



# The Hilltop Institute

*analysis to advance the health of vulnerable populations*

## Medicaid Long-Term Services and Supports in Maryland:

FY 2008 to FY 2011

## The Traumatic Brain Injury Waiver A Chart Book

March 4, 2013

*Prepared for:*  
*Maryland Department of Health and Mental Hygiene*

## TABLE OF CONTENTS

Maryland Medicaid Long-Term Services and Supports Overview .....	3
Key Findings .....	5
Chart Book Organization .....	6
Data Source .....	6
Chapter 1: Traumatic Brain Injury Waiver Participants .....	7
Demographics	
Enrollment	
Average Lengths of Stay in the Waiver	
Chapter 2: Traumatic Brain Injury Waiver Medicaid Expenditures and Service	
Utilization .....	14
Total Medicaid Expenditures	
Traumatic Brain Injury Waiver Service Utilization and Expenditures	
Per Member Per Month Medicaid Expenditures for Waiver Participants	
List of Figures .....	22

## Maryland Medicaid Long-Term Services and Supports Overview

*The Maryland Long-Term Services and Supports Chart Book, Volume 3, The Traumatic Brain Injury Waiver* is the last in a series of three that explores service utilization and expenditures for Medicaid-funded long-term services and supports in Maryland. Volume 1 explores service utilization and expenditures for Maryland Medicaid's Living at Home Waiver, Older Adults Waiver, and Medical Day Care Waiver, as well as Maryland State Plan personal care services and Medicaid nursing facility utilization and expenditures. Volume 2 provides information on the states' Medicaid Autism Waiver.

This chart book provides information about Maryland Medicaid participants who received services through the Traumatic Brain Injury Waiver state in fiscal years (FYs) 2008 through 2011. The Traumatic Brain Injury Waiver, which became effective on July 1, 2003, provides services to individuals aged 22 through 64 years with a traumatic brain injury diagnosis who require a specialty hospital or nursing facility level of care. Individuals must have experienced the traumatic brain injury after the age of 17 years and reside in an approved inpatient setting (e.g., state-owned and operated nursing facility or chronic hospital, specialty hospital). Funded waiver slots are requested on an annual basis and there is no enrollment cap for eligible individuals who meet Money Follows the Individual and/or Money Follows the Person program criteria.

The waiver is authorized under Section 1915(c) of the Social Security Act and approved by the federal Centers for Medicare and Medicaid Services. It is operated by the Maryland Mental Hygiene Administration with oversight by Maryland's Office of Health Services, Division of Evaluation and Quality Review (OHS/DEQR).

## Maryland Medicaid Long-Term Services and Supports Overview continued

Services covered under the Traumatic Brain Injury Waiver include residential and day habilitation, supported employment, individual support services, case management, and medical day care. Waiver participants receive full Medicaid benefits and are entitled to receive other services under the Maryland Medicaid State Plan.

## Key Findings

This chart book summarizes demographic, service utilization, and expenditure data for the Traumatic Brain Injury Waiver for FYs 2008 through 2011. The data are presented through a series of figures that illustrate trends in Traumatic Brain Injury Waiver utilization with accompanying narrative text. Notable trends in the data include:

- The Traumatic Brain Injury Waiver served a total of 56 participants in FY 2011.
- Total Medicaid expenditures for Traumatic Brain Injury Waiver participants, excluding administrative costs, increased in each of the four reporting periods, reaching \$5.7 million in FY 2011.
- Nearly \$5.1 million (or 89%) of those expenditures were for the provision of waiver services; the remaining costs were for state plan services.
- Per member per month (PMPM) total Medicaid expenditures for Traumatic Brain Injury Waiver participants were \$9,465 in FY 2011, an increase of less than 1% over the previous year.
- Totaling \$4.0 million, residential habilitation services accounted for 79% of all FY 2011 Medicaid expenditures for Traumatic Brain Injury waiver services.
- The most widely used FY 2011 Traumatic Brain Injury Waiver services were day habilitation and residential habilitation services.
- All waiver services were provided by five providers; Mary T. Maryland provided services to the largest number of participants (28), at a cost of \$2.7 million.

## Chart Book Organization

The data in this chart book are presented in two sections.

- **Waiver Participants:** This section includes data on the number of Traumatic Brain Injury Waiver participants with breakdowns by age, race, gender, county of residence, average length of stay, and reason for leaving the waiver. It also contains data on the settings from which individuals entered the waiver.
- **Medicaid Expenditures and Service Utilization:** This section provides data on expenditures for waiver, non-waiver, and pharmacy services used by participants in the Traumatic Brain Injury Waiver program.

