatively steady (Figure 3-25). BSCIP Region 1 was the only region that presented an increase in age-adjusted TBI-related hospitalization rates by motor vehicle-traffic accident hospitalizations in each of the five time periods.

Falls

In Florida, the average annual crude TBI-related hospitalization rate from falls was 26.8 per 100,000 of the population, resulting in approximately 4,503 hospitalizations per year from 1999 through 2005. The rate of fall TBI-related hospitalizations in Florida was greater than the national rate of 17.5 per 100,000 of the population. BSCIP Regions 3, 4 and 5 had higher average annual TBI-related hospitalization rates (27.5, 33.2 and 31.3, respectively) from falls than the state.

- Consistent with national trends, the average annual crude TBI-related hospitalization rate resulting from falls in Florida was highest in the 65 years of age and older category (93.1), but was higher than the national rate (66.5).
- BSCIP Regions 4 (103.3) and 5 (138.2) had an average annual crude TBI-related hospitalization rate from falls higher than the state for the 65 years and older population.
- The 0-4 years of age population was the second most likely to be hospitalized from a TBI in Florida (31.6) as well as in the nation (32.5), again with the highest rates in BSCIP Regions 4 and 5.

The age-adjusted average annual TBI-related hospitalization rate in Florida resulting from falls was 22.5 per 100,000 of the population, which controls for difference in the population in regards to age. The national age-adjusted rate was 17.7 per 100,000 of the population. Since 1999, annual age-adjusted TBI-related hospitalization rates from falls in Florida, using average three-year rates, has increased in each of the time periods (Figure 3-25). This was consistent across each BSCIP region as well.

Assaults

Approximately 1,016 people in Florida were hospitalized from an assault that resulted in a TBI each year from 1999 through 2005. Florida's average crude TBI-related hospitalization rate (6.0) from assaults was higher than the national rate (5.2).

- The highest TBI-related hospitalization rate by assaults was in the 15-24 years of age group (11.7) in Florida.
- BSCIP Region 1 was the only area in the state in which the 15-24 years of age group did not have the highest rate of average annual crude TBI-related hospitalization by assault. The 25-44 years of age group had the highest average annual crude TBI-related hospitalization rate (9.2).
- The highest rate of average annual TBI-related hospitalization rates from assaults in Florida was in BSCIP Region 5 (7.3).

The age-adjusted average annual TBI-related hospitalization rate in Florida resulting from assaults was 6.3 per 100,000 of the population from 1999 through 2005. The national age-adjusted rate was 5.1 per 100,000 of the population. Since 1999, age-adjusted TBI-related hospitalization rates from assaults in Florida, using average three-year rates, have increased slightly (Figure 3-25).

Table 3-16a: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for Florida by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	47.0	4.7	317.0	31.6	200.9	20.0	115.3	11.5
5-14	19.3	0.9	163.7	7.6	352.1	16.4	331.9	15.5
15-24	247.1	11.7	167.4	7.9	616.3	29.3	1,101.9	52.3
25-44	440.7	9.6	451.7	9.8	1,000.3	21.7	1,262.1	27.4
45-64	213.7	5.3	673.3	16.8	958.1	23.8	760.4	18.9
65+	47.7	1.6	2,730.1	93.1	2,096.6	71.5	495.7	16.9
Total	1,015.6	6.0	4,503.3	26.8	5,224.3	31.1	4,067.3	24.2
Age-Adjusted Rate		6.3		22.5		28.5		24.8

Avg Num: average number of TBI-related hospitalizations.
* Other includes 2,562 struck by/against, 9,633 other and 24,375 unknowns for the seven-year period.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-16b: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 1 by Cause, 1999-2005.

Ages	**Causes**							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	14.3	7.4	42.9	22.1	32.0	16.5	22.9	11.8
5-14	3.0	0.7	24.3	5.9	59.0	14.3	56.1	13.6
15-24	40.4	8.3	28.6	5.9	102.1	21.1	210.4	43.4
25-44	81.1	9.2	69.4	7.8	167.0	18.8	234.9	26.5
45-64	41.4	5.7	109.4	15.0	145.4	19.9	129.9	17.8
65+	7.1	1.9	328.4	86.4	242.4	63.8	60.3	15.9
Total	187.4	6.1	603.0	19.5	748.0	24.2	714.4	23.1
Age-Adjusted Rates		6.0		20.2		24.5		22.7

Avg Num: average number of TBI-related hospitalizations.
*Other includes 397 struck by/against, 1,376 other and 3,463 unknowns for the seven-year period.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-16c: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 2 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	9.9	5.1	48.6	25.2	42.9	22.2	22.0	11.4
5-14	2.9	0.7	23.3	5.4	72.4	16.8	69.9	16.2
15-24	39.0	9.3	29.0	6.9	130.4	31.2	237.6	56.8
25-44	73.7	8.1	77.0	8.4	217.7	23.8	270.9	29.7
45-64	32.1	4.0	116.1	14.4	198.3	24.5	158.4	19.6
65+	6.9	1.2	416.6	70.9	385.1	65.6	93.6	15.9
Total	164.4	4.9	710.6	21.2	1,046.9	31.2	852.3	25.4
Age-Adjusted Rate		5.2		18.3		29.3		26.3

Avg Num: average number of TBI-related hospitalizations.
*Other includes 405 struck by/against, 1,752 other and 5,171 unknowns for the seven-year period.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-16d: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 3 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	11.6	5.5	79.3	38.0	39.4	18.9	26.9	12.9
5-14	4.7	1.1	37.4	8.4	69.7	15.6	75.6	17.0
15-24	49.0	11.8	36.1	8.7	144.1	34.8	247.3	59.8
25-44	87.4	9.2	94.9	10.0	227.1	23.9	267.3	28.1
45-64	46.0	5.2	147.1	16.5	233.9	26.3	174.6	19.6
65+	9.0	1.2	606.4	82.2	470.1	63.7	129.3	17.5
Total	207.7	5.7	1,001.3	27.5	1,184.4	32.5	920.9	25.3
Age-Adjusted Rate		6.3		21.5		29.2		26.6

Avg Num: average number of TBI-related hospitalizations.
*Other includes 535 struck by/against, 2,318 other and 5,438 unknowns for the seven-year period.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-16e: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 4 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	8.1	3.3	87.0	35.1	43.6	17.6	28.9	11.6
5-14	5.6	1.0	50.0	9.4	91.3	17.2	81.1	15.3
15-24	77.3	16.6	49.3	10.6	160.4	34.4	256.6	55.0
25-44	122.4	10.7	130.1	11.4	272.1	23.8	297.7	26.1
45-64	52.6	5.0	187.9	18.0	257.7	24.7	176.6	16.9
65+	14.0	1.6	931.9	103.3	666.6	73.9	128.3	14.2
Total	280.0	6.5	1,436.1	33.2	1,491.7	34.4	969.1	22.4
Age-Adjusted Rate		7.2		24.9		30.0		24.1

Avg Num: average number of TBI-related hospitalizations.
*Other includes 757 struck by/against, 2,704 other and 6,981 unknowns for the seven-year period.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-16f: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 5 by Cause, 1999-2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	3.1	2.0	59.3	37.3	43.0	27.1	14.7	9.3
5-14	3.1	1.0	28.7	8.7	59.6	18.1	48.9	14.9
15-24	41.4	12.8	24.4	7.6	78.7	24.4	149.6	46.3
25-44	75.9	10.5	80.1	11.1	116.1	16.1	190.9	26.4
45-64	41.6	7.6	112.7	20.5	122.7	22.4	120.7	22.0
65+	10.7	3.3	446.7	138.2	331.9	102.7	84.1	26.0
Total	175.9	7.3	752.0	31.3	752.0	31.3	608.9	25.3
Age-Adjusted Rate		7.3		30.1		30.6		24.8

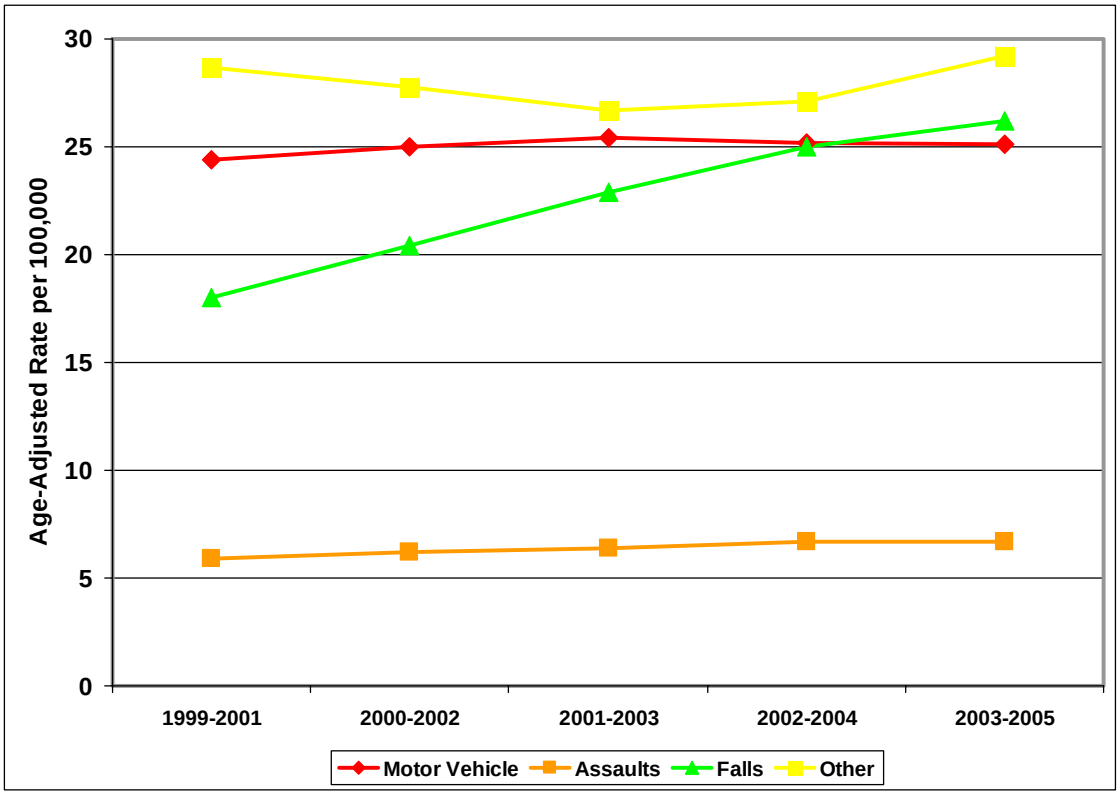
Avg Num: average number of TBI-related hospitalizations.
* Other includes 468 struck by/against, 1,480 other and 3,316 unknowns for the seven-year period.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-16g: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for United States by Cause, 1995-2001.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1,000	5.4	6,000	32.5	6,000	41.8	2,000	8.6
5-14	0	0.0	3,000	7.5	12,000	29.9	6,000	14.9
15-24	4,000	10.5	2,000	5.3	19,000	49.9	19,000	49.9
25-44	7,000	8.2	7,000	8.2	27,000	31.7	20,000	23.5
45-64	2,000	2.5	6,000	10.3	17,000	29.1	10,000	17.1
65+	0	0.0	23,000	66.5	31,000	89.6	5,000	14.5
Total	14,000	5.2	48,000	17.5	113,000	48.1	59,000	21.6
Age-Adjusted Rate		5.1		17.7		NA		21.5

Avg Num: average number of TBI-related hospitalizations.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-25: Average Annual Age-Adjusted Hospitalization Rates per 100,000 for Florida by Cause, 1999-2005.



Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17a: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 1999-2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	88.7	8.9	21.7	2.2	1.6	0.2	2.3	0.2	1.0	0.1
5-14	169.1	7.9	83.3	3.9	17.4	0.8	54.4	2.5	7.6	0.4
15-24	824.0	39.1	80.6	3.8	103.9	4.9	34.3	1.6	59.1	2.8
25-44	814.0	17.6	118.3	2.6	218.3	4.7	53.1	1.2	58.4	1.3
45-64	465.0	11.6	93.0	2.3	123.7	3.1	44.9	1.1	33.9	0.8
65+	364.0	12.4	69.6	2.4	16.9	0.6	15.4	0.5	29.9	1.0
Total	2,724.9	16.2	466.4	2.8	481.7	2.9	204.4	1.2	189.9	1.1
Age-Adjusted Rate		16.6		2.8		3.0		1.3		1.1

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17b: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 1999-2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	19.7	10.2	2.4	1.3	0.4	0.2	0.1	0.1	0.1	0.1
5-14	34.9	8.4	10.9	2.6	3.1	0.8	6.0	1.5	1.3	0.3
15-24	165.0	34.0	14.3	2.9	17.6	3.6	4.1	0.9	9.4	1.9
25-44	163.6	18.5	15.3	1.7	37.1	4.2	7.4	0.8	11.4	1.3
45-64	87.7	12.0	12.1	1.7	19.1	2.6	5.7	0.8	5.1	0.7
65+	47.4	12.5	5.4	1.4	2.0	0.5	1.4	0.4	4.0	1.1
Total	518.3	16.8	60.4	2.0	79.4	2.6	24.9	0.8	31.4	1.0
Age-Adjusted Rate		16.4		1.9		2.5		0.8		1.1

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17c: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 1999-2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	16.6	8.6	4.7	2.4	0.3	0.1	0.3	0.1	0.1	0.1
5-14	35.9	8.3	16.1	3.8	2.6	0.6	13.6	3.2	1.7	0.4
15-24	178.6	42.7	16.0	3.8	23.6	5.6	8.1	1.9	11.3	2.7
25-44	172.7	18.9	25.1	2.8	53.3	5.8	8.1	0.9	11.6	1.3
45-64	97.4	12.0	13.7	1.7	35.6	4.4	6.1	0.8	5.6	0.7
65+	70.6	12.0	8.9	1.5	4.4	0.8	2.6	0.4	7.1	1.2
Total	571.7	17.1	84.6	2.5	119.7	3.6	38.9	1.2	37.4	1.1
Age-Adjusted Rate		17.6		2.6		3.7		1.2		1.1

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17d: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 1999-2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	21.0	10.1	4.7	2.3	0.4	0.2	0.6	0.3	0.1	0.1
5-14	40.6	9.1	18.0	4.0	2.6	0.6	13.6	3.0	0.9	0.2
15-24	191.9	46.4	17.3	4.2	20.7	5.0	7.9	1.9	9.6	2.3
25-44	177.1	18.6	26.0	2.7	45.4	4.8	11.7	1.2	7.0	0.7
45-64	108.4	12.2	22.6	2.5	27.7	3.1	11.3	1.3	4.6	0.5
65+	102.6	13.9	12.9	1.7	5.1	0.7	4.0	0.5	4.7	0.6
Total	641.6	17.6	101.4	2.8	102.0	2.8	49.0	1.3	26.9	0.7
Age-Adjusted Rate		18.5		2.9		3.0		1.4		0.8

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17e: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 1999-2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	20.4	8.2	6.7	2.7	0.3	0.1	1.1	0.5	0.3	0.1
5-14	36.9	6.9	19.9	3.7	6.1	1.2	15.4	2.9	2.9	0.5
15-24	185.6	39.8	20.1	4.3	23.9	5.1	10.0	2.1	17.0	3.6
25-44	190.0	16.7	28.3	2.5	48.6	4.3	16.4	1.4	14.4	1.3
45-64	104.3	10.0	20.3	1.9	28.4	2.7	14.1	1.4	9.4	0.9
65+	97.3	10.8	16.0	1.8	3.6	0.4	4.4	0.5	7.0	0.8
Total	634.4	14.7	111.3	2.6	110.9	2.6	61.6	1.4	51.0	1.2
Age-Adjusted Rate		15.7		2.7		2.8		1.5		1.3

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17f: Average Annual Crude and Age-Adjusted TBI-Related Hospitalization Rates per 100,000 for BSCIP Region 5 by Motor Vehicle-Traffic External Causes, 1999-2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	11.0	6.9	3.1	2.0	0.1	0.1	0.1	0.1	0.3	0.2
5-14	20.7	6.3	18.4	5.6	3.0	0.9	5.9	1.8	0.9	0.3
15-24	102.7	31.8	12.9	4.0	18.1	5.6	4.1	1.3	11.7	3.6
25-44	110.1	15.2	23.4	3.2	33.9	4.7	9.4	1.3	14.0	1.9
45-64	66.9	12.2	24.3	4.4	12.9	2.3	7.6	1.4	9.1	1.7
65+	46.0	14.2	26.4	8.2	1.7	0.5	3.0	0.9	7.0	2.2
Total	357.4	14.9	108.6	4.5	69.7	2.9	30.1	1.3	43.0	1.8
Age-Adjusted Rate		14.8		4.5		2.9		1.3		1.8

Avg Num: average number of TBI-related hospitalizations.
Source: State of Florida, AHCA, Detailed Discharge Data, 1999-2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-17g: Average Annual Crude TBI-Related Hospitalization Rates per 100,000 for United States by Motor Vehicle-Traffic External Causes, 1995- 2001.

Ages	Motor Vehicles							
	Occupant		Pedestrians		Motorcycle		Pedalcycle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1,000	5.5	1,000	2.6	NA	NA	NA	NA
5-14	2,000	5.0	236	5.0	NA	NA	NA	NA
15-24	13,000	34.1	NA	NA	NA	NA	NA	NA
25-44	14,000	16.4	563	2.3	NA	NA	NA	NA
45-64	7,000	12.0	418	3.4	NA	NA	NA	NA
65+	4,000	11.6	NA	NA	NA	NA	NA	NA
Total	42,000	15.1	7,000	2.5	4,000	1.5	20,000	0.8
Age-Adjusted Rate		NA		NA		NA		NA

Avg Num: average number of TBI-related hospitalizations; age-adjusted rates not provided.
NA: sample size small, rates not considered stable
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Rural Population

Individuals who live in rural areas have decreased access to healthcare facilities. Staff at acute care facilities within rural counties may not be as highly trained as those in more populated areas. The definition of "rural" used in this assessment is provided by the Florida Department of Health, Office of Rural Health. The statutory definition of rural is "an area with a population density of less than 100 individuals per square mile or an area defined by the most recent United States Census as rural."[6] Based on this definition, currently 33 of 67 counties in Florida are identified as rural.

The rural population of Florida accounted for an average of 899 TBI-related hospitalizations each year (6.1 percent) in the state from 1999 through 2005, which is equal to the percent of the total population that resides in rural counties. The average annual crude TBI-related hospitalization rate in the rural counties of Florida was 84.4 per 100,000, compared to 87.6 per 100,000 in the non-rural counties and 88.1 per 100,000 for the state. BSCIP Region 1 which most closely represents rural based on population density had an average annual TBI-related hospitalizations rate of 73.0 per 100,000 of the population. Access to medical care in rural areas is difficult. These counties do not have trauma centers that handle the most severely injured, which results in longer transport to these facilities. The delay in care can result in complications even death. Additionally, the difficulty in obtaining medical care can result in using the emergency room or community medical clinics as the primary source of medical care. Finally, as mentioned above, the Florida Department of Health, Office of Rural Health identified that recruitment and retention of EMS personnel is difficult in rural areas. Therefore, obtaining and maintaining individuals adequately trained in brain injury is less likely, which may decrease the likelihood for successful outcomes.

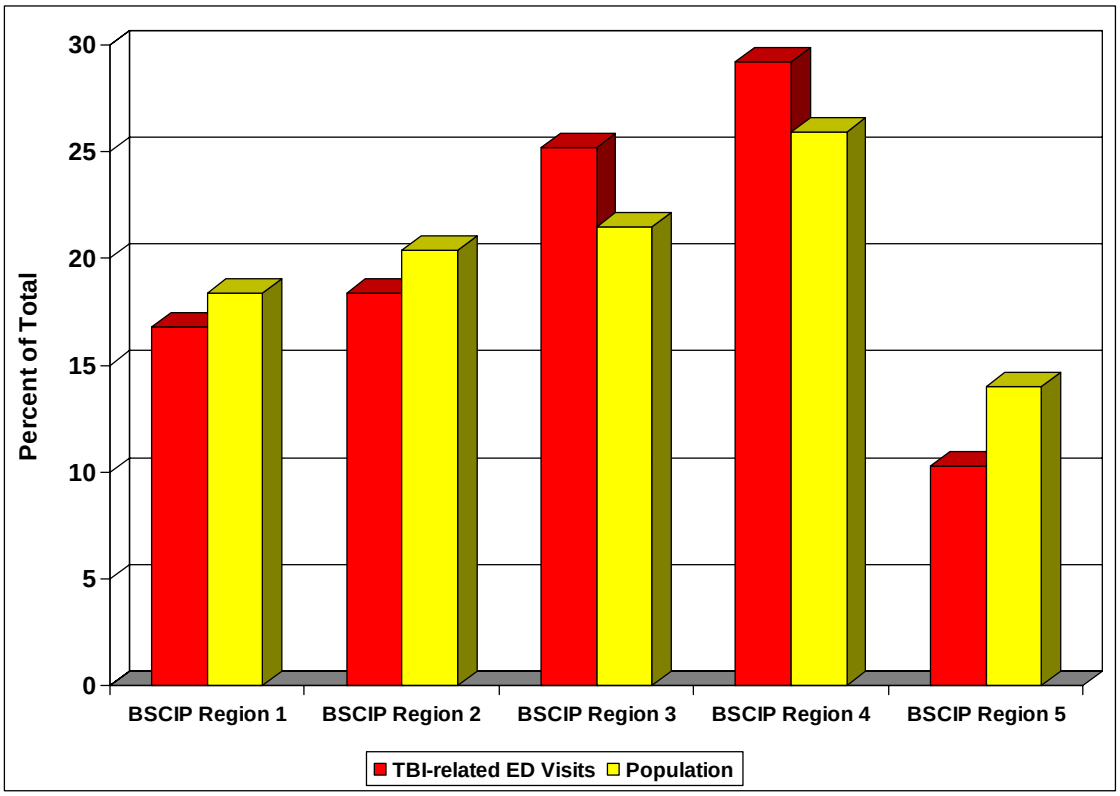
TBI-Related Emergency Department Visits

TBI-related emergency department visits were identified from the Florida Agency for Healthcare Administration (AHCA) Emergency Department Data by the methodology presented in the "Traumatic Brain Injury In the United States: Emergency Department Visits, Hospitalizations and Deaths" report.[2] Emergency department (ED) data were only obtained for calendar year 2005 because this is the only year of data collection available at the time of the report. TBI-related ED cases were identified if one of the diagnosis fields contained an ICD-9 diagnosis code for TBI. The external cause of injury code (e-code) was located within an external cause of injury field. The first e-code listed in the fields was used in the analysis. ICD-9 codes and external cause of injury codes for TBI are listed in Appendix A. Individuals who died while in the ED or were later hospitalized or transferred to another facility were excluded from analysis to eliminate duplication of count in the death and hospitalization data. Patient status codes excluded in the analysis included: transferred to short-term general hospital (02), transferred to another type of institution (05), expired (20) and transferred to an inpatient rehabilitation facility including distinct units of a hospital (62). The national TBI-related ED data presented in this section of the report is from the aforementioned CDC report.[2]

ED data are presented in two ways, crude and age-adjusted ED rates. Crude rates show the number of ED visits in a given population during a defined time-frame and age-adjusted rates are used to compare ED rates between different geographic areas. Adjustments are made to account for the differences in age group distributions between populations using a standard population. For purposes of this study, the standard population is the 2000 United States population. Age-adjusted rates represent a summary or indicator rate for TBI-related ED visits and permit an unbiased comparison regardless of the differences in age distribution of populations.

Approximately 1.1 million TBI-related ED visits occur in the United States each year. In Florida, 71,382 TBI-related ED visits occurred during 2005, representing 6.4 percent of all TBI-related ED visits in the nation. The most TBI-related ED visits occurred in BSCIP Region 4 (20,862) compared to BSCIP Region 5 with the fewest (7,375). Figure 3-26 shows the percentage of total TBI-related ED visits compared to the percentage of the total population by BSCIP region. The largest disparity between the percentage of total TBI-related ED visits and the percentage of the total population exists in BSCIP Regions 3 (3.8 percent) and 5 (3.7 percent). The percentage of TBI-related ED visits was higher than the percentage of the total population within BSCIP Regions 3 and 4. Since the prevalence of TBI-related disability (2 percent of the population) mirrors the population estimates, the same trends appear as mentioned above. The largest disparity between the percentage of total TBI-related ED visits and TBI-related disability prevalence were within BSCIP Regions 3 (3.8 percent) and 5 (3.7 percent).

Figure 3-26: Percentage of ED Visits and Florida Population by BSCIP Region, 2005.



Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Crude and Age-Adjusted ED Visit Rates

Table 3-18 shows the average annual crude and age-adjusted TBI-related ED visit rates per 100,000 of the population for Florida and each BSCIP region for 2005. Crude and age-adjusted TBI-related ED visit rates for each county are available in Appendix E. The national TBI-related ED data presented in this section represent the average rates from 1995 through 2001 which is the most recently published data by the CDC.

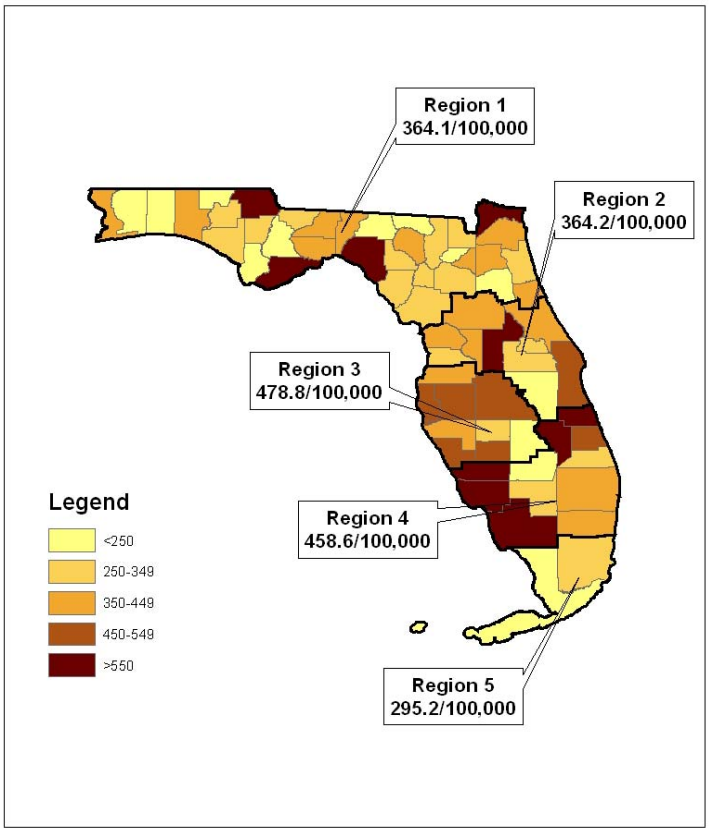
Florida's crude 2005 TBI-related ED visit rate (396.2) was lower than the national TBI-related ED visit rate (403.1). BSCIP Regions 3 and 4 TBI-related crude 2005 ED visit rates (464.4 and 448.4, respectively) were higher than the state's 2005 TBI-related ED visit rate (396.2). BSCIP Region 5 had the lowest 2005 TBI-related crude ED visit rate of 293.3 per 100,000 of the population in the state.

To account for differences in the population age distribution between geographies, standardizing rates to the 2000 United States population is necessary.

- The 2005 age-adjusted rate for TBI-related ED visits in Florida (401.4) was slightly higher than the age-adjusted average annual national rate (401.2) for TBI-related ED visits.

- The 2005 age-adjusted rates for TBI-related ED visits in BSCIP Regions 3 and 4 (478.8 and 458.6, respectively) were higher than the state age-adjusted rate for TBI-related ED visits (401.4).
- BSCIP Region 5 had the lowest age-adjusted rate for TBI-related ED visits (295.2) in the state in 2005.
- Figure 3-27 displays the age-adjusted ED visits rate by county and for each BSCIP region.

Figure 3-27: Age-Adjusted ED Visit Rate by County and BSCIP Region, 2005.



Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-18: Crude and Age-Adjusted TBI-Related ED Visit Rates for BSCIP Region, Florida and the United States, 2005.

Area	Population	Number ED Visits	Crude Rate per 100,000 Population	Age-Adjusted Rate per 100,000 Population**
BSCIP Region 1	3,309,865	12,036	363.6	364.1
BSCIP Region 2	3,668,898	13,124	357.7	364.2
BSCIP Region 3	3,872,485	17,985	464.4	478.8
BSCIP Region 4	4,652,345	20,862	448.4	458.6
BSCIP Region 5	2,514,904	7,375	293.3	295.2
Florida	18,018,497	71,382	396.2	401.4
United States*	275,707,622	1,111,000	403.1	401.2

*United States rates from 1995-2001 population data.
** Age-adjusted to the US Standard Population, 2000.
Source: State of Florida, AHCA, Emergency Department Data, 2005; Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Age, Race, Ethnicity and Gender

Tables 3-19 (a-g) show the 2005 crude and age-adjusted TBI-related ED visit rates for 2005 by age, race and gender for each BSCIP Region, Florida and the United States.

Rates by Age

Figure 3-28 depicts the percentage of 2005 TBI-related ED visits by age group. The 25-44 years of age group accounted for 22.2 percent of all TBI-related ED visits in Florida in 2005. Adults over the age of 65 accounted for approximately 18.8 percent of all TBI-related ED visits in Florida in 2005.

0-4 Years

- In 2005 there were 10,166 TBI-related ED visits for youth 0-4 years of age in Florida, resulting in a rate of 944.0 per 100,000 people. This represented 14.2 percent of all TBI-related ED visits in Florida. The national annual ED visit rate for this age group was 1,035.0 per 100,000 of the population, representing about 18 percent of all TBI-related ED visits.
- The highest TBI-related ED visit rate in 2005 (1,125.3) for this population was in BSCIP Region 3.
- The lowest 2005 crude TBI-related ED visit rate (564.2) for this population was in BSCIP Region 1.

5-14 Years

- There were 8,430 TBI-related ED visits in 2005 in the 5-14 years of age population in Florida, resulting in a rate of 370.4 per 100,000 people. This represented 11.8 percent of all TBI-related ED visits during the year. The national annual ED visit rate for this age group was 585.1 per 100,000 of the population.
- In 2005, the highest ED visit rate (472.4) for this population was in BSCIP Region 3.

- The lowest ED visit rate (301.5) for this population was in BSCIP Region 5 during 2005.

15-24 Years

- There were 13,311 TBI-related ED visits in 2005 for individuals 15-24 years old in Florida, resulting in a rate of 570.2 per 100,000 people. The national annual ED visit rate for this age group was 546.1 per 100,000 of the population.
- This age group has the second highest TBI-related ED visit rate in the nation, Florida and each BSCIP region.
- BSCIP Region 3 had the highest ED visit rate for this group, 712.5 per 100,000 of the population in 2005.
- Region 5 had the lowest ED visit rate for this population with 325.6 per 100,000 people.

25-44 Years

- In 2005 there were 15,877 TBI-related ED visits in the 25-44 years of age population in Florida, resulting in a rate of 334.1 per 100,000 people. The national annual ED visit rate for this age group was 322.7 per 100,000 of the population.
- BSCIP Region 3 had the highest ED visit rate for this age group in the state (404.6) in 2005.
- BSCIP Region 5 had the lowest ED visit rate for this age group with 195.8 per 100,000 of the population in 2005.

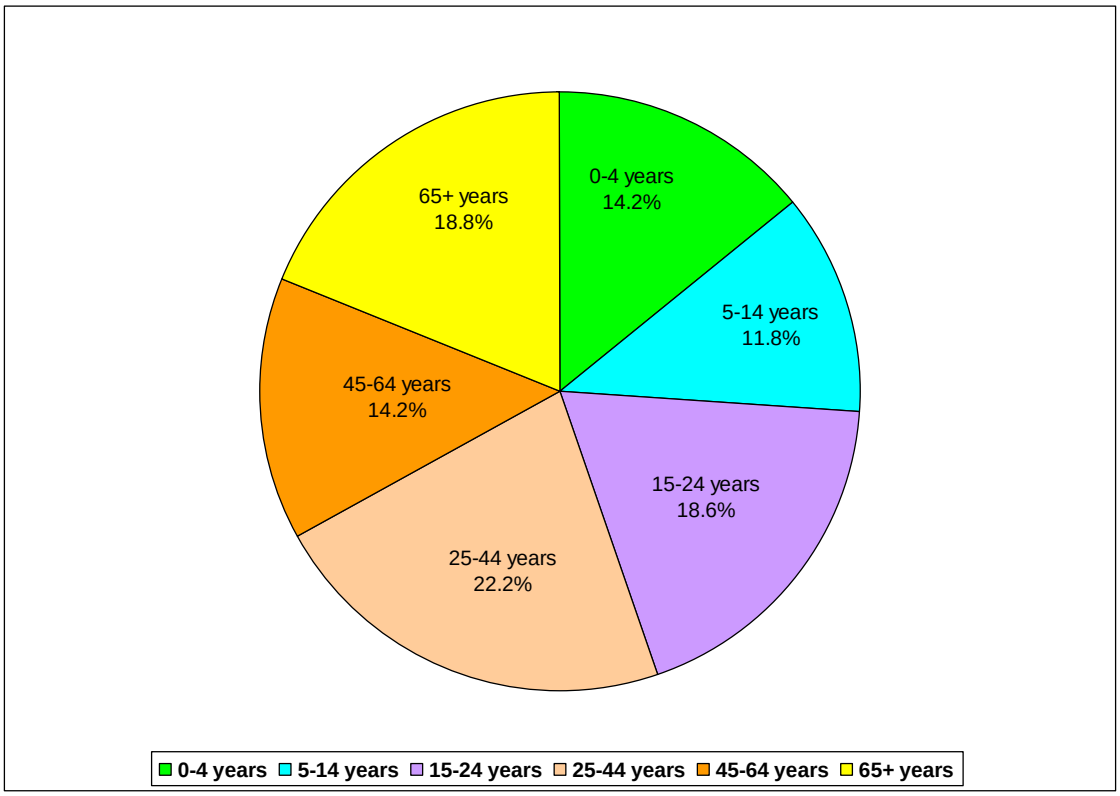
45-64 Years

- There were 10,149 TBI-related ED visits in 2005 for individuals 45-64 years of age in Florida, resulting in a rate of 224.7 per 100,000 people. The national annual ED visit rate for this age group was 188.5 per 100,000 of the population.
- BSCIP Region 3 had the highest ED visit rate for this group with 255.4 per 100,000 of the population in 2005.
- Region 2 had the lowest ED visit rate for this population with 195.1 per 100,000.

65 and Older

- During 2005, 13,449 adults over the age of 65 visited an ED for a TBI-related issue, resulting in a rate of 439.2 per 100,000 people. The national annual ED visit rate for this population was 240.0 per 100,000 people.
- BSCIP Regions 3 and 4 had higher TBI-related ED visit rates (466.2 and 482.4, respectively) than the state rate during 2005.
- Region 5 had the lowest ED visit rate for this population of all the BSCIP regions with 319.2 per 100,000 of the population.

Figure 3-28: Percentage ED Visits by Age Group for Florida, 2005.



Source: State of Florida, AHCA, Emergency Department Data, 2005.
Prepared by: WellFlorida Council Inc., 2007.

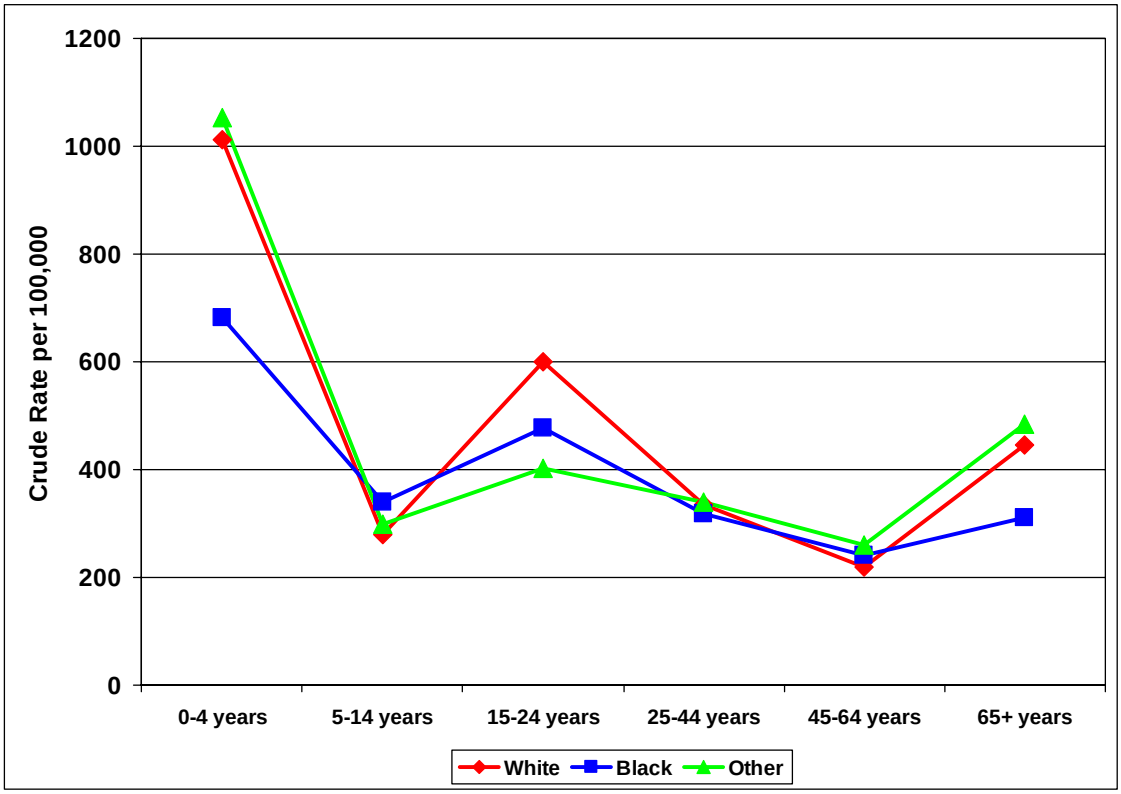
Rates by Race and Ethnicity

In Florida, 81.5 percent of all TBI-related ED visits during 2005 were by whites. Blacks accounted for 15.0 percent of all TBI-related ED visits in Florida during 2005. Nationally, whites accounted for 81.4 percent and blacks account for 15.5 percent of all TBI-related ED visits. The national data suggests that blacks, 485.6 per 100,000, were more likely to be treated and released from the ED for TBI-related causes than other races (399.3 per 100,000 for whites and 252.6 for American Indians, Alaskan Natives, Asians and Pacific Islanders combined). In Florida, individuals who are white (399.1 per 100,000) were more likely to visit the ED for TBI-related issues than "other" races (397.6 per 100,000) or blacks (364.1 per 100,000) during 2005. Please note that the "other" races categorization is not used in the national data.

- BSCIP Regions 3 and 4 had the highest crude TBI-related ED visit rate for white residents (456.7 and 454.2, respectively) and BSCIP Region 5 had the lowest (304.9) in 2005.
- In BSCIP Regions 1 and 3, blacks had the highest rate of TBI-related ED visits in 2005 compared to whites and all "other" races (382.7 and 515.0, respectively). The rate in BSCIP Region 3 was the highest in the state during 2005 for blacks. The lowest rate for blacks was in BSCIP Region 5 (224.2).
- BSCIP Regions 4 and 5 had the highest crude TBI-related ED visit rates for individuals of all "other" races (590.6 and 465.4, respectively) and BSCIP Region 1 had the lowest (233.5).

Figure 3-29 displays the 2005 crude TBI-related ED visit rates by race and age groups in Florida. Youth 0-4 years of age, in each race, had the highest rate for TBI-related ED visits during 2005. Whites ages 15-24 had the highest TBI-related ED visit rate compared to other races in their age group. "Other" races had the highest rate for TBI-related ED visits for adults over the age of 65 compared to whites and blacks in Florida during 2005.

Figure 3-29: Crude ED Visit Rates by Race and Age Group for Florida, 2005.



Source: State of Florida, AHCA, Emergency Department Data, 2005.
Prepared by: WellFlorida Council Inc., 2007.

Similar to the crude rates, whites had the highest age-adjusted ED visit rate from TBI (411.0), compared to "other" races (395.3) and blacks (351.7). This is unlike the national picture, where blacks have the highest age-adjusted TBI-related ED visit rate (485.6).

The CDC identifies that Hispanics bear a disproportionate burden of disease, injury, death and disability when compared with non-Hispanic whites.[5] The 2005 crude TBI-related ED visit rates by Hispanic ethnicity are presented for Florida, each BSCIP region and county in Appendix E. Table 3-20 describes the 2005 crude TBI-related ED visit rate for Hispanics by BSCIP region and Florida. The 2005 ED visit rate for Hispanics in Florida was 310.3 per 100,000 of the population, which was lower than the rate for Florida (396.2) as a whole. In BSCIP Region 4 had the highest rate of TBI-related ED visits in Florida for the Hispanic population, 411.5 per 100,000 of the population. BSCIP Region 1 had the lowest rate at 207.5 per 100, 000 of the population. Age-adjusted rates were not computed for this population because age-specific data were not available.

Rates by Gender

Males were approximately two times more likely to experience a TBI than their female counterparts.[2] Males had a higher crude TBI-related ED visit rate than females in Florida as well as in the nation. But, the ED visit rates for females (354.7) in Florida were higher than the national rates (326.5). The rates for males in Florida (439.4) were lower than the national rate (482.9) for ED visits resulting from a TBI. In Florida, males were approximately 1.2 times more likely to go to the ED for a TBI-related cause than females during 2005.

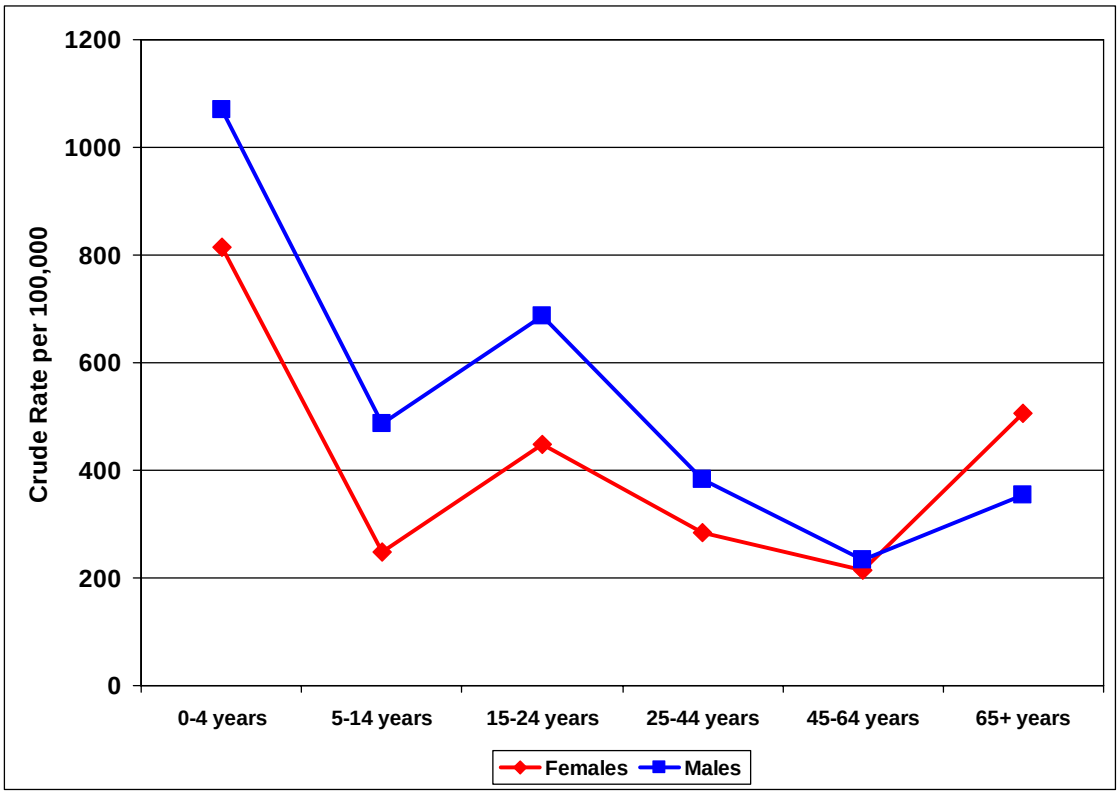
- BSCIP Region 3 had the highest TBI-related crude ED visit rate for males (511.7) and females (419.6) in 2005.

During 2005, males in all age groups in Florida, except 65 and older, were more likely to visit an ED for a TBI than their female counterparts (Figure 3-30). Males (1,069.3) and females (814.1) 0-4 years of age have the highest rates for ED visits resulting from a TBI compared to the other age groups. Females 65 and older have a higher TBI-related ED visit rate (505.2) then males in the same age group (353.6) followed by males in the 15-24 years of age group with 685.9 ED visits per 100,000 of the population.

The 2005 age-adjusted ED visit rate for males in Florida (451.6) was lower than the national average age-adjusted rate (470.3), but the 2005 age-adjusted ED visit rate for females (346.8) in Florida was higher than the national age-adjusted ED visit rate (329.3).

- BSCIP Region 3 had the highest average annual TBI-related age-adjusted ED visit rate for males and females. The lowest rates were found in BSCIP Region 5 for both genders.

Figure 3-30: Crude ED Visit Rates by Gender and Age Group for Florida, 2005.



