



The Hilltop Institute

analysis to advance the health of vulnerable populations

Medicaid Long-Term Services and Supports in Maryland:

FY 2012 to FY 2016
Volume 4

The Model Waiver
A Chart Book

October 2017
Abridged Version

Prepared for Maryland Department of Health



UMBC
AN HONORS UNIVERSITY IN MARYLAND

TABLE OF CONTENTS

Chapter 1. Maryland Medicaid Long-Term Services and Supports Overview	3
Key Findings	
Chart Book Organization	
Data Sources	
Chapter 2. Model Waiver Participants.....	6
Demographics	
Participant Conditions	
Average Lengths of Stay in the Waiver	
Model Waiver Registry List	
Chapter 3. Model Waiver Medicaid Expenditures and Service Utilization	14
Waiver Service Utilization	
Non-Waiver Expenditures	
Model Waiver Hospital Stays	
List of Figures	23

Chapter 1. Maryland Medicaid Long-Term Services and Supports Overview

Chapter 1. Maryland Medicaid Long-Term Services and Supports Overview

The Maryland Long-Term Services and Supports Chart Book, Volume 4, The Model Waiver is the fourth chart book in a series that explores service utilization and expenditures for Medicaid-funded long-term services and supports in Maryland.

The Model Waiver, which began in 1985, allows individuals with medically complex needs and who have a chronic hospital or nursing facility level of care to receive needed services in their homes. The Model 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 Medicaid Program. Waiver enrollment is capped at 200 slots per year, and enrollment must occur before the participant reaches 22 years of age.

Services covered under the waiver include case management team meeting, nurse assessment evaluation, nurse supervisory visit, medical day care services, principal physician attended care plan conferences, and private duty nursing (PDN) services provided by registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs), and home health aides (HHAs). For participants aged 21 and older, nursing services are considered waiver services. Nursing services for participants under the age of 21 are considered non-waiver services. Waiver participants receive full Medicaid benefits and are entitled to receive other services under the Maryland Medicaid State Plan.

This chart book summarizes demographic, service utilization, and expenditure data for Model Waiver participants for fiscal years (FYs) 2012 through 2016. The data are presented through a series of figures that illustrate trends in Model Waiver utilization with accompanying narrative text.

Key Findings

Notable trends in the data include the following:

- The Model Waiver served over the cap of 200 participants—a total of 218 participants in FY 2016—each of the fiscal years.
- Attrition over the five years was low: 68% of participants from FY 2012 were still enrolled in FY 2016.
- Model Waiver participants aged 16 to 22 made up the largest percentage of participants in FY 2016. The average age of participants was 12.5 years.
- Participants were more likely to be male than female, which was consistent across each fiscal year.

continued on next page ...

Chapter 1. Maryland Medicaid Long-Term Services and Supports Overview continued

Notable trends continued ...

- In FY 2016, the average length of stay in the Model Waiver was eight years and nine months.
- Total Medicaid expenditures for Model Waiver participants decreased 2.1% from \$26.7 million in FY 2012 to \$26.1 million in FY 2016.
- Non-waiver expenditures accounted for 90% to 91% of the waiver’s total Medicaid expenditures across each fiscal year.
- In FY 2016, the average annual Medicaid expenditures per person were \$119,868—a 3.4% decrease from FY 2012.
- Second and subsequent month administration and LPN services were the most widely used waiver services.
- PDN services for waiver participants under the age of 21 were the most costly of the non-waiver services, accounting for 85% of all non-waiver service expenditures in FY 2016.

Chart Book Organization

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

- **Waiver Participants:** This section includes data on the number of Model Waiver participants with breakdowns by age, race, gender, conditions, and average length of stay in 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 Model Waiver program. This section also includes information on inpatient hospitalizations.

Data Sources

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

- **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, owned by the Maryland Department of Health, are warehoused and processed monthly by The Hilltop Institute.
- **Maryland Department of Health Decision Support System (DSS):** This system, developed by The Hilltop Institute, provides the state with comprehensive information regarding Medicaid eligibility, managed care provider enrollment, acute care services and expenditures, and capitation payments.

Chapter 2.