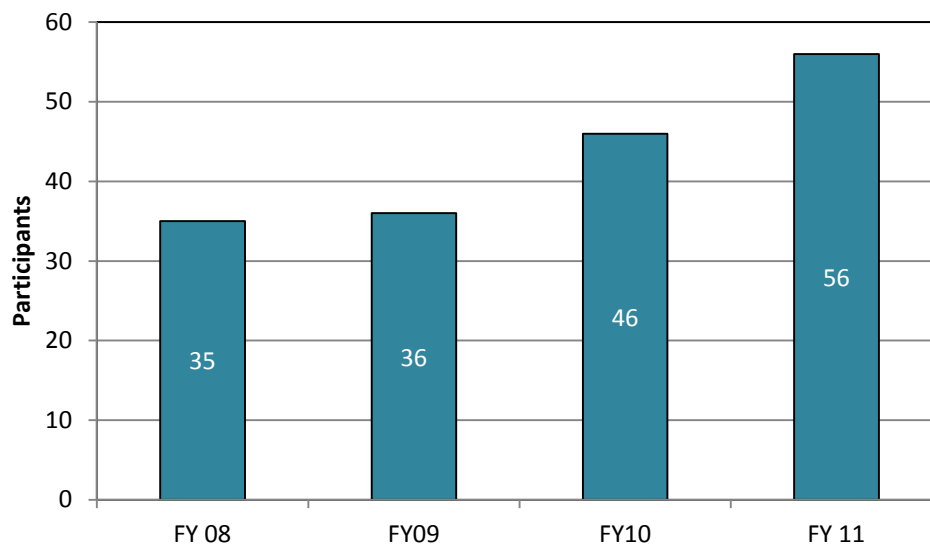
## Data Sources

The information in this chart book was derived from the following data sources:

- **Maryland Department of Health and Mental Hygiene (DHMH) Medicaid Management Information System (MMIS2):** This system contains data for all individuals enrolled in Maryland Medicaid during the relevant fiscal year, including Medicaid eligibility category and fee-for-service claims. All MMIS2 data is warehoused and processed monthly by The Hilltop Institute.
- **DHMH Decision Support System (DSS):** This system provides summary reports based on MMIS2 files and functions as a data resource for figures in this chart book derived from the DSS.
- **U.S. Census Bureau:** 2011 Modified Race Data, prepared by the Maryland Department of Planning, Projections and Data Analysis, State Data Center, May 2012.

# **Chapter 1: Traumatic Brain Injury Waiver Participants**

**Figure 1. Unduplicated Number of Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011**

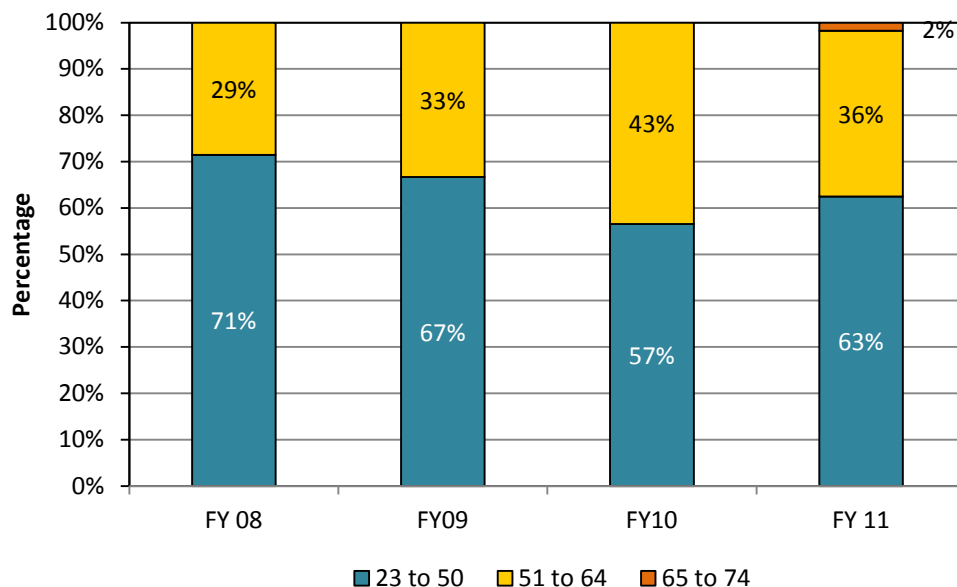


The number of Traumatic Brain Injury Waiver participants was 56 in FY 2011, up 22% from 46 in FY 2010 and 60% from 35 in FY 2008.