Source: State of Florida, AHCA, Emergency Department Data, 2005.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19a: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for Florida by Age, Race and Gender, 2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	10,166	944.0	7,984	1,013.0	1,689	680.9	429	1,054.2
5-14	8,430	370.4	6,421	379.2	1,698	340.0	249	299.5
15-24	13,311	570.2	10,389	599.4	2,475	478.0	337	403.1
25-44	15,877	334.1	12,523	334.1	2,740	318.8	487	338.8
45-64	10,149	224.7	8,353	219.1	1,453	240.2	260	260.5
65+	13,449	439.2	12,526	446.4	686	311.7	175	483.6
Total	71,382	396.2	58,196	399.1	10,741	364.1	1,937	397.6
Age-Adjusted Rate		401.4		411.0		351.7		395.3

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	5,858	1,069.3	4,307	814.1
5-14	5,671	486.4	2,759	248.6
15-24	8,193	685.9	5,118	448.9
25-44	9,191	383.4	6,685	283.9
45-64	5,102	234.5	5,046	215.5
65+	4,720	353.6	8,728	505.2
Total	38,735	439.4	32,643	354.7
Age-Adjusted Rate		451.6		346.8

Avg Num: average number of TBI-related ED Visits.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19b: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 1 by Age, Race and Gender, 2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1,159	564.2	792	555.7	323	589.5	38	469.0
5-14	1,312	309.6	932	314.6	344	310.6	30	179.3
15-24	2,780	517.2	2,053	540.0	664	482.3	41	208.4
25-44	3,101	344.0	2,299	343.0	707	351.3	70	234.1
45-64	1,933	233.2	1,465	217.8	408	299.6	44	217.2
65+	1,751	424.1	1,531	432.1	202	394.0	15	205.9
Total	12,036	363.6	9,072	360.6	2,648	382.7	238	233.5
Age-Adjusted Rate		401.4		411.0		351.7		395.3

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	642	614.5	517	512.1
5-14	919	424.5	393	189.7
15-24	1,677	611.0	1,103	419.3
25-44	1,743	376.3	1,358	309.9
45-64	980	243.4	953	223.5
65+	571	317.6	1,180	506.3
Total	6,532	398.0	5,504	329.8
Age-Adjusted Rate		398.0		325.2

Avg Num: average number of TBI-related ED Visits.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19c: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 2 by Age, Race and Gender, 2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1,754	834.3	1,376	852.7	274	691.4	95	1,029.5
5-14	1,490	318.2	1,191	324.6	245	298.6	49	253.6
15-24	2,591	546.1	2,140	573.8	366	443.6	70	368.0
25-44	2,868	297.0	2,351	299.0	415	285.9	87	254.9
45-64	1,800	195.1	1,540	192.2	209	213.1	40	173.3
65+	2,621	417.4	2,454	421.9	115	306.0	41	473.9
Total	13,124	357.7	11,052	359.9	1,624	334.9	382	336.7
Age-Adjusted Rate		364.2		370.9		324.5		338.9

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	1,029	962.2	724	700.9
5-14	976	407.1	514	225.0
15-24	1,557	639.2	1,034	447.9
25-44	1,624	332.3	1,244	260.9
45-64	866	194.5	933	195.5
65+	942	338.3	1,679	480.5
Total	6,994	388.0	6,128	328.4
Age-Adjusted Rate		400.9		323.4

Avg Num: average number of TBI-related ED Visits.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19d: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 3 by Age, Race and Gender, 2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	2,500	1,125.3	2,009	1,143.0	384	1,011.4	90	1,066.5
5-14	2,254	472.4	1,749	462.1	432	535.1	58	324.6
15-24	3,247	712.5	2,649	728.4	505	669.0	65	391.6
25-44	3,943	404.6	3,264	400.6	579	443.7	76	259.8
45-64	2,524	255.4	2,168	247.7	296	320.4	45	218.1
65+	3,517	466.2	3,329	466.7	125	372.0	39	519.0
Total	17,985	464.4	15,168	456.7	2,321	515.0	373	371.8
Age-Adjusted Rate		478.8		477.9		492.4		368.1

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	1,452	1,284.6	1,048	960.2
5-14	1,484	607.2	770	330.9
15-24	2,051	878.1	1,196	538.3
25-44	2,223	453.4	1,720	355.2
45-64	1,234	259.5	1,290	251.5
65+	1,199	365.9	2,317	543.0
Total	9,643	511.7	8,341	419.6
Age-Adjusted Rate		538.7		413.5

Avg Num: average number of TBI-related ED Visits.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19e: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 4 by Age, Race and Gender, 2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	2,903	1,090.8	2,245	1,199.9	495	719.8	136	1,325.1
5-14	2,375	412.8	1,763	424.0	505	363.4	78	378.6
15-24	3,581	681.7	2,767	733.1	661	513.2	116	607.9
25-44	4,529	384.7	3,542	389.5	733	314.8	206	587.3
45-64	2,995	253.9	2,479	249.2	390	242.0	98	411.3
65+	4,479	482.4	4,253	489.5	154	296.8	55	703.7
Total	20,862	448.4	17,049	454.2	2,938	375.5	689	590.6
Age-Adjusted Rate		458.6		476.1		361.0		599.8

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	1,680	1,240.9	1,223	935.4
5-14	1,618	548.1	757	270.2
15-24	2,248	832.7	1,333	522.1
25-44	2,761	466.5	1,767	301.8
45-64	1,566	275.3	1,429	233.9
65+	1,624	399.2	2,855	547.2
Total	11,497	506.9	9,364	392.7
Age-Adjusted Rate		531.2		381.0

Avg Num: average number of TBI-related ED Visits.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19f: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 5 by Age, Race and Gender, 2005.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	1,850	1,070.0	1,562	1,287.2	213	454.3	70	1,501.8
5-14	999	301.5	786	333.4	172	197.8	34	395.1
15-24	1,112	325.6	780	326.4	279	298.9	45	487.7
25-44	1,436	195.9	1,067	187.8	306	204.3	48	312.1
45-64	897	150.2	701	149.7	150	128.2	33	275.0
65+	1,081	319.2	959	333.0	90	196.9	25	508.1
Total	7,375	293.3	5,855	304.9	1,210	224.2	255	465.4
Age-Adjusted Rate		295.2		313.4		218.0		449.1

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	1,055	1,198.7	795	936.5
5-14	674	396.6	325	201.4
15-24	660	381.6	452	268.1
25-44	840	231.4	596	161.0
45-64	456	160.9	441	140.5
65+	384	270.6	697	354.3
Total	4,069	333.7	3,306	255.2
Age-Adjusted Rate		334.2		253.8

Avg Num: average number of TBI-related ED Visits.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed February 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-19g: Average Annual Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for United States by Age, Race and Gender, 1995-2001.

Ages	Race							
	All		White		Black		Other	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	200,000	1035.0	150,000	1045.8	31,000	990.8	NA	NA
5-14	235,000	585.1	192,000	610.4	24,000	365.6	NA	NA
15-24	208,000	546.1	173,000	574.2	33,000	573.0	NA	NA
25-44	275,000	322.7	219,000	315.6	47,000	424.4	NA	NA
45-64	110,000	188.5	90,000	181.4	NA	NA	NA	NA
65+	83,000	240.0	74,000	240.1	NA	NA	NA	NA
Total	1,111,000	403.1	904,000	399.3	173,000	485.6	35,000	252.6
Age-Adjusted Rate		401.2		404.9		441.5		261.3

Ages	Gender			
	Males		Females	
	Avg Num	Rate	Avg Num	Rate
0-4	124,000	1253.6	76,000	806.1
5-14	153,000	743.7	192,000	610.4
15-24	122,000	625.4	173,000	574.2
25-44	171,000	401.4	219,000	315.6
45-64	NA	NA	90,000	181.4
65+	NA	NA	NA	NA
Total	652,000	482.9	459,000	326.5
Age-Adjusted Rate		470.3		329.3

Avg Num: average number of TBI-related ED Visits.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-20: Crude ED Visit Rates by Hispanic Ethnicity for BSCIP Regions and Florida, 2005.

Region	Number	Rate
BSCIP Region 1	323	207.5
BSCIP Region 2	1,648	306.8
BSCIP Region 3	1,964	395.6
BSCIP Region 4	3,203	411.5
BSCIP Region 5	3,265	241.7
Florida	10,760	310.3

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Cause of Injury

Nationally, falls (30.9 percent), motor vehicle-traffic accidents (18.3 percent) and assaults (12.2 percent) were the primary causes of TBI-related ED visits. The cause of injury is classified by the external cause of injury code (e-code) obtained from the external cause of injury code on the emergency department record. Tables 3-21 (a-g), highlight the 2005 crude and age-adjusted TBI-related ED visit rates for Florida, BSCIP regions and the United States by cause. In Florida, falls caused 42 percent of all TBI-related ED visits, followed by motor vehicle-traffic accidents (19.2 percent) and assaults (12.4 percent) during 2005. All other causes result in 26.3 percent of TBI-related ED visits, which include struck by/against, all other causes and unknowns. Detailed tables for each cause of ED visits are available in Appendix E.

Motor Vehicle-Traffic Accidents

In Florida, the crude TBI-related ED visit rate from motor vehicles-traffic accidents was 76.1 per 100,000 of the population resulting in 13,715 visits in 2005. The 2005 rate of motor vehicle-traffic TBI-related ED visits in Florida was greater than the national rate of 73.9 per 100,000 of the population (Figure 3-31). BSCIP Regions 1, 3 and 4 had higher TBI-related ED visit rates from motor vehicle-traffic accidents (84.2, 89.3 and 82.1, respectively) than the state.

- As in United States (152.3), the 2005 crude TBI-related ED visit rate from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age category (197.6). This was true across all BSCIP regions, with the highest rate in BSCIP Region 3 (247.7).
- In Florida, the fewest TBI-related ED visits from motor vehicles-traffic accidents occurred in the youngest age group, 0-4 (292 TBIs) years of age.

To examine motor vehicle-traffic TBI-related ED visits in more detail, the specific external cause of injury categories (occupant, pedestrian, motorcycle and pedalcycle) are described (Tables 3-22 a-f). In Florida, occupant motor vehicle accidents resulted in 11,140 TBI-related ED visits in

2005 (61.8 per 100,000). Motorcycle accidents resulted in 778 ED visits in 2005 (4.3 per 100,000). Pedestrian accidents resulted in 520 ED visits in 2005 (2.9 per 100,000). Rates for pedalcycle (346 ED visits) and other motor vehicle-traffic accidents (931 ED visits) were 1.9 per 100,000 and 5.2 per 100,000, respectively, in 2005. The national rates for these external causes of injury were not reported. A detailed table is available in Appendix E.

- When adjusted for age, the TBI-related ED visit rates were: occupant (64.8), pedestrian (3.0), motorcycle (4.6), pedalcycle (2.0) and other (5.4).
- Motorcycle accidents resulting in ED visits were most likely to occur in BSCIP Region 3 (6.2), compared to the age-adjusted rates in the state or any other BSCIP region.
- Occupant motor vehicle-traffic accident crude ED visit rates were highest in the 15- 24 years of age population (165.2) in Florida. The rates in BSCIP Regions 3 and 4 were higher than the state rate for this population (211.5 and 195.5, respectively).

Controlling for differences in the population, the 2005 age-adjusted TBI-related ED visit rate in Florida resulting from motor vehicle-traffic was 79.9 per 100,000 of the population. The national age-adjusted rate was 72.8 per 100,000 of the population. The highest 2005 age-adjusted TBI-related ED visit rate resulting from motor vehicle-traffic accidents was in BSCIP Region 3 (98.4).

Falls

In Florida, the 2005 crude TBI-related ED visits rate from falls was 166.5 per 100,000 of the population resulting in 30,001 ED visits (Figure 3-31). The rate of fall TBI-related ED visits in Florida was greater than the national rate of 124.4 per 100,000 of the population. BSCIP Regions 3 and 4 had higher rates than the state TBI-related ED visit rate from falls (203.2 and 202.4, respectively).

- Consistent with the national rate, the crude TBI-related ED visit rate resulting from falls in Florida was highest in the 0-4 years of age category (662.8), and was higher than the national rate (561.4).
- BSCIP Regions 3 (768.3), 4 (786.8) and 5 (846.7) had a crude TBI-related ED visit rate from falls higher than the state for the 0-4 years of age group in 2005.
- The 65 and older age group was the second most likely to go to the ED for a TBI resulting from a fall in Florida (341.4 per 100,000) in 2005.

The age-adjusted 2005 TBI-related ED visit rate in Florida resulting from falls was 158.8 per 100,000 of the population, which controls for difference in the population in regards to age. The national age-adjusted rate was 124.6 per 100,000 of the population.

Assaults

During 2005, 8,878 people in Florida went to the ED because of an assault that resulted in a TBI. Florida's crude TBI-related ED visit rate (49.3) from assaults was slightly higher than the national rate (49.1) (Figure 3-31).

- The highest TBI-related ED visit rates by assaults were in the 15-24 years of age group (125.7) in Florida.
- The highest rate of TBI-related ED visits from assaults in Florida was in BSCIP Region 4 with 59.3 per 100,000 of the population during 2005.

The 2005 age-adjusted TBI-related ED visit rate in Florida resulting from assaults was 52.7 per 100,000 of the population. The national age-adjusted rate was 48.6 per 100,000 of the population. The age-adjusted rates for 2005 were highest in BSCIP Region 4 (67.8) and lowest in BSCIP Region 5 (32.2).

Table 3-21a: Crude and Age-Adjusted ED Visit Rates per 100,000 for Florida by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	228	21.2	7,137	662.8	2,509	233.0	292	27.1
5-14	491	21.6	3,075	135.1	3,892	171.0	972	42.7
15-24	2,935	125.7	1,995	85.5	3,769	161.4	4,612	197.6
25-44	3,619	76.2	3,365	70.8	4,256	89.6	4,637	97.6
45-64	1,385	30.7	3,975	88.0	2,435	53.9	2,354	52.1
65+	220	7.2	10,454	341.4	1,927	62.9	848	27.7
Total	8,878	49.3	30,001	166.5	18,788	104.3	13,715	76.1
Age-Adjusted Rate		52.7		158.8		110.0		79.9

Avg Num: average number of TBI-related ED Visits.
* Other includes 5,546 other, 8,677 struck by/against and 4,565 unknowns.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-21b: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 1 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	24	11.7	807	392.8	287	139.7	41	20.0
5-14	93	21.9	388	91.6	621	146.6	210	49.6
15-24	601	111.8	421	78.3	712	132.5	1,046	194.6
25-44	712	79.0	657	72.9	808	89.6	924	102.5
45-64	300	36.2	747	90.1	446	53.8	440	53.1
65+	34	8.2	1,270	307.6	322	78.0	125	30.3
Total	1,764	53.3	4,290	129.6	3,196	96.6	2,786	84.2
Age-Adjusted Rate		52.3		132.2		98.1		81.6

Avg Num: average number of TBI-related ED Visits.
* Other includes 1,042 other, 1,366 struck by/against and 788 unknowns.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-21c: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 2 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	46	21.9	1,065	506.6	590	280.6	53	25.2
5-14	75	16.0	485	103.6	800	170.9	130	27.8
15-24	404	85.1	385	81.1	1,054	222.1	748	157.6
25-44	517	53.5	548	56.8	1,090	112.9	713	73.8
45-64	197	21.4	626	67.9	616	66.8	361	39.1
65+	34	5.4	1,872	298.1	575	91.6	140	22.3
Total	1,273	34.7	4,981	135.8	4,725	128.8	2,145	58.5
Age-Adjusted Rate		37.2		130.6		135.3		61.2

Avg Num: average number of TBI-related ED Visits.
* Other includes 5,546 other, 8,677 struck by/against and 4,565 unknowns.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-21d: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 3 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	54	24.3	1,707	768.3	660	297.1	79	35.6
5-14	109	22.8	873	183.0	1,021	214.0	251	52.6
15-24	784	172.0	484	106.2	850	186.5	1,129	247.7
25-44	942	96.7	906	93.0	913	93.7	1,182	121.3
45-64	322	32.6	1,049	106.1	539	54.5	614	62.1
65+	48	6.4	2,849	377.6	417	55.3	203	26.9
Total	2,259	58.3	7,868	203.2	4,400	113.6	3,458	89.3
Age-Adjusted Rate		66.2		189.6		124.7		98.4

Avg Num: average number of TBI-related ED Visits.
* Other includes 1,449 other, 2,343 struck by/against and 608 unknowns.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-21e: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 4 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	66	24.8	2,094	786.8	667	250.6	76	28.6
5-14	145	25.2	899	156.2	1,059	184.1	272	47.3
15-24	929	176.9	541	103.0	885	168.5	1,226	233.4
25-44	1,119	95.0	973	82.6	1,143	97.1	1,294	109.9
45-64	430	36.5	1,243	105.4	636	53.9	686	58.2
65+	69	7.4	3,666	394.8	478	51.5	266	28.6
Total	2,758	59.3	9,416	202.4	4,868	104.6	3,820	82.1
Age-Adjusted Rate		67.8		184.6		115.21		91.1

Avg Num: average number of TBI-related ED Visits.
* Other includes 1,623 other, 2,647 struck by/against and 598 unknowns.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-21f: Crude and Age-Adjusted ED Visit Rates per 100,000 for BSCIP Region 5 by Cause, 2005.

Ages	Causes							
	Assaults		Falls		Other*		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	38	22.0	1,464	846.7	305	176.4	43	24.9
5-14	69	20.8	430	129.8	391	118.0	109	32.9
15-24	217	63.5	164	48.0	268	78.5	463	135.6
25-44	329	44.9	281	38.3	302	41.2	524	71.5
45-64	136	22.8	310	51.9	198	33.1	253	42.4
65+	35	10.3	797	235.3	135	39.9	114	33.7
Total	824	32.8	3,446	137.0	1,599	63.6	1,506	59.9
Age-Adjusted Rate		33.2		136.9		64.9		60.3

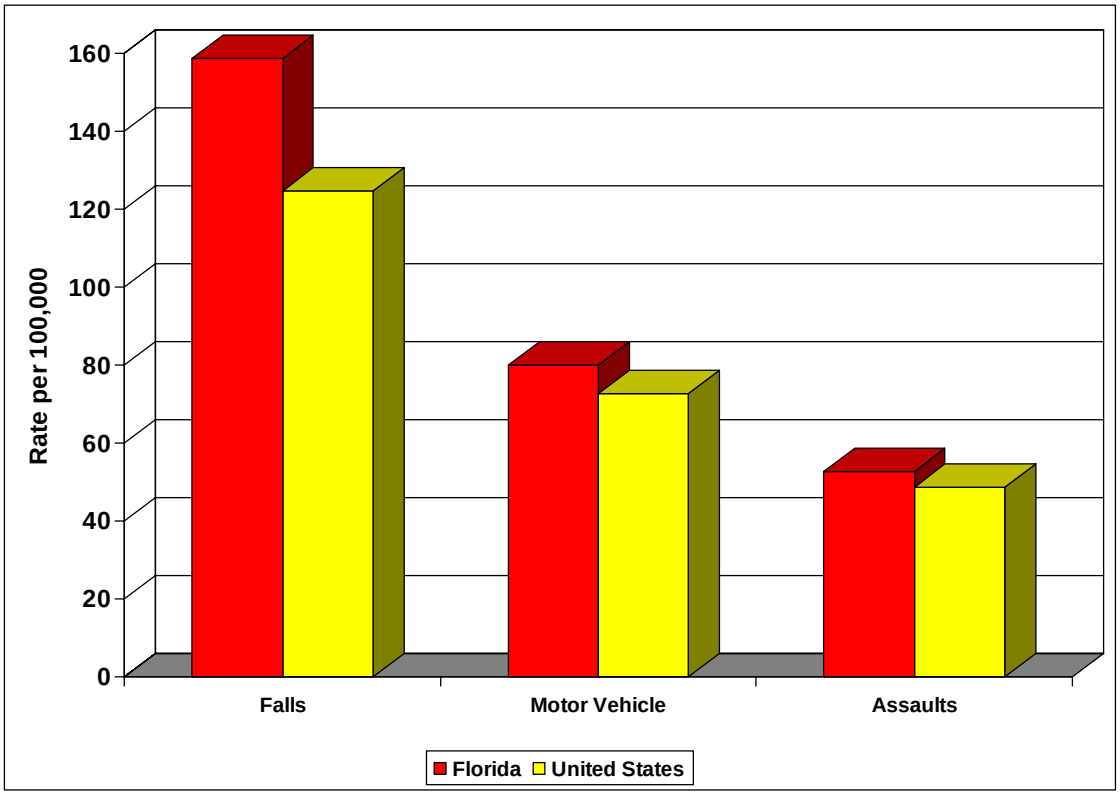
Avg Num: average number of TBI-related ED Visits.
* Other includes 441 other, 934 struck by/against and 224 unknowns.
Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-21g: Average Annual Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for United States by Cause, 1995-2001.

Ages	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate	Avg Num	Rate
0-4	NA	NA	108,000	561.4	82,000	NA	NA	NA
5-14	NA	NA	67,000	166.8	120,000	NA	NA	NA
15-24	42,000	110.3	NA	NA	79,000	NA	58,000	152.3
25-44	64,000	75.1	49,000	57.5	89,000	NA	74,000	86.8
45-64	NA	NA	NA	NA	NA	NA	NA	NA
65+	NA	NA	NA	NA	NA	NA	NA	NA
Total	135,000	49.1	343,000	124.4	429,000	38.6	204,000	73.9
Age-Adjusted Rate		48.6		124.6		NA		72.8

Avg Num: average number of TBI-related ED visits.
NA: Not reported because sample size too small and not considered stable.
Source: Traumatic Brain Injury In the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Figure 3-31: Age-Adjusted ED Visit Rates per 100,000 by Cause for Florida and the United States, 2005.



Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007. Traumatic Brain Injury in the United States: ED Visits, Hospitalizations and Deaths, 2006; U.S. Department of Commerce, Bureau of the Census, 2000 Summary File 1.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-22a: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for Florida by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	243	22.6	25	2.3	2	0.2	1	0.1	21	2.0
5-14	689	30.3	80	3.5	58	2.5	90	4.0	55	2.4
15-24	3,856	165.2	130	5.6	233	10.0	75	3.2	318	13.6
25-44	3,756	79.0	132	2.8	330	6.9	103	2.2	316	6.6
45-64	1,899	42.0	98	2.2	141	3.1	58	1.3	158	3.5
65+	697	22.8	55	1.8	14	0.5	19	0.6	63	2.1
Total	11,140	61.8	520	2.9	778	4.3	346	1.9	931	5.2
Age-Adjusted Rate		64.8		3.0		4.6		2.0		5.4

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-22b: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 1 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	33	16.1	4	1.9	0	0.0	1	0.5	3	1.5
5-14	138	32.6	25	5.9	16	3.8	17	4.0	14	3.3
15-24	860	160.0	30	5.6	47	8.7	19	3.5	90	16.7
25-44	765	84.9	22	2.4	56	6.2	12	1.3	69	7.7
45-64	343	41.4	24	2.9	20	2.4	11	1.3	42	5.1
65+	103	24.9	5	1.2	1	0.2	3	0.7	13	3.1
Total	2,242	67.7	110	3.3	140	4.2	63	1.9	231	7.0
Age-Adjusted Rate		65.5		3.3		4.2		1.9		6.7

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-22c: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 2 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	42	20.0	5	2.4	1	0.5	0	0.0	5	2.4
5-14	92	19.6	10	2.1	6	1.3	13	2.8	9	1.9
15-24	624	131.5	16	3.4	44	9.3	7	1.5	57	12.0
25-44	582	60.3	14	1.5	61	6.3	11	1.1	45	4.7
45-64	286	31.0	15	1.6	30	3.3	6	0.7	24	2.6
65+	118	18.8	6	1.0	1	0.2	1	0.2	14	2.2
Total	1,744	47.5	66	1.8	143	3.9	38	1.0	154	4.2
Age-Adjusted Rate		49.8		1.9		4.1		1.1		4.4

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-22d: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 3 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	66	29.7	6	2.7	1	0.5	0	0.0	6	2.7
5-14	184	38.6	20	4.2	9	1.9	26	5.4	12	2.5
15-24	964	211.5	32	7.0	64	14.0	22	4.8	47	10.3
25-44	982	100.8	28	2.9	94	9.6	28	2.9	50	5.1
45-64	496	50.2	23	2.3	42	4.2	23	2.3	30	3.0
65+	168	22.3	18	2.4	3	0.4	6	0.8	8	1.1
Total	2,860	73.9	127	3.3	213	5.5	105	2.7	153	4.0
Age-Adjusted Rate		81.4		3.5		6.2		3.0		4.3

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-22e: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 4 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	63	23.7	7	2.6	0	0.0	0	0.0	6	2.3
5-14	187	32.5	16	2.8	23	4.0	31	5.4	15	2.6
15-24	1,027	195.5	30	5.7	57	10.9	21	4.0	91	17.3
25-44	1,019	86.5	51	4.3	89	7.6	40	3.4	95	8.1
45-64	566	48.0	27	2.3	39	3.3	12	1.0	42	3.6
65+	223	24.0	15	1.6	7	0.8	8	0.9	13	1.4
Total	3,085	66.3	146	3.1	215	4.6	112	2.4	262	5.6
Age-Adjusted Rate		73.4		3.4		5.2		2.7		6.4

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 3-22f: Crude and Age-Adjusted TBI-Related ED Visit Rates per 100,000 for BSCIP Region 5 by Motor Vehicle-Traffic External Causes, 2005.

Age	Motor Vehicles									
	Occupant		Pedestrians		Motorcycle		Pedalcycle		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0-4	39	22.6	3	1.7	0	0.0	0	0.0	1	0.6
5-14	88	26.6	9	2.7	4	1.2	3	0.9	5	1.5
15-24	381	111.6	22	6.4	21	6.1	6	1.8	33	9.7
25-44	408	55.6	17	2.3	30	4.1	12	1.6	57	7.8
45-64	208	34.8	9	1.5	10	1.7	6	1.0	20	3.3
65+	85	25.1	11	3.2	2	0.6	1	0.3	15	4.4
Total	1,209	48.1	71	2.8	67	2.7	28	1.1	131	5.2
Age-Adjusted Rate		48.4		2.8		2.7		1.1		5.2

Source: State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, Department of Health, CHARTS, accessed Feb 2007.
Prepared by: WellFlorida Council Inc., 2007.

Rates by Rural Population

Individuals who live in rural areas have decreased access to healthcare facilities. Staff at those facilities within rural counties may not be as highly trained as those in more populated areas. Individual who live in rural areas may often use emergency department and community health centers as their primary source of medical care. The definition of "rural" used in this assessment is provided by the Florida Department of Health, Office of Rural Health. The statutory

definition of rural is "an area with a population density of less than 100 individuals per square mile or an area defined by the most recent United States Census as rural."[6] Based on this definition, currently 33 of 67 counties in Florida are identified as rural.

During 2005, the rural population of Florida accounted for 3,747 TBI-related ED visits year (5.2 percent) in the state, compared to 6.1 percent of the total population. The 2005 TBI-related ED rate in the rural counties of Florida was 333.2 per 100,000, compared to 407.5 per 100,000 in the non-rural counties and 396.2 per 100,000 for the state. BSCIP Region 1 which most closely represents rural, based on population density, had a 2005 TBI-related ED visit rate of 363.6 per 100,000 of the population. Therefore, individuals in rural areas may utilize emergency department services less frequently for TBI-related cause compared to their non-rural counterparts and the state as a whole or accurate diagnosis and reporting of TBIs in rural EDs may be less likely to occur than in more populated areas due to lack of education and training. This may result an underreporting of the number of ED TBI-related visits in rural areas.

Summary of Key Findings

Prevalence of Traumatic Brain Injury-Related Disability

- At least 5.3 million people, approximately 2 percent of the population, in the United States are currently living with a TBI-related disability.
- In Florida, approximately 369,566 people (2 percent) are living with a TBI-related disability with BSCIP Region 4 containing the greatest (95,997) and BSCIP Region 5 with the fewest (50,927) number of people living with TBI-related disabilities.
- By 2015, approximately 435,350 people in Florida will be living with a TBI-related disability, with the greatest concentration in BSCIP Region 4 (115,034 people).

Incidence of Traumatic Brain Injury

- In 2005, there were 92,948 TBIs in Florida, which included 3,911 deaths (4.2 percent), 17,655 hospitalizations (19.0 percent) and 71,382 ED visits (76.8 percent). Compared to the national distribution, in 2005 TBIs in Florida resulted in a greater percentage of deaths and hospitalizations.
- The age-adjusted rates in Florida were higher than the national rates for total TBIs, TBI-related ED visits and TBI-related deaths and were lower than the national rate for TBI-related hospitalizations.
- The most TBIs occurred in BSCIP Region 4 (26,889) compared to BSCIP Region 5 with the fewest (10,149) in 2005, which mirrors the population distribution.
- The crude rates for TBI in BSCIP Regions 3 and 4 in 2005 (594.0 and 577.9, respectively) were higher than the state rate (515.8). BSCIP Region 5 had the lowest total TBI crude rate, 403.5 per 100,000 of the population, in the state during 2005.
- In 2005, the groups at greatest risk for TBI in Florida included children 0-4 years of age, young adults 15-24 years of age and adults over the age of 65.
- In Florida, youth under the age of 15 had lower rates for TBI compared to their national counterparts, but rates were higher for individuals over 15 years of age.

- During 2005, individuals classified as "other" races had the highest rate for TBI (525.1) in Florida followed by whites (524.4). Blacks had the lowest risk for TBI (445.8) in Florida. These trends exist after adjusting for age as well.
- In the 15-24 years of age group, whites were at greatest risk for TBI (735.9), which is unlike the total picture in the state where "other" races are at greatest risk.
- The TBI rate in Florida for Hispanics in 2005 was 402.9 per 100,000 of the population, which was lower than the overall rate for all Floridians. The rate was highest in BSCIP Region 3 and lowest in BSCIP Region 1.
- During 2005, males (593.7 per 100,000) were 1.3 times more likely to experience a TBI than females (441.1 per 100,000) in Florida. The rate for TBI for males was less than the national rate (618.1), but the rate for TBI for females was greater than the national rate (398.9).
- Across age groups in Florida males were more likely to experience a TBI than females, except in the 65 years of age and older population.
- Of all groups, males 0-4 years of age were at highest risk for TBI in Florida during 2005 followed by females in that same age category. For males, 15-24 years of age group had the second highest TBI rate in Florida during 2005.
- In Florida, falls caused 39.6 percent of all TBIs, followed by motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent).
- During 2005, 19,306 (107.1 per 100,000) motor vehicle-traffic accidents resulted in TBIs, which was greater than the national rate of (101.6 per 100,000) for motor vehicle-traffic accidents resulting in TBI.
- The 2005 rate for motor vehicle-traffic TBIs was highest in the 15-24 years of age population (263.8) and lowest in the youngest and oldest age groups, 0-4 years (40.4) and 65 and older (48.5).
- By type of motor vehicle-traffic accident in 2005, the rates of TBI were: occupant motor vehicle accidents (81.6), pedestrian accidents (6.6), motorcycle accidents (9.1) and pedalcycle accidents (3.5). BSCIP Region 3 had the greatest crude rates in the state for all types of motor vehicle-traffic accidents resulting in a TBI except for pedestrian accidents which was in BSCIP Region 5.
- Motorcycle accidents that resulted in TBIs were most likely to occur in the 15-24 age group in Florida during 2005.
- In Florida, 36,789 falls occurred in 2005 that resulted in a TBI (204.3 per 100,000), which is greater than the national rate (144.4) for falls resulting in at TBI. The age-adjusted total TBI rate in Florida resulting from falls is 189.5 per 100,000 of the population in 2005.
- Consistent with national trends, the TBI rates resulting from falls in Florida were highest in the youngest (694.2) and oldest populations (485.8).
- During 2005, 10,314 assaults resulted in TBIs, resulting in a rate of 57.2 per 100,000 of the population, which was higher than the national rate (56.2). When adjusting for age, the rate increased to 61.0 per 100,000 of the population.
- Individuals in rural counties had lower risk for TBI compared to their non-rural counterparts. This may be a result of lack of trauma facilities, under-reporting of the injury and lack of appropriate diagnosis of TBI in rural hospitals and emergency departments.

Traumatic Brain Injury-Related Deaths

- In Florida, there were approximately 3,331 TBI-related deaths each year from 1999 through 2005, with the most in BSCIP Region 3 (852 per year) compared to the fewest in BSCIP Region 5 (338 per year).
- Florida's average annual TBI-related crude death rate (19.8 per 100,000) was greater than the national average annual TBI-related crude death rate (18.1 per 100,000). When adjusting for age, the rate in Florida (18.5 per 100,000) remained higher than the national rate (18.1 per 100,000).
- The highest average annual TBI-related crude death rates were in BSCIP Regions 2 and 3 and the lowest was in BSCIP Region 5.
- The 65 and older population accounted for 32.4 percent (1,080) of all TBI-related deaths in Florida and youth under the age of 15 accounted for less than 5 percent of all TBI-related deaths.
- Nationally blacks are more likely to die from TBI-related causes than other races. In Florida, whites (21.1 per 100,000) were most likely to die from TBI-related causes from 1999 through 2005. The rates were 15.1 per 100,000 for blacks and 8.9 per 100,000 for all other races.
- Black youth ages 0-4 and 5-14 had a higher average annual crude TBI-related death rate compared to their white and other races counterparts.
- The average annual TBI-related death rate for Hispanics in Florida was 13.4 per 100,000 of the population compared to 19.8 for Florida as a whole.
- The average annual crude TBI-related death rates were higher for both genders in Florida (30.0 per 100,000 for males and 10.1 per 100,000 for females) compared to the national rates (27.3 per 100,000 for males and 9.2 per 100,000 for females).
- Males in the 65 and older age group had the highest average annual TBI-related death rate (57.1 per 100,000); this was followed by males in the 15-24 years of age group with 34.2 deaths per 100,000 of the population.
- Nationally, motor vehicle-traffic accidents (33.7 percent), assaults (13.0 percent) and falls (12.9 percent) are the primary causes of TBI-related deaths. In Florida, motor vehicle-traffic accidents caused 26.6 percent of all TBI-related deaths, followed by falls (18.8 percent) and assaults (9.76 percent) from 1999 through 2005.
- In Florida, the average annual crude TBI-related death rate from motor vehicle-traffic accidents was higher (5.3 per 100,000) than the national rate (6.1 per 100,000). As in the United States, the average annual crude TBI-related death rate from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age category.
- Occupant motor vehicle-traffic accidents resulted in approximately 545 TBI-related deaths per year (3.2 per 100,000). Pedestrian accidents resulted in approximately 169 deaths per year (1.0 per 100,000). Motorcycle (126 deaths) and pedalcycle (49 deaths) resulted in less than 1 death per 100,000.
- Motorcycle deaths were most likely to occur in the 25-44 age group in Florida and in each BSCIP region from 1999 through 2005.
- In Florida, the average annual crude TBI-related death rate from falls was higher (3.7 per 100,000) than the national rate (2.3 per 100,000). When adjusted for age, the TBI-related death rate remained higher in Florida (2.9 per 100,000) compared to the national rate (2.4 per 100,000).

- Consistent with national trends (12.9 per 100,000), the average annual crude TBI-related death rate resulting from falls in Florida was highest in the 65 years of age and older category (16.5 per 100,000).
- Approximately 326 deaths (1.9 per 100,000) in Florida occurred each year from an assault that resulted in a TBI each year; the rate was highest in the 15-24 years of age group. When adjusted for age, the rate in Florida (2.0 per 100,000) was lower than the national rate (2.3 per 100,000).
- The average annual crude TBI-related death rate in the rural counties of Florida was 25.5 per 100,000, compared to 19.3 per 100,000 in the non-rural counties and 19.8 per 100,000 for the state from 1999 through 2005. Access to medical care, including trauma centers, in rural areas is difficult to obtain. Delayed access to specialized medical care has been shown to increase mortality rates.

Traumatic Brain Injury-Related Hospitalizations

- An estimated 235,000 TBI-related hospitalizations occur in the United States and 14,810 TBI-related hospitalizations occurred in Florida each year from 1999 through 2005.
- Florida's average annual crude TBI-related hospitalization rate (88.1) was higher than the national rate (85.2). But when controlled for differences in age, the rate in Florida (82.1) was less than the national rate (85.5).
- BSCIP Region 1 had the lowest average annual TBI-related crude hospitalization rate in the state.
- The 65 years of age and older population accounted for 36.3 percent (5,370) of all TBI-related hospitalizations in Florida, resulting in a rate of 183.2 per 100,000 people.
- Florida's average annual TBI-related hospitalization rates were higher than the national rates in all age groups over the age of 25.
- In Florida, individuals who are classified as all other races (111.2 per 100,000) were most likely to be hospitalized for TBI-related issues than whites (90.1 per 100,000) or blacks (65.6 per 100,000). This is unlike the national picture where blacks are at greatest risk for TBI-related hospitalizations. This trend remained after adjusting for age.
- The average annual hospitalization rate for Hispanics in Florida was 76.1 per 100,000 of the population compared to 88.1 per 100,000 for Florida as a whole.
- Males had a higher average annual crude TBI-related hospitalization rate than females in Florida as well as in the nation, but the rates for both genders were higher in Florida compared to the national rates. After adjusting for age, the average annual age-adjusted hospitalization rates for males and females in Florida were lower than the national average age-adjusted rates.
- In Florida, males were approximately 1.7 times more likely to be hospitalized from TBI-related causes than females. Males 65 and older had the highest average annual TBI-related hospitalization rate (189.3) followed by female is the same age group (178.5). Males 5-24 years of age had the second highest risk for TBI-related hospitalizations for all males age groups (145.2).
- In Florida, falls caused 30.4 percent of all TBI-related hospitalizations, followed by motor vehicle-traffic accidents (27.5 percent) and assaults (6.9 percent).

- In Florida, the average annual crude TBI-related hospitalization rate from falls was 26.8 per 100,000 of the population (4,503 per year), which was greater than the national rate of 17.5 per 100,000 of the population. These trends continue after adjusting for age.
- The average annual crude TBI-related hospitalization rate resulting from falls in Florida was highest in the 65 years of age and older category (93.1 per 100,000) followed by the 0-4 years of age population (31.6 per 100,000).
- In Florida, the average annual crude TBI-related hospitalization rate from motor vehicle-traffic accidents was 24.2 per 100,000 of the population, which was greater than the national rate of 21.6 per 100,000 of the population. When controlling for age, this trend still exists. The average annual crude TBI-related hospitalization rate from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age group (52.3 per 100,000).
- The different types of motor vehicle-traffic accidents resulted in the following hospitalization rates in Florida: occupant (16.2 per 100,000), motorcycle (2.9 per 100,000), pedestrian (2.8 per 100,000), and pedalcycle (1.2 per 100,000).
- Approximately 1,016 hospitalizations occurred in Florida each year from an assault that resulted in a TBI (6.0 per 100,000) from 1999 through 2005, which was higher than the national rate (5.2 per 100,000). This trend remained after controlling for age. The highest TBI-related hospitalizations rates by assaults were in the 15-24 years of age group in Florida.
- The average annual crude TBI-related hospitalization rate in the rural counties of Florida was 84.4 per 100,000, compared to 87.6 per 100,000 in the non-rural counties and 88.1 per 100,000 for the state. BSCIP Region 1 which most closely represents "rural" based on population density had an average annual TBI-related hospitalizations rate of 73.0 per 100,000 of the population.

Traumatic Brain Injury-Related Emergency Department Visits

- Approximately 1.1 million TBI-related ED visits occur in the United States each year. In Florida, 71,382 TBI-related ED visits occurred during 2005, representing 6.4 percent of all TBI-related ED visits in the nation.
- Florida's crude 2005 TBI-related ED visit rate (396.2 per 100,000) was lower than the national TBI-related ED visit rate (403.1 per 100,000) with the highest rates in BSCIP Regions 3 and 4 and the lowest in BSCIP Region 5. When adjusting for age the rate for TBI-related ED visits in Florida (401.4 per 100,000) was slightly higher than the age-adjusted average annual national rate (401.2 per 100,000) for TBI-related ED visits.
- In 2005, highest rate (944.0 per 100,000) for TBI-related ED visits was in youth 0-4 years of age in Florida, but was lower than the national rate for this age group.
- Individuals 15-24 years of age in Florida were at second greatest risk (570.2 per 100,000) for a TBI-related ED visit in 2005, which was greater than the national annual ED visit rate for this age group for this population (546.1 per 100,000).
- Adults over the age of 65 visited an ED for a TBI-related issue at a higher rate (439.2) than adults in the same age group across the nation (240.0).
- In Florida, individuals who were white (399.1 per 100,000) are more likely to be treated and released from the ED for TBI-related issues than "other" races (397.6 per 100,000) or blacks (364.1 per 100,000), which was different than the national trends that suggest

blacks are the most likely to be treated and released from the ED for such injuries. The trend remained after adjusting for age. In BSCIP Regions 1 and 3, blacks had the highest rate of TBI-related ED visits in 2005 compared to whites and all "other" races (382.7 and 515.0, respectively).

- For each race, youth 0-4 years of age, had the highest rate for TBI-related ED visits during 2005. Whites ages 15-24 had the highest TBI-related ED visit rate compared to other races in their age group. "Other" races had the highest rate for TBI-related ED visits for adults over the age of 65 compared to whites and blacks in Florida during 2005.
- The 2005 ED visit rate for Hispanics in Florida was 310.3 per 100,000 of the population, which is lower than the ED visit rate for Florida as a whole.
- Males had a higher rate for TBI-related ED visits than females in Florida as well as in the nation. In Florida, males were approximately 1.2 times more likely to go to the ED for a TBI-related cause than females during 2005. But, the ED visit rates were higher for females (354.7 per 100,000) and lower for males (439.4 per 100,000) in Florida compared to the national rates for their respective genders. When adjusting for age, this trend changes. The 2005 age-adjusted ED visit rate for males (451.6 per 100,000) was lower and for females was higher (346.8 per 100,000) than the national average age-adjusted rates for their respective genders.
- During 2005, males in all age groups in Florida, except the 65 years of age and older age group, were more likely to visit an ED for a TBI than their female counterparts.
- Nationally, falls (30.9 percent), motor vehicle-traffic accidents (18.3 percent) and assaults (12.2 percent) are the primary causes of TBI-related ED visits. In Florida, falls caused 42 percent of all TBI-related ED visits, followed by motor vehicle-traffic accidents (19.2 percent) and assaults (12.4 percent). All other causes resulted in 26.3 percent of TBI-related ED visits, which include struck by or against, all other causes and unknowns.
- In Florida, the 2005 crude TBI-related ED visit rate from falls was 166.5 per 100,000 of the population (30,001 ED visits), which was greater than the national rate of 124.4 per 100,000 of the population. This trend remained after controlling for age as well. Like the national rate, the crude TBI-related ED visit rate resulting from falls in Florida was highest in the 0-4 years of age category followed by 65 years and older age group.
- In Florida, the crude TBI-related ED visit rate from motor vehicle-traffic accidents was 76.1 per 100,000 of the population, which was greater than the national rate of 73.9 per 100,000 of the population. This trend remained after controlling for difference in the age distribution. As in the United States, the 2005 crude TBI-related ED visit rate from motor vehicle-traffic accidents in Florida was highest in the 15-24 years of age category and lowest in the youngest age group, 0-4 years of age.
- The different types of motor vehicle-traffic accidents resulted in the following TBI-related ED visit rates: occupant (61.8 per 100,000), motorcycle (4.3 per 100,000), pedestrian (2.9 per 100,000), pedalcycle (1.9 per 100,000) and other (5.2 per 100,000). When adjusted for age the TBI-related ED visit rates were: occupant (64.8 per 100,000), pedestrian (3.0 per 100,000), motorcycle (4.6 per 100,000), pedalcycle (2.0 per 100,000) and other (5.4 per 100,000).
- During 2005, 8,878 TBI-related ED visits (49.3 per 100,000) occurred in Florida because of an assault, this rate was slightly higher than the national rate (49.1). When adjusted for age, the rate in Florida (52.7) was even greater than the national rate (48.6). The highest

rate of TBI-related ED visits from assaults in Florida was in BSCIP Region 4 with 59.3 per 100,000 of the population during 2005.

- The highest TBI-related ED visit rates by assaults were in the 15-24 years of age group during 2005 in Florida.
- The 2005 TBI-related ED rate in the rural counties of Florida is 333.2 per 100,000, compared to 407.5 per 100,000 in the non-rural counties and 396.2 per 100,000 for the state. The lower rate may be due to inaccuracies in reporting and diagnosis of TBIs in rural emergency departments compared to more populated areas due to lack of training.

Concluding Facts

- At least 5.3 million people, approximately 2 percent of the population, in the United States are currently living with a TBI-related disability. In Florida, approximately 369,566 people (2 percent) are living with a TBI-related disability. By 2015, approximately 435,350 people in Florida will be living with a TBI-related disability.
- In 2005, there were 92,948 TBIs in Florida, which included 3,911 deaths (4.2 percent), 17,655 hospitalizations (19.0 percent) and 71,382 ED visits (76.8 percent).
- The age-adjusted rates in Florida were higher than the national rates for total TBIs, TBI-related ED visits and TBI-related deaths.
- The groups at greatest risk for TBI in Florida include children 0-4 years of age, young adults 15-24 years of age and adults over the age of 65.
- During 2005, individuals classified as "other" races had the highest rate for TBI in Florida followed by whites. Blacks were at the lowest risk for TBI in Florida.
- During 2005, males were 1.3 times more likely to experience a TBI than females in Florida.
- In Florida, falls caused 39.6 percent of all TBIs, followed by motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent). Rates for falls, motor vehicle-traffic accidents, and assaults were all higher than their respective national rates
- Individuals in rural counties are at decreased risk for TBI, TBI-related hospitalization and ED visits compared to their non-rural counterparts. This may be a result of under-reporting and lack of appropriate diagnosis in rural hospitals and emergency departments. But, the average annual crude TBI-related death rate in the rural counties of Florida was higher than the non-rural counties and the state. Access to medical care, including trauma centers, in rural areas is difficult to obtain. Delayed access to specialized medical care has been shown to increase mortality rates.

TBI-related Deaths

- The 65 and older population accounted for 32.4 percent of all TBI-related deaths in Florida and youth under the age of 15 accounted for less than 5 percent of all TBI-related deaths.
- In Florida, whites were most likely to die from TBI-related causes, but black youth ages 0-4 and 5-14 had a higher average annual crude TBI-related death rate compared to their white and other races counterparts.
- The average annual crude TBI-related death rates are higher for both genders in Florida compared to the national rates.

- Nationally, motor vehicle-traffic accidents (33.7 percent), assaults (13.0 percent) and falls (12.9 percent) are the primary causes of TBI-related deaths. In Florida, motor vehicle-traffic accidents cause 26.6 percent of all TBI-related deaths, followed by falls (18.8 percent) and assaults (9.76 percent). Rates for motor-vehicle accident and fall TBI-related deaths are higher than the national rates while rates for assault TBI-related deaths were lower than the national rates.

TBI-Related Hospitalizations

- The 65 years of age and older population accounted for 36.3 percent (5,370) of all TBI-related hospitalizations in Florida. Florida's average annual TBI-related hospitalization rates were higher than the national rates in all age groups over the age of 25.
- In Florida, individuals who are classified as all other races were most likely to be hospitalized for TBI-related issues than whites or blacks. This is unlike the national picture where blacks are at greatest risk for TBI-related hospitalizations.
- In Florida, males are approximately 1.7 times more likely to be hospitalized from TBI-related causes than females. Males have a higher average annual crude TBI-related hospitalization rate than females in Florida as well as in the nation, but the rates for both genders are higher in Florida compared to the national rates. After adjusting for age, the average annual age-adjusted hospitalization rates for males and females in Florida are lower than the national average age-adjusted rates.
- In Florida, falls cause 30.4 percent of all TBI-related hospitalizations, followed by motor vehicle-traffic accidents (27.5 percent) and assaults (6.9 percent). The rates for all three causes of TBI-related hospitalizations were higher than their respective national rates.

TBI-Related Emergency Department Visits

- In 2005, highest rate for TBI-related ED visits was in youth 0-4 years of age in Florida, but was lower than the national rate for this age group. Followed by individuals 15-24 years of age, the rate for TBI-related ED visits for this population was greater than the national ED visit rate.
- In Florida, individuals who were white were more likely to be treated and released from the ED for TBI-related issues than "other" races or blacks, which is different than the national trends which suggest blacks are the most likely to be treated and released from the ED for such injuries. In BSCIP Regions 1 and 3, blacks had the highest rate of TBI-related ED visits in 2005 compared to whites and all "other" races.
- In Florida, males were approximately 1.2 times more likely to go to the ED for a TBI-related cause than females during 2005. But, the ED visit rates were higher for females and lower for males in Florida compared to the national rates for their respective genders. When adjusting for age, this trend changed. The 2005 age-adjusted ED visit rate for males was lower and for females was higher than the national average age-adjusted rates for their respective genders.
- Nationally, falls (30.9 percent), motor vehicle-traffic accidents (18.3 percent) and assaults (12.2 percent) are the primary causes of TBI-related ED visits. In Florida, falls caused 42 percent of all TBI-related ED visits, followed by motor vehicle-traffic accidents (19.2 percent) and assaults (12.4 percent). All other causes result in 26.3 percent of TBI-

related ED visits, which include struck by or against, all other causes and unknowns. The rates for all three primary causes of TBI-related ED visits were higher than their respective national rates.