Model Waiver Participants

Chapter 2. Model Waiver Participants

Model Waiver Participant Demographics

In FY 2016, 218 individuals were served by the Model Waiver. The number of waiver participants has remained relatively consistent, ranging between 212 and 219 participants in each fiscal year. Attrition was relatively low: 68% of participants who were enrolled in the Model Waiver in FY 2012 were still enrolled in FY 2016 (Figure 1).

The Model Waiver population aged slightly over the past five fiscal years. The mean age of participants gradually increased from 11.9 years old in FY 2012 to 12.5 years old in FY 2016. In FY 2016, the greatest percentage (30%) of individuals were between ages 16 and 22 (Figure 2). Over the study period, the number of female participants decreased, while the number of male participants increased (Figure 3). Almost half (47%) of all Model Waiver participants in FY 2016 were White (Figure 4).

Model Waiver participants had a variety of different conditions. The most prevalent condition (20% of participants) was spina bifida and other congenital abnormalities (Figure 5). It should be noted that many participants (79%) had insurance in addition to Medicaid. Therefore, the prevalence of chronic conditions is likely underreported when using only Medicaid claims data, as Medicaid is the payer of last resort. Of those individuals with zero listed conditions in the claims data, 89% had insurance

in addition to Medicaid, which likely covered some of these participants' episodes of care.

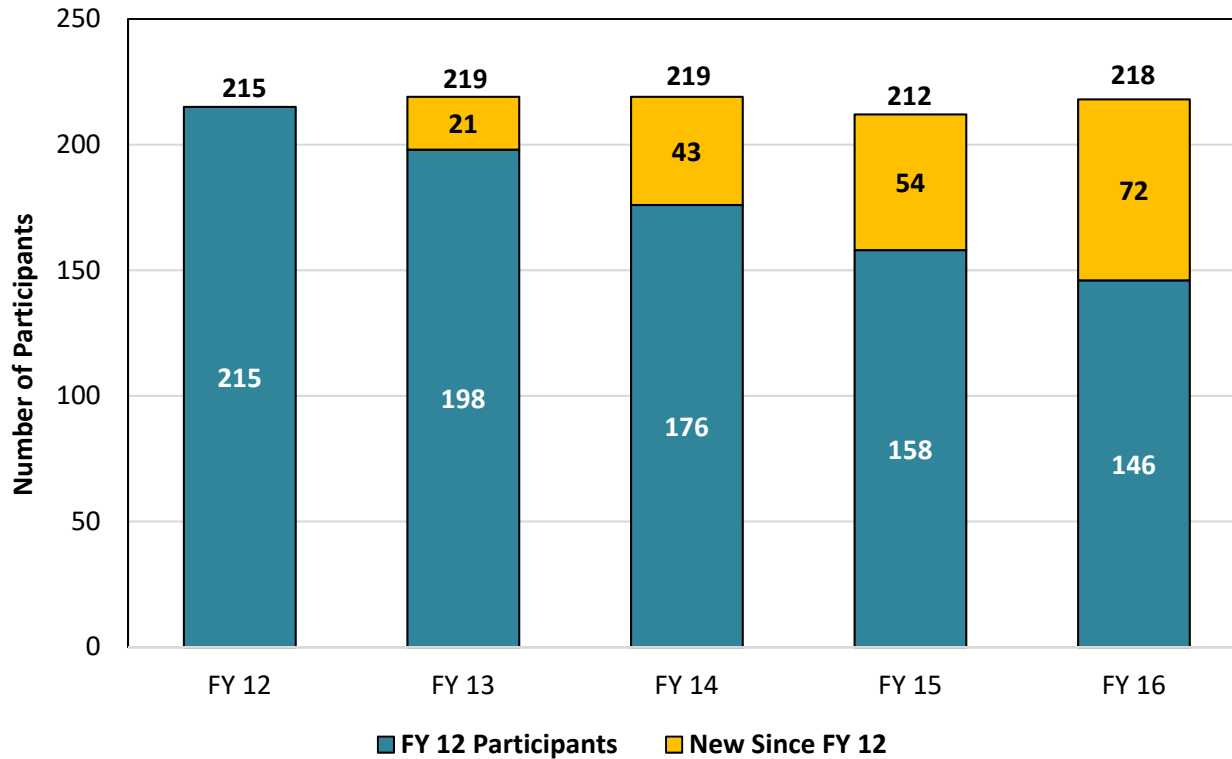
Average Lengths of Stay in the Waiver

The average length of stay increased slightly across the five fiscal years. In FY 2012, the average length of stay was eight years and six months. By FY 2016, the average length of stay was eight years and nine months (Figure 6).