Source: DSS.



**Figure 2. Traumatic Brain Injury Waiver Participants, by Age Group, FY 2008 to FY 2011**



Due to long lengths of stay in the waiver, the Traumatic Brain Injury Waiver participants are aging. In FY 2008, nearly three-fourths (71%) of the waiver population were aged 23 to 50 years. In FY 2011, this decreased to 63% of all participants.

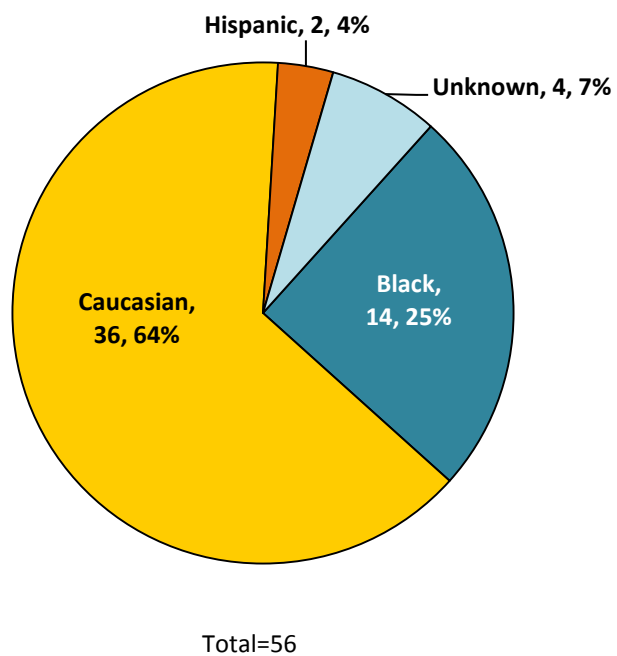
**Figure 3. Traumatic Brain Injury Waiver Participants, by Gender, FY 2008 to FY 2011**

Gender	FY 08	FY 09	FY 10	FY 11
Female	7	8	8	10
Male	28	28	38	46
<b>Total</b>	<b>35</b>	<b>36</b>	<b>46</b>	<b>56</b>

Participants in the Traumatic Brain Injury Waiver are more likely to be male. In FY 2011, male participants outnumbered females by a ratio of nearly 5 to 1.

Source: DSS.

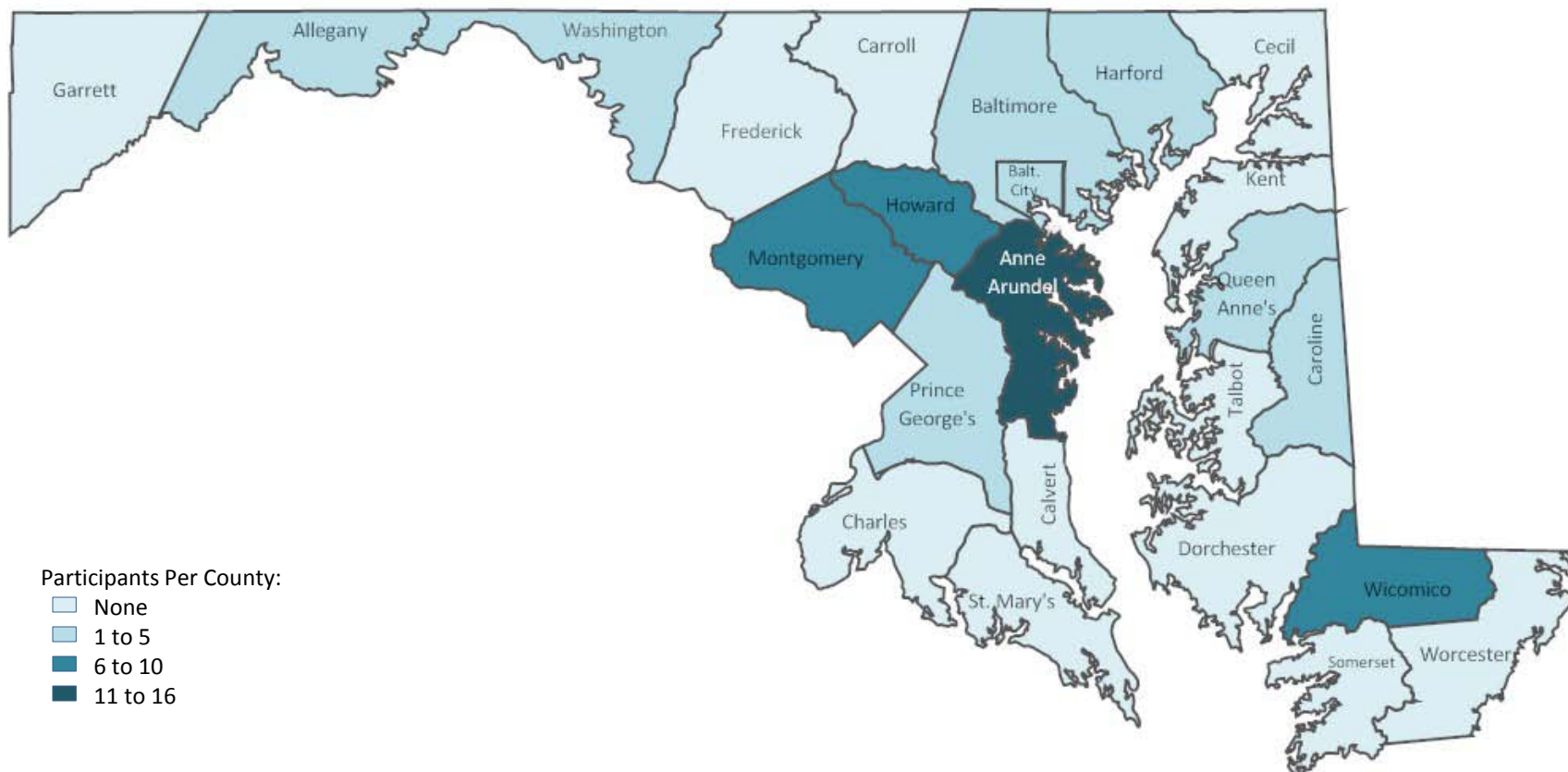
**Figure 4. Traumatic Brain Injury Waiver Participants, by Race, FY 2011**