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Traumatic Brain Injury System Profile

Introduction

The system profile examines some of the primary features in the system of care for individuals with TBI in Florida. The profile includes descriptions of key programs and services as well as various data from these entities. Programs and services analyzed include the Florida Department of Health Brain and Spinal Cord Injury Program (BSCIP), Brain Injury Association of Florida (BIAF), Department of Education Division of Vocational Rehabilitation (DVR) and Exceptional Student Education Program (ESE), Florida Alliance for Assistive Services and Technology (FAAST), protection and advocacy services and Centers for Independent Living (CIL). This analysis of system components for individuals with TBI will enable the state, stakeholders, consumers and family members to identify current service delivery patterns and ultimately guide decision-making to improve the overall health and access to services for individuals with TBI in Florida.

Brain and Spinal Cord Injury Program

Program Description

The state of Florida has a government administered program, BSCIP, which is designed to assist individuals and their families who experience a moderate-to-severe TBI from time of injury through community reintegration in accessing federal, state, third party and community resources.[1]

The state-administered head injury program in Florida began in 1985 when the Florida legislature mandated the reporting of head injuries, created the Head Injury Program and developed the Head Injury Advisory Council within DVR. The spinal cord injury program was established prior to brain injury program by the Florida legislature in 1978, also within DVR. To support individuals who experience a brain or spinal cord injury, the Impaired Drivers and Speeders Trust Fund was created by the legislature in fiscal year 1989-1990 to be used as the payor of last resort for providing care to residents of the state of Florida with brain and spinal cord injuries. In 1992, the legislature merged the Head Injury Program and the Spinal Cord Injury Program to form BSCIP in the DVR, renamed the Impaired Drivers and Speeders Trust Fund to the Brain and Spinal Cord Injury Trust Fund and merged the isolated advisory councils into the Brain and Spinal Cord Injury Advisory Council. Since 2000, BSCIP is housed within the Department of Health, Division of Health Access and Tobacco. At this time, the Brain and Spinal Cord Injury Trust Fund receives funding from traffic related fines, surcharges for driving under the influence and boating under the influence, temporary license fees and a percentage of funds from the motorcycle specialty tag, which is used to fund BSCIP.

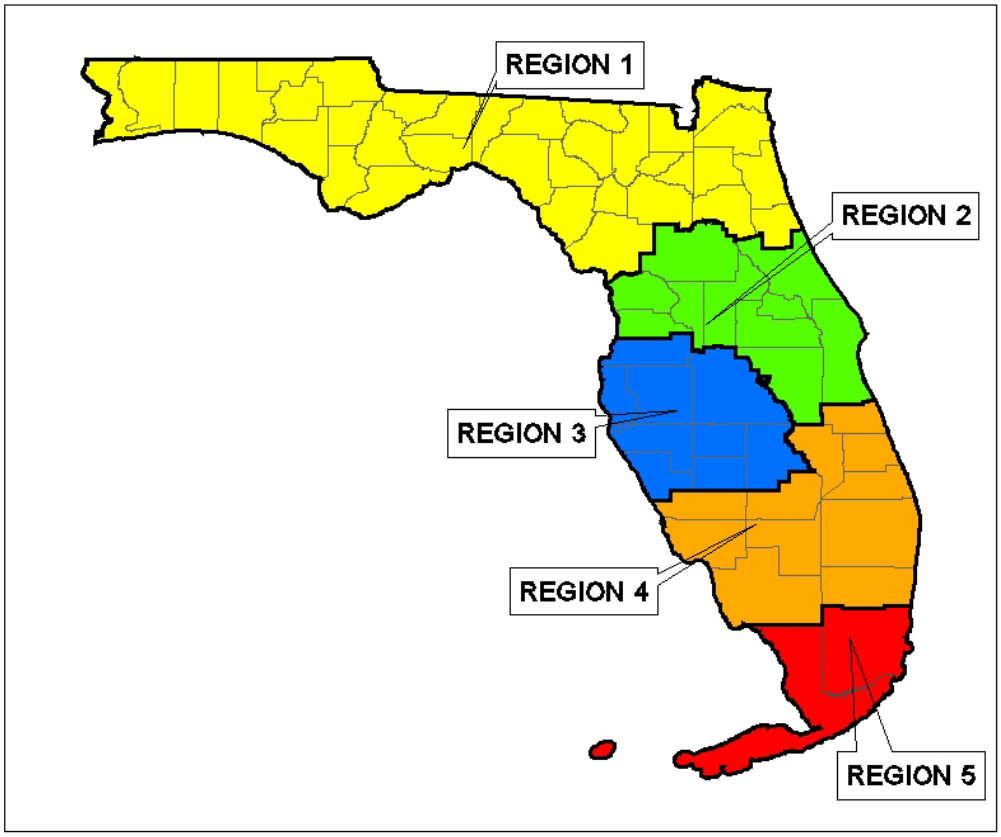
Currently, BSCIP is overseen by a statewide advisory council (Florida Statute 381.78), including 16 members consisting of a minimum of eight individuals who have brain or spinal cord injuries

and two individuals who represent the needs of children with brain or spinal cord injuries. The remaining members may consist of physicians, allied health professionals, administrators of brain and spinal cord injury programs, and representatives from support groups with expertise in brain and/or spinal cord injuries. The funds available through the BSCIP Trust Fund can be used to access services as a payor of last resort including case management, acute care, inpatient and outpatient rehabilitation, transitional living, assistive technology, home and vehicular modification and long-term community-based supports funded under contract with specific not-for-profit agencies. Additionally, BSCIP funds TBI education, prevention and research activities through contracts with the BIAF, FAAST, Florida Association for the Centers of Independent Living, University of Florida and University of Miami. The program also supports a statewide resource center for individuals with TBI. Finally, for those individuals who need lifetime support, BSCIP provides its Home and Community Medicaid Services Waiver, which can provide support for up to 325 individuals with brain and/or spinal cord injuries annually.

The Central Registry (CR) began in 1974 as the Severe Disabilities Registry and served as a way to collect information on spinal cord injuries. Currently, the CR, mandated by the Florida legislature (Florida Statute 381.74), collects information on individuals who experience a moderate-to-severe brain or spinal cord injury including name, age, residence, type of disability of the individual and other information as deemed necessary by the department.[1] Referral to the registry is required if the brain injury resulted in the patient having a Glasgow Coma Scale, which quantifies levels of consciousness, score of 12 and below, or a Rancho Scale, which quantifies response to external stimuli and environment, score of 8 and below. This law requires that every public health agency, private health agency, public social agency, private social agency, and attending physician refer all new traumatic moderate-to-severe brain or spinal cord injuries within five days of the injury or identification of the injury to the CR.

This section presents data on newly reported TBIs, TBI clients served by the BSCIP Trust Fund including case management and financial assistance services and the Medicaid Home and Community-Based Services Waiver. BSCIP divides Florida into five service regions to provide case management and related activities to individuals with TBI as well as public awareness and outreach activities (Figure 4-1). Table 4-1 lists the counties within each BSCIP region. Each region varies in terms of number of counties, geographic area and population density.

Figure 4-1: Brain and Spinal Cord Injury Program Service Regions.



Source: Florida Department of Health, Brain and Spinal Cord Injury Program, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-1: BSCIP Service Regions Counties and Population, 2006.

Area	Counties	2006 Population	
		Number	Percent
Region 1	Alachua, Baker, Bay, Bradford, Calhoun, Clay, Columbia, Dixie, Duval, Escambia, Flagler, Franklin, Gadsden, Gilchrist, Gulf, Hamilton, Holmes, Jackson, Jefferson, Lafayette, Leon, Levy, Liberty, Madison, Nassau, Okaloosa, Putnam, Santa Rosa, St. Johns, Suwannee, Taylor, Union, Wakulla, Walton, Washington	3,380,488	18.3
Region 2	Brevard, Citrus, Hernando, Lake, Marion, Orange, Osceola, Seminole, Sumter, Volusia	3,780,193	20.5
Region 3	Desoto, Hardee, Highlands, Hillsborough, Manatee, Pasco, Pinellas, Polk, Sarasota	3,971,460	21.5
Region 4	Broward, Charlotte, Collier, Glades, Hendry, Indian River, Lee, Martin, Okeechobee, Palm Beach, St. Lucie	4,799,835	26.0
Region 5	Miami-Dade, Monroe	2,546,333	13.8
Florida		18,478,309	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: Florida Department of Health, Brain and Spinal Cord Injury Program, ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

New Injuries

The Central Registry (CR), housed within BSCIP, collects information on individuals who experience a new moderate-to-severe brain. The Missouri Traumatic Brain Injury Needs Assessment identified that registries underestimate TBI for several reasons: they rely heavily on inpatient TBI cases, data tends to come from designated trauma centers, they are unable to account for TBI cases in which evidence of the injury manifests after discharge from the hospital to rehabilitation or community settings and they often do not account for TBIs that are secondary to other conditions, such as falls from seizures or strokes.[2] Additionally, in Florida, referral to the CR is only mandated for moderate-to-severe injuries. Therefore, information on individuals who sustain mild TBIs are not reported.

Understanding the relationship between the number of new injuries reported to the CR and the total number of TBIs, specifically moderate-to-severe injuries that occur in Florida is extremely important when making decisions regarding future planning and service delivery needs. Unfortunately, injury severity level is not available in the Agency for Healthcare Administration hospitalization and emergency department data. Therefore, total TBIs and TBI-related hospitalization data are used as indicators to begin to examine this relationship. The total number of TBIs that occurred in Florida provides information on how well the CR matches the overall incidence of TBI, regardless of severity level, in the state. The comparison to TBI-related hospitalizations is included because it most closely matches the target CR population, it has been estimated that 49 percent of TBI-related hospitalizations are for moderate-to-severe injuries.[3] Information on injury severity in Florida is required to fully understand the relationship described above.

This section highlights the average number of new TBI reported to the CR compared to total number of TBI for 2005 and the average annual number of TBI-related hospitalizations from 1999 through 2005. New brain injuries reported to the CR, which is housed in the Rehabilitation Information Management System (RIMS), from 2002 through 2005 are included in the analysis below. The total TBIs and TBI-related hospitalization data was identified based on the methodology presented in "Traumatic Brain Injury In the United States: Emergency Department Visits, Hospitalizations and Deaths."[4]

New Injuries by Population, Total TBI, and TBI-related Hospitalizations

In 2005, there were approximately 93,000 TBIs in Florida which included TBI-related deaths, hospitalizations and emergency department visits. From 1999 through 2005, there was an average of 14,810 TBI-related hospitalizations each year. From 2002 through 2005, 9,780 TBIs were referred to the CR, which averages out to 2,445 injuries per year. Detailed tables for new injury referrals to the CR are available in Appendix F.

Table 4-2 and Figure 4-2 compare the percentage of TBIs and average annual TBI-related hospitalizations to the percentage of average annual new TBI reported to the CR for each BSCIP region and Florida. On average, BSCIP Region 3 reported the greatest number of new TBIs to the CR per year (536), while Region 2 reported the fewest number of new TBIs to the CR per

year (414). Approximately, 2.6 percent of all TBIs and 16.5 percent of all TBI-related hospitalizations were reported to the CR.

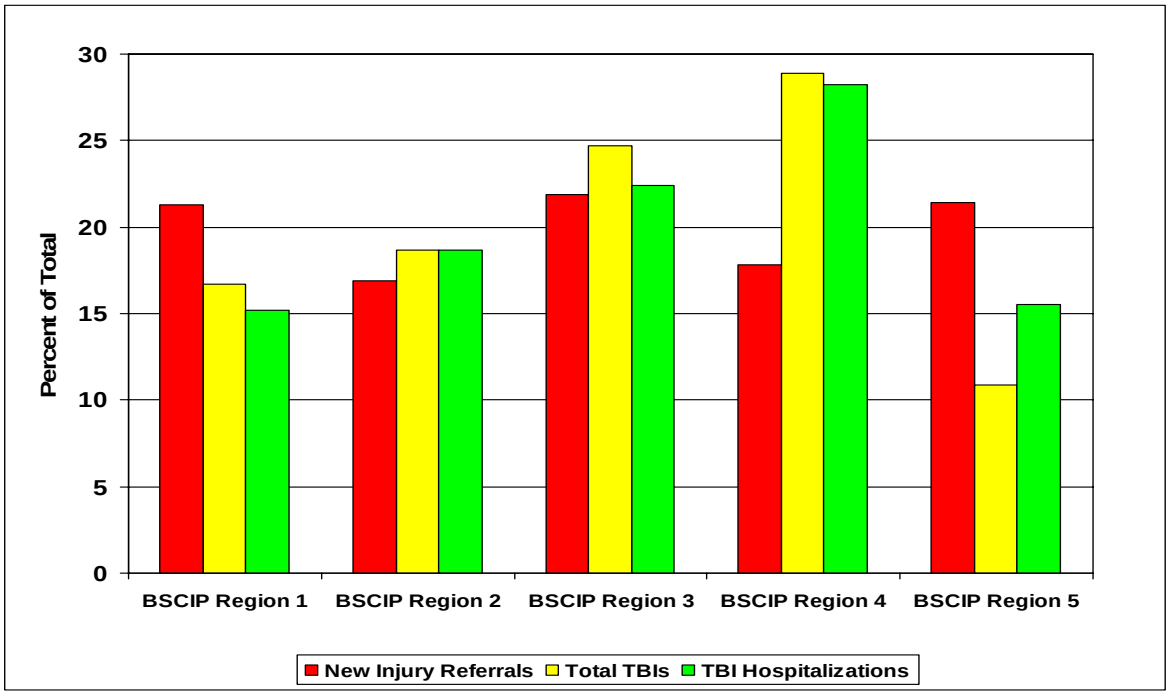
The average percentage of new injury referrals does not correspond with the percentage of total TBIs and TBI-related hospitalizations. The greatest percentage of annual new injury referrals were from BSCIP Regions 3 (21.9 percent), 5 (21.4 percent) and 1 (21.3 percent) while the greatest percentage of total TBIs and TBI hospitalizations were from BSCIP Regions 4 (28.9 percent and 28.2 percent, respectively), 3 (24.7 percent and 22.4 percent, respectively) and 2 (18.7 percent and 18.7 percent, respectively). BSCIP Region 5 accounts for 21.4 percent of new injury referrals, but accounted for only 10.9 percent of total TBIs and 15.5 percent of TBI-related hospitalizations. But as stated above, information on injury severity is required to fully understand this relationship.

Table 4-2: Average Annual New TBIs Reported to the CR, Total TBIs and Average Annual TBI Hospitalizations by BSCIP Region and Florida.

Area	New Injury CR Referrals		Total TBI**		Total TBI-related Hospitalizations	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	520	21.3	45,520	16.7	2,253	15.2
BSCIP Region 2	414	16.9	17,379	18.7	2,774	18.7
BSCIP Region 3	536	21.9	23,002	24.7	3,314	22.4
BSCIP Region 4	434	17.8	26,887	28.9	4,177	28.2
BSCIP Region 5	522	21.4	10,148	10.9	2,289	15.5
Florida*	2,445	100.0	92,942	100.0	14,810	100.0

* Florida total includes 48 referrals whose BSCIP Region was unknown.
**Total TBI includes emergency department visits, hospitalizations and deaths.
Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005.
Prepared by: WellFlorida Council Inc., 2007.

Figure 4-2: Percentage of New Injury Referrals, Total TBIs, TBI Hospitalizations by BSCIP Region.



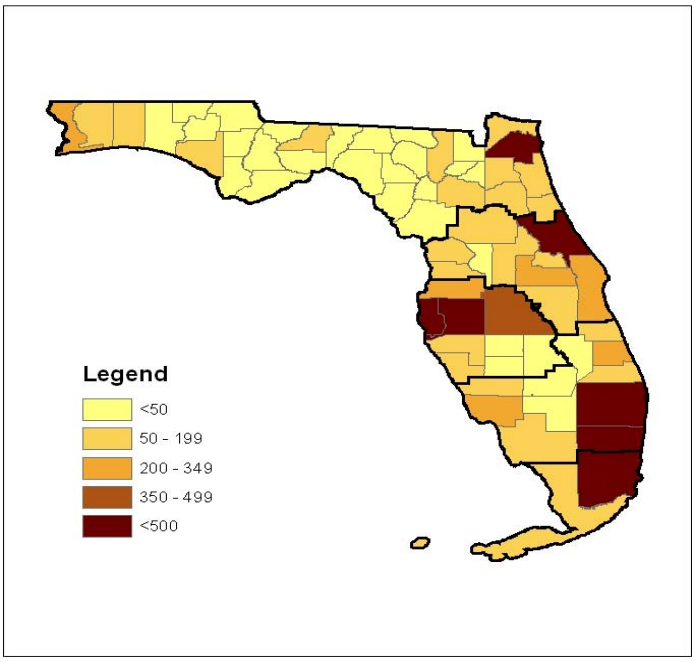
Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

Figures 4-3 and 4-4 show the average annual new injury TBI referrals by county of residence and county of injury. At least one new TBI that was reported to the CR lived in each of the counties during the four-year period. The greatest number of new injuries, based on the most current county of residence data, lived in Miami-Dade County (2,017). The number of new injuries to individuals reported to the CR that live in Miami-Dade County was approximately three times greater than the county with the second most new injuries reported, Duval County (683). Of the top five most populated counties, three ranked in the top five of injuries reported to the CR by the most current county of residence. Pinellas and Duval counties ranked in the top five in new injuries reported to the CR by the most current county of residence, but were ranked sixth and seventh, respectively, in terms of total population. The counties with the fewest new injuries reported to the CR, based on the most current county of residence, during this four-year period were all identified as rural counties by the Florida Department of Health, Office of Rural Health.

Similar to county of residence data, the most new injuries reported to the CR during the four-year period resulted from injuries that occurred in Miami-Dade County (2,023). The number of injuries reported to the CR that occurred in Miami-Dade County was approximately three times greater than the county with the second most injuries, Duval County (668). Similar to county of residence data, the counties with the fewest number of injury occurrences reported during the four-year period were identified as rural by the Florida Department of Health, Office of Rural Health. From 2002 through 2005, 163 of the injuries reported to the CR occurred outside of the state of Florida. Disparities exist between the most current county of residence and county of injury, which could be due to a client moving to a different county after the injury occurred or

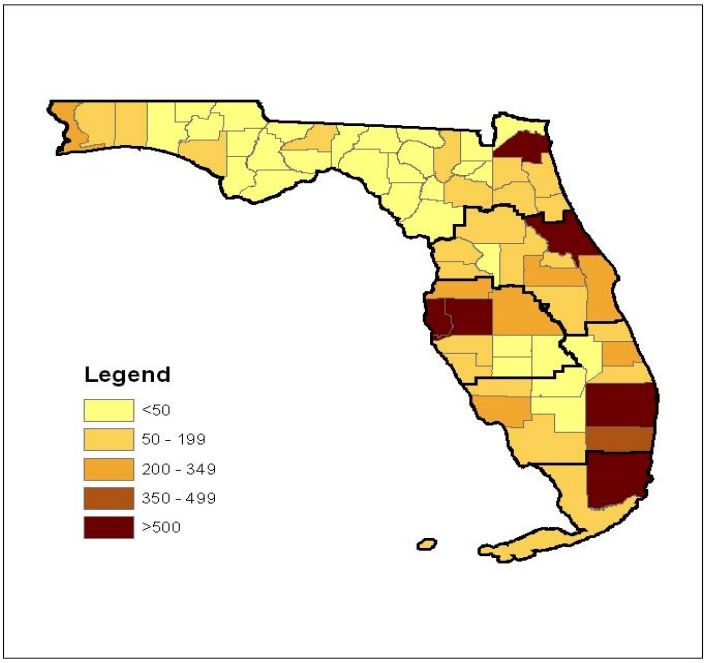
residing in a different county than where the injury happened. Unfortunately, due to limitations regarding the structure of the data, this determination cannot be made.

Figure 4-3: Total Number of New Injury Referrals to CR by Current County of Residence, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 4-4: Total Number of New Injury Referrals to CR by County of Injury, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

New Injuries by Reporting Facility

Referrals to the CR are mandated by Florida Statute 381.74 for individuals who experience a moderate-to-severe brain or spinal cord injury by every public health agency, private health agency, public social agency, private social agency, and attending physician. Therefore, examining the primary reporting sources to the CR for the new TBIs is helpful in determining where the referrals are coming from. Table 4-3 displays the number of referrals made by the most common sources including hospitals, rehabilitation facilities and community organizations. Hospitals in Florida reported more than 90.6 percent (8,660) of new injuries to the CR from 2002 through 2005. Rehabilitation centers were the second most common referral source (5.4 percent).

There are 21 designated trauma centers in Florida that care for the most severely injured. All of the 21 trauma centers in the state were listed as the reporting facility for new injury referrals to the CR from 2002 through 2005. Of the 8,860 new TBIs reported by hospitals, 7,379 (83.3 percent) were from state designated trauma centers. Jackson Memorial Hospital in Miami, which houses the Level I Ryder Trauma Center reported 2,008 of the new injuries to the CR. Bayfront Medical Center in St. Petersburg reported 871 new injuries during this four-year period. The fewest number of new injuries reported to the CR from 2002 through 2005 by trauma centers were from Miami Children's Hospital (45), which is a pediatric trauma center, and Lakeland Regional Medical Center (49), which is a Level II trauma center.

Table 4-3: Central Registry New Injury Referrals by Referral Source, 2002- 2005.

Facility Type	Number	Percent
Hospital	8,660	90.6
Rehabilitation Center	533	5.4
Public or Private Organization	137	1.4
Self-Referral	41	0.4
Other	5	0.0
Unknown	204	2.9
Total	9,780	100.0

Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Age, Race, Ethnicity and Gender Distributions

Age

Table 4-4 shows the average annual number of new injuries reported to the CR from 2002 through 2005, total TBIs from 2005, and average annual TBI-related hospitalizations from 1999 through 2005 by age, gender and race from 2002 through 2005. As stated above, this relationship can not fully be understood without injury severity level data for the state of Florida. A detailed breakdown by region is available in Appendix F. Figure 4-5 shows the age distribution, from age of injury, for new injury referrals to the CR from 2002 through 2005.

0-4 Years

- The 0-4 years of age group represented 3.6 percent of new injuries reported to the CR, 11.8 percent of all TBIs and 4.6 percent of all TBI-related hospitalizations.
- BSCIP Region 5 reported the greatest percentage of new injuries for youth 0-4 years of age (5.6 percent) compared to BSCIP Region 2 (2.6 percent) with the lowest percentage of new injury referrals.

5-14 Years

- The 5-14 years of age group represented 5.9 percent of new TBIs reported to the CR, 10.8 percent of all TBIs and 5.9 percent of all TBI-related hospitalizations.
- The greatest percentage of referrals to the CR for this age group occurred in BSCIP Region 4, representing 7.0 percent of the total injuries reported in the region.

15-24 Years

- The 15-24 years of age group represented 22.4 percent of new TBIs reported to the CR, 17.6 percent of all TBIs and 14.4 percent of TBI-related hospitalizations.
- The largest percentage of individuals in this age group were referred to the CR from BSCIP Regions 1 and 4, representing 24.3 percent and 24.4 percent, respectively of the total injuries in their region.

25-44 Years

- The 25-44 years of age group represented 30.9 percent new injuries reported to the CR, 21.9 percent of all TBIs and 21.3 percent of TBI-related hospitalizations.

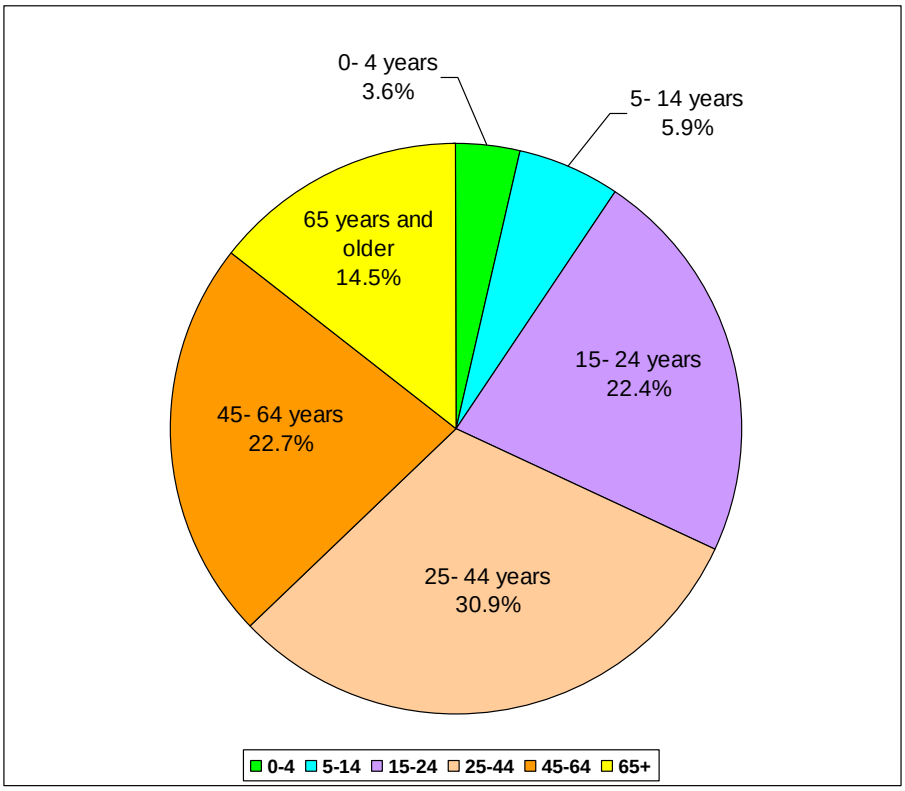
45-64 Years

- The 45- 64 years of age group represented 22.7 percent new injuries are reported to the CR, 15.5 percent of all TBIs and 17.6 percent of TBI-related hospitalizations.

65 and Older

- The elderly (65 years of age and older) represented 14.5 percent of the new injury reported to the CR, 20.1 percent of all TBIs and 36.3 percent of all TBI-related hospitalizations.

Figure 4-5: Percentage of New Injury CR Referrals by Age Group, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Race and Ethnicity

Based on the 2005 TBI-related incidence in Florida that was discussed in the previous section, 82.3 percent of all TBIs were experienced by whites, 14.1 percent were sustained by blacks and 2.8 were sustained by all other races. Of the injuries that resulted in hospitalizations, 83.4 percent were white, 11.7 percent were black and 3 percent identified as all other races. Approximately 81 percent of new injury referrals to the CR from 2002-2005 identified themselves as white. Referrals to the CR show a greater percentage of new injuries for individuals who identified themselves as black (16.1 percent) compared to the percentage of TBIs (14.1 percent) and TBI-related hospitalizations (11.7 percent) and a slightly lower percentage of individuals who identify as all other races (2.5 percent) compared to the percentage of TBIs (2.8 percent) and TBI-related hospitalizations (3.0 percent).

- New injury referrals to the CR from BSCIP Regions 2 and 3 are more likely to be white (85.5 percent and 88.2 percent, respectively), compared to the total percentage of new injury referrals in the state.
- BSCIP Regions 1 and 5 refer a greater percentage of blacks to the CR compared to the s percentage of new injury referrals in the state. This mirrors the higher percentage of black residents in these two regions overall.
- BSCIP Region 5 reports the lowest percentage of whites (73.2 percent) with new injuries to the CR, which is like the population distribution (70.9 percent) of the area.

The Hispanic population in Florida accounts for approximately 20 percent of the total population, 19.2 percent of all TBIs and 14.2 percent of TBI-related hospitalizations, while representing 18.8 of the new injury referrals to the CR. Like the general population, BSCIP Region 5 reports the highest percentage (49.6 percent) of Hispanics with new injuries to the CR.

Gender

Approximately 73 percent of all new TBI injuries reported to the CR from 2002 through 2005 were male. Each year on average 1,785 male and 650 female new TBI injuries are reported to the CR. This distribution was consistent over time and also in each BSCIP region. As reported in the previous section of the report, in Florida, males are 1.4 times more likely than females to sustain a TBI regardless of age, but males only sustained 56.3 percent of all TBIs during 2005. When looking at hospitalizations alone, on average 61.2 percent of TBIs were sustained by men from 1999-2005.

Table 4-4: Average Annual New Injuries, total TBI and TBI-related Hospitalizations by Gender, Race, Ethnicity and Age.

Demographics		Average Annual Number of New Injuries		Total TBIs*		TBI-related Hospitalizations	
		Number	Percent	Number	Percent	Number	Percent
Gender	Male	1,785	73.3	50,525	56.3	9,067	61.2
	Female	650	26.6	42,415	43.7	5,742	38.8
Race	White	1,981	81.0	76,467	82.3	12,397	83.4
	Black	395	16.1	13,149	14.1	1,734	11.7
	Other	70	2.9	2,558	2.8	466	3.0
Ethnicity	Hispanic	460	18.8	13,971	15.0	2,099	14.2
	Non-Hispanic	1,985	81.2	78,977	85.0	12,711	85.8
Age of Injury	0-4 years	89	3.6	10,984	11.8	680	4.6
	5-14 years	145	5.9	9,403	10.1	867	5.9
	15-24 years	547	22.4	16,329	17.6	2,133	14.4
	25-44 years	755	30.9	20,328	21.9	3,155	21.3
	45-64 years	554	22.7	14,439	15.5	2,606	17.6
	65+ years	356	14.5	21,459	20.1	5,370	36.3
Total		2,445	100.0	92,948	100.0	14,810	100.0

Age of injury was not reported for 1 new injury during the four-year period.
Average numbers were rounded to the nearest person.
State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

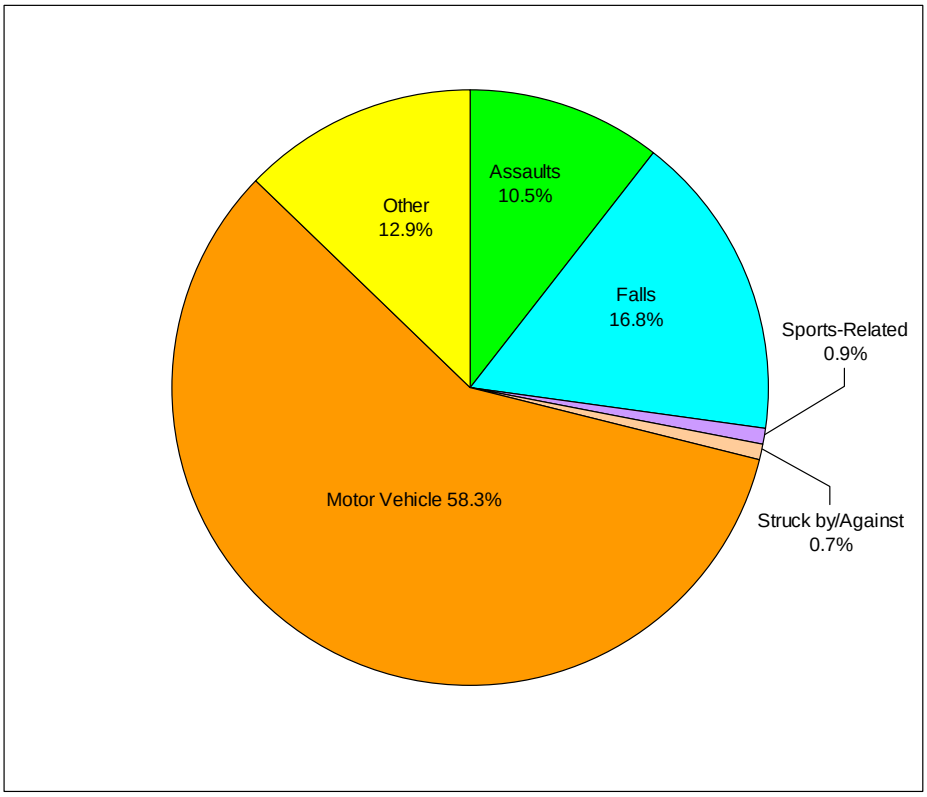
Cause of Injury

In Florida, falls (39.6 percent), motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent) were the primary causes of all TBIs during 2005. Figure 4-6 displays the primary causes of injury for new TBI injury referrals to the CR from 2002 through 2005, which were motor vehicle-traffic accidents (58.3 percent), falls (16.8 percent) and assaults (10.5 percent).

Due to differences in injury classification between the CR RIMS data and the state TBI incidence data, the cause of injury for new TBIs reported to the CR was grouped by applying external cause of injury code classifications using the Recommended Framework of E-code Groupings for Presenting Injury Mortality and Morbidity Data published by the CDC National Center for Injury Control and Prevention.[5] Groupings are available in Appendix A. Table 4-5 highlights the average annual new TBI injury referrals to the CR by cause of injury for each region and the state of Florida.

The majority of new injury referrals to the CR since 2002 were the result of motor vehicle-traffic accidents. This is unlike the distribution in the state, where motor vehicle-traffic accidents cause approximately 20.8 percent of all TBIs and 27.5 percent of TBI-related hospitalizations. Again, this distribution can not fully be understood without injury severity level data for Florida. BSCIP Regions 1 and 5 had the greatest percentage of new injury referrals resulting from assaults (12.9 percent and 12.8 percent). The percentage of new injury referrals resulting from falls is much lower in BSCIP Region 1 (12.5 percent) compared to other regions in the state.

Figure 4-6: Percentage of Average Annual New TBI Injury CR Referrals by Cause, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-5: Average Annual New TBI Injury Referrals to CR by Cause of Injury for BSCIP Regions and Florida, 2002-2005.

Regions	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Percent	Avg Num	Percent	Avg Num	Percent	Avg Num	Percent
BSCIP Region 1	67.0	12.9	64.8	12.5	87.0	16.7	301.0	57.9
BSCIP Region 2	36.3	8.8	72.8	17.6	58.3	14.1	247.3	59.8
BSCIP Region 3	48.8	9.1	97.3	18.2	75.0	14.0	314.5	58.7
BSCIP Region 4	37.3	8.4	84.0	19.0	68.3	15.4	252.3	57.1
BSCIP Region 5	66.8	12.8	90.0	17.2	63.5	12.2	302.0	57.8
Florida	256.3	10.5	411.3	16.8	231.5	9.5	1,424.8	58.3

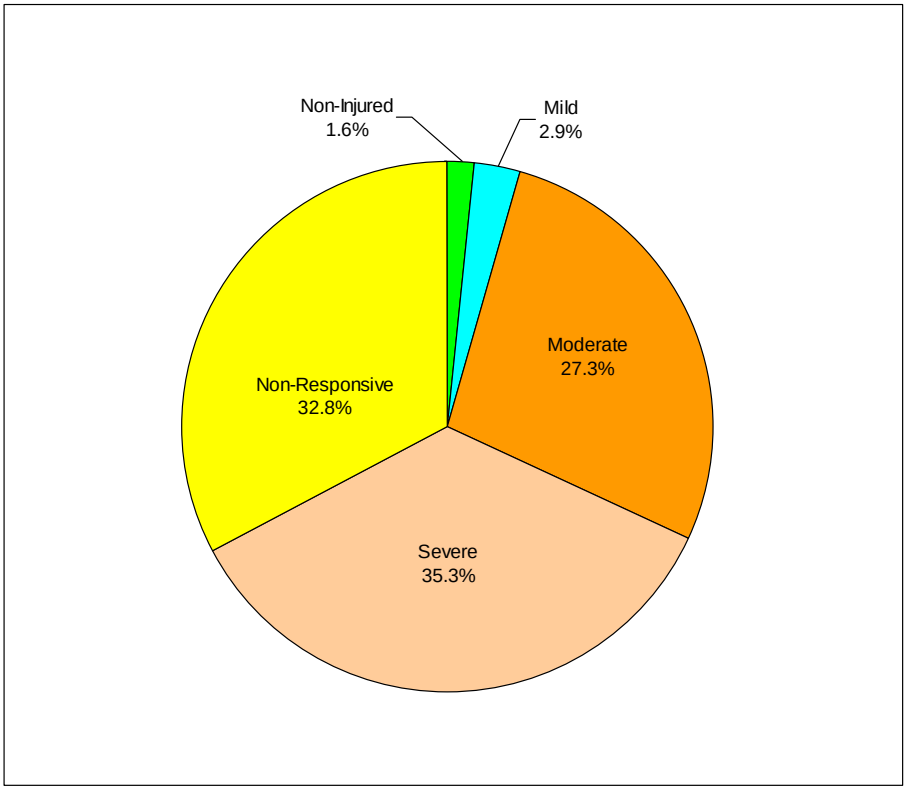
Avg Num: average number of new injuries.
Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Injury Severity

The severity of the TBI determines program and service eligibility. As stated above, referral to the CR is mandated by Florida statute for all brain injuries resulting in the individual having a Glasgow Coma Scale, which quantifies levels of consciousness, score of 12 and below or a Rancho Scale score, quantifies response to external stimuli and environment, of 8 and below. Reporting is required by every public health agency, private health agency, public social agency, private social agency, and attending physician. For the purposes of this report the Glasgow Coma Scale will be grouped into the following categories: non-injured brain response (15), mild brain injury (13-14), moderate brain injury (9-12), severe brain injury (4-8) and non-responsive (3). Figure 4-7 displays the Glasgow Coma Scale ratings for new TBI referrals to the CR from 2002 through 2005. New injuries classified as moderate (27.3 percent), severe (35.3 percent) and non-responsive (32.8 percent) represent the great majority of referrals to the CR.

Rancho Scale scores are reported on a scale of one through ten. Table 4-6 shows the distribution of Rancho Scale scores for new injury referrals to the CR from 2002 through 2005. Based on CR mandated requirements, 99.4 percent of all referrals to the CR were Rancho levels 8 or lower.

Figure 4-7: Percentage of Average Annual New TBI Injury CR Referrals by Glasgow Coma Scale, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-6: Percentage of Average Annual New TBI Injury CR Referrals by Rancho Scale Scores, 2002-2005.

Rancho Score	Number	Percent
1. No response to pain, touch, sound or sight	2,139	21.9
2. Generalized reflex response to pain	1,463	15.0
3. Localized response	2,511	25.7
4. Confused-Agitated	1,001	10.2
5. Confused-Non-agitated	857	8.8
6. Confused-Appropriate	867	8.9
7. Automatic-Appropriate	508	5.2
8. Purposeful-Appropriate (stand-by assistance)	367	3.8
9. Purposeful-Appropriate (stand-by assistance upon request)	24	0.2
10. Purposeful-Appropriate (modified independent)	40	0.4

Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared By: WellFlorida Council Inc., 2007.

BSCIP Trust Fund

The BSCIP Trust Fund provides services for individuals with TBI. These funds can be used to access services as a payor of last resort including case management, acute care, inpatient and

outpatient rehabilitation, transitional living, assistive technology and home and vehicular modification. The individuals in BSCIP are managed by case managers (21 adult case managers and 12 CMS nurses for individuals injured under the age of 18). Case managers work with eligible clients to access services needed to promote successful reintegration back into the community after the brain injury.

Trust Fund Allocation

The total Trust Fund allocation for each region, brain and spinal cord injury combined, is based on four client caseload measures, each measure constituting 25 percent of the total budget. Measures include: number of CR referrals during fiscal year, number of client plans written during fiscal year, number of active cases and number of clients reintegrated into the community during the fiscal year. Table 4-7 displays Trust Fund allocations and expenditures for fiscal years 2002-2003 through 2005-2006. Over the four-year period, the total Trust Fund allocation for BSCIP was approximately $25 million and resulted in the expenditure of approximately $20 million. The regional allocations ranged from approximately $800,000 to $2 million per year and corresponding expenditures ranged from approximately $480,000 to $2 million per year. The percentage of the allocation used per year ranged from approximately 50 percent to over 100 percent. Figure 4-8 shows the percentage of the total Trust Fund allocation by region for fiscal years 2002-2003 through 2005-2006. The percentage of the total Trust Fund allocation received by the regions varies per year. The allocation to BSCIP Region 4 has remained the most consistent over time.

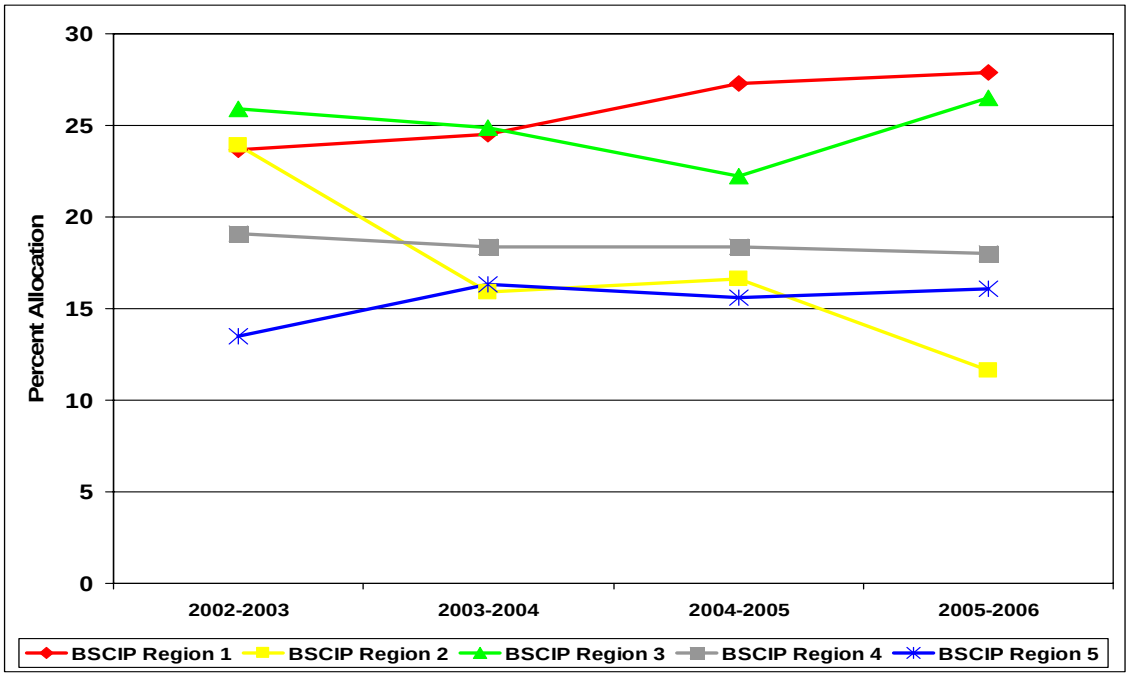
Table 4-7: Trust Fund Allocations and Expenditures by BSCIP Region and Florida, 2002- 2006.

Fiscal Year	Region 1			Region 2			Region 3		
	Allocation	Expenditure	Percent	Allocation	Expenditure	Percent	Allocation	Expenditure	Percent
2002-2003	1,543,941	1,290,453	83.6	1,553,739	1,065,957	68.6	1,684,538	1,547,605	91.9
2003-2004	1,214,545	1,155,666	95.2	790,166	676,751	85.6	1,233,098	1,021,739	82.9
2004-2005	1,776,137	1,124,808	63.3	1,081,017	647,561	59.9	1,443,847	998,587	69.2
2005-2006	1,913,052	1,941,162	101.5	794,740	681,025	85.7	1,815,571	1,746,936	96.2
Fiscal Year	**Region 4**			**Region 5**			**Florida**		
	Allocation	Expenditure	Percent	Allocation	Expenditure	Percent	Allocation	Expenditure	Percent
2002-2003	1,246,795	1,065,007	85.4	881,907	592,891	67.2	6,510,920	5,558,913	85.4
2003-2004	913,748	723,445	79.2	807,089	480,476	59.5	4,958,646	4,058,071	81.8
2004-2005	1,196,657	772,161	64.5	1,019,610	521,599	51.2	6,517,268	4,064,717	62.4
2005-2006	1,238,275	1,155,964	93.4	1,101,800	896,914	81.4	6,863,437	6,422,002	93.6

Note: amounts were rounded to the nearest dollar.
Source: Florida Department of Health, Brain and Spinal Cord Injury Program, 2006.
Prepared by: WellFlorida Council Inc., 2007.

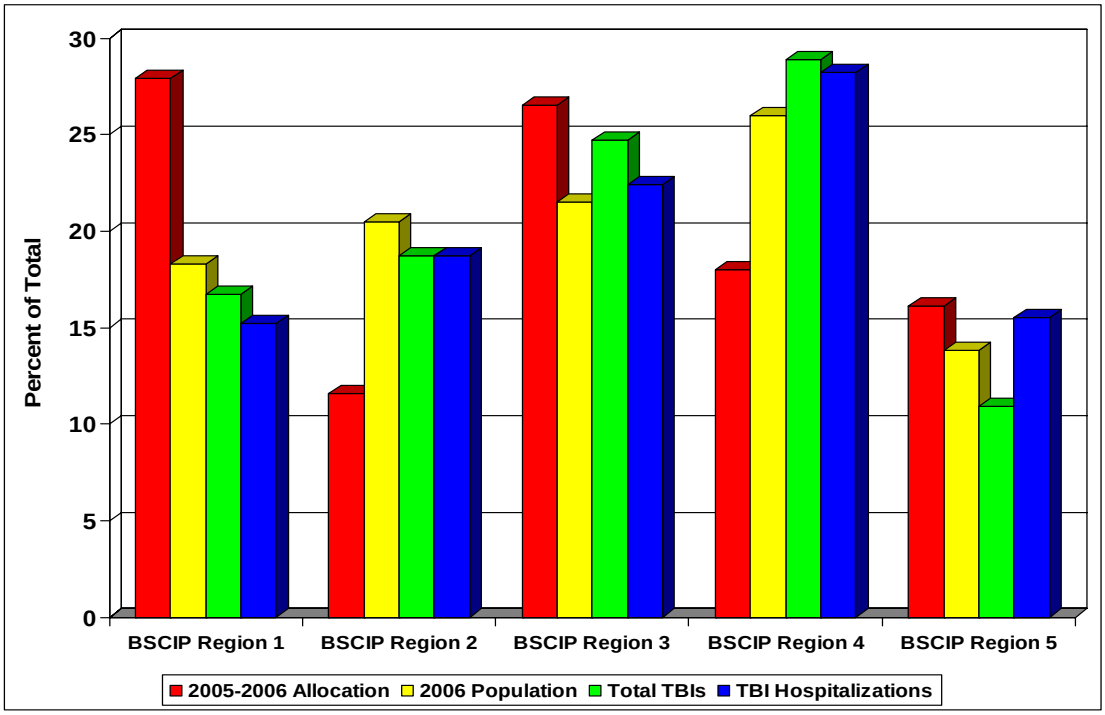
As seen in the previous section of the report, the greater the population the greater the number of TBIs. For example, BSCIP Region 4, which contained the greatest percentage (26.0 percent) of the population in Florida, also experienced 28.9 percent of all TBIs during 2005. BSCIP Region 5, which houses the smallest percentage of Florida residents (13.8 percent), had the smallest percentage of TBIs (10.8 percent) during 2005. Figure 4-9 compares the percentage of the total BSCIP Trust Fund allocation to the percentage of people in the population, total TBIs, and TBI-related hospitalizations by region. In fiscal year 2005-2006, the percentage of the total Trust Fund allocation received by three BSCIP regions was greater than the percentage of Florida's population within that region. BSCIP Regions 2 and 4 received a smaller percentage of the Trust Fund allocation compared to the percentage of the population that resides in their respective region. BSCIP Region 1 had the largest difference between the percentage of total allocation and percentage of total population, total TBIs and TBI-related hospitalizations. BSCIP Regions 2 and 4 received a lower percentage of the total allocation compared to the percentage of the population, total TBIs, and TBI-related hospitalizations.