Demographic Distribution

In FY 2016, Maryland's Model Waiver participants were concentrated in 17 of the state's 23 counties and Baltimore City (Figure 7). Almost half (47%) of waiver participants resided in Montgomery, Prince George's, and Baltimore Counties. There were six counties in which no Model Waiver participants resided.

Figure 1. Unduplicated Number of Model Waiver Participants, FY 2012 – FY 2016

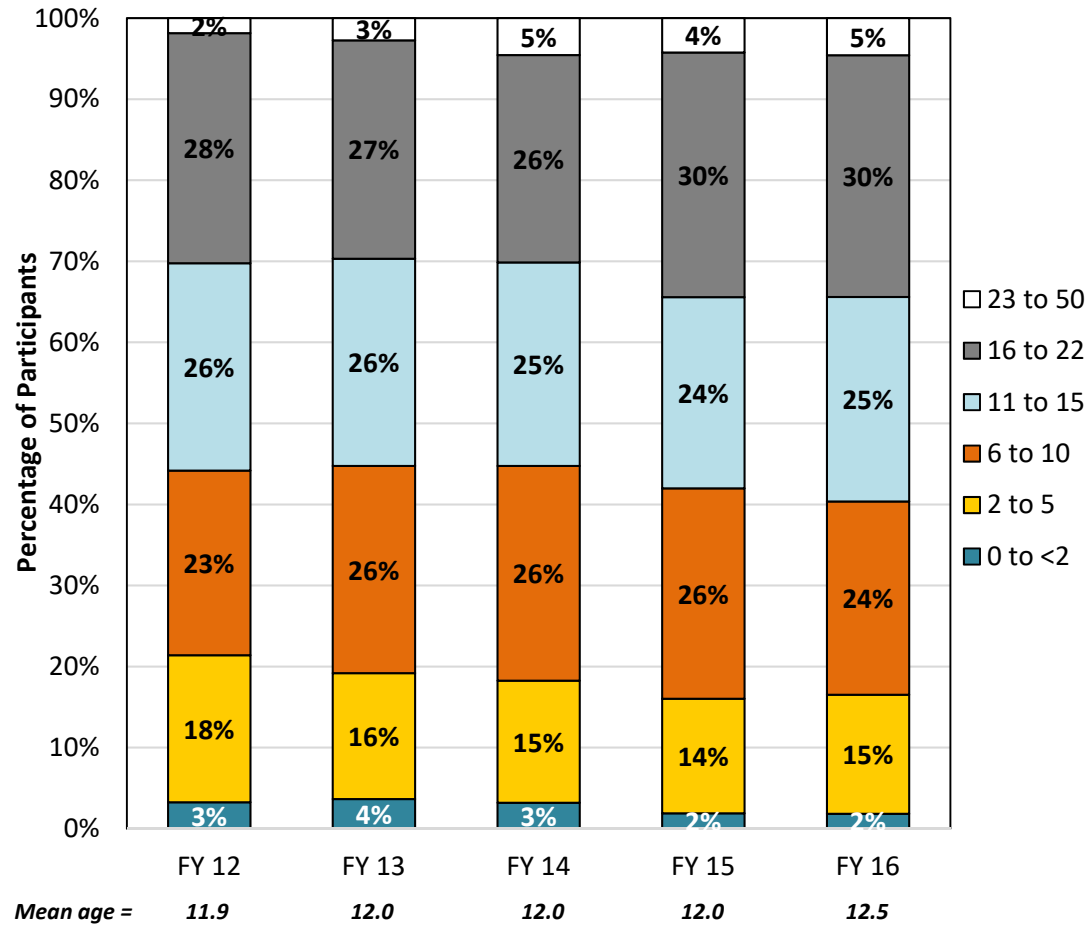


The number of Model Waiver participants remained relatively stable over the five fiscal years, varying between 212 and 219 participants each year.

Attrition among FY 2012 participants was relatively low: 68% of participants who were enrolled in FY 2012 still remained in the waiver in FY 2016.