In FY 2011, the majority (64%) of Traumatic Brain Injury Waiver participants were Caucasian.

Source: DSS.

**Figure 5. Number of Traumatic Brain Injury Waiver Participants, by County of Service Provider, FY 2011**



The Traumatic Brain Injury Waiver participants are concentrated in Baltimore City and in 11 of Maryland's 23 counties; this distribution correlates to the location of waiver service providers. Anne Arundel County had the largest number of waiver participants at 16, while Allegany and Prince George's Counties had the fewest number of participants.

**Sources:** DSS, U.S. Census Bureau.

**Figure 6. Newly Enrolled Traumatic Brain Injury Waiver Participants, by Pre-Waiver Setting, FY 2008 to FY 2011**

Pre-Waiver Setting*	FY 08	Percentage	FY 09	Percentage	FY 10	Percentage	FY 11	Percentage
<b>CARF** Accredited Chronic Hospital</b>	8	67%	4	57%	8	67%	10	91%
<b>Nursing Facility</b>	0	0%	0	0%	2	17%	0	0%
<b>Other</b>	4	33%	3	43%	2	17%	1	9%
<b>Total Participants</b>	<b>12</b>	<b>100%</b>	<b>7</b>	<b>100%</b>	<b>12</b>	<b>100%</b>	<b>11</b>	<b>100%</b>

\*Pre-waiver setting refers to the setting in which the participant resided prior to enrolling in the Traumatic Brain Injury Waiver. To determine an individual's pre-waiver setting, The Hilltop Institute examined MMIS2 claims for the three months prior to waiver enrollment to see if claims were filed for a chronic hospital, institution for mental diseases (IMD), intermediate care facility for individuals with intellectual disabilities (ICF-ID), or nursing facility (NF) stay; if so, new waiver participants were classified accordingly. Medicaid does not pay for services in a IMD for persons aged 16-64. Waiver participants without chronic hospital, IMD, CF-ID, or NF claims were classified as coming from "other" settings. It cannot be said with certainty—nor can it be assumed—that individuals in the "other" category were residing in the community prior to waiver enrollment.