Figure 4-8: Percentage of Total Trust Fund Allocation by Region, 2002-2006.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, 2006; ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Figure 4-9: Percentage of Total Trust Fund Allocation by Population, Total TBIs and TBI-related Hospitalizations by Region, 2006.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

BSCIP Trust Fund Clients Served

Data presented in this section include all BSCIP Trust Fund clients with a TBI, including those who sustained both brain and spinal cord injuries. Eligibility criteria for the Trust Fund services include: being a resident of Florida, sustaining a brain injury that meets the state definition and that was reported to the BSCIP Central Registry. The state definition for TBI, defined by Florida statute, is an insult to the skull, brain, or its covering that results from external trauma and that produces an altered state of consciousness or anatomic, motor, sensory, cognitive, or behavioral deficit.[1] Program eligibility is determined once the patient is stable and requires a moderate-to-severe brain injury with a Rancho score of 4 through 10. Additionally, the individual must be medically stable to be eligible for services and there must be a reasonable expectation that with the provision of appropriate services and support, the person can return to the community.

The data presented includes all TBI Trust Fund clients for calendar years 2002 through 2005. The clients were identified using the RIMS. Trust Fund clients were included in this analysis if they were identified as having "in-service" status at any point during the calendar year. The use of Trust Fund dollars for services during the calendar year was not an exclusionary criterion. The data below also includes individuals participating in the Institution Transition Initiative that is designed to transition individuals with brain injuries who live in institutional living facilities to less restrictive environments. These individuals are included because the program is funded by Trust Fund dollars and the individuals receive the same types of services as the general client population.

Trust Fund Clients Served by Population Total TBI, and TBI-related Hospitalizations

As seen in the previous section of the report, the number of TBIs is influenced by the number of people in the population. From 2002 through 2005, approximately 6,400 individuals with TBI were served by the BSCIP Trust Fund programs, averaging approximately 1,600 individuals per year. Table 4-8 and Figure 4-10 compare the percentage of TBI BSCIP Trust Fund clients served to the percentage of new injuries reported, total TBIs, TBI-related hospitalizations and state population by BSCIP region. Again, this relationship can not fully be understood without injury severity level data for Florida.

Overall, BSCIP Region 1 served the greatest percentage of Trust Fund clients (23.5 percent), while Region 2 served the smallest percentage of clients (12.5 percent). When comparing the regional distribution of the percentage of BSCIP Trust Fund clients to the percentage of total TBIs, TBI hospitalizations and the population within the region, disparities exist. BSCIP Region 2 contained approximately 20 percent of the state's population, 19 percent of all TBIs and 18.7 percent of TBI hospitalizations, while representing only 12.5 percent of the BSCIP Trust Fund clients served. BSCIP Regions 1 and 5 provided services to a greater percentage of Trust Fund clients than the percentage of total TBIs, TBI hospitalizations and total population that reside in their respective regions.

When comparing average annual BSCIP Trust Fund clients to average annual new injury referrals, the distribution was not similar. BSCIP Regions 1, 4 and 5 served a larger percentage

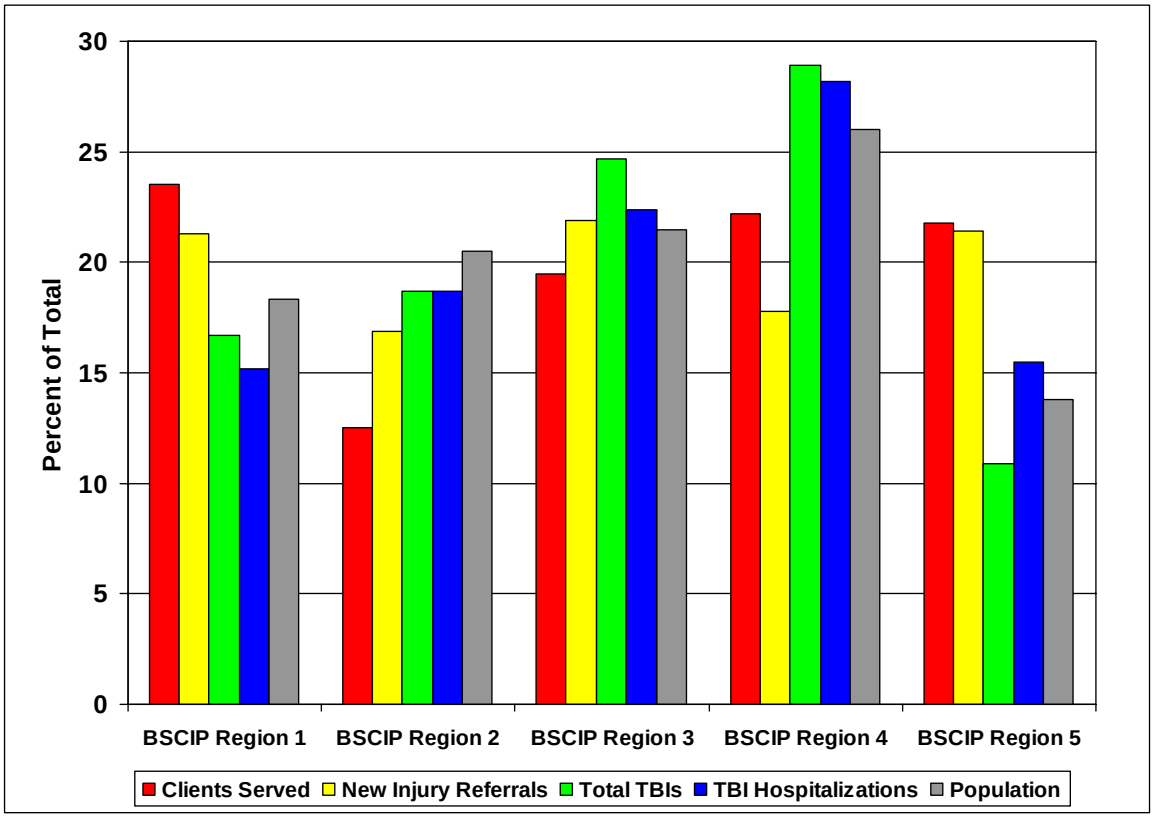
of Trust Fund clients compared to the percentage of total new brain injuries referred to the CR. BSCIP Regions 2 and 3 serve a smaller percentage of Trust Fund clients compared to new injuries reported to the CR. BSCIP Region 2 has the greatest disparity between new injury referrals (16.9 percent) and clients served (12.5 percent).

Table 4-8: Percentage of Average Annual BSCIP Trust Fund Clients, New TBIs Reported to the CR, Total TBIs, TBI-related Hospitalizations and Florida Population by BSCIP Region.

Area	BSCIP Trust Fund Clients*		Number of New Injury Referrals		Total TBI**		Total TBI Hospitalizations		Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	376	23.5	520	21.3	45,520	16.7	2,253	15.2	3,087,516	18.3
BSCIP Region 2	200	12.5	414	16.9	17,379	18.7	2,774	18.7	3,350,034	20.5
BSCIP Region 3	311	19.5	536	21.9	23,002	24.7	3,314	22.4	3,646,321	21.5
BSCIP Region 4	355	22.2	434	17.8	26,887	28.9	4,177	28.2	4,330,318	26.0
BSCIP Region 5	349	21.8	522	21.4	10,148	10.9	2,289	15.5	2,405,106	13.8
Florida	1,598	100.0	2,445	100.0	92,942	100.0	14,810	100.0	16,819,243	100.0

* Does not include 27 clients whose BSCIP Region was unknown.
**Total TBI includes emergency department visits, hospitalizations and deaths.
Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999-2005
Prepared by: WellFlorida Council Inc., 2007.

Figure 4-10: Percentage of Trust Fund Clients Served, Total TBIs, TBI-related Hospitalizations and Florida Population by BSCIP Region.

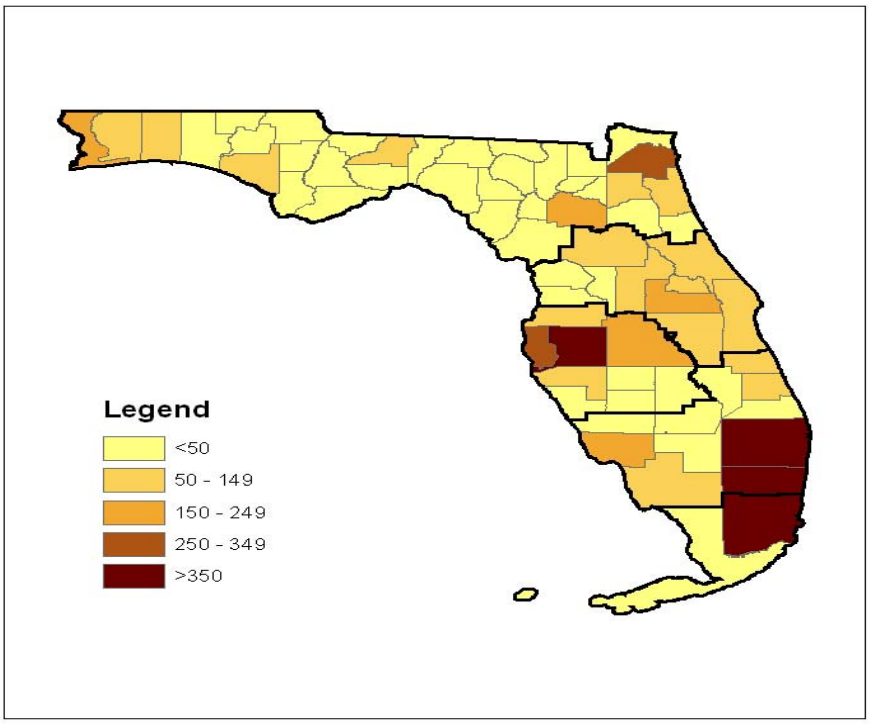


Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; State of Florida, Department of Health, CHARTS, accessed Feb 2007; State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; State of Florida, AHCA, Detailed Discharge Data, 1999-2005
Prepared by: WellFlorida Council Inc., 2007.

Figures 4-11 and 4-12 show the total BSCIP Trust Fund clients served by county of residence and injury from 2002 through 2005. As expected, the most populated counties in Florida contained the most BSCIP Trust Fund clients. The greatest number of active clients, based on the most current county of residence, lived in Miami-Dade County (1,362). The counties with the fewest BSCIP Trust Fund clients during this four-year period were all identified as rural counties by the Florida Department of Health, Office of Rural Health.

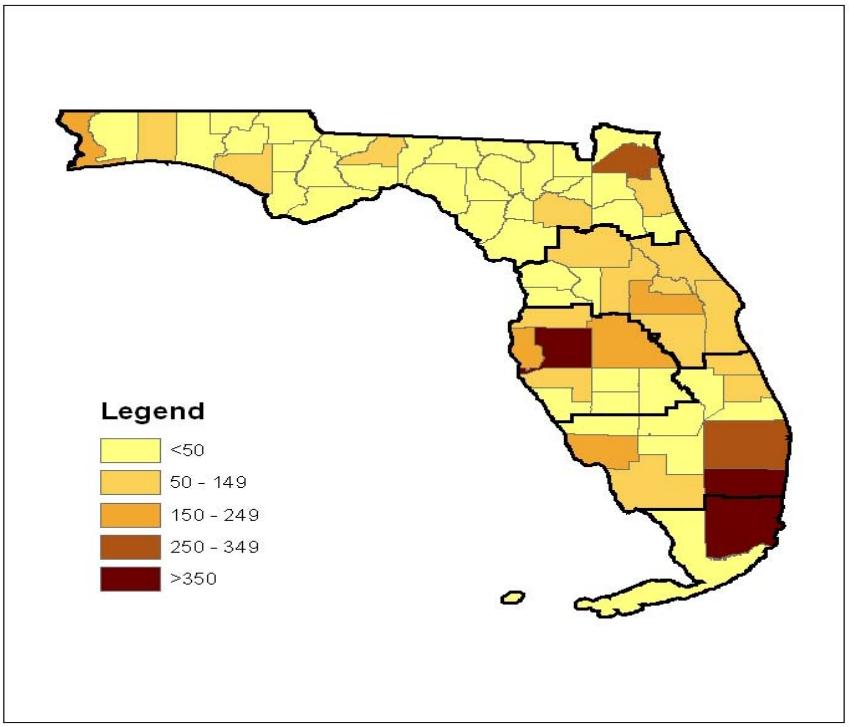
As in county of residence data, most of the injuries to BSCIP Trust Fund clients occurred in Miami-Dade County (1,331 clients). The number of injuries to clients served by the BSCIP Trust Fund that occurred in Miami-Dade County was 2.75 times greater than the county with the second most injuries, Broward County (484 clients). Ten counties in Florida had fewer than ten clients during the four year period, all of which are identified as rural by the Florida Department of Health, Office of Rural Health. In all, 178 of the injuries to Trust Fund clients occurred outside the state of Florida during this time period. Disparities exist between the most current county of residence and the county of injury. This difference could be the result of a client moving to a different county after the injury occurred or the fact that the client lived in a different county than where the injury happened. Unfortunately, due to limitations of the structure of RIMS, this determination cannot be made.

Figure 4-11: Total Number of Trust Fund TBI Clients Served by County of Residence, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Figure 4-12: Total Number of Trust Fund TBI Clients Served by County of Injury, 2002- 2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Clients Served by Reporting Facility

A referral to the BSCIP Central Registry is required for Trust Fund service eligibility. Therefore, examining the referral sources for clients served by the Trust Fund is important. Table 4-9 displays the number of referrals made by the most common sources including hospitals, rehabilitation facilities and community organizations. Hospitals in Florida referred more than 83 percent of the clients who received Trust Fund services from 2002-2005. Rehabilitation centers were the second most common referral source.

There are 21 designated trauma centers in Florida that care for the most severely injured patients. All of the 21 trauma centers in the state were listed as the referral source for BSCIP Trust Fund clients from 2002-2005. Of the 5,325 client referrals made by hospitals, 4,051 (76.1 percent) were from state designated trauma centers. Jackson Memorial Hospital which houses the Level 1 Ryder Trauma Center in Miami referred 1,069 of the clients served from 2002 through 2005. The high number of referrals from the facility possibly explains the large percentage of clients served from Region 5 by the Trust Fund program. Bayfront Medical Center in St. Petersburg referred 402 clients to the CR and the Trust Fund program, which was the second largest referral source during the four-year period.

Table 4-9: BSCIP Trust Fund Clients by Referral Source, 2002-2005.

Facility Type	Number	Percent
Hospital	5,325	83.3
Rehabilitation Center	455	7.1
Public or Private Organization	176	2.3
Self-Referral	116	1.8
Other	11	0.17
Unknown	310	4.8
Total	6,393	100.0

Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Age, Race, Ethnicity and Gender Distributions

Table 4-10 shows the average annual number of TBI clients served by the BSCIP Trust Fund by age, gender and race from 2002 through 2005. A detailed breakdown by region is available in Appendix G.

Age

Certain age groups have increased risk for experiencing a TBI, TBI hospitalizations and/or death.[3] Figure 4-13 provides the age distribution for the TBI clients served by the BSCIP Trust Fund programs.

0-4 Years

- The 0-4 years of age group is at the greatest risk for TBI, but represented only 4.9 percent of the clients served by the BSCIP Trust Fund programs, which was greater than the percentage of new injuries (3.6 percent) referred to the CR, in line with the percentage of hospitalizations (4.6 percent) and less than the percentage of total TBIs in this population.
- BSCIP Region 4 served the greatest percentage of individuals 0-4 years of age by the BSCIP Trust Fund program, 6 percent.

5-14 Years

- Of the clients served by the BSCIP Trust Fund program, 13.2 percent were between the ages of 5-14 years when the injury occurred, which was greater than the percentage of new injuries referred to the CR (5.9 percent), total TBIs (7.0 percent) and TBI-related hospitalizations (5.9 percent).
- The greatest percentage of individuals in the age group was served in BSCIP Region 4, representing 16.4 percent of the total population of clients served.

15-24 Years

- Of the clients served by the BSCIP Trust Fund program, 30.1 percent were between the ages of 15-24 years when the injury occurred. The percentage of clients served by the BSCIP Trust Fund in this age group was greater than the percentage of new injuries (22.4 percent), total TBIs (17.6 percent) and TBI-related hospitalizations (14.4 percent).
- The greatest percentage of individuals in the age group was served in BSCIP Region 2, representing 35.5 percent of the total population.

25-44 Years

- The BSCIP Trust Fund program served an average of 1,914 TBI clients per year in the 25-44 years of age, representing 30 percent of the total program population. This was in line with the percentage of new injury CR referrals (30.9 percent).
- The percentage of clients served by the BSCIP Trust Fund was greater than the percentage of all TBIs and TBI-related hospitalizations for this age group.

45-64 Years

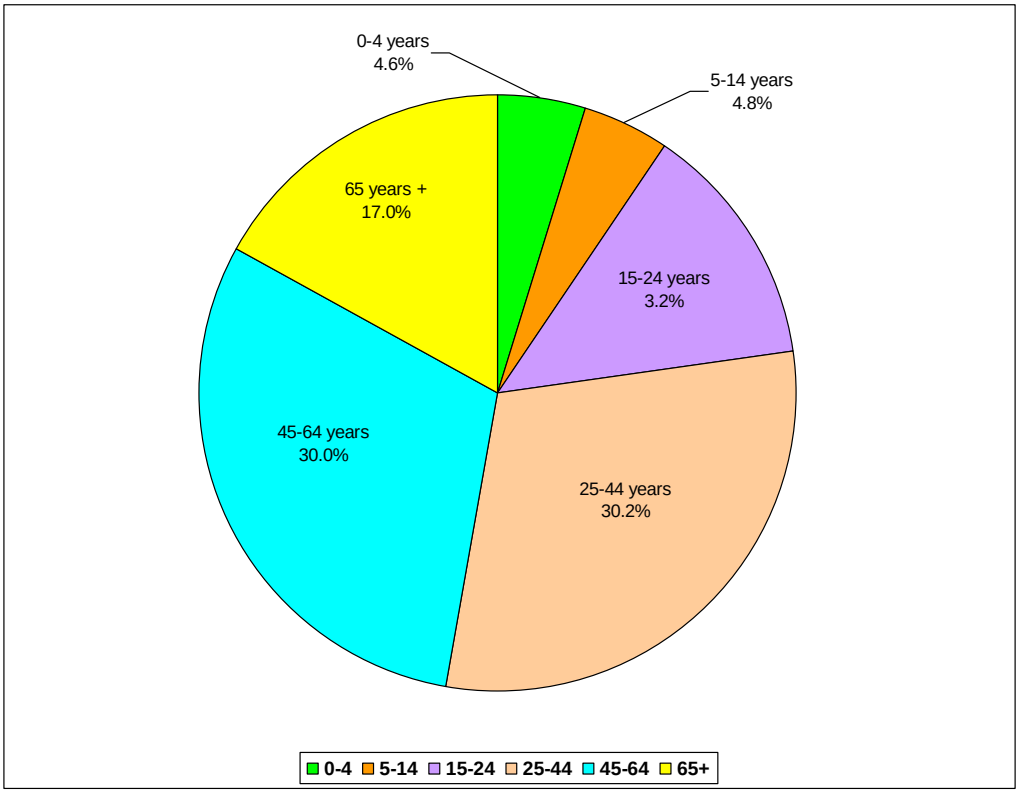
- Approximately 1,088 TBI BSCIP Trust Fund clients were served each year in the 45-64 age group, representing 17 percent of the participants, which was less than the percentage of new injuries report to the CR (22.7 percent). This group represented 25.8 percent of the population of Florida, but only 15.5 percent of the TBIs that occurred in 2005.
- The percentage of TBI clients served was similar to the percentage of TBI-related hospitalizations (17.6 percent) in this age group.
- Region 2 served the smallest percentage of people in this age group, representing 13.5 percent of the people they served annually.

65 and Older

- The elderly, who are most at risk for hospitalization and death from TBI, represent only 4.6 percent of the clients served by the BSCIP Trust Fund, which was less than the percentage of new injury referrals, total TBIs and TBI-related hospitalizations in Florida.

- Regions 1 and 3 served the smallest percentages of clients 65 and older representing only 2.3 percent and 2.5 percent, respectively, of their total client population.

Figure 4-13: Percentage of Average Annual TBI Trust Fund Clients by Age Group, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Race and Ethnicity

Approximately 80 percent of active TBI Trust Fund clients from 2002-2005 identified themselves as white. The Trust Fund served a larger percentage of TBI clients who were black (18.8 percent) compared to the percentage of new injuries referred to the CR (16.1 percent), total TBIs (14.1 percent) and TBI-related hospitalizations (11.7 percent) that were experienced by individuals who identify as black and a lower percentage of individuals who identify as all other races (1.3 percent) compared to new injury referrals (2.5 percent), total TBIs (2.8 percent) and TBI-related hospitalizations (3.0 percent).

- The clients in BSCIP Regions 2 and 3 were more likely to be white (86.5 percent and 87.2 percent, respectively), compared to the overall program percentage.
- BSCIP Regions 1 and 5 served a greater percentage of black residents in Trust Fund programs compared to the overall program percentage. This mirrors the larger percentage of black residents within these regions overall.
- BSCIP Region 5 serves the smallest percentage of white residents (70.7 percent) with the Trust Fund program, which mirrors the population distribution (70.9 percent) of the area.

The Hispanic population in Florida accounts for approximately 20 percent of the total population, while it represented only 12.6 of the TBI clients served by the BSCIP program. Compared to the percentage of Hispanic individuals with TBI referred to the CR (18.8 percent) the percentage of clients served was smaller (12.6 percent) from 2002 through 2005. This is potentially due to the Florida residency requirement set forth by the Trust Fund program. Since 2002, the number of Hispanic residents served by the BSCIP Trust Fund program has increased each year. Compared to the percentage of TBIs sustained by Hispanics (15.0 percent) in 2005, the BSCIP Trust Fund program served a greater percentage of Hispanic residents (17.8 percent).

- Like the population distribution, BSCIP Region 5 served the largest percentage (35.4 percent) of Hispanic residents with TBI in the program.

Gender

Approximately 70 percent of the clients served by the BSCIP Trust Fund program from 2002 through 2005 were male. Each year, an average of 1,127 males and 472 females were served by the program. This gender distribution was consistent over time and in each region. This was slightly lower than the percentage of males (73.3 percent) referred to the CR during the same time period. As reported in the previous section of the report, males are 1.4 times more likely than females to sustain a TBI regardless of age in Florida, with men accounting for 56.3 percent of all TBIs in Florida in 2005. When looking at hospitalizations alone, which more closely matches the TBI population served by the Trust Fund program, 61.2 percent of TBIs were sustained by men from 1999-2005.

Table 4-10: Average Annual TBI BSCIP Trust Fund Clients Served, Average Annual New Injuries, Total TBI and TBI-related Hospitalizations by Gender, Race, Ethnicity and Age.

Demographics		Average Annual Number of Clients Served		Average Annual Number of New Injuries		Total TBIs*		TBI-related Hospitalizations**	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Gender	Male	1,127	70.5	1,785	73.3	50,525	56.3	9,067	61.2
	Female	472	29.5	650	26.6	42,415	43.7	5,742	38.8
Race	White	1,270	79.5	1,981	81.0	76,467	82.3	12,397	83.4
	Black	301	18.8	395	16.1	13,149	14.1	1,734	11.7
	Other	27	1.7	70	2.9	2,558	2.8	466	3.0
Ethnicity	Hispanic	201	12.6	460	18.8	13,971	15.0	2,099	14.2
	Non-Hispanic	1,397	87.4	1,985	81.2	78,977	85.0	12,711	85.8
Age of Injury	0-4	78	4.9	89	3.6	10,984	11.8	680	4.6
	5-14	211	13.2	145	5.9	9,403	10.1	867	5.9
	15-24	482	30.2	547	22.4	16,329	17.6	2,133	14.4
	25-44	479	30.0	755	30.9	20,328	21.9	3,155	21.3
	45-64	272	17.0	554	22.7	14,439	15.5	2,606	17.6
	65+	74	4.6	356	14.5	21,459	20.1	5,370	36.3
Total		1,592	100.0	2,445	100.0	92,948	100.0	14,810	100.0

Age of injury was not reported for 1 new injury during the four-year period.
Average numbers were rounded to the nearest person.
State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, 2002-2005 accessed March 2007; *State of Florida, Department of Health, Office of Vital Statistics, Public Health Statistics, 2005; State of Florida, AHCA, Detailed Discharge Data, 2005; State of Florida, AHCA, Emergency Department Data, 2005; **State of Florida, AHCA, Detailed Discharge Data, 1999-2005.
Prepared by: WellFlorida Council Inc., 2007.

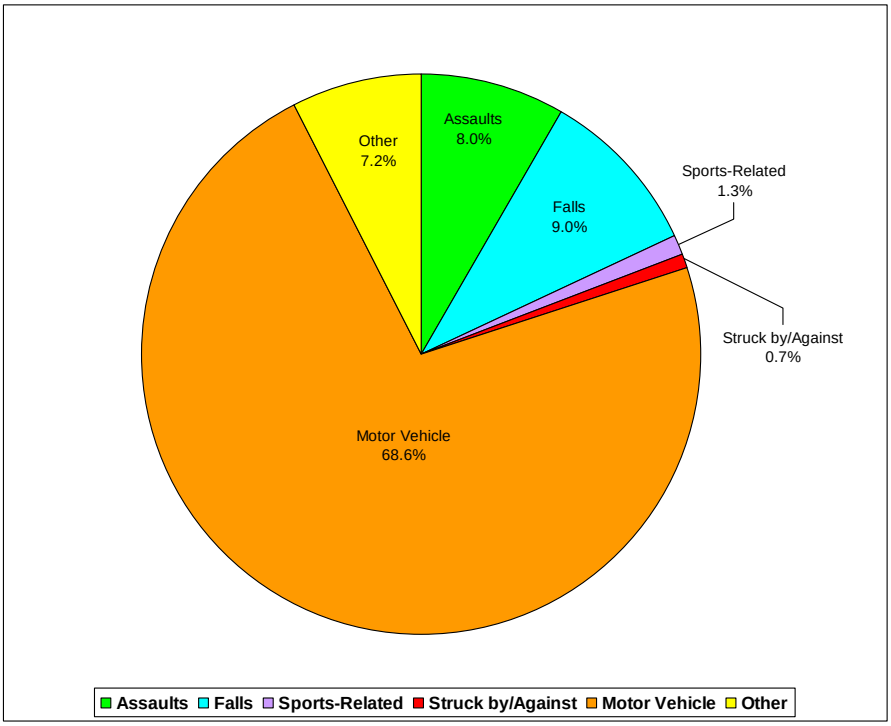
Cause of Injury

In Florida, falls (39.6 percent), motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent) were the primary causes of TBI during 2005. Due to differences in the injury classification between BSCIP and the TBI incidence data, the cause of injury for BSCIP clients was grouped by the external cause of injury code based on the Recommended Framework of E-code Groupings for Presenting Injury Mortality and Morbidity Data published by the CDC National Center for Injury Control and Prevention.[4] The e-code classifications are available in Appendix A. For clients served by the BSCIP Trust Fund program (Figure 4-14), the primary causes of injury are motor vehicle-traffic accidents (68.6 percent), falls (8.9 percent) and assaults (8.0 percent). Table 4-11, highlights the average annual TBI Trust Fund clients served by cause of injury for each region and the state of Florida.

The majority of individuals served by the BSCIP Trust Fund since 2002 were injured in a motor vehicle-traffic accident. This was similar to the distribution of the causes of new injury referrals to the CR (58.3 percent), but with a greater percentage (68.6 percent). But, was unlike the distribution for the state, where motor vehicle-traffic accidents caused approximately 20.8 percent of all TBIs and 27.5 percent of all TBI-related hospitalizations. Again, this relationship can not be completely understood without injury severity level data for Florida.

- In BSCIP Region 2, 80.5 percent of clients served were injured in a motor vehicle-traffic accident, which was the greatest percentage of the regions in the state. This region also had the smallest percentage of clients who were injured by falls (5.7 percent) and assaults (5.4 percent) compared to other regions in the state.

Figure 4-14: Percentage of Average Annual TBI Trust Fund Clients by Cause, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-11: Average Annual TBI Trust Fund Clients Served by Cause of Injury for BSCIP Regions and Florida, 2002-2005.

Regions	Causes							
	Assaults		Falls		Other		Motor Vehicle	
	Avg Num	Percent	Avg Num	Percent	Avg Num	Percent	Avg Num	Percent
BSCIP Region 1	33.75	9.0	35.75	9.5	65.5	17.4	240.5	63.9
BSCIP Region 2	10	5.4	10.5	5.7	30.5	16.5	149	80.5
BSCIP Region 3	22.5	7.2	32.25	10.4	43.5	14.0	213	68.4
BSCIP Region 4	29	8.2	30	8.5	52	14.7	246.25	69.5
BSCIP Region 5	32	9.1	33.5	9.6	41.5	11.9	241.5	69.3
Florida	128.25	8.0	142	8.9	231.5	14.5	1,096.5	68.6

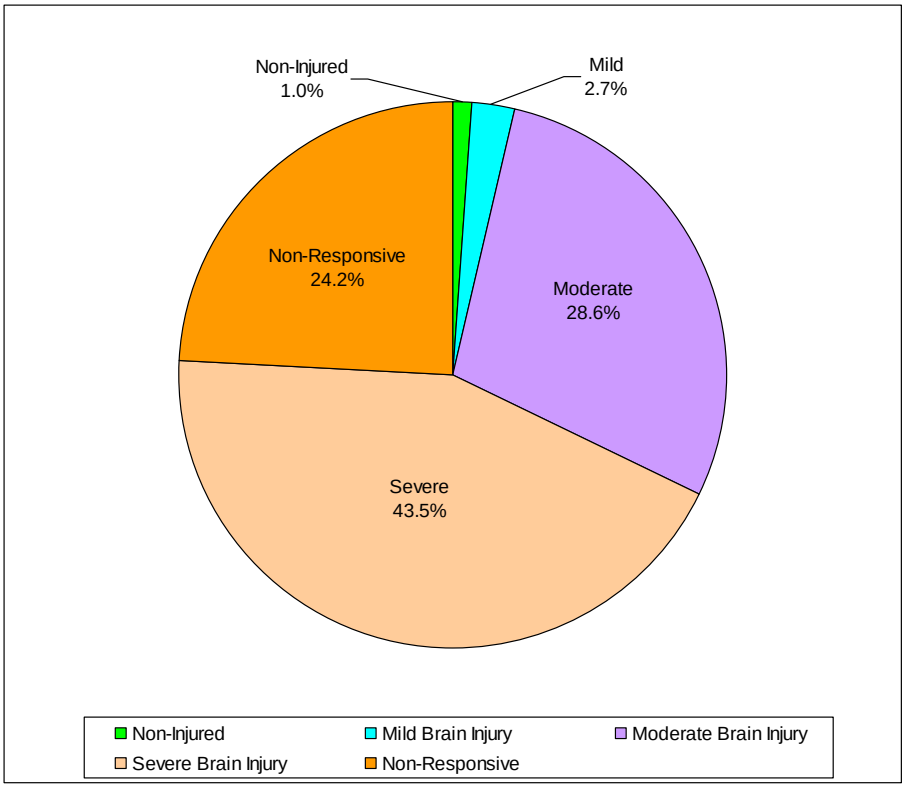
Avg Num: average number of TBI BSCIP Trust Fund clients.
Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Injury Severity

The severity of the TBI determines program and service eligibility. Program eligibility is determined having a moderate-to-severe brain injury and Rancho Scale score, a rating of response to external stimuli and the environment, between 4 and 10. For the purposes of this report the Glasgow Coma Scale, which describes level of consciousness at the time of the injury, will be grouped into the following categories: non-injured brain response (15), mild brain injury (13-14), moderate brain injury (9-12), severe brain injury (4-8), and non-responsive (3). Figure 4-15 displays the Glasgow Coma Scale ratings for TBI clients served by the Trust Fund program from 2002 through 2005. The TBI clients served by the Trust Fund classified as moderate (28.6 percent), severe (43.5 percent) and non-responsive (24.2 percent) represent the great majority. Compared to new injury referrals to the CR, the clients served by the Trust Fund are more likely to have moderate and severe injuries and less likely to be classified as non-responsive.

Rancho Scale scores are reported on a scale of one through ten. Rancho Scale scores are reported at time of injury to RIMS. The Rancho Scale scores are re-evaluated once the individual is stabilized to determine program eligibility. The program eligibility Rancho Scale scores are not entered into RIMS. Therefore, examining how well the TBI clients served by the Trust Fund fit the eligibility criteria is not possible.

Figure 4-15: Percentage of Average Annual TBI Trust Fund Clients Served by Glasgow Coma Scale, 2002-2005.



Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

BSCIP Home and Community-Based Medicaid Waiver

Home and community-based waivers are used by states to obtain Federal matching funds to provide long-term care to patients to help maintain their ability to live outside of institutional settings. Waiver programs are viewed as beneficial because they provide an alternative for expensive long-term institutionalization by enabling individuals to remain among family and friends. Eligibility for the BSCIP Home and Community-Based Medicaid Waiver includes: permanent Florida residency, being 18 years of age or older, referral to Central Registry, meeting the state definition for TBI or spinal cord injury or both, being medically stable, must meet at least Level II nursing home level of care, and be financially eligible to receive Florida Medicaid. The core Waiver services include:

- Adaptive health and wellness services;
- Attendant care services;
- Assistive technology and adaptive equipment;
- Behavioral programming;
- Community support coordination;
- Companion services;
- Life skills training;
- Environmental accessibility adaptation;
- Personal adjustment counseling;
- Rehab engineering evaluations;
- Personal care assistance;
- Consumable medical supplies.

The current BSCIP Home and Community-Based Waiver became effective in July, 2002 and remains effective until June, 2007. The current waiver provides services to 325 brain and spinal cord injury individuals. This program has recently expanded from 300 individuals in an attempt to meet the increased need for services. The program has also implemented a prescreening tool to prioritize program admission that determine the needs of the applicant including: living arrangements, ability to perform activities of daily living and independent activities of daily living, caregiver support, and access to behavioral and medical support services. This tool was implemented to establish a protocol for placing individuals in the Waiver program once an opening occurs. The individual with the highest score on the prescreening instrument is placed in the program when an opening occurs. If multiple applicants have the same score, the applicant who has been on the waitlist the longest is given the opening.

Data presented in this section represent for all brain injury Waiver clients served from calendar years 2003 through 2005. The data was obtained from RIMS.

Waiver Population

Since 2003, the TBI population in the Waiver program has grown each year. In 2003, there were 96 Waiver clients and by 2005 the number increased to 129 TBI Waiver clients. Table 4-12 highlights the gender, age and regional distribution of the TBI Waiver clients. As expected, from 2003 through 2005 the percentage of males was greater than the percentage of females in the

Waiver program. The gender distribution of TBI Waiver participants decreased from 84.4 percent male to 79.2 percent male by 2005. The latter percentage more closely matches the percent of new brain injury referrals (73.3 percent) and clients served by the Trust Fund (70.5 percent). During all three years, Waiver participants were most likely to be in the 15-24 years and 25-44 years of age groups when injured. These percentages were higher than the percentage of new injury referrals and Trust Fund clients served, but do represent the most frequently referred and served population groups. The youngest and oldest populations, which are at the greatest risk for TBI, were not represented in the Waiver program. From 2003 through 2005, the greatest percentage of Waiver participants lived in BSCIP Region 3. BSCIP Region 2, which had the lowest percentage of new injury CR referrals and BSCIP Trust Fund clients served, also had the lowest percentage of Waiver clients in 2004 and 2005. Due to the small size of the Waiver program, comparisons to the new injury referrals and Trust Fund clients served should be done with caution.

Table 4-12: BSCIP Home and Community-Based Waiver Participants by Age Group, Gender and BSCIP Region, 2003-2005.

Demographics	2003		2004		2005	
	Number	Percent	Number	Percent	Number	Percent
Gender						
Female	15	15.6	21	17.6	27	20.9
Male	81	84.4	98	82.4	102	79.1
Age of Injury Group						
0-4	0	0	0	0	0	0
5-14	3	3.1	3	2.5	3	2.3
15-24	47	49.0	63	52.9	71	55.0
25-44	43	44.8	50	42.0	52	40.3
45-64	3	3.1	3	2.5	3	2.3
65 and older	0	0.0	0	0.0	0	0.0
BSCIP Region						
Region 1	22	22.9	27	22.7	29	22.5
Region 2	19	19.8	18	15.1	19	14.7
Region 3	26	27.1	32	26.9	34	26.4
Region 4	18	18.8	22	18.5	24	18.6
Region 5	11	11.5	20	16.8	23	17.8
Total	96	100.0	119	100.0	129	100.0

Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Waiver Services

From 2003 through 2005, participants in the Waiver received approximately 3.3 different services types per year. The most common service types utilized by Waiver participants were community support coordination (94.7 percent), companion service (70.9 percent) and personal care assistance (48 percent).

Between 2003 and 2005, 11,477 Medicaid Home and Community-Based Waiver services have been provided to individuals with TBI, resulting in an average of 3,826 services per year (Table 4-13). Community support coordination (28.9 percent) and companion services (27.3 percent) were the most frequently utilized services by participants in the Waiver program. Adaptive health and wellness services were not utilized by TBI participants in the Wavier program. The total cost of the services was $7,070,932, resulting in an average of $2,356,977 per year. Companion services and personal attendant services were the most costly for participants in the Waiver program, with each service accounting for approximately 35 percent, respectively, of all Waiver service costs from 2003 through 2005.

- Community support coordination, which represented 28.9 percent of all services used by Waiver participants, represented only 5.6 percent of service costs from 2003 through 2005. Behavioral programming and assistive technology were reported as needed by focus group participants, which is described in detail in the next section. But, these services only represented approximately 8.5 percent of all service units and 6.8 percent of service cost of all Waiver services provided.

Table 4-13: Service Units and Service Cost by Core Service for BSCIP Home and Community-Based Medicaid Waiver, 2003-2005.

Core Services	Service Units			Service Cost		
	Total	Annual Average	Percent	Total Dollars	Annual Average	Percent
Adaptive health and wellness services	0	0	0	0	0	0
Assistive technology and adaptive equipment	584	194.7	5.1	$221,488	$73,829	3.1
Attendant care services	357	119.0	3.1	$445,871	$148,624	6.3
Behavioral programming	385	128.3	3.4	$262,932	$87,644	3.7
Community support coordination	3,317	1,105.7	28.9	$395,460	$131,820	5.6
Companion services	3,136	1,045.3	27.3	$2,540,271	$846,757	35.9
Consumable medical supplies	607	202.3	5.3	$61,333	$20,444	0.9
Environmental accessibility adaptation	41	13.7	0.4	$30,410	$10,137	0.4
Life skills training	902	300.7	7.9	$582,602	$194,201	8.2
Other	25	8.3	0.2	$4,058	$1,353	0.1
Personal adjustment counseling	136	45.3	1.2	$60,091	$20,030	0.8
Personal care assistance	1,986	662.0	17.3	$2,465,566	$821,855	34.9
Rehab engineering evaluations	1	0.3	0.0	$850	$283	0.0
Total	11,477	3,825.7	100.0	$7,070,977	$2,356,977	100.0

Service cost is rounded to the nearest dollar.
Other services include: medications/ medical supplies (15), consulting (5), unidentified service type (1), household supplies (2), and other (2).
Source: State of Florida, Department of Health, Brain and Spinal Cord Injury Program, RIMS, accessed March 2007.
Prepared by: WellFlorida Council Inc., 2007.

Brain Injury Association of Florida

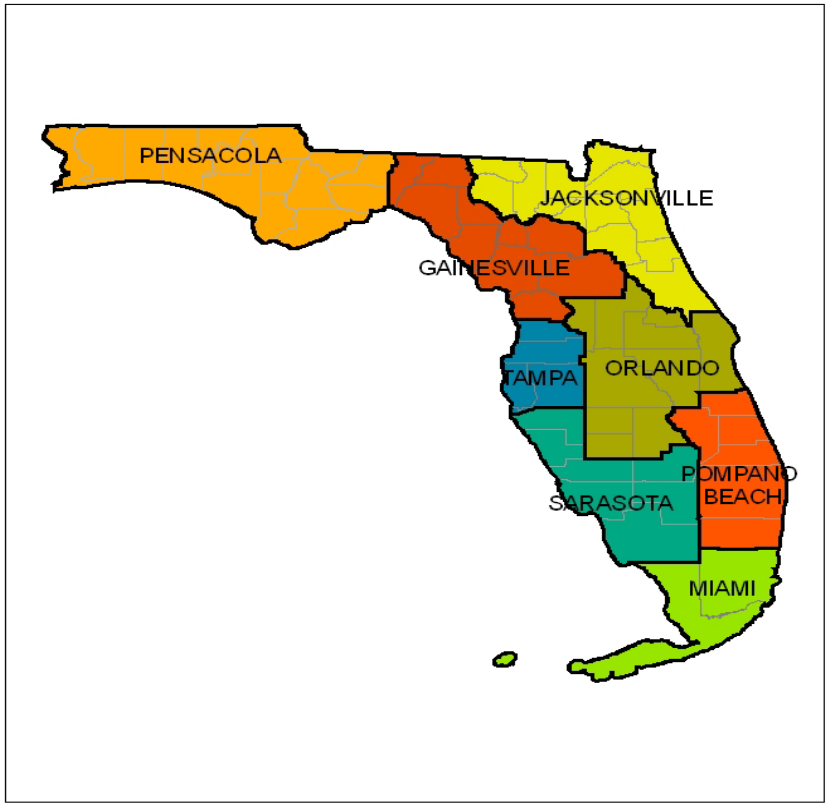
Organization Description

The Brain Injury Association of Florida (BIAF) is a nonprofit organization founded in 1985 by the mother of a son who was severely brain injured in a motor vehicle accident. Its mission is to improve the quality of life for persons with brain injury and their families by creating a better future through brain injury prevention, research, education, support services and advocacy. BIAF assists individuals with brain injuries, their families and professionals by providing statewide information and a resource center, education and training opportunities, support services, a toll-free helpline, awareness and prevention programs and legislative activities. BIAF is the only statewide not-for-profit organization in Florida that provides free programs and services that support individuals with TBI, their families and the TBI community. Many of the programs and projects are funded through contracts with the Florida Department of Health Brain and Spinal Cord Injury Program. BIAF is the official state association of the Brain Injury Association of America and is tied to this nationwide network of organizations. BIAF has ten offices throughout Florida, which include eight family and community support offices.

This section of the assessment provides a summary of two components of BIAF, the Information and Resource Center and the Family and Community Support Program, both of which are funded through contracts with BSCIP. The Information and Resource Center is charged with providing current information and resources on TBI to the citizens of Florida. Additionally housed in this center is the toll-free family helpline which individuals can call to get immediate assistance, access to resources and/or referrals. The Family and Community Support Program funds eight Family and Community Support specialists who provide assistance to individuals with brain injuries in obtaining long-term support and services based on their needs. The specialists work to increase local community capacity, by performing outreach, providing technical assistance and creating partnerships with community organizations, for individuals with TBI. The goal of this program is to assist individuals with TBI and their families with the problems they are facing as a result of the TBI. Participants must provide a reasonable indication that they have a TBI, are a legal resident of Florida and are a citizen of the United States to be eligible to receive services through this program. Family and Community Support specialists conduct home visits, attend meetings and work as advocates for individuals with TBI. Figure 4-16 identifies the Family and Community Support specialists' areas.

The prevention and education outreach efforts by BIAF are not included in this report because they are not easily quantified. Prevention efforts include activities programs for young children, families, adolescents and seniors. BIAF also provides educational materials to survivors, families and professionals and offers courses designed for emergency medical personnel, nurses, doctors, law enforcement and safety instructors.

Figure 4-16: BIAF Family and Community Support Specialists Areas, 2006.



Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Information and Resource Center

BIAF provided data on individuals listed in their database that contacted the organization and were identified as needing basic TBI and/or BIAF organizational information from calendar year 2003 through 2006. Since 2003, BIAF identified 10,658 contacts for basic information or resources, resulting in an average of 2,662 contacts per year (27 contacts were eliminated from analysis because a reference date was not available) (Table 4-14). Tables 4-15 through 4-18 highlight the characteristics of the individuals who contacted the agency for this purpose. The individuals who contacted BIAF for information were more likely to be male, white and ages 25-44. Residents from BSCIP Regions 4 (22.4 percent) and 5 (23.9 percent) were most likely to contact BIAF for information. BSCIP region was determined by the county of residence.

Table 4-14: BIAF Information and Resource Contacts by Type, 2003-2006.

	BIAF Information		TBI Information		Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	2,490	93.3	107	4.0	71	2.7	2,668	25.1
CY 2004	2,650	93.6	45	1.6	136	4.8	2,831	26.6
CY 2005	2,319	89.1	61	2.3	223	8.6	2,603	24.5
CY 2006	2,111	83.0	150	5.9	284	11.2	2,545	23.9
Total Contacts	9,570	90.0	363	3.4	714	6.7	10,647	100.0
Average Contacts per Year	2,392.5	90.0	90.75	3.4	178.5	6.7	2,661.8	100.0

Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-15: BIAF Information and Resource Contacts by Gender, 2003-2006.

	Male		Female		Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	825	30.9	326	12.2	1517	56.9	2,668	25.1
CY 2004	1,730	61.1	785	27.7	316	11.2	2,831	26.6
CY 2005	1,657	63.7	642	24.7	304	11.7	2,603	24.4
CY 2006	1,517	59.6	630	24.8	398	15.6	2,545	23.9
Total Contacts by Gender	5,729	53.8	2,383	22.4	2535	23.8	1,0647	100.0
Average Contacts by Gender	1,432.3	53.8	595.8	22.4	633.8	23.8	2,661.8	100.0

Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-16: BIAF Information and Resource Contacts by Age Group, 2003-2006.

	0-4		5-14		15-24		25-44	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	39	1.5	140	5.3	425	15.9	749	28.1
CY 2004	47	1.7	157	5.6	578	20.4	794	28.1
CY 2005	52	2.0	159	6.1	533	20.5	710	27.3
CY 2006	35	1.4	95	3.7	474	18.6	649	25.5
Total Contacts by Age Group	173	1.6	551	5.2	2,010	18.9	2,902	27.3
Average Contacts by Age Group	43.3	1.6	137.8	5.2	5,02.5	18.9	725.5	27.3
	45-64		**65+**		**Unknown**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	511	19.2	220	8.3	584	21.9	2,668	25.1
CY 2004	593	21.0	258	9.1	404	14.3	2,831	26.6
CY 2005	512	19.7	293	11.3	344	13.2	2,603	24.5
CY 2006	465	18.3	200	7.9	627	24.6	2,545	23.9
Total Contacts by Age Group	2,081	19.6	971	9.1	1,959	18.4	10,647	100.0
Average Contacts by Age Group	520.3	19.6	242.8	9.1	489.8	18.4	2,661.8	100.0

Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-17: BIAF Information and Resource Contacts by Race/Ethnicity, 2003-2006.