Source: MMIS2

Figure 2. Model Waiver Participants, by Age Group, FY 2012 – FY 2016



The majority of participants were between 6 and 22 years of age. While participants aged 16 to 22 represented the largest percentage group, the mean age was 12.5 years in FY 2016.

There was a slight increase in mean age across the reporting period as Model Waiver participants age.

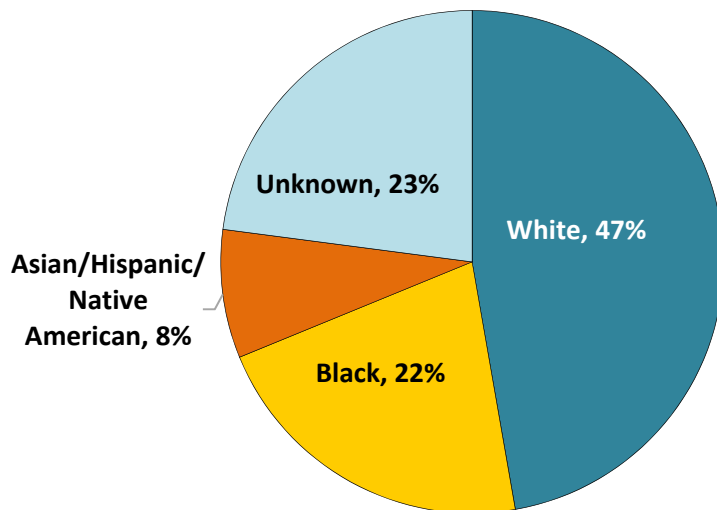
Source: DSS

Figure 3. Model Waiver Participants, by Gender, FY 2012 – FY 2016

Gender	FY 12	FY 13	FY 14	FY 15	FY 16
Female	99	99	92	91	91
Male	116	120	127	121	127
Total	215	219	219	212	218