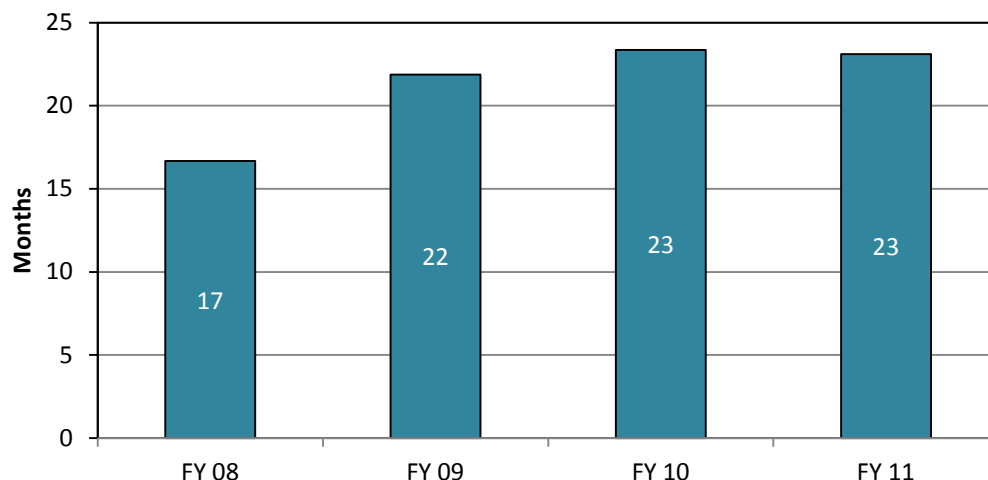
\*\* Commission on Accreditation of Rehabilitation Facilities

Source: MMIS2.

Participants in the Traumatic Brain Injury Waiver must reside in a state-owned nursing facility or chronic hospital at the time of enrollment in the waiver. In FY 2011, 91% of newly enrolled waiver participants had a chronic hospital stay in the three months prior to enrollment.

Under the Medicaid "Institutions for Mental Diseases (IMDs) exclusion," Medicaid does not reimburse IMDs for services provided to Medicaid enrollees aged 21 to 64 years. Therefore, persons in this age group who may have resided in an IMD in the three months prior to enrolling in the waiver would not be reflected in the Medicaid claims.

**Figure 7. Average Length of Stay in the Traumatic Brain Injury Waiver, in Months, for Current Waiver Participants**



The average length of stay for persons enrolled in the Traumatic Brain Injury Waiver in FY 2011 was 23 months, or just under two years.

**Figure 8. Average Length of Stay for Traumatic Brain Injury Waiver Disenrollees, by Reason for Leaving, FY 2011**

	No Longer Needs Services	Deceased	Lost Eligibility
<b>Disenrollees</b>	1	2	1
<b>Average Months in the Waiver</b>	14	23	46

**Note:** Participants enrolled in the Traumatic Brain Injury Waiver in each fiscal year were identified using each participant's last Medicaid Traumatic Brain Injury Waiver eligibility span. Individual participant lengths of stay were calculated from the beginning date of the participant's last Traumatic Brain Injury Waiver eligibility span to the last day of each fiscal year (June 30). The lengths of stay for persons still in the waiver on June 30 in a given year were totaled and averaged to obtain the average length of stay for all participants in the waiver on June 30 of that fiscal year.

**Source:** MMIS2.

Of the four waiver participants who were disenrolled in FY 2011, two disenrolled due to death—after being in the waiver an average of 23 months.

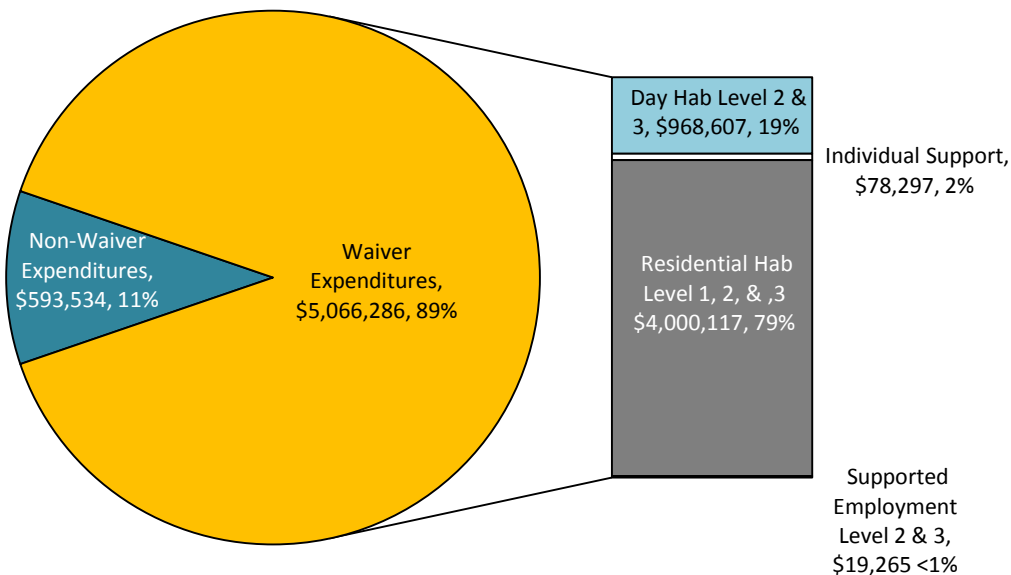
# **Chapter 2: Traumatic Brain Injury Waiver Medicaid Expenditures and Service Utilization**