	White		Black		Hispanic		Asian	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	1,562	58.5	329	12.3	268	12.3	13	0.5
CY 2004	1,660	58.6	328	11.6	321	13.8	15	0.5
CY 2005	1,468	56.4	337	12.9	203	10.1	4	0.2
CY 2006	1,256	49.4	286	11.2	150	8.8	10	0.4
Total Contacts by Race	5,946	55.8	1,280	12.0	942	11.4	42	0.4
Average Contacts by Race	1,486.5	55.8	320	12.0	235.5	11.4	10.5	0.4
	Native American		**Other**		**Unknown**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	2	0.1	3	0.1	491	18.4	2,668	25.1
CY 2004	4	0.1	5	0.2	498	17.6	2,831	26.6
CY 2005	1	0.0	1	0.0	589	22.6	2,603	24.4
CY 2006	0	0.0	2	0.1	841	33.0	2,545	23.9
Total Contacts by Race	7	0.1	11	0.1	2419	22.7	10,647	100.0
Average Contacts by Race	1.8	0.1	2.8	0.1	604.8	22.7	2,661.8	100.0

Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-18: BIAF Information and Resource Contacts by BSCIP Region, 2003-2006.

	Region 1		Region 2		Region 3		Region 4	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	491	18.4	468	17.5	542	20.3	623	23.4
CY 2004	504	17.8	450	15.9	568	20.1	601	21.2
CY 2005	402	15.4	315	12.1	458	17.6	608	23.4
CY 2006	517	20.3	329	12.9	417	16.4	550	21.6
Total Contacts by BSCIP Region	1914	18.0	1562	14.7	1985	18.6	2382	22.4
Average Contacts by BSCIP Region	478.5	18.0	390.5	14.7	496.3	18.6	595.5	22.4
	Region 5		**Outside FL**		**Unknown**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	479	18.0	58	2.2	7	0.5	2668	25.1
CY 2004	632	22.3	58	2.0	18	1.2	2831	26.6
CY 2005	779	29.9	26	1.0	15	1.3	2603	24.4
CY 2006	658	25.9	55	2.2	19	1.5	2545	23.9
Total Contacts by BSCIP Region	2548	23.9	197	1.9	59	1.1	10647	100.0
Average Contacts by BSCIP Region	637	23.9	49.3	1.9	14.8	1.1	2661.8	100.0

Note: BSCIP Region determined by county of residence
Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Family and Community Support Program

BIAF provided data for individuals listed in their database who contacted the organization's Family and Community Support Program from calendar year 2003 through 2006. These individuals were identified by having an area of need identified (field s_need1) in the BIAF

database. The primary areas of need include: behavior, education, financial, housing, legal, medical, prevention, psychological, socialization, spirituality, transportation, employment and other. Since 2003, BIAF served 2,216 individuals by the Family and Community Support Program, an average of 554 individuals per year (1 contact was eliminated from analysis because reference date was not available). Tables 4-19 through 4-23 highlight the characteristics of the individuals who contacted the Family and Community Support Program during this time period. Like the individuals who contacted BIAF for information, individuals who contacted BIAF for support services were more likely to be male, white and ages 25-44. Residents from BSCIP Regions 2 (23.0 percent) and 4 (23.1 percent) were more likely to contact BIAF for support services. Unlike the contacts for general information, residents from BSCIP Region 5 were the least likely to contact BIAF for support services (12.8 percent). BSCIP region was determined by county of residence. Family and Community Support specialists work with clients to provide assistance in areas of need. The areas of assistance needed most often included: medical (28.6 percent), financial (14.4 percent), housing (13.4 percent) and employment (10.0 percent).

Table 4-19: BIAF Family and Community Support Program Contacts by Gender, 2003-2006.

	Male		Female		Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	107	32.2	40	12.0	185	55.7	332	15.0
CY 2004	238	64.2	84	22.6	49	13.2	371	16.7
CY 2005	475	62.0	205	26.8	86	11.2	766	34.6
CY 2006	449	60.1	198	26.5	100	13.4	747	33.7
Total FCS Contacts	1,269	57.3	527	23.8	420	19.0	2,216	100.0
Average FCS Contacts	317	57.3	132	23.8	105	19.0	554	100.0

FCS= Family and Community Support Program.
Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-20: BIAF Family and Community Support Program Contacts by Age Group, 2003-2006.

	0-4		5-14		15-24		25-44	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	0	0.0	4	1.2	22	6.6	81	24.4
CY 2004	1	0.3	10	2.7	62	16.7	143	38.5
CY 2005	4	0.5	16	2.1	118	15.4	270	35.2
CY 2006	5	0.7	18	2.4	116	15.5	252	33.7
Total FCS Contacts by Age	10	0.5	48	2.2	318	14.4	746	33.7
Average FCS Contacts by Age	2.5	0.5	12	2.2	79.5	14.4	187	33.7
	45-64		**65+**		**Unknown**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	38	11.4	5	1.5	182	54.8	332	15.0
CY 2004	93	25.1	12	3.2	50	13.5	371	16.7
CY 2005	233	30.4	22	2.9	103	13.4	766	34.6
CY 2006	191	25.6	21	2.8	144	19.3	747	33.7
Total FCS Contacts by Age	555	25.0	60	2.7	479	21.6	2,216	100.0
Average FCS Contacts by Age	139	25.0	15	2.7	120	21.6	554	100.0

FCS= Family and Community Support Program.
Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-21: BIAF Family and Community Support Program Contacts by Race/Ethnicity, 2003-2006.

	White		Black		Hispanic		Asian	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	176	53.0	22	6.6	15	6.9	2	0.6
CY 2004	226	60.9	37	10.0	32	10.6	4	1.1
CY 2005	440	57.4	74	9.7	111	17.5	4	0.5
CY 2006	448	60.0	52	7.0	100	16.5	5	0.7
Total FCS Contacts by Race	1,290	58.2	185	8.3	258	14.7	15	0.7
Average FCS Contacts by Race	323	58.2	46	8.3	64.5	14.7	3.75	0.7
	Native American		**Other**		**Unknown**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	0	0.0	1	0.3	116	34.9	332	15.0
CY 2004	3	0.8	0	0.0	69	18.6	371	16.7
CY 2005	4	0.5	2	0.3	131	17.1	766	34.6
CY 2006	0	0.0	1	0.1	141	18.9	747	33.7
Total FCS Contacts by Race	7	0.3	4	0.2	457	20.6	2,216	100.0
Average FCS Contacts by Race	1.8	0.3	1	0.2	114	20.6	554	100.0

FCS= Family and Community Support Program.
Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-22: BIAF Family and Community Support Program Contacts by BSCIP Region, 2003-2006.

	Region 1		Region 2		Region 3		Region 4	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	63	19.0	45	13.6	73	22.0	98	29.5
CY 2004	106	28.6	67	18.1	85	22.9	56	15.1
CY 2005	175	22.8	144	18.8	131	17.1	154	20.1
CY 2006	165	22.1	125	16.7	124	16.6	204	27.3
Total FCS Contacts by BSCIP Region	509	23.0	381	17.2	413	18.6	512	23.1
Average FCS Contacts by BSCIP Region	127	23.0	95	17.2	103	18.6	128	23.1
	Region 5		**Outside FL**		**Unknown**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	28	8.4	22	6.6	3	1.6	332	15.0
CY 2004	39	10.5	12	3.2	6	2.3	371	16.7
CY 2005	120	15.7	36	4.7	6	1.3	766	34.6
CY 2006	96	12.9	26	3.5	7	1.7	747	33.7
Total FCS Contacts by BSCIP Region	283	12.8	96	4.3	22	1.7	2,216	100.0
Average FCS Contacts by BSCIP Region	71	12.8	24	4.3	5.5	1.7	554	100.0.

FCS= Family and Community Support Program.
Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Table 4-23: BIAF Family and Community Support by Identified Need, 2003-2006.

	Behavior		Education		Financial		Housing	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	35	10.5	28	9.4	30	9.9	46	13.9
CY 2004	14	3.8	21	6.6	53	15.1	49	13.2
CY 2005	26	3.4	48	7.1	112	15.6	99	12.9
CY 2006	38	5.1	47	7.5	118	16.9	103	13.8
Total FCS Contacts by Need	113	5.1	144	7.7	313	14.4	297	13.4
Average FCS Contacts by Need	28.3	5.1	36	7.7	78.3	14.4	74.3	13.4
	Legal		**Medical**		**Prevention**		**Psychological**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	30	9.0	67	20.2	6	1.8	3	0.9
CY 2004	15	4.0	102	27.5	14	3.8	8	2.2
CY 2005	31	4.0	250	32.6	12	1.6	47	6.1
CY 2006	32	4.3	215	28.8	9	1.2	24	3.2
Total FCS Contacts by Need	108	4.9	634	28.6	41	1.9	82	3.7
Average FCS Contacts by Need	27	4.9	159	28.6	10	1.9	20.5	3.7
	Socialization		**Spirituality**		**Transportation**		**Employment**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
CY 2003	16	4.8	0	0.0	2	0.66	34	10.2
CY 2004	38	10.2	0	0.0	5	1.40	37	10.0
CY 2005	46	6.0	0	0.0	5	0.68	68	8.9
CY 2006	50	6.7	1	0.1	11	1.54	82	11.0
Total FCS Contacts by Need	150	6.8	1	0.0	23	1.09	221	10.0
Average FCS Contacts by Need	38	6.8	0.3	0.0	5.8	1.09	55.3	10.0
	Other		**Total**					
	Number	Percent	Number	Percent				
CY 2003	35	10.5	332	15.0				
CY 2004	15	4.0	371	16.7				
CY 2005	22	2.9	766	34.6				
CY 2006	17	2.3	747	33.7				
Total FCS Contacts by Need	89	4.0	2,216	100.0				
Average FCS Contacts by Need	22	4.0	554	100.0				

FCS= Family and Community Support Program.
Source: Brain Injury Association of Florida, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Key Community Partners

For individuals with TBI to access the services and support they need, it is common for them to work with a variety of community providers. The Department of Education Division of Vocational Rehabilitation (DVR) and Exceptional Student Education Program (ESE), Florida Alliance for Assistive Services and Technology (FAAST), protection and advocacy services and Centers for Independent Living represent a sample of services and providers used by this population. Data were provided by these departments and organizations to help describe the current service utilization of individuals with TBI in their respective organizations. A brief description of each aforementioned entity is included in this section as well as current summary data for individuals with TBI.

The Division of Vocational Rehabilitation

The Division of Vocational Rehabilitation (DVR) is housed within the Florida Department of Education. The mission of the DVR is assist persons with disabilities in obtaining and maintaining employment. The division is housed within the Tallahassee headquarters office, six area offices and 116 field offices throughout Florida. DVR delivers six programs: the general Vocational Rehabilitation, Florida Alliance for Assistive Services and Technology (FAAST), Independent Living Program, Migrant and Seasonal Farm Workers Program, the Bureau of Rehabilitation and Reemployment of Injured Workers and the Adults with Disabilities Grants Program. Individuals with TBI can be served in any program but are most likely to participate in the general Vocational Rehabilitation services. This program assists individuals with disabilities to pursue meaningful careers commensurate with their abilities and capabilities. Some of the services within this program include supportive employment, school-to-work transition services and the Ticket-to-Work program. Eligibility for DVR service is based upon the presence of a physical or mental impairment and a goal of employment. Specifically, eligibility factors are the physical or mental impairment constitutes or results in a substantial impediment to employment; the individual's employment outcome can benefit from vocational rehabilitation services; and the individual requires vocational rehabilitation services to prepare for, get, keep or regain employment.

In August 2006, an interview was conducted with DVR staff to learn about their experiences working with individuals with TBI. DVR has partnered with BIAF on special projects over the past two years to test different ways to work with individuals with brain injuries with the Family and Community Support specialists at BIAF. They found that individuals are most successful in employment when they receive additional external support. The interviewee also commented that people with TBI tend to take longer in both the eligibility and planning phase of the vocational rehabilitation process compared to other populations.

DVR provided data for state fiscal year 2005-2006. During state fiscal year 2005-2006, the DVR served 91,737 consumers, of which 1,315 (1.43 percent) had sustained a TBI. Of all consumers who were gainfully employed during state fiscal year 2005-2006, 163 of 10,637 (1.53 percent) have a traumatic brain injury. At the end of state fiscal year 2005-2006, 1,248 consumers were identified as having head trauma (Code 07). Of those, 639 consumers (51.2

percent) were still active in the DVR system. A total of 609 head trauma consumers had closed cases during the year; of that, 19.5 percent (119) of head trauma consumers had successfully closed cases with DVR, which means after employment placement, the person continued to work and had maintained the job for 90-days.

Exceptional Student Education Programs

Youth who experience a traumatic brain injury are often transitioned back into the education system. These children usually need additional services and programs to increase the likelihood of success. Identification of youth with traumatic brain injuries is important to being able to provide the appropriate services and interventions for the child. The Bureau of Exceptional Education and Student Services supports school districts and others in their efforts to provide exceptional student education programs for students ages 3-21 years who have disabilities and students who are gifted. Each school district is responsible for developing and providing services to students who are eligible for exceptional student education (ESE) programs.

Table 4-24 shows the number of students enrolled in the Traumatic Brain Injured Program in the ESE program from the 2003-2004 through the 2006-2007 school years. The data are provided from the Florida Department of Education for the state and each BSCIP Region. The regional data was computed by summing the county totals within the respective regions. It is important to note that individuals with traumatic brain injuries may be served in other ESE programs and are not captured in the data below. The Traumatic Brain Injured Program represents less than 1 percent of the entire ESE program throughout the state of Florida.

Table 4-24: Total Students Enrolled in the ESE Traumatic Brain Injured Program by BSCIP Region.

	2003-2004			2004-2005		
	TBI	Total	Percent	TBI	TOTAL	Percent
BSCIP Region 1	196	160,735	0.12	218	161,933	0.13
BSCIP Region 2	84	92,537	0.09	89	94,159	0.09
BSCIP Region 3	64	66,998	0.10	62	66,233	0.09
BSCIP Region 4	140	121,908	0.11	154	122,686	0.13
BSCIP Region 5	87	70,062	0.12	84	69,993	0.12
Other	1	1,493	0.07	1	1565	0.06
Total	572	513,733	0.11	608	516,569	0.12
	2005-2006			**2006-2007**		
	TBI	TOTAL	Percent	TBI	TOTAL	Percent
BSCIP Region 1	227	163,253	0.14	214	161,612	0.13
BSCIP Region 2	84	95,464	0.09	86	93,585	0.09
BSCIP Region 3	78	66,910	0.12	69	65,740	0.10
BSCIP Region 4	166	124,686	0.13	159	121,514	0.13
BSCIP Region 5	89	69,351	0.13	84	73,237	0.11
Other	2	1593	0.13	1	1,641	0.06
Total	646	521,257	0.12	613	517,602	0.12

Source: Florida Department of Education, http://www.firn.edu/doe/eias/eiaspubs/briefs.htm, access 2/27/2007
Prepared by: WellFlorida Council Inc., 2007.

Florida Alliance for Assistive Services and Technology

Florida Alliance for Assistive Services and Technology (FAAST) works with people with and without disabilities throughout the state to provide: assistive technology demonstrations and trainings; financial assistance for assistive technology purchases; assistive device lending programs; outreach to rural and underserved groups; accessible, affordable housing; and advocacy and education on consumer choice. Its mission is "to improve the quality of life for all Floridians with disabilities through advocacy and awareness activities that increase access to and acquisition of assistive services and technology." FAAST was created in 1992 to provide consumer-responsive, technology-related assistance and services for Floridians with disabilities of all ages and is funded through the United States Department of Education Assistive Technology Act of 2004. Currently, FAAST is a private, not-for-profit corporation governed by a board of directors this is appointed by the Commissioner of the Florida Department of Education.

FAAST currently partners with the Florida Department of Health BSCIP to provide a variety of services to individuals with brain and spinal cord injuries including vendor recruitment of assistive devices retailers and assessors; housing assistance services; provides training on assistive technology; website support; supervision the Nursing Home Transition Program; and oversight the Spinal Cord Injury Resource Center.

FAAST provided data for state fiscal year 2005-2006 and 2006-2007 on the housing and vendor recruitment programs. In 2005-2006, FAAST served 135 individuals with disabilities in the housing program (not specific to TBI). Through the second quarter of state fiscal year 2006-2007 the housing program served 114 individuals with disabilities. As of January 22, 2007 the vendor recruitment program currently has recruited 364 service providers for BSCIP compared to 264 vendors during state fiscal year 2004-2005. Table 4-25 displays the number of vendors by category.

Additionally, FAAST conducts the annual Nursing Home Survey for BSCIP which is mandated by the Florida Legislature to identify individuals 18 to 55 years of age who have sustained a TBI or spinal cord injury and reside in the licensed nursing home facility in Florida. In 2006, 30.9 percent of the nursing homes who completed the survey (92 of 298) reported caring for an individual with a traumatic brain injury or spinal cord injury. They reported a total 245 consumers within these facilities, of which 69.8 percent (171) sustained a traumatic brain injury. In 2005, the same survey found 34 percent of nursing homes who completed the survey (129 of 385) reported caring for an individual with a traumatic brain injury or spinal cord injury. They reported 273 consumers within these facilities, of which 65.6 percent (179) sustained a traumatic brain injury. For both years, motor vehicle accidents were the most common cause of TBI by residents of the nursing home facilities

Table 4-25: FAAST Vendors by Category, 2007.

Service Category	January 2007	SFY 2004-2005
Alternative and Augmentative Communication Evaluations	10	5
Alternative and Augmentative Communication Reseller	15	11
Adaptive Computer Evaluations	14	11
Adaptive Computer Reseller	8	6
Contractor	67	28
Driver Evaluations	10	4
DME/HME Resellers	100	51
Driver Training	7	3
Environmental Control Evaluations	23	17
Environmental Control Reseller	17	13
Wheelchair/Elevator Lifts	51	38
Home Modification Evaluations	55	32
Loan Closets	70	70
Mobility Aids Evaluations	42	30
Peer Mentors	38	16
Vehicle Modification Reseller	46	15
Wheelchair Reseller	69	44
Total	364	268

Source: Florida Alliance for Assistive Services and Technology, 2007.
Prepared by: WellFlorida Council Inc., 2007.

Protection and Advocacy Services

The federally mandated protection and advocacy services in Florida are provided by The Advocacy Center for Persons with Disabilities, Inc (Advocacy Center). The Advocacy Center is a non-profit organization with the mission "to advance the dignity, equality, self-determination and expressed choices of individuals with disabilities." The current goals for center include: improving conditions in institutional facilities; increasing community access to resources, entitlements and services; increasing access to education and related services; increasing opportunities for employment; increasing physical and programmatic access to the community; expanding opportunities for self-determination; improving intake and referral services; and expanding community outreach and education. The Advocacy Center is funded by eight federal grants, one of which is Protection and Advocacy for Traumatic Brain Injury (PATBI).

The Advocacy Center provided information and referral and case data for the PATBI program from October, 2005 thru September 2006 (Table 4-26). During this time, 56 information and referral service requests for 51 individuals were made (including out of state requests). Requests came from 26 of the 67 counties in Florida with five requests from both Marion and Pinellas Counties. During this time, 29 case service requests for 28 individuals were made. Requests

came from 14 of the 67 counties in Florida with five requests from Hillsborough County and four requests from Broward County. Healthcare was the most common issue for PATBI cases (10 cases). Other issues included: abuse (2 cases), architectural access (1 case), commitment/ institutionalization (1 case), education (2 cases), employment (3 cases), financial entitlements (2 cases), housing (2 cases), neglect (1 case), rights violations (3 cases) and services (2 cases).

Table 4-26: PATBI Program Contacts by BSCIP Region and Florida, October 2005- September 2006.

	Information and Referral		Cases	
	Number	Percent	Number	Percent
BSCIP Region 1	9	19.6	4	14.3
BSCIP Region 2	14	30.4	4	14.3
BSCIP Region 3	13	28.3	12	43.9
BSCIP Region 4	8	17.4	6	21.4
BSCIP Region 5	2	4.3	2	14.3
Florida	46	100.0	28	100.0

Note: Only includes individuals in PATBI program. Individuals served by other programs with TBI are not included.
Source: Advocacy Center for Persons with Disabilities, 2006.

Prepared by: WellFlorida Council Inc., 2007.

During an interview conducted with a representative from the Advocacy Center in August of 2006 the following were identified as common issues for individuals with TBI: lack of affordable residential and outpatient treatment; the BSCIP Home and Community Medicaid Waiver waiting list; finding accessible, affordable housing; transportation services; community support coordination; and guardianship issues.

Centers for Independent Living

Centers for Independent Living (CIL) are typically nonresidential, private, nonprofit, consumer-controlled, community-based organizations providing services and advocacy by and for persons with all types of disabilities with the goal of assisting individuals with disabilities to achieve their maximum potential within their families and communities. In Florida there are 16 CILs each of which work to support persons with disabilities through the development of an independent living plan including long and short-term goals. Each CIL is a separate private, not-for-profit organization, therefore services, programs and opportunities differ throughout the state. Some potential services include information/ referral, peer counseling/ mentoring, system and individual level advocacy activities and the development independent living skills.

Project ACTION contacted the executive directors for each of the CILs in Florida in efforts to obtain information about individuals with TBI of whom they serve. Eight of the 16 CILs responded to the brief four question survey.

Q1. What is the percentage of consumers you severe with cognitive disabilities that have traumatic brain injuries?

The percentage of the consumers with cognitive disabilities that sustained a traumatic brain injury varied from less than one percent to approximately 30 percent. Two of the centers

reported not breaking out cognitive disabilities by type and other centers provided best estimates of the population.

Q2. What are the 2 or 3 services that persons with traumatic brain injuries request most often at your organization?

Employment, transportation and housing services were the most frequently identified services by CILs. Other services include: development of independent living skills, advocacy, recreation, respite care, referrals to assisted living facilities, home modification, transition services and equipment loan programs.

Q3. Does your CIL offer a specific program or programs for persons with traumatic brain injuries?

Most of the respondents noted that the programs offered at the center were available to all consumers regardless of disability type. Three of the centers reported have programs specific for persons with TBI. Two of the centers reported that the funding for these programs come from Brain Injury Association of Florida. One newly funded program provides disability adjustment and vocational guidance to people with TBI which will result in the development and marketing of a curriculum to provide neuropsychological counseling to people with TBI. Another center offers a three-day-a-week independent living skills class designed for people with TBI. Center staff also reported serving as a Community Support Coordinator for consumers on the Brain and Spinal Cord injury Medicaid Waiver Program.

O4. Additional information about consumers you severe with traumatic brain injuries that would help us to better meet their needs?

Comments by respondents include:

- "BIAF has an office at the CIL"
- "Gap in services in our area [central Florida], need specialized service"
- "One full time staff with BI and several volunteers work at Caring and Sharing"
- "Huge Gap between BSCIP and VR. Too long between referral"
- "People with TBI often need much more supports that people who have other disabilities. Funding is needed to provide those intensive and long-term services."
- Affordable housing is a big issue for people with traumatic brain injuries. We simply do not have enough and all subsidized housing programs have lengthy waiting lists. I also frequently get calls from people who would like to get on the Medicaid waiver program to keep a loved one or friend at home but the waiting list is very long."

Summary Key Findings

Variety of community partners severe individuals with traumatic brain injury throughout the state. This section provides a sample of key partners in the service delivery system for individuals with TBI. Key findings include:

Brain and Spinal Cord Injury Program

- The state of Florida has a state government administered program, Brain and Spinal Cord Injury Program (BSCIP), which is designed to assist individuals and their families who experience a moderate or severe traumatic brain injury from time of injury through rehabilitation in accessing federal, state, third party and community resources.
- BSCIP is funded by the Brain and Spinal Cord Injury Trust Fund which receives money from traffic related fines, surcharges for driving under the influence and boating under the influence, temporary license fees and a percentage of funds from the motorcycle specialty tag.
- From state fiscal year 2002-2003 thru 2005- 2005, the total BSCIP trust fund allocation was approximately $25 million and the expenditure was approximately $20 million. The percentage of the total Trust Fund allocation received by the regions varies per year. The allocation to BSCIP Region 4 has remained the most consistent over time.
- Based on the current allocation formula, a disparity exists between the Trust Fund regional allocation and Florida's population within that region.

New Injuries

- From 2002 through 2005 9,780 individuals with TBI were reported to the CR (2,445 per year). On average, BSCIP Region 3 reported the greatest number of new TBIs to the CR per year (536), while Region 2 reported the fewest (414).
- The greatest percentage of annual new injury referrals come from BSCIP Regions 3, 5 and 1, respectively, while the greatest percentage of total TBIs and TBI hospitalizations come from BSCIP Regions 4, 3 and 2. BSCIP Region 5 accounts for 21.4 percent of new injury referrals only accounts for 10.9 percent of total TBIs and 15.5 percent of TBI-related hospitalizations.
- Hospitals in Florida reported more than 90.6 percent (8,660) of new injuries to the CR from 2002 through 2005 followed by rehabilitation centers (5.4 percent).
- From 2002 through 2005, the 0-4 years, 5-14 year and 65 years and older age groups represented a smaller percentage of new TBIs reported to the CR compared to the percentage of TBIs and TBI-related hospitalizations.
- From 2002 through 2005, individuals 15-64 years of age represented a larger percentage on new injuries reported to the CR compared to the percentage of TBIs and TBI-related hospitalizations.
- New injuries reported to the CR resulted in a greater percentage of individuals who were black (16.1 percent) compared to the percentage of TBIs and TBI-related hospitalizations and a slightly lower percentage of individuals who were identified as all other races (2.5 percent).
- The Hispanic population in Florida accounts for approximately 20 percent of the total population and 19.2 percent of all TBIs, while it represents only 18.8 of the new injury reported to the CR. When compared to hospitalizations (12.0 percent) alone, the percentage of Hispanic new injuries referred to the CR was greater (18.8).
- Like the general population, BSCIP Region 5 reports the greatest percentage of (49.6 percent) of Hispanics with new injuries to the CR.

- Approximately 73 percent of the all new TBI injuries reported to the CR from 2002 through 2005 were male
- In Florida, falls (39.6 percent), motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent) were the primary causes of TBI during 2005, referrals to the CR were from the following causes: motor vehicle-traffic accidents (58.3 percent), falls (16.8 percent) and assaults (10.5 percent).

Trust Fund Clients Served

- From 2002 through 2005 approximately 6,400 individuals with TBI were served by the BSCIP Trust Fund programs (1,600 per year). Overall, BSCIP Region 1 served the greatest percentage of Trust Fund clients (23.5 percent), while Region 2 served the smallest percentage of clients (12.5 percent).
- When comparing the regional distribution of the percentage of BSCIP Trust Fund clients to the percentage of new injury referrals, the total TBIs, TBI hospitalizations and the population within the region, disparities exist.
- Hospitals in Florida referred more than 83 percent of the clients who received Trust Fund services from 2002-2005 followed by rehabilitation centers.
- The 0-4 years of age group is at the greatest risk for TBI, but represents only 4.9 percent of the clients served by the BSCIP Trust Fund Programs which is greater than the percentage of new injuries (3.6 percent) reported to the CR, inline with the percentage of hospitalizations (4.6 percent) and less than the percentage of total TBIs in this population.
- Youth 5-14 years of age represented 13.2 percent of the TBI Trust Fund population, which is greater than the percentage of new injuries reported to the CR (5.9 percent), total TBIs (7.0 percent) and TBI-related hospitalizations (5.9 percent).
- Young adults, 15-24 years of age, represented 30.1 percent of the clients served by the BSCIP Trust Fund, which is greater than the percentage of new injuries (22.4 percent), total TBIs (17.6 percent) and TBI-related hospitalizations (14.4 percent).
- As in the new injuries reported to the CR, the 25-44 years of age group, represented 30 percent of the BSCIP TBI Trust Fund clients served, which is greater than the percentage of all TBIs and TBI-related hospitalizations for this age group.
- Approximately 1088 TBI BSCIP Trust Fund clients are served each year in the 45-64 age group, representing 17 percent of the participants, which was less than the percentage of new injuries report to the CR (22.7 percent). This group represents 25.8 percent of the population of Florida, but only 15.5 percent of the TBIs that occurred in 2005.
- Individuals 65 years of age and older, represented only 4.6 percent of the clients served by the BSCIP Trust Fund, which is less than the percentage of new injury referrals, total TBIs and TBI-related hospitalizations in Florida.
- Approximately 80 percent of active TBI BSCIP Trust Fund clients from 2002-2005 identified themselves as white. The BSCIP Trust Fund serves a larger percentage of TBI clients who are black (18.8 percent) compared to the percentage of new injuries referred to the CR and total TBIs and a lower percentage of individuals identified as other races (1.3 percent) compared to new injury referrals and total TBIs.
- The Hispanic population in Florida accounts for approximately 20 percent of the total population, while representing only 12.6 of the TBI clients served by the BSCIP program. Compared to the percentage of Hispanic individuals with TBI referred to the CR (18.8

percent) the percentage of clients served is much smaller (12.6 percent) from 2002- 2005. One potential reason is the residency requirement set forth by the Trust Fund program.

- Approximately 70 percent of the clients served by the BSCIP Trust Fund program from 2002 through 2005 are male.
- For clients served by the BSCIP Trust Fund program, the primary causes of injury are motor vehicle-traffic accidents (68.6 percent), falls (8.9 percent) and assaults (8.0 percent). Table 4-12, highlights the average annual TBI BSCIP Trust Fund clients served by cause of injury for each region and the state of Florida.

Home and Community-Based Medicaid Waiver

- Since 2003, the TBI population in the Waiver program has grown each year. In 2003, there were 96 Waiver clients and by 2005 the number increased to 129 TBI Waiver clients.
- As expected the percentage of males is greater than the percentage of females in the Waiver program.
- During all three years, Waiver participants are most likely to be in the 15-24 years and 25-44 years of age groups when injured and live in BSCIP Region 3.
- BSCIP Region 2, which had the lowest percentage of new injury CR referrals and BSCIP Trust Fund clients served, had the lowest percentage Waiver clients in 2004 and 2005.
- Between 2003 and 2005, 11,477 Medicaid Home and Community-Based Waiver services have been provided to individuals with TBI, resulting in an average of 3,826 services per year. The total cost of the services was $7,070,932 dollars, resulting in an average of $2,356,977 per year.
- Community support coordination (28.9 percent) and companion services (27.3 percent) were the most frequently utilized services by participants in the Waiver program.
- Companion services and personal attendant services were the most costly for participants in the waiver program. Each service resulting in approximately 35 percent of all waiver service costs from 2003 through 2005.
- Community support coordination, which represented 28.9 percent of all services used by Waiver participants, but accounted for 5.6 percent of service costs from 2003 through 2005.

Brain Injury Association of Florida

- The Brain Injury Association of Florida's (BIAF) mission is to improve the quality of life for persons with brain injury and their families by creating a better future through brain injury prevention, research, education, support services and advocacy.
- Services include statewide information and resource center, education and training opportunities, support services, a toll-free helpline, awareness and prevention programs and legislative activities.
- Since 2003, BIAF identified 10,658 contacts for basic information or resources, resulting in an average of 2,662 contacts per year.
- The individuals who contacted BIAF for information were more likely to be male, white and ages 25-44. Residents from BSCIP Regions 4 and 5 were most likely to contact BIAF for information.

- Since 2003, BIAF served 2,216 individuals by the Family and Community Support Program, an average of 554 individuals per year.
- The individuals who contacted BIAF for support services were more likely to be male, white and ages 25-44. Residents from BSCIP Regions 2 and 4 were more likely to contact BIAF for support services.
- Family and Community Support specialists work with clients to provide assistance in areas of need. The areas of assistance needed most often included: medical (28.6 percent), financial (14.4 percent), housing (13.4 percent) and employment (10.0 percent).

Division of Vocational Rehabilitation

- DVR works with persons with disabilities to help find and maintain employment.
- Individuals with TBI are most likely to participate in the general Vocational Rehabilitation services.
- In August 2006, an interview was conducted with DVR staff it was reported that individuals with TBI are most successful in employment when they receive additional external support. In addition, people with TBI tend to take longer in both the eligibility and planning phase of the VR process compared to other populations.
- During state fiscal year 2005-2006 the Division of Vocational Rehabilitation served 91,737 consumers of which 1,315 (1.43 percent) has sustained a TBI.
- Of all consumers who were gainfully employed during 2005-2006, 163 of 10,637 (1.53 percent) have a traumatic brain injury.
- At the end of SFY 2005-2006, 1248 consumers were identified as having head trauma (Code 07). Of the 609 head trauma consumers with closed cases during the year; 19.5% (119 consumers) were successfully closed, which means they were placed in a job and maintained employment for 90-days.

Exceptional Student Education Services

- The TBI program represents less than 1 percent of the entire ESE program throughout the state of Florida (please note that individuals with TBIs may be served in other ESE programs and are not captured in the data presented).

Florida Alliance for Assistive Services and Technology

- Florida Alliance for Assistive Services and Technology (FAAST) works people with and without disabilities throughout the state to provide: assistive technology demonstrations and trainings; financial assistance for assistive technology purchases; assistive device lending programs; outreach to rural and underserved groups; housing services; and advocacy and education on consumer choice.
- In 2005-2006, FAAST served 135 individuals with disabilities in the housing program (not specific to TBI). Through the second quarter of state fiscal year 2006-2007, the housing program served 114 individuals with disabilities.
- As of January 22, 2007 the vendor recruitment program currently recruited 364 service providers for the BSCIP compared to 264 vendors during state fiscal year 2004-2005.

- In 2006, 30.9 percent of the nursing homes who completed the nursing home survey (92 of 298) reported caring for an individual with a TBI or spinal cord injury, which resulted in a total of 245 consumers, of which 69.8 percent (171) sustained a TBI. Motor vehicle accidents were the most common cause of TBI by residents of the nursing home facilities.

Protection and Advocacy Services

- The federally mandated protection and advocacy services in Florida are provided by The Advocacy Center for Persons with Disabilities, Inc. The goals for center include: improving conditions in institutional facilities; increasing community access to resources, entitlements and services; increasing access to education and related services; increasing opportunities for employment; increasing physical and programmatic access to the community; expanding opportunities for self-determination; improving intake and referral services; and expanding community outreach and education.
- From October 2005 thru September 2006, 56 information and referral service requests for 51 individuals were made, representing 26 of the 67 counties in Florida and 29 case service requests for 28 individuals were made representing individuals from 14 of the 67 counties.
- Healthcare was the most common issue for PATBI cases (10 cases).
- An interview with a representative from the Advocacy Center identified the following as common issues for individuals with TBI: lack of affordable residential and outpatient treatment; the BSCIP Home and Community Medicaid Waiver waiting list; finding accessible, affordable housing; transportation services; community support coordination; and guardianship issues.

Centers for Independent Living

- There are 16 Centers for Independent Living in Florida. Project ACTION surveyed the executive directors for each CILs in Florida, of which 50 percent responded.
- The percentage of the consumers with cognitive disabilities that sustained a TBI varied by center from less than one percent to approximately 30 percent.
- CILs identified employment, transportation and housing services as the most frequently requested services by persons with TBI.
- Three of the centers reported have programs specific for persons with traumatic brain injury. Two of the centers reported that the funding for these programs come from BIAF.

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[1] Florida Statute 381.74. Title XXIX, Public Health Chapter 381Public Health: General Provisions; 2006.
[2] Missouri Head Injury Advisory Council. Missouri 2004 Traumatic Brain Injury Needs Assessment; 2004. http://www.dhss.mo.gov/HIA-Council/hiac_needs_assessment.pdf. Accessed August 2006.
[3] National Center for Injury Prevention and Control. Report to Congress on mild traumatic brain injury in the United States: steps to prevent a serious public health problem. Atlanta, GA: Centers for Disease Control and Prevention. 2003.
[4] Langlois JA., Ruthland-Brown W., Thomas KE. Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths. Atlanta ,GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 2006.

[5] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Recommended framework of e-code groups for presenting injury mortality and morbidity data (February 16, 2005). http://www.cdc.gov/ncipc/whatsnew/matrix2.htm. Accessed August 2006.

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Community Input

Overview

The perspective and voices of individuals, family members, caregivers, providers, key leaders and decision makers (i.e., community input) are critical when assessing the health and service needs of any population. Quantitative data on demographics, health status and outcome alone do not paint the full picture of a population's health and service needs and issues and its ability to address those needs and issues. The Project ACTION Oversight Committee (OC) has ensured that ample qualitative and community perspective information are incorporated into the needs assessment.

This section describes three critical areas of public perspective. The first details the findings from a series of 17 focus groups conducted throughout the state targeting individuals with TBI, caregivers and selected under-represented/underserved populations. The second describes the results from interviews with key leaders who are knowledgeable about the needs of individuals with TBI in the state of Florida and are likely to be influential over the opinions of others about the concerns for individuals with TBI in the state. The final section summarizes the results of a service provider survey in which providers shared their opinions about the needs of individuals with TBI.

Focus Groups

Introduction

The purpose of a focus group is to listen and gather information. It is a way to better understand how people feel or think about an issue, product or service. Participants are selected because of common characteristics that relate to the topic of the focus group. As part of the Project ACTION Needs and Resource Assessment, WellFlorida Council conducted 17 focus groups with individuals with TBI and their caregivers to learn about their service and support needs.

Methodology

Two trained focus group facilitators conducted 17 focus groups with 142 TBI survivors and caregivers between the months of October 2006 and January 2007. Six groups were composed of individuals with TBI or caregivers based on BSCIP region of residence. Three groups were composed of only caregivers of individuals with TBI. Two were comprised of parents of youth who experienced a TBI; two were comprised of rural residents with TBI; two were comprised of individuals who were diagnosed with a mild TBI and who experienced long-term consequences; one group was comprised of Hispanic individuals with TBI; and one was comprised of individuals with TBI who participate in a day treatment program.

The design of the assessment dictated the selection of population groups. A primary focus of the assessment was to uncover the needs and issues of under-represented/underserved populations. The under-represented/underserved populations were identified by the following steps:

1. WellFlorida Council staff conducted a series of meetings and teleconferences with key individuals in the TBI system including: BSCIP case managers, Data Analyst and Program Administrators; BIAF Executive Director, Program Directors and Family and Community Support specialists; a representative who provides protection and advocacy; and TBI researchers to identify potential populations of interest. These conversations yielded the following groups: rural residents, youth, Hispanics, African Americans and individuals diagnosed with mild TBI.
2. Based on recommendations, WellFlorida Council obtained supporting data about the identified populations.
3. Data were presented to the OC.
4. OC provided comments to WellFlorida Council.
5. Recommendations for targeted under-represented/underserved populations were proposed and given to the OC for approval.

The OC selected the following TBI populations for study: rural residents, parents of youth with TBI that occurred prior to 18 years of age, Hispanics and individuals diagnosed with mild TBI who are experiencing long-term consequences from their injury. Additionally, the OC thought it was important to learn the caregiver's perceptions of the needs of those they care for; therefore, this population was included as a population of study.

Also included was a focus group conducted in Panama City with members of a day program. WellFlorida Council was approached by the day program during the focus group development phase. This group was included to see if there were differences in the needs identified by those who are participating in a day program and the other focus groups.

The goals of the focus groups were determined by the OC. The primary goal was to identify the needs of a continuum of individuals with TBI including mild, moderate and severe brain injury across all age groups and in culturally distinct populations. The OC developed specific goals including:

1. To identify services individuals with TBI have received or are currently receiving that are the most helpful.
2. To identify services individuals with TBI need but are currently not receiving and why.
3. To identify the biggest issues currently facing individuals with TBI who live in Florida.
4. To identify the service/services that could have the most impact or be the most helpful for individuals with TBI who live in Florida.

For each of the target populations, the OC identified a topic to gain additional information about. The topics selected were:

- **Regional TBI Groups:** To identify issues and barriers related to vocation and employment.

- **Caregivers:** To identify the behavioral challenges faced while caring for the survivor.
- **Individuals Diagnosed with Mild TBI:** To learn if individuals sought immediate medical care for their injuries and if service providers have adequate knowledge of mild TBI.
- **Parents of Youth with TBI:** To identify service needs in the schools and barriers in transitioning to secondary school or employment.
- **Rural Residents with TBI:** To identify issues and barriers to accessing services in rural areas.
- **Hispanics with TBI:** To identify barriers to services because of their background and suggestions for improving access to services.

Focus group protocols and questions were developed by WellFlorida Council. The protocols and questions were reviewed and approved by the OC (Appendix H).

Multiple strategies were used to recruit participants for the focus groups. Information and marketing materials were developed by WellFlorida Council and approved by Project ACTION.

1. An initial information piece was placed in the SIGNal, the BIAF Support Group Newsletter, informing all support group leaders of the upcoming focus groups and the recruitment efforts.
2. Recruitment flyers were distributed to all brain injury support groups, BSCIP case managers, BIAF Family and Community Support specialists, BSCIP Designated Facilities, Division of Vocational Rehabilitation (DVR) area offices, Centers for Independent Living (CIL) and other key stakeholders throughout the state during the first week of October. The flyers were sent by mail and included instructions on how to help with the recruitment of participants. Finally, focus group logistics including group times and locations were shared by email with key aforementioned groups. Flyers were also translated to Spanish and distributed in targeted areas.
3. A postcard mailing targeting approximately 5,000 addresses throughout the state was done to notify consumers about the upcoming groups. BIAF and BSCIP databases were used to identify addresses. BIAF provided names and addresses for individuals and families who have contacted their agency since January 2003, which resulted in 4,300 addresses. This list was cross-referenced with BSCIP customer data from fiscal year 2004-2005 for customers who reside in Florida and were alive. Addresses were included from the BSCIP database if they were located in a county where a focus group was planned so as to increase exposure. Only one postcard was sent to each address. If two addresses for the same individual were identified, the BIAF address was used because it was updated more recently. Approximately 5,300 addresses were submitted for mailing.
4. Information about the groups was placed on BIAF and BSCIP websites. This advertisement provided information about where to call if an individual was interested in participating.

All interested participants were encouraged to call a designated toll-free number at BIAF to register. Potential participants took part in a brief screening to determine eligibility. Focus group eligibility required that the individual was at least one year post-injury and had characteristics specific to each of the planned groups. Characteristics included:

- **Regional TBI Groups:** currently residing in a county within the respective BSCIP region;
- **Caregivers:** currently providing care for an individual with TBI and residing in a county within the respective caregiver regions;
- **Individuals Diagnosed with Mild TBI:** diagnosed with a mild TBI and have experienced long-term consequences from their injury;
- **Parents of Youth with TBI:** child must have experienced a TBI prior to their 18th birthday;
- **Rural Residents with TBI:** self-identify as living in a county designated as rural by the Florida Department of Health, Office of Rural Health;
- **Hispanics with TBI:** self-identify as being of Hispanic descent.

A caregiver proxy was deemed eligible to participate in survivor groups if the long-term consequences of the injury would limit the survivor's ability to participate in this type of activity. If a participant was screened and determined eligible for more than one group, the individual self-selected the group for participation. BIAF provided Spanish speaking-staff to conduct the screening for individuals who did not speak English.

After a participant was deemed eligible and agreed to participate in the group, a follow-up phone call to the participant was made the day before the group meant to serve as a reminder. A reminder email was also sent out to participants who provided an email address during registration.

An incentive of $30.00 was offered for participation and was issued to participants at the conclusion of each meeting. Participant recruitment began approximately two weeks prior to the first group meeting in October and continued throughout December 2006.

The focus groups were held in locations selected to achieve statewide representation and to increase probability of the target population being able to attend.

- **Regional TBI Groups:** Each of the five BSCIP regions had one focus group. Two focus groups were conducted in Region 1 because of the size of the region (greater than 23,000 square miles). This region was split by BIAF Family and Community Support Program areas. The cities were selected based on the population size, presence of support groups and housing of a BSCIP and/or BIAF regional office.

  Region 1A: Panama City
  Region 1B: Jacksonville
  Region 2: Orlando
  Region 3: Tampa
  Region 4: Fort Lauderdale
  Region 5: Miami

- **Caregiver Groups:** Three caregiver groups were conducted. To ensure geographic representation, the state was divided into three regions. One focus group was held in

each region. The cities were selected based on the population of the city, presence of support groups and housing of a BSCIP and/or BIAF regional office.

North Florida: Tallahassee
Central Florida: Tampa
South Florida: Ft. Lauderdale

- **Special Population Groups:** Focus groups were strategically located based on the target populations, with the secondary goal of representing the entire state.

Rural Residents: Lake City and Sumterville
Diagnosed with Mild TBI: Gainesville
Parents of Youth with TBI: Jacksonville and Miami
Hispanics with TBI: Miami

Due to lack of participation during the scheduled focus groups, four groups were rescheduled for the first part of 2007. The groups that lacked initial participation and were rescheduled included: Gainesville individuals diagnosed with mild TBI (Group 2); Miami parents of youth with TBI; Miami Hispanic residents with TBI (Group 2); and the Tampa caregiver groups. Alternative locations were identified based on presence of local support groups, interest expressed by consumers during the initial recruitment, high density of the targeted population and local providers who were willing to help with recruitment. The alternative locations were:

Diagnosed with Mild TBI: Orlando
Parents of Youth with TBI: Orlando
Hispanics with TBI: Miami, Calle Ocho District
Central Florida Caregivers: St. Petersburg

A second recruitment effort was conducted. Recruitment information was updated and distributed to key individuals in the areas where the groups were scheduled. Three of the four recruitment efforts were successful and groups were completed.

The Calle Ocho District in Miami was selected as the site for the Hispanics with TBI focus group because of the high density of Hispanic residents as well as being central to other key locations such as hospitals and rehabilitation facilities that reported a large percentage of Hispanic clients. Unfortunately, the second recruitment effort was unsuccessful. A third and final attempt was made to schedule a focus group targeting individuals of Hispanic descent in the Miami area. Project ACTION worked with Carlos Albizu University to explore additional recruitment opportunities in hopes to bring together a group of consumers. Carlos Albizu University explored opportunities with community partners as well as their client population. The last attempt was unsuccessful as well. The difficulties in recruiting this population serve as supporting evidence for their identification as an under-represented/underserved population. As one key stakeholder said:

> They don't feel comfortable going to group things…they are very proud and don't like to speak out about their problems. They are not going to be very accepting of people they don't know.

> Apart from the language barrier, there is also a cultural barrier. They don't feel comfortable sharing their personal problems."

Meetings were held at various locations including centers for independent living, public libraries, not-for-profit agencies, community medical centers, health departments and Children's Medical Services buildings. Meeting times were varied and included midmornings, afternoons and evenings. Meeting rooms were well lit, well ventilated and stocked with tables and chairs. Snacks and drinks were provided if approved by the facility to ensure a comfortable environment for participants. Meeting length was approximately 1½ hours each.

One facilitator acted as the discussion moderator and the other as recorder. An individual was hired to translate for the Spanish-speaking participants in the Hispanic group. The translator served as a mediator between the facilitator and the participants. The meetings were audiotape recorded with the permission of all participants. Participants were provided with a list of discussion topics to help guide the conversation and scratch paper to take notes. After introduction and explanation of the meeting format, the questions were presented to participants for discussion. At the end of each meeting, the recorder gave a summary of the discussion to participants to ensure that the notes taken accurately reflected the discussion.

Participation in the focus groups included 142 survivors and caregivers from across the state. Demographic information was provided by 131 participants. Of the participants providing demographic information, 59 (45 percent) identified themselves as a survivor of a TBI, the remaining were caregivers (72). Ages ranged from 17-89 years. Females represented 62.5 percent (82) of participants. Only 12 (9 percent) participants identified themselves as something other than white and 6 (4.5 percent) reported they were of Hispanic background. The time post-injury of the participants varied significantly, from 1-59 years. Participation in the focus groups were as follows: regional TBI groups: 57 participants, caregiver groups: 32 participants, mild TBI groups: 12 participants, parents of youth groups: 14 participants, rural resident groups: 14 participants, Hispanic group: 3 participants, and day program group: 10 participants.