Source: DSS

Figure 4. Model Waiver Participants, by Race, FY 2016

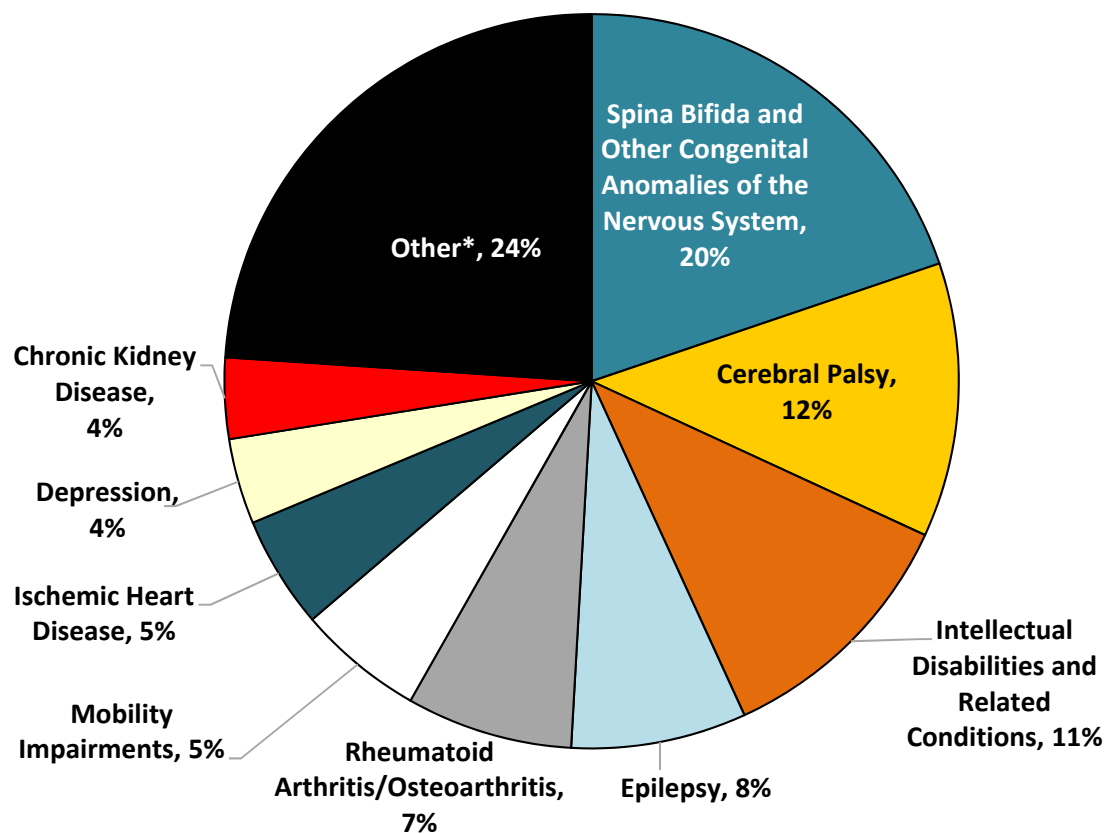


Source: DSS

There were consistently more male than female participants in the Model Waiver (Figure 3). However, this difference was slightly more pronounced in FY 2016 because the number of females was at its lowest while the number of males was at its highest.

Figure 4 shows that the largest percentage of Model Waiver participants were White (47%). Percentages were consistent across the fiscal years.

Figure 5. Model Waiver Participants' Conditions, FY 2016



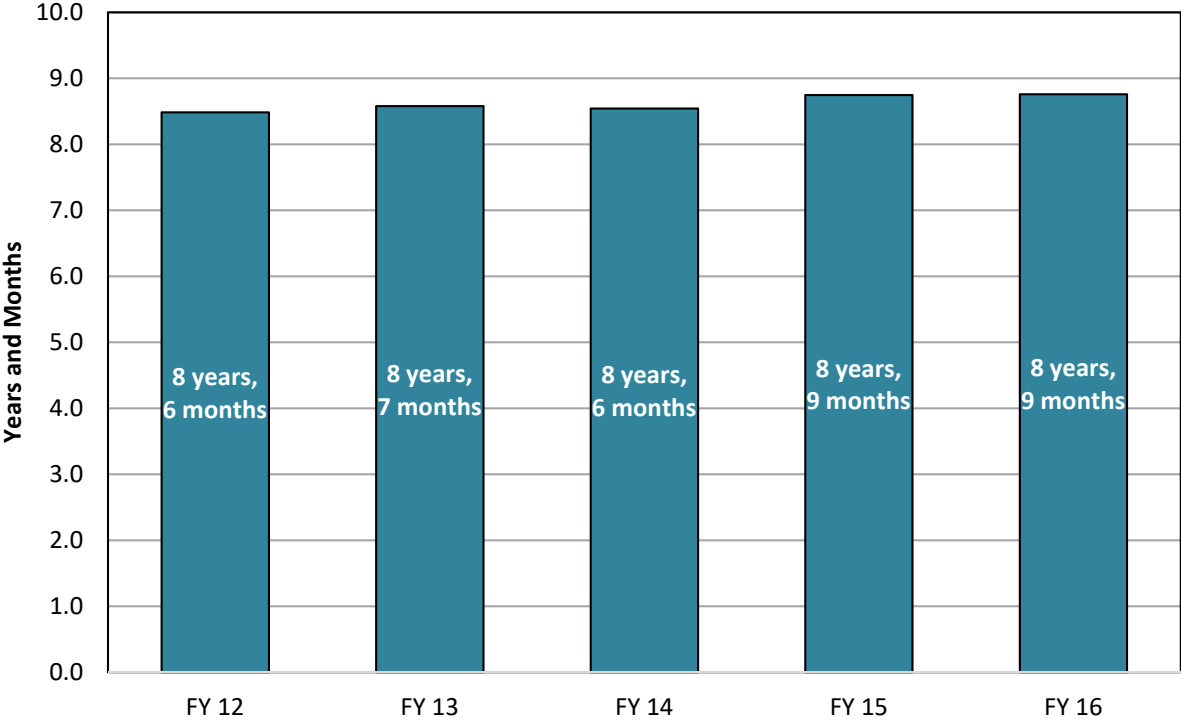
Model Waiver participants had a wide range of conditions. In FY 2016, there were 218 participants with 505 conditions. However, the prevalence of chronic conditions is likely underreported because 79% of participants had other insurance in addition to Medicaid.