**Figure 9. Medicaid Expenditures\* for Traumatic Brain Injury Waiver Participants, by Expenditure Category, FY 2008 to FY 2011**

Expenditure Category	FY 08	FY 09	FY 10	FY 11
<b>Waiver Expenditures</b>	\$2,615,296	\$3,286,859	\$4,147,442	\$5,066,286
<b>Non-Waiver Expenditures</b>	\$357,339	\$422,575	\$327,342	\$593,534
<b>Total Expenditures</b>	<b>\$2,972,635</b>	<b>\$3,709,435</b>	<b>\$4,474,785</b>	<b>\$5,659,820</b>

FY 2011 Medicaid expenditures for Traumatic Brain Injury Waiver participants totaled \$5.7 million, an increase of 26% from \$4.5 million in FY 2010. Medicaid expenditures for waiver services increased 22% from FY 2010 to FY 2011.

**Figure 10. Total Medicaid Expenditures\* for Traumatic Brain Injury Waiver Participants, by Expenditure Category, FY 2011**



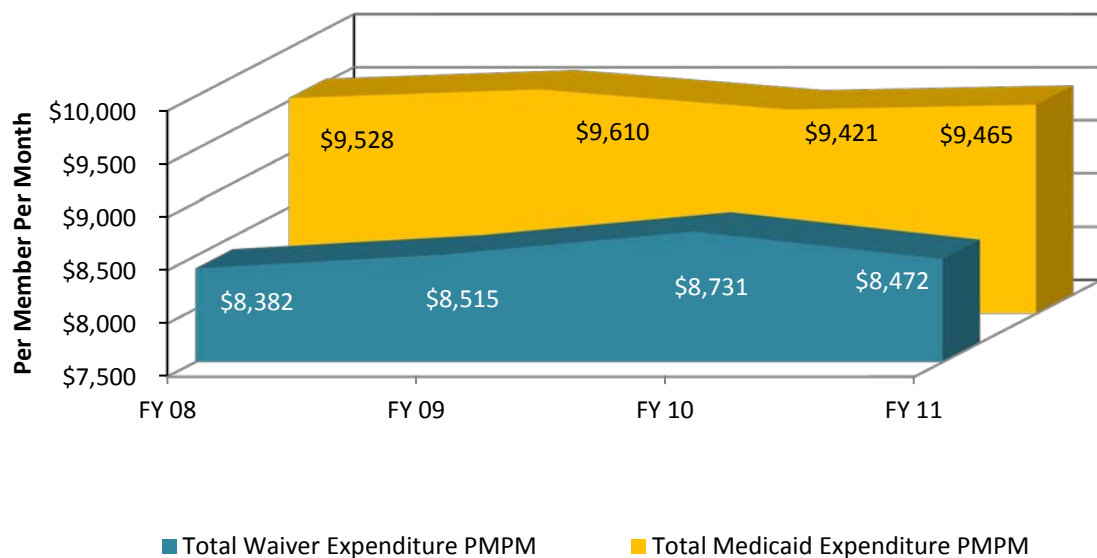
Waiver expenditures totaled \$5.1 million, or 89% of the FY 2011 total Medicaid expenditures for Traumatic Brain Injury Waiver participants.

Of the \$5.1 million waiver expenditures, \$4.0 million, or 79% were spent on residential rehabilitation services.

\* Does not include administrative costs.

Source: DSS.

**Figure 11. Total Medicaid Expenditures Per Member Per Month for Traumatic Brain Injury Waiver Participants**



In FY 2011, PMPM total Medicaid expenditures for the Traumatic Brain Injury Waiver were \$9,465; PMPM total waiver expenditures were \$8,472.

While the total Medicaid PMPM expenditures increased less than 1% from FY 2010 to FY 2011, the PMPM for waiver expenditures decreased 3% during this period.

\*Does not include administrative costs.

Source: DSS.