The findings below represent a summary of all of the focus groups.

Focus Group Question and Answer Summaries

Q1. When you think of the words "brain injury," what comes to your mind?

Brief Summary

Participants in the focus groups were asked what they think of when they hear the words "brain injury." Three themes were heard most frequently. These include: the personal limitations the survivors face; the fact that brain injury is a life-altering event; and the lack of public and professional awareness of brain injury. These themes were seen across all focus groups and in all populations. Other themes that were mentioned across groups include: the fear and frustration that survivors and caregivers face on a daily basis and thinking of the traumatic event that caused the injury, such as a car accident.

Participants in the parents' groups discussed the fear of the future they face while caring for their loved one. Individuals in the regional focus groups shared that they think of the lack of qualified, knowledgeable providers. The survivors were also most likely to say that they think of themselves when they hear the words brain injury.

Notable Quotes

Personal Limitations

- "The physical and emotional challenges of life that people with brain injuries face and the caregivers that care for them."
- "A persons' ability are not the same. There not the same person. You gotta watch, you have to watch all the time."
- "The inconsistency, it is not like one day to the next, its good days and bad days, sometimes it is one hour to the next. You don't know what your going to be capable of."

Life-Altering Event

- "Before I knew what it was I couldn't imagine what it was."
- "I was born again. With this kind of injury you have to learn how to wake up, how to walk, how to talk. You have to learn everything again. Even five years after the injury I still don't know how to do everything."
- "We describe our life as before the accident and after the accident."

The Lack of Public and Professional Awareness

- "Facing stereotypes. People assume that if you can walk and talk then there is no injury. The scars aren't on the outside, but the scars are on the inside."
- "Nobody gets it. I don't think medical professionals get it. I don't think our healthcare services systems get it. I don't think our court systems get it. They have their own preconception, but in general people don't understand."
- "Invisible disability."

- "Society's prejudice. There is very little knowledge that is out there about brain injuries from the families, to the medical providers, insurance companies. The people that you would think are in the know are really not."

Q2. Think about the services that you have received since your injury. When we say services we mean things like medical care, rehabilitation, employment training, case management, recreation activities and transportation assistance. Since the injury, what services have you received that have been the most helpful to you or your loved one? Where do you go to access services?

Brief Summary

Participants in the focus groups were asked to comment on the services that have been the most helpful since their injury. Consensus was not reached across groups as to the most helpful service, but common themes were identified. Rehabilitation and therapies including physical, occupational, speech, cognitive, counseling and neuropsychological were described as being helpful the most often. Access to support groups and support networks was described as helpful. BSCIP was noted as being helpful with case management and providing financial support for services including home modifications and Medicaid Waiver services.

Survivors and caregivers mentioned BIAF Family and Community Support specialists and financial assistance services like Medicaid, Social Security and Veterans Administration as helpful.

Participants identified specific facilities and programs as helpful. Some facilities mentioned included: hospitals, centers for independent living, rehabilitation facilities, Division of Vocational Rehabilitation, day programs, college offices of disabilities and not-for-profit organizations.

Survivors and caregivers also shared assistive devices and resources that were helpful. The devices talked about included alarm clocks, global positioning systems (GPS), video games, cellular phones, maps and hearing aids. The resources that participants reported using include: the internet, journals, books and publications, United Way's 211 information line and word-of-mouth.

Unlike other groups, individuals in the mild TBI focus groups stated that obtaining an appropriate diagnosis and identification of the injury was the most helpful. Many people in this group expressed frustration in obtaining a diagnosis for the symptoms that had manifested. Once the diagnosis and identification of the injury occurred, they were able to access the most appropriate services. This group, along with parents of youth with TBI, discussed the importance of cognitive retraining and the development of compensatory strategies with greater frequency than the other groups.

Notable Quotes

Rehabilitation and Therapies

- "Therapy, the physical, occupational and speech."
- "Cognitive therapy, having the therapy classes is key in learning how to manage your impairments."
- "As parents we got to participate in rehab. We got to watch, we did the same thing at home with her. I participated in a group where everyone sits around and discusses their injury and what they can do. It was helpful to me and my daughter."
- "The best service we received was ending up with the neuropsychologist that we did. We have found out that a lot of doctors don't even know what they are doing….You don't know enough to beat the system on your own initially."

Support Groups and Support Networks

- "The support groups, they are really helpful because they make you feel like you are not alone. That you aren't the only one out there who is not functioning correctly."
- "The support group, the leader acted as my mentor. I am now the group leader of Daytona. I learned as I stumbled. To help teach them, to give them resources on where they had to go."
- "The group helped me to feel adequate. I stopped feeling lost."

Brain and Spinal Cord Injury Program

- "BSICP they contributed a lot of funds to our son's outpatient rehab. And setting us up at home, getting a ramp, ideas with what we can do."
- "By law, I remember receiving a statement for BSCIP that they knew I had a traumatic brain injury and if I needed services all I had to do was call. This is how I got together with Teresa Alba [BSCIP case manager]. She got me going."
- "BSCIP speeders and impaired drivers fund has helped. It helped us out in the beginning."

Q3. What services or supports do you still need, but are not getting? Why are you not getting them? Are they not available? Can you not get there? Do you not know how to get them?

Brief Summary

Participants were asked about the services they still need. The focus groups findings support the fact that there are many areas of service that are needed. The two most frequently mentioned service needs across groups are transportation services and financial assistance. Other areas that were identified across groups include the need for additional support groups and support networks, access to additional rehabilitation and therapies, employment services and recreation and socialization activities.

Parent and caregiver groups were more likely than other groups to mention the following service needs: service coordination services, long-term planning assistance, legal assistance and the need

for long-term accessible, affordable housing including residential and transitional living facilities.

When asked about issues impacting their ability to get the services they need, focus groups across the board identified the following: the lack of public awareness, lack of knowledgeable and qualified providers, service limitations within the BSCIP, limited access to information and education and the lack of local, specialized brain injury services. Caregivers and survivors expressed frustration when trying to access services, such as not knowing who to call, the inability of service providers to work with people with TBI, the amount of red tape to access services and the extreme difficulty for people with brain injuries to navigate the system.

Notable Quotes

Needed Services and Supports

Transportation Services

- "Lack of transportation. The transportation is unreliable and there is not enough. It is also too expensive for people who are just on social security."
- "If you don't have transportation services you can't work so there is no need for employment training, there is no need for recreation because you can't get there, you can't get to your doctors. The transportation is one of the basic things they need to have."

Financial Assistance

- "We are not cutting it financially."
- "FINR [Florida Institute for Neurologic Rehabilitation] wanted $30,000 a month."
- "The financial burdens. If you are not in the system. There are no services. There is nothing out there to guide you and help you."
- "It is completely out of pocket, no insurance coverage or anything like that."
- "I have to pay for services from my own pocket. Exercise and occupational therapy all comes out of my own pocket. I asked for the Medicaid Waiver. I called everywhere, Tallahassee, everywhere. Last I heard the only way you can get the Medicaid waiver is when you are born with it. Any equipment she needs for walking I have to buy it."

Issues Impacting Access to Needed Services and Supports

Lack of Public Awareness

- "Need more information. The public and professional need to learn about brain injury so they know how to deal with us."
- "My family knew my personality had changed; they knew I was doing things I have never done before; they knew I was not paying attention to financial things like I had always done before. But, they were willing to accept it as just a change. Now with commercials for kids on drugs, when your kid's personality changes, becomes withdrawn, now you get it right away. It is ironic that they can't do a similar commercial for something like this. When you see the obvious connect it with something. Everyone in my group saw the obvious but they didn't have the wherewithal to connect it. Even the physicians."

Lack of Qualified, Knowledgeable Providers

- "Try to find a therapist who truly knows how to deal with brain injuries."
- "The people who work with TBI survivors are not qualified."
- "If people go to a skilled nursing facility, they do not know how to work with brain injury."

Limited Access to Information and Education

- "You don't have any idea about the resources available to you. You don't know what to ask or how to ask. You are standing there with no knowledge."
- "It is the idea that people don't understand, some people don't care. You can't find literature. I don't think the doctors really know what to say to the caretaker."
- "For somebody who doesn't know anybody or doesn't have connections I think it would be impossible to get services."

Limited Connectivity of Services

- "There is no interconnection between agencies."
- "It is so scattered."
- "It is like little bubbles floating in the air. It is not a connected network."

Service Limitations within the Brain and Spinal Cord Injury Program (BSCIP)

- "Because I was not in a coma, did not lose consciousness, I did not have a period of amnesia, therefore I am classified as post-concussion syndrome."
- "The Brain and Spinal Cord Injury program; that is a mandatory referral that hospitals are supposed to do, but my son wasn't referred that way. They said that my son had a closed head injury not a brain injury so they didn't refer him."
- "The state department is so limited on those they can help. Not everybody who needs help fits into their definitions. The outcomes are the same. The recoveries are the same. We are going to take care of these people and not these people."
- "If the agency that represents the individuals who are brain injured has no better judgment themselves then to expect compliance from the brain injured we have nothing. The Brain and Spinal Cord Injury Program expects compliance; that has to change."

Lack of Local Specialized Brain Injury Services

- "I have had to travel 100 miles for services."
- "I am really lacking for services."
- "It is very difficult to find places. There is not much out there."

Barriers to Accessing Services

- "There is so much paperwork and red tape. I don't know how you pass on the information about what paperwork needs to be done."
- "What does a person have to do to get the help? Do they have to cut a thousand pieces of red tape, when they are confused on the directions on a microwave dinner?"
- "You make 200 phone calls then someone criticizes me and says, well how come you don't keep better notes."

Q4. What do you think is the biggest issue that you face today because of your injury? For example, getting a job, finding transportation, finding medical care.

Brief Summary

Survivors and caregivers were asked to identify the biggest issues they face because of their injury or the injury to their loved one. Consensus was not reached as to the biggest issue individuals with TBI face. Themes were identified within groups, but across groups the themes were less consistent. The three most common reported issues identified by participants were the lack of recreation and socialization activities, the lack of qualified, knowledgeable providers and the lack of information and education available. Individuals also mentioned their personal limitations, the financial strain, accessible and affordable housing including residential and transitional living facilities and long-term planning needs as the biggest issue.

As stated above, the identification of the biggest issue was not consistent across groups. The most common issues in each focus group population are listed below.

- **Regional TBI Groups:** financial burden, depression and isolation and access to needed rehabilitation;
- **Caregivers:** recreation and socialization activities, lack of information and education and long-term planning;
- **Individuals Diagnosed with Mild TBI:** personal limitations (cognitive limitations) and lack of qualified, knowledgeable providers;
- **Parents of Youth with TBI:** lack of qualified, knowledgeable providers, long-term planning needs and issues with safety;
- **Rural Residents with TBI:** lack of recreation and socialization activities, caregiver responsibility and employment issues;
- **Hispanics with TBI:** not identified due to low participation.

Notable Quotes

- "I face boredom. I need some recreation. My parents need me to be out of the house as much as I need to be out of the house."
- "My son has a book of I don't know how many doctors. Only two of them knew anything about TBI."
- "There is no one you can turn to to try and get information."
- "I worry about the future. He wants to work a job. I have no clue what type of job he can do. At some point he might want to live in a group home. It has to be a good one. He is probably going to outlive us. He wants to be independent. My major issue is what is going to be available for him in the future and I don't know how we are going to be financially able to do that either."

Q5. What service or support would be the most helpful to you and your family?

Brief Summary

Consensus was not reached as to what services or supports would be the most helpful. Comments were varied within groups as wells as across groups. The most frequently identified service/support by the participants was increasing access to education and information. Other services or supports that were identified as helpful included: additional rehabilitation services, additional support groups or opportunities for support, financial assistance, appropriate long-term affordable housing which include safe residential facilities, recreation and socialization activities, access to advocates, caregiver support services, employment services, long-term planning assistance, care coordination services, public awareness, transportation services and access to qualified knowledgeable providers.

As stated above, the most helpful service or support was not consistent across groups. The most common issues in each focus group population are listed below.

- **Regional TBI Groups:** access to rehabilitation and therapies, access to education and information, financial support and long-term accessible, affordable housing;
- **Caregivers:** access to information and education, financial support and access to qualified, knowledgeable providers;
- **Individuals Diagnosed with Mild TBI:** personal limitations (cognitive limitations) and lack of qualified, knowledgeable providers;
- **Parents of Youth with TBI:** access to information and education and caregiver support and education;
- **Rural Residents with TBI:** increased support groups and support networks and transportation services;
- **Hispanics with TBI:** not identified due to low participation.

Notable Quotes

- "More information, a resource book, some sort of way of getting services available to people."
- "A timeline for what to do. They don't guide you. How long you should wait? What's okay or what's not okay. I was confused should I be running, is that too much jarring on my head during the healing phase."
- "No one educates parents. When I left the hospital I had no idea what was going on. No one explains what parts of the brain affects certain functions. They never said he is not talking because."

Q6. If someone you know experienced a brain injury or had a family member experience a brain injury, what would you tell them about how to get help or support?

Brief Summary

Participants in the focus groups were asked what they would tell someone who experienced a brain injury about how to get help or support. The participants mentioned specific programs that were helpful to them including BSCIP and BIAF. Additionally, they stressed the importance of accessing support groups and a support network, getting educated on brain injury and available resources, finding appropriate legal guidance and serving as an advocate for their loved one. Participants also stressed the importance of perseverance when trying to access services.

Notable Quotes

- "I would try to explain to them that there is literature, support groups and individuals that care."
- "Nothing beats a person who has already gone through it. Nobody understands unless you have been through it. These people here are the people you can turn to."
- "You have to be your kid's strongest advocate."
- "Exhaust every option, never give up and never take no for an answer."

Q7. What advice or suggestions can you give us to help meet your needs or make your life better?

Brief Summary

Focus group participants provided additional suggestions about how to better meet their needs and make their lives better. Some of the suggestions include:

- Mentoring programs;
- Developing a resource list of TBI trained providers;
- Increasing opportunities for reintegration into society, such as day programs;
- Working to decrease the barriers associated with Health Insurance Portability and Accountability Act (HIPAA);
- Improving access to information about brain injury and available resources and services.

Notable Quotes

- "They need something or someplace where they can go to be a productive member of society. To help them reintegrate into society."
- "Having a mentor or someone to contact immediately for the caregiver and TBI survivor."
- "Issues with HIPAA. A spouse cannot speak for the individual, if you are that person's advocate. Parents of adult children with TBI. No one will talk to them. They have no authority to speak for the individual."

Selected Population Questions

Regional TBI Focus Groups

Q1. What are the major issues you or your loved one face when dealing with employment?

Brief Summary

Participants were asked to comment on the major issues faced when trying to access employment. Participants identified barriers to employment including memory issues, the fear of going back to work, diminished social skills and the potential for losing benefits. Participants commented on their experiences working with the Division of Vocational Rehabilitation. Participants suggested trying to obtain employment with companies that have a history of hiring individuals with disabilities. They also discussed how the lack of awareness and education impacts the likelihood for employment of individuals with TBI. For example, many companies are not aware of liability issues, etc. Participants who had positive experiences with employers mentioned the flexibility and support provided.

Notable Quotes

Barriers to Employment

- "I continuously would lose jobs because of my memory."
- "My brother was employed and was offered his job back. He is scared now because of his disability. I think that they will try to make a position to keep them going."
- "Since my injury my people skills have diminished. It is a lot more difficult to say what I have to say or do what I need to do at work. I have a slave mentality. I don't know what to do unless I am told."
- "But you have to be careful not to make too much to lose your benefits."

Vocational Rehabilitation

- "Vocational Rehabilitation there was something we had to do to even get referred there. I am not sure what we had to do, but it was like climbing a ladder. We had to fight them to have him keep learning and keep getting better. They did little things to help the brain create new pathways."
- "In the past, when people would come into VR they were discouraged from applying if they had a brain injury. I don't think it is quite as bad now."

Lack of Awareness and Education

- "More education needs to be out there for direct service, I think the school people, with employers and general public. People need to know what to do and what to expect. They need to be aware of what are the risks and how big are they really."
- "Employers do not offer employment because of TBI and they see the liability issues because they can get hurt."
- "I can't find jobs for people in my group because people are afraid to hire them."

Caregivers

Q1. Describe some of the behavioral challenges you deal with while caring for your loved one?

Brief Summary

Caregivers were asked to describe the behavioral challenges they face while caring for their loved one. Some of the behaviors identified were: aggression, lack of inhibition and lack of insight. Caregivers also noted the changes in personality to be unexpected and completely unlike the person they knew prior to the injury. The caregivers said they felt unprepared to deal with the behavioral issues they face. The tools they use to help deal with the behavioral challenges include attending support groups and talking with other caregivers. Some caregivers mentioned that having someone come into the home to help with the behavioral issues on a regular basis would be helpful.

Notable Quotes

Behavioral Issues

- "The hollering out, there is nothing you can do about it. They don't know what they are doing. They say things that are inappropriate at inappropriate times."
- "When my husband first came home he would go through plate glass windows. Really serious stuff. He is a million times better now, but nobody tells you that. You have to learn what they can handle and accept."
- "What do you think a brain injury is about? It is about poor judgment. It is about no judgment at all."
- "You don't know what's going to happen, it's so unpredictable."
- "Extreme differences in personality."
- "This is a 360-degree turnaround."

Lack of Information and Education about Behavioral Issues

- "I was not prepared to deal with those."
- "Someone could have told me he was going to have these issues."
- "No one informed you of what effects TBI has on the future, especially with behavioral issues."
- "We had no idea what a brain injury was until it happened. When we were here we begged for literature. It wasn't until we were in outpatient rehab that we got any information."
- "I think nurses and doctors should come to these [support group] meetings and listen to some of these conversations instead of just releasing the TBI. They release the TBI's and they don't tell the parents anything. I think half of the nurses don't know as much as we do in here. That's what's bad."

Tools to Help with Behavioral Issues

- "The support group made me able to deal with the behavioral problems. I learned a lot from members and caregivers when we were alone."

- "Someone could have come into my home and helped me on a regular basis. To work with me on a regular basis."
- "Behavioral management challenges. They are practically impossible to find."
- "The biggest help has been the support groups with the caregivers who have dealt with behavioral challenges."

Individuals Diagnosed with Mild TBI

Q1. Did you seek medical services at the time of your injury? When trying to access or get services for your injury, did others, like medical providers, understand your needs?

Brief Summary

Comments from participants in the mild TBI focus groups varied when they were asked about accessing medical care. Of those who did receive medical care, identification and treatment of the brain injury was not the primary reason for accessing services. The participants who reported not accessing medical care chose not to because they didn't think the injury was severe. They acknowledged a lack of awareness about the potential consequences of a head injury.

Participants agreed that most of the providers do not understand their needs. They attributed this to a lack of knowledge about brain injury and mild brain injury.

Notable Quotes

Accessing Immediate Medical Care

- "I was in the hospital for a week. But, I wasn't told about my brain injury at that time. I was in the hospital because I was thrown out of a car."
- "No one told me I had a brain injury. I struggled through school and the service. I was diagnosed when I was in the service."
- "My injury was mild so there was no bleeding or anything. It wasn't until about 6 or 8 hours later until things started to get weird. I just didn't want to accept that this is something serious. I have hit my head a million times. I didn't understand the severity of it. That is when I had my follow-up injury. I thought it would just go away again. I found information on the internet; I was wow, that is me. Every symptom of a mild brain injury. You still think you are going to be okay somehow. Now a year goes by and we are still looking for answers."
- "When it happened to me I just didn't realize what happened. I didn't even go see a doctor. I just knew something was wrong. I went back out and re-injured myself again. It was my second injury that was more permanent."

Ability of Providers to Meet Needs

- "I've had to be my own self-advocate and educate people regarding TBI."
- "They just don't know."
- "People don't understand mild brain injury."

- "Paramedics now are trained in some rudimentary way to look for brain injury. Even though they are trained to look for it, they still don't really get it."

Parents of Youth with TBI

Q1. For those of you with children who have moved or progressed from school to college or employment, what were some barriers to this process? If your child has not moved from school to college or employment, what help do you think you will need to do that? Were there services available to help with this process?

Brief Summary

Issues with the educational system were frequently talked about in the parents of youth focus group. Issues involving the educational system were discussed during each question in the groups. Parents' primary issue with the educational system was the lack of education and knowledge teachers and staff have about TBI. Parents reported feeling as though the schools do not understand the injury and, therefore, cannot accurately meet the needs of their children. Suggestions for improvement included increasing the willingness to make accommodations for these students such as flexible scheduling and working together with the neuropsychologist and following their recommendations.

Of the participants in the parents of youth with TBI focus group, few had children who progressed to college or employment. Of those who transitioned to college, the barriers included the lack of flexibility of the public school system and the unwillingness of the system to work with therapists and families. These parents commented that higher educational institutions were better prepared and better suited to deal with the needs of their children. Offices for students with disability and advocacy centers were seen as an asset along with the ability to schedule classes as needed. One participant commented on the barriers to employment, which included difficulties working with DVR.

The parents identified supports that helped with the transition process. The neuropsychologist was viewed as being critical in this process. They helped to develop skill sets and strategies that were necessary to help the youth succeed.

Notable Quotes

Identified Needs within the Educational System

- "Teachers need more education and training."
- "Once I got an understanding, I was able to relay it back to the teachers because they didn't have an understanding. I was surprised that they did not understand this type of injury. For them to say they didn't understand it was surprising to me. Because they have the IEP [Individualized Education Plan], the ESE [Exceptional Student Education] program, I was surprised that they didn't understand this particular type of injury. I thought as educators, at some point they would have had some type of knowledge."

- "Teachers don't see the processing difficulties going on. They may be physically sitting there and looking okay. But I don't think these teachers have any training or knowledge about closed head injuries. It is really easy to be forgotten."
- "Schools associate brain injury with any other type of learning disability."

Suggestions for Improvement

- "If the school would just simply listen to what the parents say. We have become experts really quickly and we know more than they do. As well as if they would listen to the recommendations of the neuropsychologist."
- "I think this would be relatively easy for the schools. Flexible scheduling. Having to go from class, to class, to class, is extraordinarily draining....The unwillingness of schools to be flexible with scheduling classes, assignments, tests, exercises, is absolutely phenomenal. They will talk to you and they will say they understand, but it won't happen."
- "We are fighting with the school right now because they don't want the neuropsychologist to come in. Ours has offered to come in and observe my child during school and provide recommendations, but they won't do it."
- "Offer teacher training, web-based training."
- "Need someone at each school to understand TBI and understanding the issues involved. They can be the link between the parents, therapists and the teachers."

Barriers to Transition

- "I was told by vocational rehab that this is not appropriate for my son. When this happened I called Tallahassee, I called D.C. and all I was told is I have to be his advocate."
- "I couldn't get the school system to work with the therapists to be on the same page to help his needs. The therapists were willing to talk with the teachers, but I couldn't get the teachers to want to do that. I couldn't get them all on the same page."
- "I agree with the comments about the flexibility. They won't change the classes and she could not physically go. There is no way she could have changed classes in 4 minutes. They would not make any accommodations to her classes."

Helpful Transition Services and Supports

- "Without neuropsychological help our child would not have been able to transition from high school to college."
- "The neuropsychologist was a very important factor in enabling the transition from high school to college. Preparing her for trying to stay focused. There is an entire, very complex set of skills and strategies that are not existent in the high schools. They don't understand it. That would have been a tremendous barrier for her if she had not been prepped. Developing different sets of skills on how to manage and how to control the limitations and losses that she had suffered. So that she can function in college."

Rural Residents with TBI

Q1. What are the major issues you or your loved one face when trying to get services because you live in a rural area?

Brief Summary

The participants in the rural focus groups identified the following themes when asked about the major issues faced when trying to get services while living in a rural area: lack of local resources and services and lack of public awareness. Specifically, the lack of local resources and services include: transportation services, local qualified and affordable providers, accessible and affordable housing. Accessible, affordable housing includes residential and transitional living facilities that are safe and provide the proper supports that individuals with TBI need. They also commented that living in rural areas makes it more difficult to access the information that is available. Rural residents perceive that the lack of public awareness in rural areas is greater than in more populated areas, which creates additional barriers for the TBI survivor.

Notable Quotes

Lack of Local Resources and Service Providers

- "We have to depend on close friends and family to build you a ramp."
- "Home modification is difficult and expensive. It is hard to get people to come out here."
- "We have not had adequate physicians in our area. Now it is getting better, we are getting some specialists but they are not neurologists."
- "We have one pediatric neurologist."

Transportation Issues

- "It is hard to coordinate services, especially when your time is limited. If we could get a concentration of physicians in one place that would be easier."
- "Barriers to transportation; because we live in a rural area, it takes a long distance to get services. I can't always take the time off work to get her to her appointments because they are so far away."
- "There is no public transportation down here. The Department of Transportation is not going to spend the money to come out here."
- "Even if you are driving your own car it is costing you a lot of money to go from place to place."

Access to Accessible and Affordable Housing

- "I don't want housing to be overlooked. This is really an important issue in the rural areas. Some bigger cities do have this available. This is the biggest issue that I get calls on."
- "There is no housing for low income, never mind those that have injuries or disabilities."

Lack of Public Awareness and Access to Information

- "Rural areas need more education and awareness. In Gainesville I feel more comfortable because I see others with TBI."

- "Limited access to information. I can't get access to the internet even if I wanted to. We don't even have it if we could buy it."

Hispanics with TBI

Q1. What are the major issues because of your background you or your loved one face when dealing with finding services or support? What are some ideas that could make it easier for you to find services or support?

Brief Summary

Due to the limited participation in the groups, the comments are not summarized or able to be generalized. Participants provided comments on language issues, suggestions for reaching the Hispanic population and cultural perceptions.

Notable Quotes

Language Issues

- "Down here I don't think there is a language barrier. I think it is the last thing people need worry about."
- "If we were up north, there might be more of a language issue."

Suggestions for Targeting Hispanic Populations

- "The state should do more to reach out to Spanish-speaking communities."
- "They need more advertising about TBI. More learning about head injuries. Where to go to get help and to let the people know where to get additional support. It doesn't need to be Spanish because most people know English."

Cultural Perceptions

- "I think the black people get more help than we do. I think, I don't know."
- "It boils down to financial stuff, not background."

Facilitator Observations

Focus groups were conducted as a qualitative data input to the needs and resource assessment. The responses from selected populations were compared to those of the general TBI population throughout the state. Inclusion of focus group input will provide decision-makers and the public with an expanded vision of our population's perception of the service and support needs in the state of Florida.

The key findings from the focus groups include:

- Survivors and caregivers most frequently identified the following services as helpful: rehabilitation and therapies (physical, occupational, speech, cognitive, counseling and

neuropsychological), support groups and support networks and BSCIP case management and financial support services.

- The most frequently mentioned service needs in the focus groups included transportation services and financial assistance. Other needs identified across groups included: additional support groups and support networks, access to rehabilitation and therapies, employment services and recreation and socialization activities.

- The issues that impact the ability to access needed services are: lack of public awareness, lack of knowledgeable and qualified providers, service limitations within BSCIP, limited access to information and education and lack of local, specialized brain injury services.

- Consensus was not reached among survivors and caregivers as to the *biggest* issue they face because of their injury or the injury to their loved one. The three most frequently reported issues were lack of recreation and socialization activities, lack of qualified, knowledgeable providers and lack of information and education available. The most common issues in each focus group are listed below.

    - **Regional TBI Groups:** financial burden, depression and isolation and access to needed rehabilitation;
    - **Caregivers:** lack of recreation and socialization activities, lack of information and education and long-term planning;
    - **Individuals Diagnosed with Mild TBI:** personal limitations (cognitive limitations) and lack of qualified, knowledgeable providers;
    - **Parents of Youth with TBI:** lack of qualified, knowledgeable providers, long-term planning needs and issues with safety;
    - **Rural Residents with TBI:** lack of recreation and socialization activities, caregiver responsibility and employment issues.

- Consensus was not reached as to what services or supports could be the *most helpful*. Comments were varied within groups as wells as across groups. The most frequently identified service by the participants was increasing access to education and information. The most common services/supports in each focus group are listed below.

    - **Regional TBI Groups:** access to rehabilitation and therapies, access to education and information, financial support and long-term accessible, affordable housing;
    - **Caregivers:** access to information and education, financial support and access to qualified, knowledgeable providers;
    - **Individuals Diagnosed with Mild TBI:** personal limitations (cognitive limitations) and lack of qualified, knowledgeable providers;
    - **Parents of Youth with TBI:** access to information and education, caregiver support and education;
    - **Rural Residents with TBI:** increased support groups and support networks and transportation services.

- Survivors and caregivers identified barriers to employment such as diminished skills and abilities, fear of going back to work and potential for losing benefits. They felt that the lack of knowledge and awareness of brain injury by employers decreases the likelihood of employment.

The unique findings from the targeted populations include:

- Caregiver placed emphasis on the need for long-term life planning for their loved one; guardianship issues; and barriers to accessing services or information because of HIPAA restrictions.

- Caregiver expressed the need for transportation assistance with increased frequency.

- The behavioral challenges identified by caregivers include: aggression, lack of inhibitions and lack of insight. They commented on being unprepared to deal with these issues. Caregivers reported using peer support, such as attending support groups and talking with other caregivers, to deal with the behavioral challenges.

- Parent and caregiver groups were more likely than other groups to mention the following service needs: service coordination services, long-term planning assistance, legal assistance and the need for long-term accessible, affordable housing.

- Individuals in the mild TBI group placed increased emphasis on the importance of appropriate diagnosis and identification of the injury and expressed the importance of increasing education about mild brain injuries and prevention activities.

- Individuals in the mild TBI group discussed coping mechanisms; use of assistive technology was discussed with more frequency.

- Individuals with mild TBI did acknowledge that most providers do not understand their needs. They attributed this to the lack of knowledge about brain injury and mild brain injury.

- Parents emphasized the importance of working with the public education system to better meet the needs of their children. They stressed the importance of the schools and therapists working together, educating and training school staff about TBI and appropriate interventions and strategies and increasing the flexibility to increase the likelihood of success for their children.

- Parents commented on the difficulty they face trying to keep their children safe from having another head injury.

- Participants in the rural focus group emphasized that the lack of local specialized services impacted access to care. Transportation was identified as a barrier because of the lack of transportation services as well as the increased amount of time required to get from one place to another.

- Participants in the rural focus groups also placed increased emphasis on the importance of support groups and support networks and the lack of recreation and socialization opportunities compared to other population groups.

- Participants in the day program expressed their gratefulness for having the day program. They said the program provided a sense of purpose, opportunities for recreation and socialization and an opportunity to learn from and support each other.

Interviews with TBI Leaders and Community Partners

Introduction

The WellFlorida Council conducted key informant interviews during the months of December 2006 and January 2007 under the direction of the Project ACTION Oversight Committee (OC) and Executive Committees (EC). The purpose for conducting the interviews was to better understand the perspectives of key leaders on the service needs of individuals with traumatic brain injury in the state of Florida. These interviews were intended to ascertain opinions among individuals likely to be knowledgeable about TBI and influential over the opinions of others about TBI and related services in the state. The findings provide qualitative information and reveal factors affecting the views and sentiments regarding TBI-related services in Florida. A summary of leaders' opinions is reported without judging their comments.

Methodology

Members of the Project ACTION OC and EC compiled a list of key leaders and stakeholders in the TBI community for the staff of WellFlorida Council to interview. The list contained policy makers, including public employees from the areas of healthcare, education, mental health and Medicaid; organization and agency personnel; service providers, including physicians, recreation providers, vocational training, neuropsychologists and others; and consumer representatives.

Council staff randomly drew names from the pools of potential contacts provided by the OC and EC. Interviews were conducted by telephone due to time constraints and cost of travel. Twenty-six key leaders in the TBI community agreed to be interviewed; the interviews were conducted during December 2006 and January 2007. To assure the confidentiality of their comments, the names or any other identifying information of the interviewees has not been included in this report.

All interviews were conducted using a standard questionnaire developed under the guidance of the OC. The protocol used to conduct the interviews is included in Appendix I. Community leaders provided comments on the following issues:

- Services that are most helpful immediately following a TBI;

- Services that are most helpful for individuals with TBI long-term;
- Access to services for individuals with TBI;
- Identification of existing service needs for individuals with TBI;
- Identification of the greatest issue facing individuals with TBI and their families;
- Identification of services that can impact the lives of individuals with TBI;
- Strengths and weaknesses in the current system of care for individuals with TBI in Florida.

The interview was divided into two sections. The interview questions for each participant were identical in the first section. The questions were grouped into the seven categories described above. The second section of the interview focused on the populations identified as under-represented/underserved. Participants who work with these populations were encouraged to share their thoughts and opinions regarding barriers and access to services. A summary of the responses by each of the categories follows. Paraphrased quotes are included to reflect some commonly held opinions and direct quotes are employed to emphasize strong feelings associated with statements. This section of the report summarizes the comments of the participants without assessing credibility.

Interview Analysis

The leaders were asked to describe their position and how they work with individuals with TBI. Individuals who were caregivers or consumers were asked to describe their personal experience with TBI. The participants reported working with individuals with TBI throughout the recovery process from acute care through long-term support issues. Twelve of the interviewees reported working directly with TBI survivors and their families. Fourteen participants work indirectly with TBI survivors and their families through their programs, agencies and organizations. Of the interview participants, eight noted working primarily with selected underserved and under-represented populations: youth, rural residents, individuals of Hispanic descent and individuals with mild TBI. Participants also included caregivers and survivors. The number of years post-injury varied significantly among those participants.

The great majority of the TBI leaders interviewed reported serving on professional, political and trade organizations. Multiple interviewees serve as active members of agency boards and participate in coalitions and other related activities. Additionally, two participants reported involvement in current TBI-related research studies.

Among the consumer representatives interviewed, two were leaders of local survivor and family support groups and one worked in protection and advocacy for individuals with TBI.

To ensure geographic representation across the state, each BSCIP region was represented by at least three participants. BSCIP Region 1 was most highly represented with 12 participants. This was impacted largely by the number of participants with offices located in Tallahassee.

Services That Are Most Helpful Immediately Following a TBI

Participants shared their thoughts and opinions as to the most helpful services for individuals immediately following their injury. Although common themes were identified among the interview participants, consensus was not reached.

The TBI leaders who commented on the acute medical services expressed praise and satisfaction with the ability of trauma centers to save the lives of these individuals. One participant stated:

> Our greatest strength is we have unbelievable trauma care and medical systems. We know how to save lives here. Our outcomes are really good.

In addition to effective acute medical services, participants reported that the most helpful services immediately provided to individuals who sustained a TBI and their families include (order does not indicate ranking):

- Immediate access to information and education about TBI and resources;
- Participation in appropriate rehabilitation services;
- Immediate case management services;
- Access to support services;
- Appropriate evaluation and diagnosis;
- Immediate referral to BSCIP Central Registry.

Leaders in the TBI community commented on the importance of providing immediate access to information and education including information about the injury and available resources. Participants noted that it was important to be truthful about the possible outcomes and recovery time so that the families can prepare. One interviewee said:

> Everything has to begin at a foundation level. I think that the comprehensive orientation that is provided to the family in terms of the services which are available to individuals who have sustained a traumatic brain injury is probably the most important thing….Families find themselves in situations that they do not understand. They need to know what the recovery process might be, how the areas impacted will affect the behavioral, personality and cognitive functioning of the survivors themselves and how this will alter the lifestyle that they have led. The first thing is the need to know where to go for additional services.

Participation in the appropriate rehabilitation services was also noted as being helpful to individuals with TBI immediately following their injuries. A participant said,

> Rehabilitation is primary, learning to function again.

The rehabilitation settings mentioned included inpatient and outpatient facilities specializing in physical, occupational, speech and cognitive therapies. The importance of receiving these services from individuals who are specialists in TBI was also noted by participants. Interviewees also stated that participating in rehabilitation activities is essential to help decrease the number of individuals placed into nursing home facilities.

Approximately 50 percent of the leaders in the TBI community who were interviewed identified comprehensive case management as the most helpful service immediately following the injury. The case management services were identified as being helpful in the following ways:

- Allows for the completion of a support or needs assessment for the individual;
- Provides support to individuals and families;
- Provides information about resources to the families;
- Helps with coordination of services;
- Facilitates the transition out of the hospital;
- Assists with the coordination of benefits;
- In the case of BSCIP case management services, provides funds for service needs.

Providing support for families was mentioned by leaders of the TBI community as a service that is most helpful immediately following the injury. Participants stated:

> Offering hope and support for families with individuals suffering from TBI. Most people are in such a state of panic that it is very important for them to realize that they are not alone, that there is an opportunity for hope. It helps to keep them going.

> The primary issue is about trauma and ICU care to save their life. Outside of that, what is needed at that stage is family support. It is clearly a stage that is more difficult for families [then survivors].

Participants recognized that the support could be through support groups or be done individually.

Leaders in the TBI community emphasized the importance of appropriate evaluation and diagnosis. Interviewees said it was important to work with specialists who understand and are trained in brain injury. Bringing in trained specialists, for example neuropsychologists, is very important to help with diagnosis and evaluation. Two participants noted that in some acute care facilities lack of trained providers to diagnose and evaluate the injury.

> You need to have hospitals with doctors that actually understand brain injury and a lot of smaller hospitals in rural areas or those that aren't major trauma centers may not have people with appropriate training.

Finally, a small portion of interviewees stated that the referral to BSCIP Central Registry was important. One participant emphasized that the referral is the entry point into the system of care. Other individuals commented on the eligibility requirements for the Central Registry and the importance of making sure all injuries get reported.

> The individuals need to be appropriately reported to the Brain and Spinal Cord Injury Program because that is their entrée into whatever services do exist. So if someone who has a mild concussion and nothing gets reported, when their systems manifest they are going to have a hard time accessing services.

Services That Are Most Helpful for Individuals with TBI Long-Term

The perceptions of the services that are most helpful for individuals with TBI long-term resulted in common themes. Consensus was not reached as to the most helpful service, but the consistencies across participants are highlighted below.

The primary theme that emerged was that the needs of individuals are influenced by the way the injury manifests over time. They are influenced by the location and severity of the injury. The needs are dynamic and change over a lifetime. Therefore, continued access to care and resources is critical.

Participants reported the following long-term services to be the most helpful (order does not indicate ranking):

- Access to individual and family psychotherapies, services and supports;
- Referrals to appropriate community resources;
- Community reintegration activities including employment and education;
- Access to support systems;
- Transportation;
- Medicaid Waiver services.

Twelve of the leaders in the TBI community commented on the importance of providing access to individual and family psychotherapies, services and supports. The services included behavioral management, cognitive therapies, psychotherapy, adjustment counseling and family counseling. Also mentioned was access to assistive technology and support with legal and financial issues. One participant said,

> They need a lot of behavioral modification. I find that a lot of brain injured patients are going to need these services for the rest of their lives.... not only the brain-injured individual but also the support people around them need a lot of help.

Referrals to the appropriate community resources were noted as helpful to individuals with TBI to deal with the long-term consequences of their injuries. One participant said,

> Just knowing that there is a resource in and of itself is helpful.

Referrals to the BIAF were identified as extremely helpful. The Family and Community Support specialists within BIAF were also identified as helpful in linking consumers to other community resources.

Eight participants commented that access to community reintegration services and activities including education, employment, active leisure and social experiences were helpful. The interviewees said that providing these services is important to help get the individuals out of the home and back into society. Activities to help individuals relearn experiences in the outside world are often missing. The individuals who commented about youth discussed the importance of providing the supports needed to help transition the child into school which helps return the child to normalcy. When reintegrating the child into the schools,

> It is about matching the education needs with the needs of the child.

But as others commented, this can be difficult,

> One of the problems with brain injury is the kids bounce back, they look fine, they sound fine, but when they get back into the classroom it is way more difficult than they expect. The children's needs may change over time. We want everyone to be looking for red flags.

Services to help adults reintegrate into the community and return to the work force are also very important. As with youth, participants commented that this process is often very difficult.

> Individuals have a lot of problems going through the vocational rehab process. They cannot follow through. A lot of times the VR counselors do not have the patience to deal with them. These people really need someone to hold their hand and walk them through.

> It is the behavioral and social issues that impact a person's ability to obtain and maintain employment.

> The issue regarding supportive employment that we have in Vocational Rehabilitation, there is no entity that is tasked with the ongoing dollars to support the follow-along services that individuals need. That has always been a gap in services.

As mentioned in the previous section, providing support for individuals and families is helpful.

> The support system, if you don't have support the rest tends to falls apart. Peer support [caregiver to caregiver or survivor to survivor] is the most powerful support they can get.

Participants noted that support groups help the individual feel less isolated and gain a sense of peer and community support.

Transportation services were identified as an important service to help with long-term issues, as well as providing needed assistance to the caregivers.

> Transportation services, it is very important for people with TBI to be able to get places. Without transportation, it doesn't matter what we can do or provide.

Finally, the Medicaid Waiver services were mentioned by participants as being helpful for those who qualify.

> The waiver program offers services in 13 areas. The life skills training services and coordination services with case managers are very important for long-term care. The have issues coping with the day to day activities, activities that provide strategies to deal with their issues.

Access to Services for Individuals with TBI

When asked how individuals with TBI with whom you work access/get the services that they need and where individuals with TBI are referred for services, the majority of participants provided insight into their organizational procedures and practices.

Participants that focus primarily on the immediate care needs of individuals with TBI refer to BSCIP, case managers and designated facilities. Those that are involved with the long-term care needs rely heavily on referrals to community resources. The resources mentioned include:

- BIAF;
- DVR;
- Goodwill;
- Centers for Independent Living;
- Local organizations for home modification and transportation.

BIAF was the most frequently identified community resource by participants.

> After discharge these individuals tend to disappear. It is of critical importance that they are linked to BIAF. I think this is of critical importance to them. So they can receive resources that will be available to them.

Other participants provide survivors and family members with information about where to obtain additional support or resources. Examples include resource lists, internet sources and information about what to expect after the injury. Other participants commented on using advocacy or personal and professional connections to access services for their clients or loved ones.

Leaders also mentioned issues or barriers that individuals with TBI face when trying to access services. Some of the comments included:

- "The problem is there are not a lot of resources for people with mild and moderate [TBI] because their basic functioning looks relatively good. There is still the question as to where they should go because there is no real help for them."
- "The elderly are not seen as decent candidates for rehab treatment. They are not referred down the continuum of care."
- "It really depends, some people get lucky. They got good insurance, a good support coordinator, or a caregiver that is a good advocate. For others they will never get it. It goes back to the initial assessment. Those who are identified early on as needing something are more likely to get it."
- "I just don't think the agencies [state agencies] know and understand how to work through the system [Medicaid] and then are able to convey that information to the traumatic brain injured and their family."
- "The services and supports are sporadic throughout the state. Services in one area are not always available in another area."

Identification of Existing Service Needs for Individuals with TBI

Leaders were asked their perception of the existing service needs for individuals with TBI and why these individuals are not receiving the services they need. The comments were varied among participants. A common theme across interviewees was that the needs are individualized. Some were hesitant to make generalizations because of the variability that exists. The following service needs were mentioned by participants (order does not indicate ranking):

- Access to follow-up and long-term care;
- Access to behavioral and cognitive therapies;
- Housing for individuals with TBI;
- Access to qualified, trained providers;
- Vocational services.

Access to follow-up and long-term care was frequently identified. Interviewees said that the manifestations of the injury may take a long time to develop or change over time; when these issues do surface the individuals are not typically eligible for services. Participants' stated,

> From what we hear directly from people with brain injury is the ongoing community support. They get services in hospitals and rehab centers. They get services while they are in the BSCIP case management system. When they get closed they fall into a void.
>
> What you learn in rehab does not generalize into a real life setting. You don't fix people with brain injury you support them. A lot of money is wasted because that seamless transition isn't there.
>
> Follow-up, I believe strongly that a continuous relationship with an organization that knows about brain injury needs to follow up with individuals for the first five years after their injury.

Access to behavioral and cognitive therapies was also identified by participants as needed. Participants stated that there is a lack of behavioral and cognitive service providers. Additionally, many providers who work with the brain injured are not appropriately trained to treat these issues.

> Behavior modification, many people need that. I tend to see that if a person has behavior problems they don't want to deal with them. They are just too difficult to deal with.

Participants mentioned that local services for children with significant behavioral issues are not available. One participant reported having to send children to Wisconsin for services because they were not available in Florida.

Housing for individuals with TBI was mentioned by ten participants as needed, including permanent long-term housing and transitional living facilities. Participants said that the housing is either not available or not appropriate for individuals with TBI.

> Housing is an issue if they can't live with their loved ones. There are not enough ALF's [Assisting Living Facilities] or places for them to live. If you put them in a mental health place they are not qualified. There are not places here where people can live. Medicaid won't pay for

> them. I am frustrated completely with the lack of services out there, particularly long-term housing. There is nothing out there that is really appropriate for them.

The participants commented on the lack of funding available for housing and residential services.

> There is definitely a need to have designated transitional living centers that know how to take care of the TBI patients. Those families can be assured that they have the proper facilities, getting the proper care and if Medicaid as a payment is needed there is a need to educate the legislature.

Access to providers, both medical and community resources, trained in brain injury was identified as needed. Participants commented that nurses in the acute care hospitals do not have the appropriate training to work with brain injuries and the lack of access to trained providers can impact the reporting of injuries to the Central Registry. The number of specialists is limited and the ability to link survivors with these specialists is minimal. A participant stated,

> Most of the traumatic brain injured receive their whatever from a nurse, social worker, psychologist who have virtually no training in traumatic brain injury.

Other areas mentioned by participants were vocational rehabilitation and teachers.

> They [Vocational Rehabilitation counselors] need to be trained to work with this population. They need education and the training to work with individuals with brain injuries.

> Educationally, teachers need to know more about brain injury. I know the Brain Injury Association is working with the schools, but this is such a need.

Vocational services, like job coaches and supportive employments, for individuals with TBI were identified as needed by participants. A participant said the services must target the issues that individuals with TBI face in the workplace. Some of the issues include,

> Interactions with co-workers and the ability to accept supervision. Learning new tasks and the ability to read written instructions and utilize manuals. Typically we see more of the behavioral concerns about inappropriate actions with co-workers or customers.

Additionally, participants stressed that these services need to be available long-term.

Other services that were mentioned by participants include (order does not indicate ranking):

- Transportation;
- Socialization and social inclusion activities;
- Respite care;
- Day programs.

Participants were asked why the individuals with TBI were not receiving the needed services. Reasons included: lack of knowledge of available resources, lack of funding for services to exist, financial burden on the consumer and limited number of facilities or programs. Some notable quotes include:

- "The classic they fall through the cracks. People either don't know where to go, they are not covered by anything, or they are not assigned a person. For someone with a brain injury because of the unique nature of the injury you need someone to be responsible for you to follow up on you. You can't expect the person with the brain injury to initiate services. There has got to be follow-up."
- "They [residential facilities] are not out there, no funding for that type of facility, in order to have that type of facility it has to be funded through the state."
- "It is difficult for someone with a TBI to get Medicaid. It is difficult to prove that the results of the injury are long-term. They just don't do it. It takes a long time to get approved."
- "There are lack of providers and specialists that know about brain injury. It is hard to find psychiatrists and neurologists. With Medicaid, forget specialists. This is one of the areas getting worse unfortunately."
- "Neuropsychology services, there are a lot of good neuropsychologists out there but people can't afford them. They are $100/hour and that is the state rates."
- "Lack of services in the state, geography. If you live in Madison County and that is where your family support system is you probably aren't going to be able to get to Tampa for services."

Greatest Issue Facing Individuals with TBI and their Families

Common themes among the participants interviewed were identified, but no consensus was reached as to the biggest issue.

Participants identified that the biggest issue facing individuals who sustained TBIs and their families include (order does not indicate ranking):

- Access to information;
- Appropriate diagnosis and identification;
- Lack of transition services;
- Lack of long-term care services and supports;
- Family and caregiver support;
- Financial burden.

Access to information was identified by some participants as the biggest issue facing individuals with TBI and their families. Participants stated there is not a well-defined network of services in communities. One participant states,

> In a global sense, we have to do a better job in linking resources for these families. Creating a mechanism by which these individuals are followed appropriately and making sure that these individuals are aware of the community resources in their area that are available.

Appropriate diagnosis and identification were mentioned by some participants as the biggest issues facing individuals with TBI today. These issues included the appropriate diagnosis of mild and moderate injuries.

> It's those that get the mild or moderate TBI. Those are the ones I think we are missing as identifying as TBI.

Under-identification of youth in the education system was noted by two participants as the biggest issue individuals and families face. This was also noted to occur in the prison system. Participants said that inappropriate diagnosis and under-identification lead to increased difficulty accessing needed services.

Times of transition (e.g., from rehabilitation to the community) were noted as the biggest issue for individuals with TBI and their families by participants. As one participant said,

> If I were to pick one area that is the biggest issue, it would be the transition from whatever they are getting, whether it is hospital, rehab, or whatever, back into the community. That is the biggest area of need.

Another participant stated that the skills learned in rehab can only work if there is a seamless transition back into the community. Also, reintegration into the school system was identified as a difficult process.

The lack of long-term care services and supports was identified by interviewees as the biggest issue. A participant said,

> Once people leave the hospital it is a black hole. Once they get out of here, good luck.

Another participant discussed that the brain-injured person has difficulty maintaining the skills learned once reintegrated into the community because the support services are not there.

Lack of family and caregiver support was also identified as the biggest issue by participants. Participants discussed the impact that the lack of support could have on the individuals and the family and the importance of respite care. They also commented on the burden caregivers may face when tasked with providing the long-term support and care of the individual after they themselves are no longer able to care for their loved one.

Also identified was the family's financial burden. The services available are not affordable. One participant said,

> I have always believed that this is a disability that has been totally overlooked in the state of Florida. If you have your own personal resources there are specialty services all over the county that you can access, but if you are the poor soul that doesn't have a lot of financial resources and are going to be looking to the public system, I think you are in trouble. I think a lot poor folks end up in nursing homes or other environments that are inappropriate for their care.

Another participant commented on the limitations of private insurance, with many families not able to bear the burden once the coverage is maxed out.

Other issues that were identified by participants included lack of socialization and recreation activities, behavioral issues and the lack of public awareness.

Participants provided suggestions as to what could be done to resolve the issues presented above. Some notable quotes include:

- "There needs to be a major ad campaign. We need a Michael J. Fox or a Christopher Reeve. It is not just killing children and adults. It is putting them in a situation where they are going to need care for the rest of their lives."
- "Go to services for development disabled population as a model for TBI. Some of the stuff that is going on for the DD population right now could be very beneficial for the TBI population."
- "I think we might look to see what other states have done. There is no doubt that this problem [lack of access to information and resources] is being confronted nationally. Perhaps there are some successful models that we might be able to use."
- "An advocacy agenda needs to be developed."
- "I am concerned about wasting funds and feel that the greater area of need is managing the lifespan issues. I think a voucher system could alleviate some of these problems….That model has been very effective with other disability populations."

Services That Could Impact the Lives of Individuals with TBI

The participants provided their thoughts as to what services could impact the lives of individuals with TBI. Consensus was not reached as to the most influential service or services, but there were consistencies across participants.

The services that could impact on the lives of individuals who sustained TBI and their families include (order does not indicate ranking):

- Education for the public and providers;
- Long-term care coordination services;
- Advocacy and legislative issues;
- Programs to help with long-term care needs.

The education of the public and providers was recommended most frequently as a way to impact the lives of individuals with TBI and their families. One participant stated,

> We need a major educational campaign about brain injury. Unless it happens to somebody that you know or your family people don't have an understanding about brain injury.

Participants discussed increasing education and training for service providers in the following areas: primary care physicians, emergency room physicians, teachers, coaches, police and community organizations. Interviewees talked about the importance of educating providers about brain injury as well as the resources that available to survivors and family members in their local communities.

Long-term care coordination services were identified as a service that could impact the lives of individuals with TBI and their families.

> Case management, somebody who knows the system and can get them in and out of it for whatever situation they are in. People need a life-care person, who is knowledgeable. The big urban centers are very difficult to get around."

> We need a continuum of long-term lifetime care from overseeing the medical, behavioral and in the community their housing accommodations. We just have to be realistic about that. You can take a newly injured person and give them all the best care. If you don't have the continuum of care with the whole specialized spectrum, staying up with them, as time goes on these people decompensate. It is a long-term, lifetime issue and we have to be realistic about that.

Interviewees commented on the importance of engaging in advocacy and legislative issues. Participants commented on the need to get legislation passed for supporting the long-term needs of individuals with TBIs, with the focus on needs such as increasing funds to the Medicaid Waiver and providing long-term supportive employment services. A participant suggested,

> You can have individual treatment centers, but to link them together so they can function as a system that engages in legislative and public advocacy. That is the best thing we could for persons with TBI and their families.

Participants identified specific programs or services that would impact the lives of individuals with TBI and their families. Services for survivors included: day programs, behavioral management services, recreation, residential services, cognitive retraining, rehabilitation programs and employment services. Services for the family included respite care and leisure opportunities. Other suggestions included expanding support groups to areas in which they are not currently available and providing services that are age-appropriate.

Strengths and Weaknesses in the Current System of Care For individuals with TBI in Florida

Perceptions of the strengths of the current system of care for individuals with TBI in Florida were varied. Participant comments ranged from positive to denial of the existence of a current system of care. Positive comments focused on the following areas (order does not indicate ranking):

- Trauma system and acute medical services;
- BSCIP Trust Fund and Central Registry;
- Strong organizations and partnerships.

The trauma system and acute medical services in Florida were regarded as the greatest strength in the current system of care by some participants.

> Our greatest strength is we have unbelievable trauma care and medical systems. We know how to save lives here. Our outcomes are really good.

> Florida has more trauma centers and comprehensive rehabilitation centers, they are phenomenal. At the end of the day people who have a BI in Florida have better outcomes then people who do not have access to those services.

Other participants described BSCIP and the Central Registry as the greatest strength in the current system. Participants noted,

> The trust fund program. We have the ability to give somebody extended stay in an inpatient facility. We can guarantee services. We assist the families in getting linked up in the community, we push the hospitals to getting people signed up for benefits. It is the BSCIP and the case management program.

> The trust fund is a huge advantage. We are able to link individuals with services that they otherwise would not receive. We have mandatory reporting. Being able to track how many people have a brain injury is important to help raise awareness about the issue. The Waiver piece when it was added was a real need for individuals who needed long-term supports. The Waiver finished the loop. Unfortunately, there are limited spots.

> The whole idea that injuries are reported to a central place and follow up services are initiated. Without that we wouldn't even know people who had a brain injury. I don't think we are fully maximizing what we could from the registry.

Having strong community organizations and partnerships was identified as the greatest strength in the current system of care. Participants said,

> Organizations, like BIAF, are a definite strength because you have someone there advocating and having individuals who are interested in improving the system and research.

> Associations like BIAF are great advocates for education, linkages to community supports. The networking alone, if you can get connected you will greatly enhance ones ability to recover.

> There is an effort by BSCIP, BIAF, FDOA [Florida Disabled Outdoors Association] and FAAST [Florida Alliance on Assistive Services and Technology] to be proactive and reaching out to contact people who are struggling and don't know where to go and who to turn to. The optimism surrounding the new programs that are being initiated, that is the potential that I see bubbling.

> The persons that I have worked with from a variety of different professions, family members and BIAF. I think that you find individuals who are caring, who want to make an impact and want to make a positive change. The issue is how do we do that in an organized action. The human resource aspect is our greatest strength.

Another participant commented,

> We don't really have a good system. We have some very good pockets of services. BIAF has some excellent support groups and excellent community support specialists, but the needs go beyond that and it is not everywhere. There are excellent hospitals with great trauma units, the VA hospital in Tampa is nationally known. There are the little pieces and pockets that are really superior around the state, but as far as a quote system or coordinating it or integrating it or people talking to each other and learning from each other or duplicating successes, there is just not much of it or not enough of it.

The perceptions of the greatest weakness of the current system of care for individuals with TBI in Florida were also varied. The weaknesses identified by participants were as follows (order does not indicate ranking):

- Lack of long-term resources and support;
- Lack of information and education;
- Poor service linkage system;
- Identification issues.

The majority of participants identified the lack of long-term resources and support as the greatest weakness in the current system. Many participants commented on the "black hole" that individuals with TBI and their families face once they are reintegrated into the community. Additionally, individuals recognized that because TBI is a long-term or lifelong injury, services must be available accordingly. A participant said,

> If you think about it, we are wasting all this money if spend all this money on the rehab process and then we just close their case out. If we just let them go they are going to regress. It is very important to maintain these individuals and give them support when needed.

Participants commented specifically on the limitations of BSCIP.

> We need to look at the mission of BSCIP because they are the state agency. By Florida Statute they are charged to provide acute care and maintain the Central Registry and that's it. That is something that needs to be expanded to the long-term lifetime care. This is not limited to BSCIP. It is typical of all social services. It is a short fix and then what happens after that. We need to be specific about it, that it is long-term lifetime care.
>
> TBI takes second seat within this state agency to spinal cord injuries. It is much easier to treat a spinal cord injury. So we get diluted. The statistics are 4 to 1 annually, yet the vast majority of the funding goes to spinal cord injury and that is just wrong.

Participants identified the lack of information and education to families and providers as the greatest weakness in the current system of care. Some notable quotes include:

- "The more information people have the better they are able to become advocates for their loved ones. We don't have the type of grassroots advocacy that we once had. I think people have become complacent. There is too much reliance on somebody else solving the problem."
- "If families don't see for themselves that a person is incapable of doing certain functions they are not going to understand when they get home."

The lack of information and education of providers (e.g., physicians, vocational counselors, discharge planners) was captured by the following comments:

- "Lack of physicians and lack of knowledge of physicians about brain injury. They do not understand that the healing process is not an exact injury. They don't understand that the healing does not come in an exact science. They are dismissive."

- "The discharge people in the hospitals are not really educated about BI or the resources for people with brain injuries. This is something that can be done."

The linkage to existing services and resources was identified as the greatest weakness in the current system by two participants. One participant stated,

> The gap, the void in solutions and programs that exist or could exist or should exist and the knowledge and perception that people have who are newly injured or have injuries. We are missing the middle man, someone to connect those with injuries. Identifying what is out there, helping to advocate for more services, providing some funds for more services and actually communicating that to the people who need it.

Two participants stated that identification and misdiagnosis of the injury was the greatest weakness. These comments included the misdiagnosis of head injuries by physicians and the missed referrals to the Central Registry, including mild brain injuries.

> The individual that fell off their bike, that individual doesn't get anything. That individual gets patched up or stitched up. That individual is sent home and the mother is left to figure out how their child went from A's to D's in school. Everybody that comes in with a brain injury should have information made available to them before they ever leave the clinics or the doctor's office.

Issues for Under-Represented and Underserved Populations

Rural Residents with TBI

Participants who work with rural residents were asked about their perceptions of the major issues these residents face when trying to access services and how access could be improved. The three primary issues rural residents face when trying to access services were identified as transportation, limited providers (especially specialists) and isolation issues. Some notable quotes include:

- "Transportation, access to appropriate medical care, access to any kind of day programs. Even access to quality outpatient programs after the acute injury. If you have a Waiver slot available it is hard to find a home health agency to come out and provide services."
- "Alcohol and drugs is a big problem in rural areas, they are dormant and don't have anything to do so they turn to alcohol and drugs."
- "You have to travel further to get services. Our designated centers might not be in a rural area so therefore the center might not be providing the level of care that we think is ideal."

Participants provided the following suggestions for how to improve access to services for rural residents with TBI:

- "You have to get creative. We have to come up with a way to reach them in their homes."
- "We need a central source of TBI resources. This directory needs to be by county."
- "We were successful using the churches in rural communities. We worked through the churches. We did outreach after masses or activities."

Caregivers of Individuals with TBI

Participants were asked about the behavioral challenges caregivers and family members face while caring for their loved one. There was consensus by the participants that caregivers are not adequately prepared to deal with the behavioral challenges they face. Noteworthy comments include:

- "No, caregivers are not prepared to deal with the behavioral issues. All the talking and education in the world is not going to prepare them. Until it actually happens you don't know how you are going to do or what to expect."
- "There is a lack of preparation for transitions. This is in two areas, the immediate short-term and the long-term follow-up issues."
- "We need to do a better job of preparing people for the behavioral issues. There needs to be follow-up, samples, examples of what can and probably will occur. That needs to be the responsibility of the Brain Injury Association and the support groups."

Participants were asked for suggestions about how we could better prepare caregivers for the behavioral challenges they may face. Some suggestions were as follows:

- Place an emphasis on family education about behavioral issues during inpatient and outpatient therapy;
- Utilize support groups for peer support;
- Provide family members with educational tools;
- Provide in-home education and training for the caregiver;
- Reassess of behavioral issues on a regular basis;
- Increase the number of behavioral specialists trained to work with TBI survivors and caregivers;
- Increase training in behavioral issues for service providers.

Individuals with Diagnosed Mild TBI

Participants were asked about the issues individuals with a mild brain injury face. Participants provided insight into three main areas: access to services, long-term support or service needs and identification and/or diagnosis issues.

Access to Services

- "They are not eligible for services. This is the BI that slips through the cracks."
- "The support groups are trying to meet the needs, but that is about it."
- "BIAF has the hotline and resources, but there needs to be more."

Long-Term Support or Service Needs

- "The approach needs to be multidisciplinary."
- "This is clearly a situation where employment and supportive employment is a viable option. People are just dumped out into the job market and left to fall on their faces."

- "They need to learn to do things differently and if they get treatment, the injury can be a non-issue. If they don't get the treatment their whole world starts to cave around them. That is how people with the mild injury get in trouble."
- "They need lots of education. The family members especially."
- "They need education and assistance with jobs. They are salvageable with the right kind of help and support."
- "What happens is they develop a secondary emotional response, like depression. In some ways it can become more disabling than a severe injury."

Identification and/or Diagnosis Issues

- "Many people don't know what a mild TBI is, don't know what it means."
- "Mild injuries with kids usually happen in sports-related injuries. The big obstacle with that are the coaches. The coach doesn't want to pull the kid and have the kid stay out until they are symptom-free. And that is what you have to do. If you stay out until you are symptom-free, you usually don't have any long-term problems. But if you go back prematurely, especially if you are a kid, you can have catastrophic problems."
- "Primary care and the people in the ER do not appreciate mild brain injury. They don't tell the patient what symptoms to watch for. They don't give them clear direction. There are lots of people who end up with complicated mild TBI because of the care they got early on."
- "The doctors don't believe it. They don't appreciate the long-term consequences. They don't follow these patients, so they don't see the issues."

Youth with TBI

Participants were asked about the ability of the services in the schools to meet the needs of youth with TBI. Participants provided insight into two main areas: lack of knowledge of TBI in the schools by teachers and staff and the need for appropriate identification of children with TBI in the schools.

The most commonly reported issue identified by participants is the lack of knowledge about TBIs in the schools. One participant said,

> The teachers are ill-informed. They always talked about my son being misbehaved. They thought these were just personality issues, but they let him slide.

Other participants said that teachers and school staff need to be trained in TBI.

> The ESE programs in all the schools need to have mandatory training on what the consequences are, what the deficits are and how to help them. They must be aware of what brain injury is. They are letting the kids skate by because they feel sorry for them.

> Schools don't know what it is. You have to use the child as the example. The teachers want to learn, they are like a sponge once you get into the classroom. The teachers are very willing to help, but the need to be educated. The guidance counselors are less receptive.

> I have been trying recently with two other neuropsychologists to work on re-integrating these kids in the classroom. We put on this all day workshop for how to return kids to school. The administrators are finally coming around to it.

The need to appropriately identify individuals with TBI in the schools was also mentioned by participants as an important issue. Participants commented on the need to place these children in the most appropriate classes. One participant stated,

> A lot of the kids in schools with a brain injury are not being served through the TBI program. There are being served in the emotionally handicapped classes, the learning disabled and other special programs. I feel like if the children with brain injuries are identified as having a brain injuries then I think we can give the teachers more appropriate strategies. The kids are not being identified.

Another participant reported on meetings with school administrators,

> I have been to some meetings with administrators and they say don't have anybody with a brain injury. Who are you kidding? They are getting better with identifying kids but we are not there yet.

Participants who discussed this issue were in agreement that it is necessary to identify these children in order to provide them with the most appropriate strategies and interventions.

Participants were encouraged to share their thoughts on transitioning from secondary school to college or the workforce. Some notable comments are shared below:

- "All ESE students have a transition plan that is written with them when they turn 14. The agencies that can assist the child when they leave get involved in these meetings. It is designed to help assist the child when they leave."
- "Many kids with TBI drop out of school or don't want to go back after their injury. So you have a whole population of kids that have dropped out of school at 16."
- "VR is the best option. It is a work in progress. Some children do well with VR and some don't."
- "I would say almost without exception the transitional plan is never done for a kid with a brain injury. When they age out, the family calls and says what do I do now."

<u>Individuals of Hispanic Descent with TBI</u>

Participants were asked about the barriers that individuals of Hispanic descent face while accessing TBI services and to provide suggestions for reducing these barriers.

Most participants provided insight into the Hispanic culture that would be influential in understanding service issues. The key highlights include:

- "What we find with Hispanics is that they almost always take the client back into the family. They are very supportive, sometimes even if the care needs are too extreme. They don't want their loved ones going to a nursing home."

- "Don't seek help outside their family as other people do. They may have multiple generations living in a home, which allows for someone to take care of someone who has a disability."
- "There is a big gap in getting Hispanic individuals with disabilities involved in recreation activities. The cultural differences in recreation are pretty significant and the financial ability to participate."
- "The men are very proud people. They don't want to accept the disability. Family members are very protective. They don't feel comfortable going to group things. Women do not like male case managers. Men don't discuss their issues with women. They are very proud and don't like to speak out about their problems. They are not going to be very accepting of people they don't know. Apart from the language barrier, there is also a cultural barrier. They don't feel comfortable sharing their personal problems."
- "Some Hispanic cultures are resistant to taking problems out of the family, or out of the church, or community. The fear of going to government."

Participants identified barriers to service as well. As expected, language can often be a barrier to receiving services. Residency status was also identified by participants as a significant barrier to service.

> Undocumented individuals are less likely to qualify for services and less likely to seek services.

Socioeconomic status and educational level were also identified as barriers to service, similar to the general population. Interviewees said,

> It will also depend upon the socio-economic level of the individual and their level of education. In Miami, we have a relatively well educated Hispanic population. When you start moving outside the major metropolitan area that starts to change.

> If we have a family that is totally non-English speaking. They have no idea what is going on. They are too non-familiar with the full situation and how to deal with it. If this was a more educated family, a lot of these things would already be taken care of.

Participants also provided some suggestions for reducing the barriers:

- Provide materials in Spanish;
- Use local churches;
- Refer to inter-faith parish nursing or the community health clinics or public health clinics for education about basic health needs;
- Hire individuals from within the culture. It needs to look like their community;
- Have a champion in the community. They become instrumental in channeling patients, providing information and linking to the service.

Summary

- TBI leaders expressed praise and satisfaction with the trauma centers in Florida.

- TBI leaders identified the following services to be the most helpful services immediately provided to survivors: access to information and education about TBI and resources; participation in the appropriate rehabilitation services; case management services; access to support services; appropriate evaluation and diagnosis; and immediate referral to BSCIP Central Registry.

- TBI leaders stressed that the long-term needs of individuals are influenced by the way the injury manifests over time. Needs are influenced by the location and severity of the injury and change over the lifetime of the individual. Therefore, continued access to care and resources is critical.

- The following long-term services were identified as the most helpful: individual and family psychotherapies, services and supports; referrals to appropriate community resources; community reintegration activities including employment and education; support groups and support systems; transportation services; and Medicaid Waiver services.

- Leaders who work with individuals immediately following their injuries refer them to BSCIP, case managers and designated facilities for services.

- Access to long-term care needs rely heavily on referrals to community resources including: BIAF; DVR; Goodwill; Centers for Independent Living; and local organizations for home modification and transportation.

- Leaders identified the following service needs for individuals with TBI most frequently: access to follow-up and long-term care; access to behavioral and cognitive therapies; housing for individuals with TBI; access to qualified, trained providers; and vocational services.

- Leaders identified the biggest issues facing individuals with TBIs and their families to be: access to information; appropriate diagnosis and identification; lack of transition services; lack of long-term care services and supports; family support; and the financial burden.

- Leaders identified the following services that could impact the lives of individuals who sustain TBI and their families: education for the public and providers; long-term care coordination services; advocacy and legislative issues; and programs to help with long-term care needs.

- Strengths of the current system of care for individuals with TBI identified by the participants include: the trauma and acute medical services; BSCIP Trust Fund and Central Registry; and strong organizations and partnerships.

- Weaknesses of the current system of care identified by participants were: lack of long-term resources and support; lack of information and education; poor linkage to existing services; and TBI identification issues.

- Leaders identified three primary issues rural residents face when trying to access services: transportation, limited providers and specialists and isolation issues.

- Consensus was reached by participants that caregivers are not adequately prepared to deal with the behavioral challenges they face. Suggestions for preparing caregivers include: education, regular reassessment of behavioral issues and increasing the number of behavior specialists trained to work with the TBI population.

- Participants with training on mild TBI provided insight into three main areas: lack of access to services, need of long-term support and services of the mild TBI population and identification and diagnosis of mild TBI.

- Participants who work with youth identified the lack of knowledge about TBI in the schools by teachers and staff and the need for the appropriate identification of children with TBI in the schools as the biggest issues.

- Leaders provided insight into the Hispanic culture that may impact access to services. Many in the Hispanic culture tend to have strong family support, are private by nature, tend not to like to talk about their issues with people they do not know and may have a fear of accessing government services.

- Some suggestions for reducing the barriers when working with individuals of Hispanic descent include: providing materials in Spanish, use in local churches and hiring individuals from within the culture to provide services and resources.

Provider Survey

Introduction

WellFlorida Council conducted a survey of providers during the months of September 2006 through January 2007 under the direction of Project ACTION OC and EC. The purpose of the survey was to gain the perspectives of service providers on the service needs of individuals with TBI in Florida as well as their perception on the current availability of these services.

Methodology

The Project ACTION OC and EC deemed it important to gather the perspectives of providers regarding the service needs for individuals with TBI. Project ACTION developed a brief survey to capture providers' perspectives. The provider survey was designed to highlight the services identified in the HRSA Traumatic Brain Injury Needs and Resources Assessment Tool including:

- Affordable, accessible housing;
- Employment;
- Education;
- Accessible transportation
- Assistive technology;
- Case management;
- Family support
- Socialization and recreation;
- Alcohol and drug addiction services;
- Rehabilitation services;
- Community support services;
- Financial assistance;
- Mental health services;
- Spirituality resources;
- Specialized medical services.[1]

Providers were asked to rank services on the amount of need and availability of service on a five-point Likert scale. Providers were asked to provide comments and suggestions about the needs of individuals with TBI in Florida. The provider survey is available in Appendix J.

The Provider Survey was completed in two phases. The first data collection was combined with the Project ACTION Resource Summary. Details about the Resource Summary are provided in the next section of this report. The Summary and Provider surveys were sent via mail to each of the 41 BSCIP case managers, BSCIP Children's Medical Service (CMS) nurses and BIAF Family and Community Support specialists. Electronic versions of the Resource Summary and Provider Survey were also made available. This population was selected to participate because they have high levels of interaction with the TBI population in Florida and therefore, would be able to accurately report service needs as well as the current availability of services. Case managers, CMS nurses and Family Community Support specialists were asked to return the summary and survey to Project ACTION via mail, fax, or email by October 31, 2006. At the initial deadline, 15 provider surveys (36 percent) were outstanding. This was of particular concern because large portions of the state would not be represented. Therefore, to increase the validity and completeness of the assessment additional email reminders were sent to participants. At this time, WellFlorida Council was provided with the most current staff rosters that identified turnover in four positions and vacancies in two. New staff was provided with the Provider Survey and instructions. Additional email reminders were sent to participants and supervisors during this time frame. The final deadline for completion was January 16, 2007.

The second collection was completed at the Annual Pediatric Brain and Spinal Cord Injury Conference held in November 2006 in Miami Beach, Florida. Conference participants who live and practice in Florida and care for individuals with TBI were encouraged to participate. The surveys were distributed and collected by conference staff and returned via mail to Project ACTION.

Survey Findings

Fifty-eight providers completed the survey including 13 BSCIP case managers, 8 Family and Community Support specialists and 5 CMS nurses. Other participants included: physicians, nurses, psychologists and therapists. Approximately 45 percent (26) of the respondents reported working with adults only and 14 percent (8) worked with children and youth. The remaining 41 percent (24) reported working with both populations.

Each BSCIP region was represented; some participants reported working with clients in more than one BSCIP region. Each region had a minimum of 9 respondents. BSCIP Regions 4 and 5 had the most representation with 16 and 26 providers, respectively. This was due to the high percentage of providers located within those regions who attended the Pediatric Brain and Spinal Cord Injury Conference in Miami Beach, Florida.

Participants were asked to rank how often individuals with TBI with whom they work need the identified services. Participants used a five-point Likert scale (1=never and 5=always). As seen in Table 5-1, the services that were identified by at least 75 percent of providers as needed by individuals with TBI (by ranking as either four or five on a five-point scale) include: rehabilitation, socialization and recreation, family support, community support services, accessible transportation and education services. Spirituality and alcohol and drug addiction services were the only services identified by less than 50 percent of the providers as needed by individuals with TBI by ranking as either four or five on a five-point scale.

Table 5-1: Percentage of Providers Who Identified Services as Frequently Needed.

Service	Total		No Answer	
	Number	Percent	Number	Percent
Housing	51	66.7	7	12.1
Employment	48	58.3	10	17.2
Education	53	75.5	5	8.6
Transportation	53	77.3	5	8.6
Assistive Technology	47	64.8	11	19.0
Case Management	49	72.3	11	19.0
Family Support	50	86.0	8	13.8
Socialization/Recreation	52	86.5	6	10.3
Alcohol and Drug Addiction Services	48	47.9	10	17.2
Rehabilitation	54	92.6	4	6.9
Community Support	48	82.0	8	13.8
Financial Assistance	53	73.6	5	8.6
Mental Health	52	71.9	6	10.3
Spirituality Resources	48	45.8	10	17.2
Specialized Medical Services	51	72.6	7	12.1

Note: Percentage is equal to the frequency of respondents rating service a 4 or 5.
Prepared by: WellFlorida Council Inc, 2007.

Participants were asked to rank how available the identified services are to individuals with TBI with whom they work. Participants used a five-point Likert scale (1=not available and

5=available). The services that were recognized as the most readily available to individuals with TBI include: rehabilitation services, case management services and education services. As seen in Table 5-2, the most unavailable services to individuals with TBI by providers include: affordable and accessible housing, financial assistance and alcohol and drug addiction services. Unavailable services were identified by the frequency of providers who ranked a service as a one through three on the five-point scale.

When trying to make decisions about services, it is important to compare the perception of how often services are identified as needed to the current availability of those services. The providers identified the perceived frequency of need as significantly greater than the amount of services available for all identified services except spirituality resources (Table 5-3).

Table 5-2: Percentage of Providers Who Identified Services as Unavailable.

Service	Total		No Answer	
	Number	Percent	Number	Percent
Housing	49	93.8	9	15.5
Employment	47	78.7	11	19.0
Education	52	55.7	6	10.3
Transportation	51	72.6	7	12.1
Assistive Technology	46	58.7	12	20.7
Case Management	49	53.1	9	15.5
Family Support	50	60.0	8	13.8
Socialization/Recreation	49	71.4	9	15.5
Alcohol and Drug Addiction Services	47	82.9	11	19.0
Rehabilitation	53	49.1	5	8.6
Community Support	50	70.0	8	13.8
Financial Assistance	51	90.2	7	12.1
Mental Health	50	74.0	8	13.8
Spirituality Resources	46	67.4	12	20.7
Specialized Medical Services	49	71.3	9	15.5

Note: Percentage is equal to the frequency of respondents rating availability 1 through 3.
Prepared by: WellFlorida Council Inc, 2007.

Table 5-3: Comparison of Perceived Service Need and Perceived Service Availability.

Service	Perceived Need	Perceived Availability	p-value
Accessible, Affordable Housing	3.97	2.25	<0.001
Employment	3.72	3.77	<0.001
Education	4.16	3.40	0.001
Accessible Transportation	4.14	3.02	<0.001
Assistive Technology	3.72	3.11	0.014
Case Management	4.08	3.48	0.001
Family Support	4.45	3.33	<0.001
Socialization/Recreation	4.33	2.97	<0.001
Alcohol and Drug Addiction Services	3.46	2.68	0.003
Rehabilitation Services	4.53	3.53	<0.001
Community Support Services	4.33	3.12	<0.001
Financial Assistance	4.14	2.36	<0.001
Mental Health Services	4.00	2.81	<0.001
Spirituality Resources	3.36	3.22	0.593
Specialized Medical Services	3.97	3.08	<0.001

Note: Mean scores presented. Participants were asked to rate service need and availability on five-point Likert scales, perceived need (1=never and 5=always) and perceived availability (1=not available and 5=available).
Prepared by: WellFlorida Council Inc, 2007.

Table 5-4 examines the perceived service needs across BSCIP regions. The need for rehabilitation services was identified as the first or second most needed service in each BSCIP region by providers. Community support services in BSCIP Region 3 and case management in BSCIP Region 5 were identified as the most needed services in their respective regions by providers.

Table 5-4: Providers Perception of the Top Three Most Needed Services by BSCIP Region.

Region 1	Region 2	Region 3	Region 4	Region 5
1. Rehabilitation 2. Specialty Medical Services 3. Education	1. Rehabilitation 2. Socialization/ Recreation 3. Education	1. Community Support Services 2. Rehabilitation, Socialization/ Recreation, Housing, & Family Support*	1. Socialization/ Recreation 2. Rehabilitation 3. Financial Assistance & Transportation*	1. Case Management 2. Rehabilitation 3. Family Support

Note: Calculated by the percentage of respondents rating service a 4 or 5 on a five-point Likert scale (1=never and 5=always).
* Equal percentage reporting.
Prepared by: WellFlorida Council Inc, 2007.

Table 5-5 examines the providers' perception of available services across BSCIP regions. Providers identified accessible, affordable housing as the most unavailable service in four of the five BSCIP regions. BSCIP Region 5 identified the lack of employment services most frequently. Other services that were identified as not being available across multiple BSCIP regions include: alcohol and drug addiction (AOD) services and financial assistance.

Table 5-5: Provider Perception of the Top Three Most Unavailable Services by BSCIP Region.

Region 1	Region 2	Region 3	Region 4	Region 5
1. Housing 2. Employment Services & Transportation*	1. Housing 2. Financial Assistance 3. Spirituality Resources	1. Housing & AOD services* 2. Financial Assistance	1. Housing, AOD services, & Financial Assistance*	1. Employment Services 2. Rehabilitation Services & Community Support Services*

Note: Calculated by the percentage of respondents rating service availability 1 through 3 on a five-point Likert scale (1=not available and 5=available).
* Equal percentage reporting.
Prepared by: WellFlorida Council Inc, 2007.

The providers were also asked to identify their primary service delivery population including adults, children, or both. Table 5-6 displays the percentage of providers who identified the services as needed by rating the service a four or five on the five-point Likert scale by provider service delivery population. Providers who work with adults only are more likely to identify employment and community support services as frequently needed. Providers who serve both children and adults were more likely to identify the need for transportation assistance, financial assistance, specialized medical services and AOD addiction services. The services were not significantly different between provider service delivery population groups.

Table 5-7 displays the percentage of providers who identified the services as unavailable by rating the service a one through three on the five-point Likert scale by provider service delivery population. Providers who work with adults only identified family support, mental health, spirituality and specialized medical care as unavailable services more often. Providers who serve both children and adults were more likely to identify assistive technology and case management services as unavailable services.

Table 5-6: Percentage of Providers Who Identified Services as Frequently Needed by Provider Service Delivery Population.

Service	Adults		Children		Both		Total		No Answer	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Housing	25	68.0	5	40.0	21	71.5	51	66.7	7	12.1
Employment	24	62.5	4	50.0	20	55.0	48	58.3	10	17.2
Education	25	72.0	5	100	23	76.0	53	75.5	5	8.6
Transportation	25	76.0	5	40.0	23	87.0	53	77.3	5	8.6
Assistive Technology	21	61.9	4	75.0	22	63.6	47	64.8	11	19.0
Case Management	23	69.6	5	100	21	71.4	49	72.3	11	19.0
Family Support	23	82.6	4	100	23	86.9	50	86.0	8	13.8
Socialization/ Recreation	24	87.5	5	80.0	23	86.9	52	86.5	6	10.3
AOD Services	23	43.4	4	25.0	21	57.1	48	47.9	10	17.2
Rehabilitation	26	96.2	5	100	23	86.9	54	92.6	4	6.9
Community Support	24	87.5	4	50.0	22	81.8	48	82.0	8	13.8
Financial Assistance	25	72.0	5	40.0	23	82.6	53	73.6	5	8.6
Mental Health	25	68.0	4	25.0	23	82.6	52	71.9	6	10.3
Spirituality Resources	23	46.1	4	25.0	21	42.9	48	45.8	10	17.2
Specialized Medical Services	25	64.0	4	75.0	22	81.9	51	72.6	7	12.1

Note: Number = total respondents in the population category. Percentage is equal to the frequency of respondents rating service a 4 or 5 on a five-point Likert scale (1=never and 5=always).
Prepared by: WellFlorida Council Inc, 2007.

Table 5-7: Percentage of Providers Who Identified Services as Unavailable by Provider Service Delivery Population.

Service	Adults		Children		Both		Total		No Answer	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Housing	25	92.0	4	100	20	90.0	49	93.8	9	15.5
Employment	23	73.8	4	100	20	80.0	47	78.7	11	19.0
Education	25	68.0	5	0.0	22	54.6	52	55.7	6	10.3
Transportation	24	70.9	5	80.0	22	68.2	51	72.6	7	12.1
Assistive Technology	22	50.0	4	25.0	20	75.0	46	58.7	12	20.7
Case Management	25	52.0	4	25.0	20	60.0	49	53.1	9	15.5
Family Support	24	66.7	4	50.0	22	45.5	50	60.0	8	13.8
Socialization/ Recreation	22	68.2	5	80.0	22	72.8	49	71.4	9	15.5
AOD Services	22	86.4	4	100	21	76.1	47	82.9	11	19.0
Rehabilitation	26	50.0	5	40.0	22	50.0	53	49.1	5	8.6
Community Support	25	72.0	4	25.0	21	76.2	50	70.0	8	13.8
Financial Assistance	24	87.6	5	100	22	91.0	51	90.2	7	12.1
Mental Health	24	87.5	4	50.0	22	63.6	50	74.0	8	13.8
Spirituality Resources	22	77.2	4	75.0	20	55.0	46	67.4	12	20.7
Specialized Medical Services	24	79.1	4	25.0	21	65.2	49	71.3	9	15.5

Note: Number = total respondents in the population category. Percentage is equal to the frequency of respondents rating service availability a 1 through 3 on a five-point Likert scale (1=not available and 5=available).
Prepared by: WellFlorida Council Inc, 2007.

Provider Comments

Providers were asked to share their thoughts about gaps in TBI-related services in their local areas as well as in Florida. Gaps in their local areas include:

- School re-entry services;
- Transportation services;
- Limited availability and access to long-term services;
- Limited access to information;
- Lack of local specialized brain injury programs;
- Knowledgeable and qualified providers
- Lack of education provided to caregivers and family members.

When providing comments about gaps in services for the state, providers commented on the lack of available resources and available funding. Some notable comments include:

- "Long-term supports: housing, financial assistance beyond SSI to assist with housing. Problems with mental health and TBI-related cases that may also be using alcohol/ drugs."
- "Follow-up rehab in outpatient setting, ability to obtain needed specialized DME [durable medical equipment] or assistive technology. Support or housing for adults unable to live alone or special needs children without appropriate caregiver."
- "The primary gap is the funding of needed services, secondary is availability and the tertiary is effective public transportation."
- "Appropriate day programs are lacking, housing opportunities and ALF's [Assisted Living Facilities] specific to TBI. Funding is always an issue. Locating specialists with TBI experience is always a problem."
- "Reoccurring funding streams, state-supported services and sponsored prevention measures (helmet laws, medical pre-existing condition clause, screening out instead of screening in philosophy)."

Providers also provided perspective on the greatest barriers to service for individuals with TBI. Barriers to service include: lack of information and access to resources, service coordination, transportation and the financial burden placed on the families. Some notable comments include:

- "Funding, access, availability, transportation, injury origin myths, provider TBI knowledge, cookie-cutter agency policy and procedures (not TBI friendly) and continuity of services."
- "1) finding services; 2) coordinating services; 3) financial support for services; 4) family and patient support services."

Providers were given the opportunity to share any additional thoughts that would be helpful in understanding the needs of individuals with TBI. Some notable comments include:

- "Need for advocacy center."
- "Children's TBI needs and services often differ substantially from adult needs and services."
- "Rescind the law "not" requiring helmets for motorcyclists."
- "Insurance companies paying for inpatient and outpatient treatment, access to services, case management after discharged from the hospital, education system needs to be revamped after TBI school re-entry."

Summary

Providers who work with individuals with TBI provided their perspectives about the service needs and availability of services. Fifty-eight service providers participated in the survey including BSCIP case managers, CMS nurses, BIAF Family and Community Support specialists, physicians, therapists, nurses and others. Providers represented each of the BSCIP regions.

- Providers identified rehabilitation, socialization and recreation, family support, community support services, accessible transportation and education services as the most frequently needed services for individuals with TBI.

- Providers perceive affordable and accessible housing, financial assistance and alcohol and drug addiction services as most likely to be unavailable to individuals with TBI.

- The need for rehabilitation services was identified as the first or second most needed service in each BSCIP region by providers. Community support services, in BSCIP Region 3 and case management, in BSCIP Region 5, were identified as the most needed services in their respective regions by providers.

- Providers identified accessible, affordable housing as the most unavailable service in four of the five BSCIP regions. BSCIP Region 5 identified the lack of employment services most frequently.

- Providers who work with adults only are more likely to identify employment and community support services as frequently needed. Providers who serve both children and adults were more likely to identify the need for transportation assistance, financial assistance, specialized medical services and AOD addiction services.

- Providers who work with adults only identified family support, mental health, spirituality and specialized medical care as unavailable services more often. Providers who serve both children and adults were more likely to identify assistive technology and case management services as unavailable services.

- Providers shared comments on service gaps in their local areas. These include: school re-entry support, transportation services, limited availability and access to long-term services, limited access to information, lack of local specialized brain-injury programs, knowledgeable and qualified providers and a lack of education provided to caregivers and family members.

Summary of Key Findings

The following are the key observations derived from an analysis of the comments and insights gathered during the community input phase of the needs assessment:

- Focus group participants, TBI leaders and service providers expressed satisfaction with Florida's trauma system and its ability to save the lives of those injured.

- Access to the appropriate rehabilitation and therapies was viewed as the most helpful for individuals with TBI by participants. These services included physical, occupational, speech, cognitive, counseling and neuropsychological therapies. Leaders and focus group participants commented on the importance of accessing these services long-term. Participants expressed difficulty when trying to access behavioral, cognitive and neuropsychological therapies.

- Other key services needs include access to affordable and accessible housing, financial assistance, transportation services, employment services and AOD addiction services.

Caregivers, leaders and providers were more likely to discuss the availability of housing for individuals with TBI than were the survivors themselves. Focus group participants reported difficulty accessing benefits including Social Security and Medicaid. Those with private insurance also had significant financial strains. Many consumers and caregivers said that without transportation, access to other services would not matter because they cannot get there. AOD addiction services were identified as needed by providers, leaders and caregivers. Participants felt that this is an area often overlooked and the current providers are not trained to work with the TBI patient.

- Access to support groups and support networks was also identified as an important need for individuals with TBI and their families. Survivors and caregivers who participated in the focus groups found the support to be helpful and stressed the need for additional opportunities for support from other survivors and families. The support groups and support networks often serve as a resource to survivors and families about services and supports.

- The lack of public and professional awareness and knowledge of brain injury was perceived as a key issue for participants. The lack of qualified, knowledgeable providers was a common theme throughout the focus groups and key informant interviews. Providers included medical professionals, therapists, counselors and other service providers like personal attendants, transportation service providers and community agency personnel. Participants felt it was very important to work with providers who know and understand brain injury, but that these individuals are very hard to find. Focus group participants felt that the lack of public awareness impacted their ability to access services, engage in socialization activities and employment. The term "invisible disability" was heard numerous times while gathering the community perspectives. TBI leaders commented on the importance of increasing public awareness of TBI to help with advocacy activities and ultimately to increase funding and resources.

- Participants felt there is limited access to information and education. Focus group participants often commented on not knowing where to go for services and the limited connectivity of services. Many people mentioned the need for a central point of information. Service providers, like community agencies, are not aware of the resources available to individuals with TBI; therefore, linkage and referral become difficult. The lack of information and education was identified by key leaders as one of the weaknesses in the current system of care for individuals with TBI.

- The lack of long-term support and services was a primary issue identified by focus group participants, key informants and service providers. Participants commented on the void in services once discharged from the hospital, rehabilitation, or BSCIP case management services. Participants felt that having access to long-term support could reduce some of the challenging issues that arise during points of transition. TBI leaders stressed that the long-term needs of individuals are dynamic and change over time. Therefore, continued access to care and resources is critical.

- Community leaders, caregivers, survivors and providers commented on BSCIP. Strengths of this program include having a centralized state department designated to brain injury; the Trust Fund, which provides case management and financial support for survivors; the Central Registry, which serves as the immediate entrée to the service delivery system; dedicated staff who work with survivors and families; and the Medicaid Waiver program to help access long-term support for those who qualify. Overwhelmingly, the weaknesses identified with this program were the lack of long-term support and follow-up services, restrictive service eligibility requirements and missed referrals to Central Registry.

- Many participants commented on the strong organizations and partnerships working in the area of brain injury in Florida. BIAF was mentioned most frequently as a resource to survivors, caregivers and providers. Referral to BIAF was often viewed as the linkage to long-term community support services. Many focus group participants commented on working with Family and Community Support specialists to identify resources in the community to help with their long-term care needs.

- Participants overwhelmingly agreed that caregivers were not adequately prepared to deal with the behavioral issues brought on by the TBI. Caregivers reported using peer support, such as attending support groups and talking with other caregivers, to deal with the behavioral challenges. Suggestions for preparing caregivers include: education, regular reassessment of behavioral issues and an increase in the number of behavior trained specialists to work with the TBI population.

- Caregivers placed an emphasis on the need for long-term life planning for their loved one; guardianship issues; long-term accessible, affordable housing; and barriers to accessing services or information because of HIPAA restrictions. They expressed the need for transportation assistance with greater frequency compared to other populations.

Below is a summary of the community perspectives on the selected under-represented/ underserved populations:

- Leaders provided insight into the Hispanic culture that may impact access to services. These include: a tendency to have strong family support networks, a tendency to be private and not talk about their issues with people they do not know and a possible fear of accessing government services. Suggestions for reducing the barriers when working with individuals of Hispanic descent include: providing materials in Spanish, using local churches and hiring individuals from within the culture to provide services and resources. The insight provided by leaders validated the focus group recruitment barriers.

- Individuals with mild TBI and leaders who work with this population stressed the importance of appropriate diagnosis and identification of the injury. They emphasized the importance of increasing education about mild brain injuries and prevention activities. They acknowledge that most providers do not understand their needs because of the lack of knowledge about brain injury and mild brain injury. TBI leaders also discussed the limited access to services that individuals with mild TBI face because of the classification of their injury.

- Parents and leaders in the TBI community emphasized the importance of working with the public education system to better meet the needs of their children. They stressed the importance of the schools and therapists working together, providing education and training to school staff about TBI and appropriate interventions and strategies and increasing flexibility to increase the likelihood of success for their children. Leaders in the TBI community and providers discussed the importance of working to appropriately identify students with TBI in the schools to increase the likelihood of providing appropriate interventions and strategies.

- Barriers to services for rural residents include: transportation issues, limited providers and specialists and isolation issues. Survivors and caregivers emphasized the importance of support groups and the need for socialization and recreation activities. Leaders in the TBI community stressed using alternative methods to reach the survivors in their home or community.

[1] U.S. Department of Health and Human Services, Health Resources and Services Administration Material and Child Health Bureau Federal Traumatic Brain Injury Program. Traumatic Brain Injury Needs and Resource Assessment Tool. 2006.

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Resource Summary

Introduction

To fully understand of needs of individuals with traumatic brain injury (TBI) in Florida, it is necessary to examine the services resources currently available to the survivors and their families. The summary is designed to highlight the primary areas of service for individuals with TBI designated by the Health Resources and Services Administration (HRSA), Traumatic Brain Injury Needs and Resources Assessment Tool[1] including acute medical, rehabilitation, employment, prevention, education, and long-term community support services. Knowing the distribution of services available to individuals with TBI will help with future planning in Florida.

The purpose of the summary is to create a snapshot of the current service delivery system in Florida for individuals with TBI. The summary is designed to quantify the amount of resources available in each of the designated service areas. Services were not examined in regard to quality and effectiveness.

Methodology

Project ACTION deemed it necessary to collect information about the resources currently available for individuals with TBI in Florida. Comprehensive resource assessments are very costly, time consuming, and often inaccurate due to the amount of variability within social service capacity over time. Therefore, a methodology was developed to meet the needs of the project in a timely and cost-effective manner. The Resource Summary was conducted from September 2006 through January 2007.

The Resource Summary Tool was developed by WellFlorida Council based on the HRSA Traumatic Brain Injury Needs and Resources Assessment Tool (Appendix K).[1] The Traumatic Brain Injury Needs and Resource Assessment Tool served as a guide to identify the types of information to collect, specifically areas of service delivery and service activities. The tool was designed to quantify resources in the following areas: acute medical care, rehabilitation, employment, prevention, education and long-term community support. A description of each service area was provided along with examples. The tool was designed to quantify the existing services available within defined geographic regions.

Resources currently available in each service area for the respective region were entered into a table. The information collected for each entry included: name of facility/organization/provider, address, city and zip code. Additionally, each service area had additional identifying information:

- **Acute Medical Services:** identification of Brain and Spinal Cord Injury Program (BSCIP) designated facilities and trauma centers;

- **Rehabilitation Services:** identification of services offered at the facility including inpatient, outpatient, day treatment, community re-entry, residential and skilled nursing;
- **Employment Services:** availability of job placement or vocational training services;
- **Prevention and Education Services:** identification of primary (intentional and unintentional injuries) and secondary prevention activities or education services;
- **Long-Term Community Support Services:** identification of the type of supports available at the facility including spiritual, financial, housing, transportation, recreation, medical, legal and activities of daily living.