**Figure 12. Total Medicaid Waiver Expenditures for Traumatic Brain Injury Waiver Participants, by Service Provider, FY 2011**

Provider	Users	Expenditures	Percentage	Average Cost Per Person
Dove Pointe Inc./Dove Pointe	11	\$907,617	18%	\$82,511
Head Injury Rehabilitation	9	\$602,493	12%	\$66,944
Humanim	5	\$505,036	10%	\$101,007
Mary T. Maryland	28	\$2,660,260	53%	\$95,009
Neuro Restorative Maryland	7	\$390,880	8%	\$55,840
<b>Total</b>	<b>60</b>	<b>\$5,066,286</b>	<b>100%</b>	<b>\$84,438</b>

**Note:** Four waiver participants received services from more than one service provider.

**Source:** DSS.

FY 2011 Traumatic Brain Injury Waiver participants received services from five providers at a total cost of \$5.1 million. The number of participants served and the per person costs varied by provider. Mary T. Maryland provided services to the largest number of participants (28), at a cost of \$2.7 million.

Average annual costs per person also varied by provider. Humanim had the highest per person cost at \$101,007 per year.

**Figure 13. Traumatic Brain Injury Waiver Service Utilization, by Service, FY 2011**

Service	Participants	Expenditures	Average Units Per Person*
Day Habilitation Level 2	47	\$714,853	181
Day Habilitation Level 3	12	\$253,754	179
Individual Support Services	3	\$78,297	1,118
Residential Habilitation Level 1	1	\$12,485	67
Residential Habilitation Level 2	48	\$3,346,558	283
Residential Habilitation Level 3	7	\$641,074	268
Supported Employment Level 2	2	\$1,443	15
Supported Employment Level 3	2	\$17,822	75
<b>Total</b>		<b>\$5,066,286</b>	

Users of residential rehabilitation Level 2 and Level 3 received, on average, 283 days and 268 days of service, respectively. Day habilitation Level 2, one of the most widely used services, had 47 users who received, on average, 181 days of service. Three participants received an average of 1,118 hours of individual support services.

\* Individual Support Services units are billed per hour. Remaining services are billed per day.

Source: DSS.

**Figure 14. Use of Day Habilitation by Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011**

	Day Habilitation											
	FY 08			FY 09			FY 10			FY 11		
	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User
Level 1	2	\$9,294	\$4,647	2	\$14,086	\$7,043	3	\$1,096	\$365	0		
Level 2	27	\$351,984	\$13,036	28	\$454,590	\$16,235	39	\$596,984	\$15,307	47	\$714,853	\$15,210
Level 3	6	\$101,643	\$16,941	7	\$139,769	\$19,967	10	\$201,180	\$20,118	12	\$253,754	\$21,146
Total		\$462,921			\$608,445			\$799,260			\$968,607	

In FY 2011, day habilitation services were provided to Traumatic Brain Injury Waiver participants at cost of \$968,607. The largest percentage of day habilitation expenditures were for the provision of Level 2 services, which were provided to 47 participants at an annual cost of \$15,210 per person. Level 3 services were provided to 12 participants at a cost of \$21,146 per person.

**Figure 15. Use of Residential Habilitation by Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011**

	Residential Habilitation											
	FY 08			FY 09			FY 10			FY 11		
	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User
Level 1				2	\$70,894	\$35,447	1	\$37,969	\$37,969	1	\$12,485	\$12,485
Level 2	29	\$1,808,182	\$62,351	33	\$2,258,608	\$68,443	42	\$2,730,795	\$65,019	48	\$3,346,558	\$69,720
Level 3	3	\$342,589	\$114,196	5	\$338,585	\$67,717	6	\$565,644	\$94,274	7	\$641,074	\$91,582
Total		\$2,150,771			\$2,668,087			\$3,334,408			\$4,000,117	

Residential habilitation services totaled \$4 million in FY 2011. Annual per person expenditures for Level 2 and Level 3 residential habilitation services were \$69,720 and \$91,582, respectively.

Source: DSS.

**Figure 16. Use of Support Services by Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011**

	Support Services											
	FY 08			FY 09			FY 10			FY 11		
	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User	Users	Expenditures	Expenditures Per User
Individual				1	\$1,855	\$1,855	3	\$12,043	\$4,014	3	\$78,297	\$26,099
Employment Level 2	1	\$1,603	\$1,603	1	\$8,473	\$8,473	1	\$1,732	\$1,732	2	\$1,443	\$722
Employment Level 3										2	\$17,822	\$8,911
Total		\$1,603			\$10,328			\$13,775			\$97,562	

In FY 2011, support services were the least used of the Traumatic Brain Injury Waiver services. Individual support services were provided to three participants, at a cost of \$78,297, or \$26,099 per person.

Source: DSS.

**Figure 17. Medicaid Non-Waiver Expenditures for Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011**

Expenditure Category	FY 08	FY 09	FY 10	FY 11
Medicare Crossover	\$31,488	\$17,663	\$36,657	\$81,813
Durable Medical Equipment/Supplies	\$11,590	\$14,964	\$22,855	\$13,782
Emergency Room	\$539	\$121	\$315	\$1,768
Evaluation and Management	\$2,633	\$5,411	\$5,724	\$8,560
Inpatient	\$94,652	\$98,357	\$15,421	\$89,559
Medicine*	\$6,920	\$19,132	\$14,772	\$12,345
MCO Capitation Payments**	\$140,947	\$179,710	\$142,686	\$217,947
Outpatient	\$19,391	\$18,392	\$20,945	\$34,551
Other+	\$6,108	\$6,922	\$12,618	\$54,383
Pharmacy	\$43,071	\$61,904	\$55,349	\$78,827
<b>Total</b>	<b>\$357,339</b>	<b>\$422,575</b>	<b>\$327,342</b>	<b>\$593,534</b>

Medicaid non-waiver expenditures for Traumatic Brain Injury Waiver participants increased by \$266,192 (81%) from FY 2010 to FY 2011. Notable increases during this time were in inpatient services, which increased five-fold; Medicare crossover payments; and MCO capitation payments.

\*Medications received from a source other than a pharmacy (i.e., inpatient hospitalization, clinic).

\*\*“MCO (managed care organization) capitation payments” are fixed monthly amounts paid to MCOs to provide services to enrolled Medicaid participants. Capitation payments are based on actuarial projections of medical utilization. MCOs are required to provide all covered, medically necessary Medicaid services within that capitated amount.

+“Other” includes Medicaid non-waiver services other than those listed above and those provided under the waiver that are paid by Medicaid on behalf of Medicaid waiver participants.

Source: DSS.

## List of Figures

### Chapter 1: Traumatic Brain Injury Waiver Participants

Figure 1. Unduplicated Number of Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011.....	8
Figure 2. Traumatic Brain Injury Waiver Participants, by Age Group, FY 2008 to FY 2011.....	8
Figure 3. Traumatic Brain Injury Waiver Participants, by Gender, FY 2008 to FY 2011.....	9
Figure 4. Traumatic Brain Injury Waiver Participants, by Race, FY 2011.....	10
Figure 5. Number of Traumatic Brain Injury Waiver Participants, by County of Service Provider, FY 2011 .....	11
Figure 6. Newly Enrolled Traumatic Brain Injury Waiver Participants, by Pre-Waiver Setting, FY 2008 to FY 2011 .....	12
Figure 7. Average Length of Stay in the Traumatic Brain Injury Waiver, in Months, for Current Waiver Participants .....	13
Figure 8. Average Length of Stay for Traumatic Brain Injury Waiver Disenrollees, by Reason for Leaving, FY 2011 .....	13

### Chapter 2: Medicaid Expenditures and Service Utilization

Figure 9. Medicaid Expenditures for Traumatic Brain Injury Waiver Participants, by Expenditure Category, FY 2008 to FY 2011 .....	15
Figure 10. Total Medicaid Expenditures for Traumatic Brain Injury Waiver Participants, by Expenditure Category, FY 2011 .....	15
Figure 11. Total Medicaid Expenditure Per Member Per Month for Traumatic Brain Injury Waiver Participants .....	16
Figure 12. Total Medicaid Waiver Expenditures for Traumatic Brain Injury Waiver Participants, by Service Provider, FY 2011.....	17
Figure 13. Traumatic Brain Injury Waiver Service Utilization, by Service, FY 2011 .....	18
Figure 14. Use of Day Habilitation by Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011.....	19
Figure 15. Use of Residential Habilitation by Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011.....	19
Figure 16. Use of Residential Habilitation by Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011.....	20
Figure 17. Medicaid Non-Waiver Expenditures for Traumatic Brain Injury Waiver Participants, FY 2008 to FY 2011.....	21



## **The Hilltop Institute**

University of Maryland, Baltimore County  
Sondheim Hall, 3rd Floor  
1000 Hilltop Circle  
Baltimore, MD 21250

[www.hilltopinstitute.org](http://www.hilltopinstitute.org)



## **The Hilltop Institute**

University of Maryland, Baltimore County  
Sondheim Hall, 3rd Floor  
1000 Hilltop Circle  
Baltimore, MD 21250

[www.hilltopinstitute.org](http://www.hilltopinstitute.org)