Cost-effective and efficient data collection procedures were created by WellFlorida Council. A key step in the methodology was the selection of the target population. Project ACTION identified BSCIP case mangers, BSCIP Children's Medical Service nurses, and Brain Injury Association of Florida (BIAF) Family and Community Support specialists as the target population. This population was selected because their primary responsibilities are to link individuals with TBI to the appropriate community resources. Therefore, they have sufficient knowledge of the existing resources within their respective BSCIP Regions and BIAF Family and Community Support Areas. The supervisors of the target population and other key support staff were advised of this project and were encouraged to have their respective staff participate. Support of supervisors was vital to increase the likelihood of completing the tool by the target population. A 100 percent response rate was desired to ensure completeness and accuracy of the findings.

BIAF Family and Community Support specialists specialize in linking individuals with TBI to long-term community support needs. This expertise limits their ability to report on acute medical and rehabilitation services in their local areas. Therefore, the tool was modified to match their area of expertise. The following service areas were included their summary tool: employment, prevention and education and long-term community support services. This tool is available in Appendix K.

The summary tool was sent via mail to identified participants at the end of September 2006. A cover letter was included with the tool to explain the purpose of the study, importance of participation and instructions. Also included was a prepaid return envelope to encourage completion. The Resource Summary Tool was provided electronically to the participants if requested. The summary tool was to be competed and returned to WellFlorida Council by October 31, 2006. WellFlorida Council prompted supervisors with two email reminders to encourage their staff to complete the activity during this timeframe.

At the completion of the initial data collection, 63 percent (26 of 41) of summaries were returned. This was of particular concern because a large percentage of resources in the state may not have been identified. Therefore, to increase the validity and completeness of the assessment, the data collection deadline was extended. Participants and supervisors were notified of this extension and were encouraged to complete the tool as soon as possible. WellFlorida Council obtained updated staff rosters from BIAF and BSCIP that identified new turnover in four positions and vacancies in two positions. New staff members received the assessment and instructions via email at that time. The final deadline for completion was mid-January 2007 to

account for holiday vacations and end-of-the-year program requirements. Additional reminders were provided to participants and supervisors during this timeframe.

The summaries were entered and categorized by service type, BSCIP region, and county. Region and county designation was determined by the address provided for the facility. There is the potential for a portion of the resources identified to serve multiple counties, but this is not reported as the data collection methodology did not collect this information. These resources are only identified to be in the county that was identified by the address given. As stated above, the findings are presented in terms of the quantity of service; resources were not examined in regard to quality and effectiveness.

At the completion of data collection, 82.9 percent (34 of 41) of summaries were collected. Of the eligible survey population (excluding four potential participants due to vacancies and new staff) 91.9 percent (34 of 37) completed the Resource Summary. Each BSCIP region was represented by at least four respondents.

Summary of Resources

A total of 611 resources (Table 6-1) were identified by participants for individuals with TBI. A complete list of resources is located in Appendix L.

Table 6-1: Total Services Identified for Individuals with TBI.

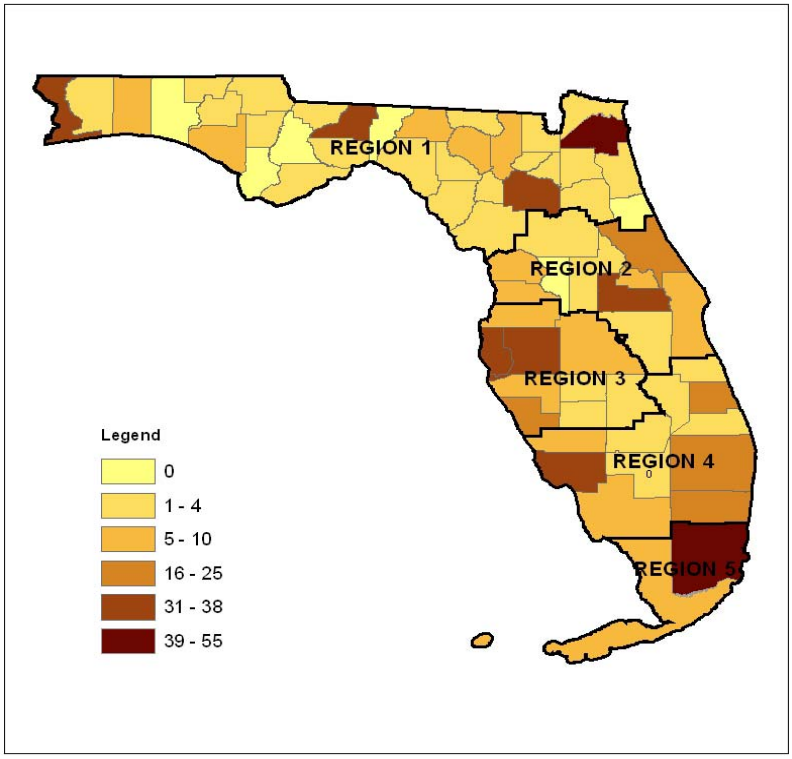
Region	Number	Percent
BSCIP Region 1	210	34.4
BSCIP Region 2	88	14.4
BSCIP Region 3	126	20.6
BSCIP Region 4	126	20.6
BSCIP Region 5	61	10.0
Florida	611	100.0

Note: Resources can provide services in multiple areas.
Prepared by: WellFlorida Council Inc, 2007.

In Florida, 91 percent (61 of 67) of counties have at least one resource available for individuals with TBI. BSCIP Region 1 (210 resources) identified the greatest number of resources for individuals with TBI. It is important to note that BSCIP Region 1 is the largest region geographically, including 35 counties and covering more than 23,000 square miles. The counties with the most TBI-related resources include: Miami-Dade (55 resources); Duval (39 resources); Orange and Pinellas (38 resources each); and Pensacola, Hillsborough and Leon (35 resources each). Of all the TBI-related services, 45 percent were located in the aforementioned counties. Counties without resources for individuals with TBI include: Flagler, Jefferson, Gulf, Liberty, Sumter and Walton. Five of the six counties without TBI-related services are located in BSCIP

Region 1 and all are identified as rural counties by the Department of Health, Office of Rural Health. Figure 6-1 shows the density of TBI-related services by county in Florida.

Figure 6-1: Density of TBI-Related Services by County.



Density= number of resources in the county.
Prepared by: WellFlorida Council Inc, 2007.

Table 6-2 and Figure 6-2 depict distribution of resources by service area for Florida and each BSCIP region. Long-term community support services represent more than 53 percent (325 resources) of resources and are the most available resource in the state and each BSCIP region. Employment services (139 resources) are the second most available resource in the state and each region. Acute medical care facilities account for 9.7 percent of resources representing the smallest percentage of resources in the state and each region. The greatest percentage (14.3 percent) of acute care facilities is available in BSCIP Region 4.

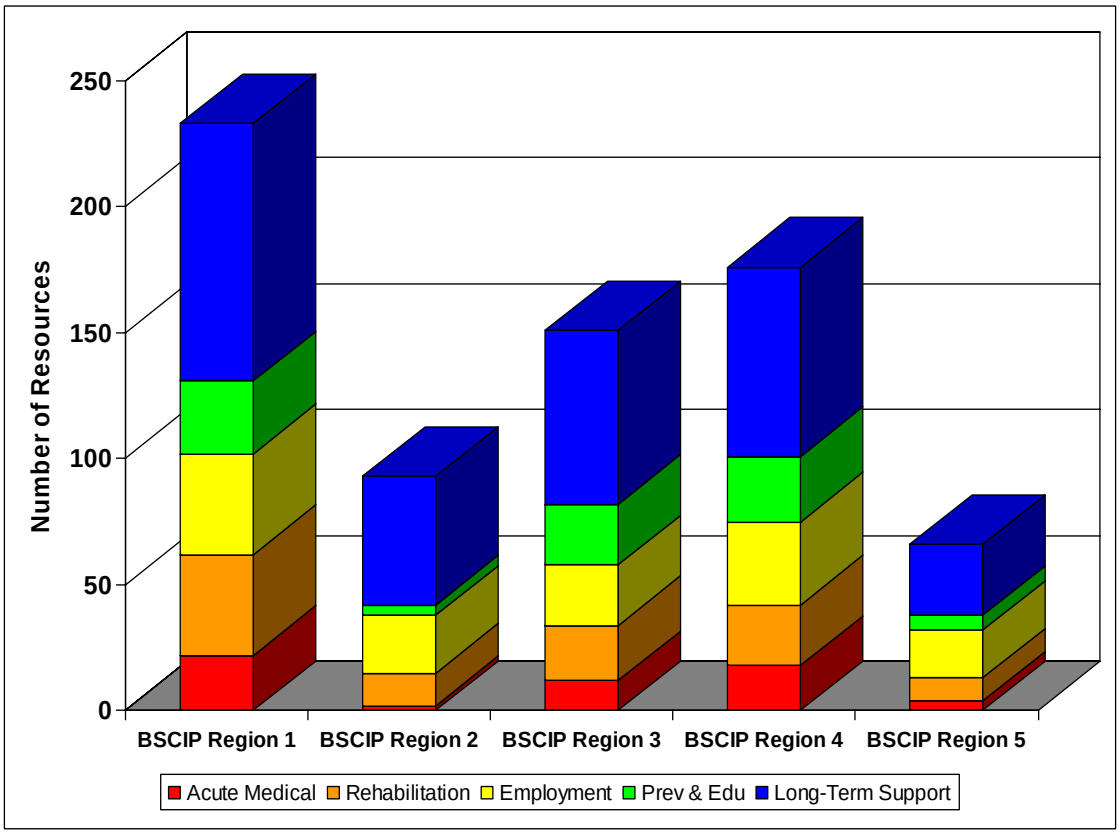
Table 6-2: Total Resources for Individuals with TBI by Service Area and BSCIP Region.

Region	Acute Medical		Rehabilitation		Employment		Prevention & Education	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	22	10.5	40	19.0	40	19.0	29	13.8
BSCIP Region 2	2	2.3	13	14.8	23	26.1	4	4.5
BSCIP Region 3	12	9.5	22	17.5	24	19.0	24	19.0
BSCIP Region 4	18	14.3	24	19.0	33	26.2	26	20.6
BSCIP Region 5	4	6.6	9	14.8	19	31.1	6	9.8
Florida	58	9.7	108	17.7	139	22.7	89	14.6

Region	Long-Term Support		Total	
	Number	Percent	Number	Percent
BSCIP Region 1	102	48.6	210	34.4
BSCIP Region 2	51	58.0	88	14.4
BSCIP Region 3	69	54.8	126	20.6
BSCIP Region 4	75	59.5	126	20.6
BSCIP Region 5	28	45.9	61	10.0
Florida	325	53.2	611	100.0

Note: Resources can provide services in multiple areas.
Prepared by: WellFlorida Council Inc, 2007.

Figure 6-2: Resources for Individuals with TBI by Service Area and BSCIP Region.



Prepared by: WellFlorida Council Inc, 2007.

Acute Care Facilities

Table 6-3 describes the 58 acute care facilities available to individuals with TBI in Florida. Acute care facilities are available in 26 of the 67 (38.8 percent) counties in Florida. The most (22 facilities) acute medical care facilities are in BSCIP Region 1. The fewest number of acute care facilities are in BSCIP Region 2 (2 facilities). Ten of the facilities are BSCIP acute care designated facilities and 19 are state designated trauma centers. Two of the 21 state certified trauma centers in Florida were not identified by respondents including Holmes Regional Medical Center in Melbourne and North Broward Medical Center in Deerfield Beach.

Table 6-3: Acute Medical Services for Individuals with TBI by BSCIP Region.

Region	BSCIP Designated Facility		Trauma Center		Total	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	5	21.7	4	17.4	22	37.9
BSCIP Region 2	1	50.0	2	100.0	2	3.4
BSCIP Region 3	1	8.3	5	41.7	12	20.7
BSCIP Region 4	1	5.6	5	27.8	18	31.0
BSCIP Region 5	2	50.0	3	75.0	4	6.9
Florida	10	16.9	19	32.2	58	100.0

Note: Facilities can be both a BSCIP designated facility and trauma center.
Prepared by: WellFlorida Council Inc, 2007.

Rehabilitation Resources

Table 6-4 highlights the rehabilitation resources available for individuals with TBI in Florida. Throughout the state, 108 rehabilitation resources are available in 53.7 percent (36 of 67) of counties. Resources can provide multiple types of rehabilitation services. Outpatient rehabilitation services are the most available type of rehabilitation service in Florida. Outpatient rehabilitation services were offered at 61.6 percent of rehabilitation resources. Only 6.5 percent of the resources offer community re-entry programs. BSCIP Region 1 has the most rehabilitation resources (40) available to individuals with TBI in the state; with the majority providing skilled nursing services. Region 5 has the fewest number of rehabilitation resources (9) available to individuals with TBI.

Table 6-4: Rehabilitation Services Types for Individuals with TBI by BSCIP Region.

Region	Inpatient		Outpatient		Day Treatment		Community Re-Entry	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	6	15.0	15	37.5	2	5.0	1	2.5
BSCIP Region 2	6	46.2	10	76.9	1	7.7	1	7.7
BSCIP Region 3	5	22.7	16	72.7	7	31.8	2	9.1
BSCIP Region 4	16	66.7	19	79.2	1	4.2	0	0.0
BSCIP Region 5	3	33.3	6	66.7	5	55.6	3	33.3
Florida	36	33.3	66	61.1	16	14.8	7	6.5
Region	**Residential**		**Skilled Nursing**		**Other**		**Total**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	0	0.0	24	60.0	3	7.5	40	37.0
BSCIP Region 2	0	0.0	0	0.0	2	15.4	13	12.0
BSCIP Region 3	6	27.3	1	4.5	0	0.0	22	20.4
BSCIP Region 4	1	4.2	0	0.0	3	12.5	24	22.2
BSCIP Region 5	1	11.1	2	22.2	5	55.6	9	8.3
Florida	8	7.4	27	25.0	13	12.0	108	100.0

Note: Resources can provide multiple services.
Prepared by: WellFlorida Council Inc, 2007.

Employment Services

In Florida, 139 employment services are available for individuals with TBI (Table 6-5). Employment services were identified as available in 70.1 percent (47 of 67) of counties in Florida. Over 90 percent of the counties in BSCIP Regions 2 through 5 have employment services available to individuals with TBI (90.9 percent, 100 percent, 90.9 percent and 100 percent, respectively). In BSCIP Region 1, 48.6 percent (17 of the 35) counties have employment services available. The Division of Vocational Rehabilitation (DVR) was the most frequently identified employment service available to individuals with TBI in the state with 81 different locations. Other employment services include Goodwill Industries and Work Force One. Of the 139 employment services, 93.5 percent (130) offer job placement services and 84.9 percent (118) provide vocational training.

Table 6-5: Employment Services for Individuals with TBI by BSCIP Region.

Region	Job Placement		Vocational Training		Total	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	35	87.5	30	75.0	40	28.8
BSCIP Region 2	23	100.0	18	78.2	23	16.5
BSCIP Region 3	22	91.7	20	83.3	24	17.3
BSCIP Region 4	32	96.9	33	100.0	33	23.7
BSCIP Region 5	18	94.7	17	89.5	19	13.7
Florida	130	93.5	118	84.9	139	100.0

Note: Resources can provide both job placement and vocational training services.
Prepared by: WellFlorida Council Inc, 2007.

Prevention and Education Services

There are 89 prevention and education resources available in Florida (Table 6-6). Of the 67 counties in Florida, 26 (38.8 percent) have prevention and/or education services available. BSCIP Regions 2 and 5 have a lower number of prevention and educational services than the other regions. It is speculated that this is due to under-reporting of resources. The resources identified can provide both prevention and education services at their location. The primary prevention activities for intentional and/or unintentional injuries (27 resources) included resources such as the local chapters of Florida SafeKids Coalitions. Education services are provided by 68 resources. Education providers include: DVR, local YMCA organizations, Centers for Independent Living (CIL), and the Children's Medical Services Early Steps Program. Participants were asked not to list local schools or school districts.

Table 6-6: Prevention and Education Services for Individuals with TBI by BSCIP Region.

Region	Primary Prevention		Education Services		Total	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	15	51.2	26	89.6	29	32.6
BSCIP Region 2	3	75.0	2	50.0	4	4.5
BSCIP Region 3	3	12.5	10	41.7	24	27.0
BSCIP Region 4	3	11.5	25	96.2	26	29.2
BSCIP Region 5	5	83.3	5	83.3	6	6.47
Florida	27	30.3	68	76.4	89	100.0

Note: Resources can provide both prevention and education services.
Prepared by: WellFlorida Council Inc, 2007.

Long-Term Community Support Services

Table 6-7 highlights the long-term community support resources identified in the Resource Summary. As stated above, the types of services available at these resources are from the HRSA TBI Needs and Resource Assessment Tool.[1] Throughout the state, 325 resources for long-term community support are available for individuals with TBI. Long-term community support

services are available in 68.7 percent (46 of 67) of counties in Florida. The most long-term community support services are available in BSCIP Region 1 (102 resources) and the fewest are in BSCIP Region 5 (28 resources). Variability exists across regions in terms of the quantity of resources available by service type and by region. This is potentially due to the differences seen in the level of detail in reporting by respondents. It is important to note that resources can provide multiple types of support services. Housing services are the most available long-term community support service in Florida, with local county State Housing Initiative Partnerships often mentioned in this category. Spirituality resources are the most unavailable throughout the state. Local county health departments and offices of human services (e.g. Medicaid and Social Security Offices) were excluded from analysis because they would not provide additional insights into the service availability for individuals with TBI in Florida.

Table 6-7: Long-Term Community Support Services for Individuals with TBI by BSCIP Region.

Region	Financial		Housing		Transportation		Recreation	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	14	13.7	39	38.2	17	16.6	15	14.7
BSCIP Region 2	1	2.0	17	33.3	5	9.8	2	3.9
BSCIP Region 3	6	8.7	9	13.0	11	15.9	17	24.6
BSCIP Region 4	5	6.7	28	37.3	16	21.3	12	16.0
BSCIP Region 5	2	7.1	6	24.1	2	7.1	4	14.3
Florida	28	8.6	99	30.5	51	15.7	50	15.4
Region	**Medical**		**Legal**		**Activities of Daily Living**		**Spirituality**	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	22	21.6	11	10.8	16	15.7	6	5.9
BSCIP Region 2	9	17.6	2	3.9	6	11.8	0	0
BSCIP Region 3	15	21.7	9	13.0	9	13.0	4	5.8
BSCIP Region 4	18	24.0	9	12.0	13	17.3	6	8.0
BSCIP Region 5	10	35.7	4	14.3	6	21.4	2	7.1
Florida	74	22.8	35	10.8	50	15.4	18	5.5
Region	**Other**		**Total**					
	Number	Percent	Number	Percent				
BSCIP Region 1	33	32.4	102	31.4				
BSCIP Region 2	25	49.0	51	15.7				
BSCIP Region 3	34	49.3	69	21.2				
BSCIP Region 4	28	37.3	75	23.0				
BSCIP Region 5	14	50.0	28	8.6				
Florida	134	41.2	325	100.0				

Note: Resources can provide multiple types of services.
Prepared by: WellFlorida Council Inc, 2007.

Population and Geography Implications

Comparing the distribution of TBI-related resources to the total population and the population of people living with TBI-related disabilities distributions in the state will provide insight into potential service inequities or gaps in service. Table 6-8 compares the total number of resources in each BSCIP region and Florida to the overall and TBI-related disability populations within the respective region. Disparities between population size and resource density within BSCIP regions exist across the state. Only Region 1 contains a greater percentage of TBI-related resources than percentage of the population. BSCIP Region 1, which accounts for 18.3 percent of the total and TBI-related disability populations, contains more than 34 percent of all TBI resources in the state. All of the other regions have a gap between the percentage of the total and TBI-related disability populations within the region and the percentage of TBI-related resources available. BSCIP Region 4 houses the largest percentage (26.0 percent) of the state's total and TBI-related disability population, but contains only 20.6 percent of the TBI-related resources in the state. Region 2 contains 20.5 percent of the total and TBI-related disability population of Florida, but only 14.4 percent of the available TBI-related resources are located in this region.

Table 6-8: Total Resources, Population and TBI Population by BSCIP Region and Florida, 2006.

Area	2006 Population		2006 TBI-related Disability Population		Resources	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	3,380,488	18.3	67,610	18.3	210	34.4
BSCIP Region 2	3,780,193	20.5	75,604	20.5	88	14.4
BSCIP Region 3	3,971,460	21.5	79,429	21.5	126	20.6
BSCIP Region 4	4,799,835	26.0	95,997	26.0	126	20.6
BSCIP Region 5	2,546,333	13.8	50,927	13.8	61	10.0
Florida	18,478,309	100.0	369,566	100.0	611	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
TBI population is equal to 2 percent of the total population.
Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

When addressing the issue of service capacity, it is important to include discussion of how the projected population increase may impact the demand for services within given geographies. For the purpose of this report, service capacity will be defined as the number of resources within the given geography. As discussed in the Demographic and TBI Profile sections of this report, Florida is anticipating a 21.5 percent increase in total and the TBI-related disability populations by 2015. Table 6-9 shows the increase in TBI-related service capacity needed to account for the projected increase in population by 2015 to maintain the current level of service capacity in Florida. To maintain the existing service capacity level given the projected population increase, the total amount of resources in Florida would need to increase by 17 percent. BSCIP Region 4, which is expecting the largest increase in population, would need to increase capacity by approximately 24 TBI-related resources to maintain the current service capacity. TBI-related disability growth in BSCIP Region 2 is expected to exceed the state growth rate with 24.3

percent growth. To maintain service capacity levels, 14 TBI-related resources are needed in this region.

As noted in the Demographic section of this report, by 2015 seven counties in Florida are projected to increase the number of people in the county per square mile to over 100, therefore losing their rural county designation by the Florida Department of Health, Office of Rural Health. These counties may experience additional hardships while trying to increase service capacity to meet the increased service demands because existing infrastructure might not be in place.

When looking at the distribution of resources, it is important to look at the geographic characteristics of a given region (Table 6-10). In Florida, 43.3 percent of counties have five or more TBI-related resources. Only 13.4 percent have more than 30 TBI-related resources. Over 55 percent of all the TBI-related resources are located within the nine counties with 30 or more resources. These counties are some of the most populated counties in the state including: Miami-Dade, Orange, Hillsborough, Duval, Pinellas, Lee, Escambia, Leon and Alachua.

Table 6-9: Total Resources, Population and TBI Population by BSCIP Region and Florida, 2006.

Area	2006 TBI Population		2006 TBI-related Resources		2015 TBI Population		2015 TBI-related Resources	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	67,610	18.3	210	34.4	79,403	18.3	246	34.4
BSCIP Region 2	75,604	20.5	88	14.4	92,531	20.5	102	14.4
BSCIP Region 3	79,429	21.5	126	20.6	91,236	21.5	146	20.6
BSCIP Region 4	95,997	26.0	126	20.6	115,034	26.0	150	20.6
BSCIP Region 5	50,927	13.8	61	10.0	57,146	13.8	68	10.0
Florida	369,566	100.0	611	100.0	435,350	100.0	720	100.0

Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Population Projections by Age, Sex, Race and Hispanic Origin for Florida and Its Counties, 2005-2030.
Prepared by: WellFlorida Council Inc., 2007.

BSCIP Region 1 is the largest in terms of the number of counties (35) and geographic area (greater than 23,000 square miles), representing approximately 43.8 percent of the state's geography, but houses only 34.4 percent of all TBI-related resources in the state. Since this region is considered most "rural" based on the number of people per square mile as discussed in the demographic section of this report, it is not surprising that only 25.7 percent of the counties in this region have five or more TBI-related resources. Four counties in the region contain more than 66.6 percent of the TBI-related resources in this region. These findings show that BSCIP Region 1 has the most TBI-related services available, but the services are the most geographically scattered. This could negatively impact access to TBI-related services because of the distance to and from services and other transportation-related issues.

BSCIP Region 2 contains 10 counties and represents approximately 16.3 percent of Florida's geographic area. This region houses 14.4 percent of the TBI-related resources in the state. In BSCIP Region 2, six of the counties have five or more resources. Orange County alone contains

over 43 percent of the resources identified in this region. Sumter County is the only county in the region without TBI-related services. Sumter County is designated as rural by the Florida Department of Health, Office of Rural Health.

BSCIP Region 3 represents 13.9 percent of the state's geography, while containing 20.6 percent of the available TBI-related resources. Of the nine counties in the region, six contain more than five resources. Hillsborough and Pinellas counties contain more than 30 TBI-related resources. All counties in this region have at least one TBI-related resource. Since a greater percentage of services are available within a smaller area, individuals with TBI may be more likely to utilize multiple service providers. It also may make it easier for individuals to access the services that they need because they are closer in distance.

BSCIP Region 4 represents 20.5 percent of the state's geography and contains 20.6 percent of the available TBI-related resources. Of the eleven counties in the region, six contain more than five resources. Lee County contains more than 30 TBI-related resources and both Broward and Palm Beach counties contain more than 20 TBI-related resources. All counties in this region have at least one TBI-related resource. This is the only region in which the percentage of the state's geography and the number of resources available are similar. This might suggest that the distribution of services in this region is the most equitable based on geographic size alone.

BSCIP Region 5 represents 5.5 percent of the state's geography, while containing 10.0 percent of the available TBI-related resources. Both of the counties in the region contain more than five resources, but Miami-Dade County contains 55 of the 61 TBI-related resources in the region. Miami-Dade County has more TBI-related services available than any other county in the state. This region is different than they others because of Monroe County, which is both a rural designated county and the location of the Florida Keys. Individuals in Monroe County may face additional obstacles when accessing TBI-related services because of distance and lack of services available.

Table 6-10: Total TBI-Related Resources, Counties with TBI-Related Resources and Square Miles by BSCIP Region and Florida, 2006.

Area	Square Miles		Counties w/TBI-related Resources*		Resources	
	Number	Percent	Number	Percent	Number	Percent
BSCIP Region 1	23,561.7	43.8	9	25.7	210	34.4
BSCIP Region 2	8,801.9	16.3	6	60.0	88	14.4
BSCIP Region 3	7,495.3	13.9	6	66.7	126	20.6
BSCIP Region 4	11,037.9	20.5	6	54.5	126	20.6
BSCIP Region 5	2,941.8	5.5	2	100.0	61	10.0
Florida	53,838.6	100.0	29	43.3	611	100.0

*Counties contain more than 5 TBI-related resources.
Please note that due to rounding the sum of the individual groups may not equal the state total.
Source: ESRI Business Solutions, 2006.
Prepared by: WellFlorida Council Inc., 2007.

Summary of Key Findings

The Resource Summary provides a list of 611 resources and services currently available to individuals with TBI in Florida in key service areas. The respondents provided information on the resources that they use when working with individuals with TBI. The main findings include:

- In Florida, 91 percent (61 of 67) of the counties have at least one resource available for individuals with TBI.
- Forty-five percent of all available TBI-related services are located within seven counties in the state.
- All of the counties without TBI-related services are rural counties designated by the Florida Department of Health, Office of Rural Health.
- Long-term community support resources (325 resources) are the most common type of resource available to individuals with TBI, accounting for more than 53 percent of all resources.
- In Florida, 58 acute care facilities are available to individuals with TBI. Ten are BSCIP acute care designated facilities and 19 are state designated trauma centers. Two of the state designated trauma centers were not identified in this assessment, Holmes Regional Medical Center in Melbourne and North Broward Medical Center in Deerfield Beach.
- There are 108 rehabilitation resources available to individuals with TBI in Florida, representing 36 counties. The most common service provided in rehabilitation resources is outpatient services. Outpatient rehabilitation services are available in 61.6 percent of rehabilitation resources. Community re-entry rehabilitation services are the least available rehabilitation service in Florida.
- Employment services are available at 139 locations in Florida. DVR has 81 different locations throughout the state.
- Prevention and education resources were identified at 89 locations in Florida. Local chapters of Florida SafeKids Coalitions were identified as providing prevention activities. Educational services were identified at 68 resources in Florida.
- Long-term community resources are available in 68.7 percent (46 of 67) of counties in Florida. The most long-term community support resources are in BSCIP Region 1 (102 resources) and the fewest are available in BSICP Region 5 (28 resources).
- Only Region 1 contains a greater percentage of TBI-related resources (34 percent) than percentage of the population (18.3 percent). All of the other regions have a gap between the percentage of the total and TBI populations within the region and the percentage of TBI-related resources available.
- In Florida, 43.3 percent of counties have five or more TBI-related resources and 13.4 percent have more than 30 TBI-related resources.
- BSCIP Region 1 is the largest in terms of the number of counties (35) and geographic area (greater than 23,000 square miles), representing approximately 43.8 percent of the state's geography, but houses only 34.4 percent of all TBI-related resources in the state; only 25.7 percent of the counties in this region have five or more TBI-related resources.
- BSCIP Region 2 contains 10 counties representing 16.3 percent of Florida's geographic area and houses 14.4 percent of the TBI-related resources in the state. Sumter County, a rural designated county, is the only county in the region without TBI-related services.

- BSCIP Region 3 represents 13.9 percent of the state's geography, while containing 20.6 percent of the available TBI-related resources. Since a greater percentage of services are available within a smaller area, individuals with TBI may be more likely to utilize multiple service providers. It also may make it easier for individuals to access the services that they need because they are closer in distance.
- BSCIP Region 4 represents 20.5 percent of the state's geography and contains 20.6 percent of the available TBI-related resources. Lee County contains more than 30 TBI-related resources and both Broward and Palm Beach counties contain more than 20 TBI-related resources.
- BSCIP Region 5 represents 5.5 percent of the state's geography, while containing 10.0 percent of the available TBI-related resources. Miami-Dade County contains 55 of the 61 TBI-related resources in the region that is the most TBI-related services in the state.
- To maintain the existing service capacity level given the projected population increase, the total amount of resources in Florida would need to increase by 17 percent.
- As noted in the Demographic section of this report, by 2015 seven counties in Florida are projected to increase the number of people in the county per square mile to over 100, therefore losing their rural county designation, which may result in additional hardships while trying to increase service capacity to meet the increased service demands because existing infrastructure might not be in place.

Limitations of Key Findings

Respondents completed the tool with an incredible amount of variability in the level of detail provided. Respondents were asked to list the resources they use when working with individuals with TBI. Some respondents provided very thorough and comprehensive resource lists, while others were less detailed. It is speculated that the list of resources provided by respondents under-reports the number of services actually available for individuals with TBI. For example, respondents identified 58 acute medical care facilities in the state. The Agency for Health Care Administration (AHCA) reports having 215 hospitals that provide acute care in Florida.[2] Two acute medical care facilities were listed by respondents in BSCIP Region 2 compared to 41 by AHCA. Additionally, two of the state designated trauma centers in the state were not identified as acute medical facilities. This is surprising, since trauma centers are the most qualified to treat life-threatening brain injuries. This type of variability in reporting was apparent across all services areas.

The list of resources represents the services that BSCIP case managers, CMS BSCIP nurses, and Family and Community Support specialists use when working with individuals with TBI. It is not a comprehensive list of available services. The Resource Summary also does not provide insight into the quality or effectiveness of these services. Therefore, drawing conclusions from this summary can be misleading.

[1] U.S. Department of Health and Human Services, Health Resources and Services Administration, Material and Child Health Bureau, Federal Traumatic Brain Injury Program. Traumatic brain injury needs and resource assessment tool; 2006.
[2] State of Florida. Agency for Health Care Administration. Certificate of Need Office. Hospital beds and services list; 2007.

Conclusion

Traumatic Brain Injury in Florida: A Needs and Resource Assessment, was conducted to identify the needs of individuals with TBI including mild, moderate and severe brain injury across all age groups and in culturally distinct populations. The findings from the study will serve as a resource during the creation and implementation of a comprehensive, consumer-directed strategic plan that addresses the needs of Florida's TBI population and their families.

Demographic and Socioeconomic Findings

Florida's current population is nearly 18.5 million, with the largest percentage of the population located in BSCIP Region 4. The population of Florida is projected to increase approximately 21.5 percent by 2015, with the largest increase projected in BSCIP Region 2.

Individuals 24-44 years and 45-64 years of age represent the largest proportion of the population, 26 percent in each group. The age group 0-4 years, which has the highest risk for TBI in Florida, currently represents the smallest proportion of Florida's population (6 percent), but is expected to increase to 17.6 percent by 2015. The elderly population in Florida (65 years of age and older), also at high risk for TBI, currently represents approximately 18 percent of the population and is expecting the greatest amount of growth of all age groups, 36.1 percent, by 2015.

- BSCIP Regions 1 and 5 have a greater percentage of younger individuals, while BSCIP Regions 3 and 4 have a larger percentage of people over the age of 45 years compared to Florida as a whole.

Florida's population is 75.7 percent white and 15.5 percent black compared to 73.0 percent white and 12.6 percent black, nationally. The percentage of the population in Florida that identifies as all other races is 8.8 percent. Florida is anticipating growth in all races, but individuals who identify as all other races are anticipated to increase the most (41.9 percent) by 2015. BSCIP Region 5 is the only region that is expecting a decrease in the percentage of white residents by 2015.

- BSCIP Region 3 has the largest percentage of white residents while BSCIP Region 5 has the smallest. BSCIP Region 1 has the largest percentage of black residents.

Nationally, 14.8 percent of the population identifies themselves as Hispanic compared to 20 percent of Florida's population. Currently, Region 5 has the highest percentage (62.1 percent) of individuals of Hispanic ethnicity. The number of individuals who identify as being of Hispanic ethnicity is projected to increase by 41.8 percent in Florida by 2015. BSCIP Regions 1 through 4 are expecting between 49 percent and 63 percent growth in the size of the Hispanic population by 2015.

In Florida, 51.2 percent of residents are female and 48.8 percent are male. Like the state, each BSCIP region has a slightly higher percentage of females than males. The projected population

increase in Florida and each BSCIP region is not impacted by gender, as the population growth is consistent across genders through 2015.

Currently, 33 of 67 counties in Florida are rural, but by 2015 only 28 of 67 counties will be classified as rural. The majority of rural counties are located in BSCIP Region 1. Though the populations in urban and rural areas are both increasing, the population in urban areas is increasing at a slightly faster pace than in rural areas.

Florida's income is $26,399 per capita and the median household income is $46,736. BSCIP Regions 3 and 4 have per capita income levels higher than the state per capita income level. BSCIP Region 5 has the lowest per capita income. Approximately 12.5 percent of Florida's population is estimated to be living in poverty (i.e., 100 percent of the federal poverty level) and 18.6 percent of residents are estimated to be between 100 percent and 200 percent of the federal poverty level. The current unemployment rate is 3.2 percent of people in the labor force.

- BSCIP Region 5 has the greatest percentage of residents at or below 200 percent of the federal poverty level and the highest percentage of unemployment.
- BSCIP Region 4 has the lowest percentage of residents at or below 200 percent of the federal poverty level.

Approximately 20 percent of Florida residents (age 25 and over) have no high school diploma and just over 50 percent have earned a high school diploma. For 29.4 percent of the population, a college degree or higher is the highest level of educational attainment. BSCIP Region 5 has the greatest percentage of residents without a high school diploma and the smallest percentage who earned a high school diploma.

Traumatic Brain Injury Findings

Currently, 369,566 people (2 percent) are living with a TBI-related disability in Florida. By 2015, this is expected to increase to approximately 435,350 people. The prevalence of TBI-related disabilities mirrors the population distribution.

- The greatest number of people with TBI-related disabilities live in BSCIP Region 4 (95,997 people) and the fewest in BSCIP Region 5 (50,927 people).
- Through 2015, BSCIP Region 2 is anticipating the greatest increase in the percentage of individuals living with TBI-related disabilities and BSCIP Region 5 is expecting the smallest increase.

In 2005, there were approximately 93,000 TBIs in Florida, which included 71,400 emergency department (ED) visits (76.8 percent), 17,700 hospitalizations (19.0 percent) and 3,900 deaths (4.2 percent). Florida's age-adjusted rate for all TBIs, TBI-related deaths and TBI-related ED visits were higher than the national rate, while the rate for TBI-related hospitalization was slightly less than the national rate.

- In 2005, the greatest number of TBIs occurred in BSCIP Region 4 compared to BSCIP Region 5 with the fewest, which corresponds with the population distribution of the state.

- Four of the five counties with the largest populations in Florida had the greatest number of TBIs in 2005: Miami-Dade, Broward, Hillsborough and Palm Beach.

In 2005, the groups at greatest risk for all TBIs include children 0-4 years of age, young adults 15-24 years of age and adults over the age of 65.

- Adults 65 and over were at greatest risk for TBI-related deaths and hospitalizations; these rates were greater than the national rates.
- Individuals 15 to 24 years of age were at second greatest risk for TBI-related deaths and hospitalizations, which was greater than the national rate for TBI-related deaths and less than the national rate for TBI-related hospitalizations.
- Youth 0-4 years of age were at greatest risk for TBI-related ED visits, which was less than the national rate for this population. Adults 65 years of age and older were at second greatest risk for TBI-related ED visits, which is 1.8 times greater than the national rate for this population.

In Florida, 82.3 percent of all TBIs that occurred in 2005 were to whites, 14.1 percent were to blacks and 2.8 percent were to individuals who were classified as other races. During 2005, individuals classified as other races had the highest rate of total TBIs in Florida, followed by whites and blacks.

- Whites, 15-24 years of age, were at greatest risk for TBI compared to all other races.
- From 1999 through 2005, whites were at greatest risk for TBI-related deaths and other races were at greatest risk for TBI-related hospitalizations, which is unlike the national picture where blacks are at greatest risk for TBI-related deaths and hospitalizations.
- During 2005, individuals in Florida who were white were most likely to be treated and released from the ED for TBI-related issues.

In 2005, 15 percent of all TBIs were suffered by individuals who identify themselves as Hispanic, resulting in a rate of 402.9 per 100,000 of the population. The rate was highest in BSCIP Region 3 and lowest in BSCIP Region 1.

In Florida, males were 1.3 times more likely to experience a TBI than females during 2005. Across all age groups in Florida, except the 65 years of age and older age group, males were more likely to experience a TBI than females. Males 0-4 years of age were at highest risk for TBI in Florida during 2005.

- In Florida, males were approximately three times more likely to die, 1.7 times more likely to be hospitalized and 1.2 times more likely to be treated and released from the ED as a result of a TBI than females.

Nationally, falls (28 percent), motor vehicle-traffic accidents (20 percent), struck by/against (19 percent) and assaults (11.0 percent) are the primary causes of TBI. During 2005, falls caused 39.6 percent of all TBIs in Florida, followed by motor vehicle-traffic accidents (20.8 percent) and assaults (11.1 percent). The rates for TBI were highest for falls followed by motor vehicle-traffic accidents and assaults. These crude rates were higher than their respective rates

nationally. When adjusting for differences in age, only the rate of TBIs caused by assaults was less than the national rate.

- The leading cause of death in the United States and Florida was motor vehicle-traffic accidents. Falls were the leading cause of TBI-related hospitalization and ED visits in Florida.

In 2005, the rural population of Florida accounted for 5,191 (5.6 percent) of the total TBIs in the state. The total rate for TBI in the rural counties of Florida was less than the rate for the non-rural counties.

- From 1999 through 2005, the TBI-related death rate in the rural counties of Florida was higher than the non-rural counties and the state. The TBI-related 1999 through 2005 hospitalization rate and 2005 ED visit rate were less than the non-rural counties and the state for the same time periods. The higher death rates and lower hospitalization rates in rural counties may be due to decreased access to medical care in rural areas including lack of trauma centers and increased transport time. There are also potential issues regarding accurately identifying, reporting and diagnosing TBIs in rural hospitals and emergency departments due to lack of training.

Traumatic Brain Injury System Findings

Brain and Spinal Cord Injury Program

The state of Florida has a state government administered program, Brain and Spinal Cord Injury Program (BSCIP), is designed to assist individuals and their families who experience a moderate-to-severe TBI from time of injury through community reintegration in accessing federal, state, third party and community resources.

There is a disparity between the number of TBIs and TBI-related hospitalizations that occur each year and the number of new moderate-to-severe brain injury referrals to the Central Registry (CR). It is expected that the number of new injury referrals would be equal to the number of new moderate and severe injuries each year. Injury severity was not available through the data examined for this study; therefore, total TBIs and TBI-related hospitalizations are used for comparison. Approximately, 2.6 percent of all TBIs and 16.5 percent of all TBI-related hospitalizations were referred to the CR each year. This disparity exists across age group and cause of injury as well.

The BSCIP Trust Fund provides services for individuals with moderate-to-severe TBI. These funds can be used to access services as a payor of last resort including case management, acute care, inpatient and outpatient rehabilitation, transitional living, assistive technology and home and vehicular modification. The total Trust Fund allocation for each region, brain and spinal cord injury combined, is based on four client caseload measures, each measure constituting 25 percent of the total budget allocation. From state fiscal year 2002-2003 through 2005-2006, the total Trust Fund allocation for BSCIP was approximately $25 million and resulted in the

expenditure of approximately $20 million. Disparity in the allocation exists when comparing total allocations to population, TBI and TBI-related hospitalization percentages.

From 2002 through 2005, approximately 6,400 individuals with TBI were served by the BSCIP Trust Fund programs. Similar to the issues described above for the CR, disparity exists between clients served, new injury referrals, total TBIs and TBI-related hospitalizations. As in the CR data, this disparity exists across age group and cause of injury as well.

The current BSCIP Home and Community-Based Waiver became effective in July, 2002 and remains effective until June, 2007. The current Waiver provides services to 325 brain and spinal cord injury individuals, which was recently expanded from 300 individuals. Since 2003, the TBI population in the Waiver program has grown each year, from 96 TBI Waiver clients in 2003 to 129 TBI Waiver clients in 2005.

Between 2003 and 2005, 11,477 Medicaid Home and Community-Based Waiver services have been provided to individuals with TBI, resulting in an average of 3,826 services per year. The total cost of the services was $7,070,932 over this time period, resulting in an average of $2,356,977 per year. Community support coordination and companion services were the most frequently utilized services. Companion services and personal attendant services were the most costly for participants in the Waiver program.

Brain Injury Association of Florida

The Brain Injury Association of Florida (BIAF) assists individuals with brain injuries, their families and professionals by providing a statewide information and resource center, education and training opportunities, support services, a toll-free helpline, awareness and prevention programs and legislative activities. Since 2003, BIAF identified 10,658 contacts for basic information or resources (2,662 contacts per year) and has served 2,216 individuals by the Family and Community Support Program (554 individuals per year). The areas of assistance needed most often by the Family and Community Support Program included: medical, financial, housing and employment.

Key Community Partners

Key community partners play vital roles in the lives of individuals with TBI in Florida. Based on the information provided, individuals with TBI represent a percentage of the consumers they serve on a regular basis. Therefore, providing education and training about appropriate interventions and strategies to work with this population is vital. Additionally, it is hypothesized that the number of people with TBI served by these agencies is underestimated because of inappropriate identification and/or classification. Therefore, working to strengthen partnerships with key community partners has the potential to increase access to services and resources for individuals with TBI.

Community Input

The following are the key observations derived from an analysis of the comments and insights gathered during the community input phase of the needs assessment:

- Access to the appropriate rehabilitation and therapies was viewed as the most helpful for individuals with TBI by participants.
- The primary service needs include access to long-term affordable and accessible housing including residential and transitional living facilities, financial assistance, transportation services, employment services and alcohol and drug addiction services. Participants stressed the importance of access to support groups and support networks.
- Caregivers emphasized different needs including long-term life planning; guardianship issues; and barriers to accessing services or information because of HIPAA restrictions.
- The lack of public and professional awareness and knowledge of brain injury was perceived as a key issue for participants.
- The limited access to information and education was also emphasized by participants.
- The lack of long-term support and services was an issue identified by community input participants, specifically the void in services once discharged from the hospital, rehabilitation, or BSCIP case management services.
- Community input participants also commented on strengths and weakness of BSCIP. Strengths of this program include: having a centralized state department designated to brain injury; having a Trust Fund; the Central Registry; dedicated staff; and the Medicaid Waiver program. Weaknesses identified were the lack of long-term support and follow-up services, restrictive service eligibility requirements and missed referrals to CR.
- Many participants commented on the strong organizations and partnerships working in the area of brain injury in Florida.
- Participants overwhelmingly agreed that caregivers were not adequately prepared to deal with the behavioral issues brought on by the TBI.

Summary of the community perspectives on the selected under-represented and/or underserved populations:

- Leaders provided insight into the Hispanic culture that may impact access to services including: the tendency to have strong family support networks, the tendency to be private and a possible fear of accessing government services.
- Individuals with mild TBI and leaders who work with this population stressed the importance of appropriate diagnosis and identification of the injury including increasing education about mild brain injuries and prevention activities.
- Parents and leaders in the TBI community emphasized the importance of working with the public education system to better meet the needs of their children including: by creating partnerships with therapists, the provision of education and training to school staff about TBI and appropriate interventions and strategies and increased flexibility to increase the likelihood of success for their children.

- Barriers to services for rural residents include: transportation issues, limited providers and specialists and isolation issues. Survivors and caregivers emphasized the importance of support groups and the need for socialization and recreation activities.

Resource Summary

Knowing the services that are currently available will help with future planning for individuals with TBI in Florida. The purpose of the summary was to create a snapshot of the current delivery system in Florida for individuals with TBI. The summary was designed to quantify the amount of resources available in each of the designated service areas. Services were not examined with regard to quality and effectiveness.

A total of 611resources were identified by participants for individuals with TBI. Of the counties in Florida, 91 percent have at least one resource available for individuals with TBI. BSCIP Region 1, the largest geographic region, identified the greatest number of resources for individuals with TBI. BSCIP Region 5, the smallest region in terms of population and geographic size, identified the fewest number of resources. The counties with the most resources TBI-related resources include: Miami-Dade, Duval, Orange, Pinellas, Pensacola, Hillsborough and Leon. These counties contain 45 percent of all the TBI-related services. Five of the six counties without TBI-related services are located in BSCIP Region 1 and all are identified as a rural county.

Long-term community support services represent more than 53 percent of resources and are also the most available resource in each BSCIP region. Employment services are the second most available resource in the state and in each region. Acute medical facilities represent the smallest percentage of resources in the state and in each region.

Comparing the distribution of TBI-related resources to the total population and TBI population distribution in the state provides insight into potential service inequities or gaps in service.

- BSCIP Region 1 contains a greater percentage of TBI-related resources than percentage of the total population and TBIs. All of the other regions have a gap between the percentage of the total and TBI populations within the region and the percentage of TBI-related resources available.

When addressing the issue of service capacity, it is important to include discussion of how the projected population increase may impact the demand for services within given geographies. Florida is anticipating a 21.5 percent increase in total and TBI-related disability populations by 2015. To maintain the existing service capacity level given the projected population increase, the total amount of resources in Florida would need to increase by 17 percent. As noted in the Demographic section of this report, by 2015 seven counties in Florida are projected to increase the number of people in the county per square mile to over 100, therefore losing their rural county designation. These counties may experience additional hardships while trying to increase service capacity to meet the increased service demands because existing infrastructure might not be in place.