Source: MMIS2

*Conditions for which there were fewer than 15 participants (n=22) were combined.

Note: Participants may have multiple conditions

Figure 6. Average Length of Stay in the Model Waiver, in Years, for Current Model Waiver Participants, FY 2012 – FY 2016



The average length of stay for Model Waiver participants increased slightly (3 months) from 8 years and 6 months in FY 21012 to 8 years and 9 months in FY 2016.

Note: Individual participant lengths of stay were calculated from the beginning date of the participant’s first eligibility span to the last day of the fiscal year of the reporting period. In each fiscal year, participant days were totaled, divided by the number of participants, divided by 365 days, and then converted to years and months.

Source: MMIS2

This page not available at this time

Chapter 3. Model Waiver Medicaid Expenditures and Service Utilization

Chapter 3. Model Waiver Medicaid Expenditures and Service Utilization

Total Medicaid expenditures for Model Waiver participants decreased 2.1% from \$26.7 million in FY 2012 to \$26.1 million in FY 2016 (Figure 8). Average annual per-person Medicaid expenditures for Model Waiver participants decreased 3.4% from \$124,119 in FY 2012 to \$119,868 in FY 2016 (Figure 9).

Waiver Service Expenditures and Utilization

There are a few items worth noting in this chapter. First, PDN services (LPN, RN, HHA, CNA, and nursing assessments) are considered waiver services only for those participants aged 21 or older. Second, many participants (79%) had private insurance in addition to Medicaid. Expenditures reported here only reflect those costs where Medicaid was the only payer or participated in cost sharing.

Waiver expenditures accounted for only 10% of the total Model Waiver expenditures in FY 2016. Overall, LPN services and second and subsequent month administration expenditures were the most costly waiver services in FY 2016, representing 95% of total waiver expenditures. The least costly waiver service was medical day care, which composed less than .25% of waiver expenditures in FY 2016. Other services that were not widely utilized in FY 2016 were case management, HHA, and waiver enrollment administration, each representing approximately 1% to 2% of waiver expenditures. See Figure 10.

As previously noted, LPN services and second and subsequent month administration were the two most costly services. FY 2016 expenditures for LPN services totaled \$1.4 million. Average annual per-person expenditures for LPN services were the highest of the waiver services; expenditures for these services were \$107,483 per person in FY 2016. Second and subsequent month administration was used by the majority of Model Waiver participants. In FY 2016, 214 (98%) of the 218 waiver participants used this service, at a total cost of \$1.2 million. The average FY 2016 expenditures per participant was \$5,402, which was consistent with the other fiscal years. See Figure 11.

Average annual per-person expenditures for waiver enrollment administration were consistent across fiscal years at approximately \$1,800 (Figure 11).

Some services—HHA, medical day care, and nurse evaluation assessment—were only utilized by a small number of participants. Due to HIPAA requirements, expenditures for these services cannot be reported.

Chapter 3. Model Waiver Medicaid Expenditures and Service Utilization continued

Non-Waiver Expenditures

Non-waiver expenditures made up the vast majority of Medicaid expenditures for Model Waiver participants, consistently ranging between 90% and 91% of total expenditures. Non-waiver expenditures totaled \$23.4 million in FY 2016, up slightly from \$24.1 million in FY 2012 but down from FY 2014, when expenditures were highest at \$24.9 million. See Figure 8.

PDN services were the costliest of the non-waiver services across each year; in FY 2016, PDN services totaled \$20 million. Expenditures for PDN services increased each year, ranging between 81% (FY 2012) and 85% (FY 2016) of non-waiver expenditures. The majority of FY 2016 waiver participants were under the age of 21, which contributed to the large non-waiver PDN service expenditures (Figure 12).

Many expenditures for non-waiver services decreased over the study period. Outpatient services decreased each fiscal year, with the lowest expenditures in FY 2016, representing a 43% decrease since FY 2012. DME/DMS expenditures saw a 51% decrease in expenditures, from \$1.2 million in FY 2012 to \$575,916 in FY 2016. Home health services decreased 85% from \$8,275 in FY 2012 to \$1,234 in FY 2016. Pharmacy expenditures decreased 30% from \$1.2 million in FY 2012 to \$829,103 in FY 2016 (Figure 12).

Model Waiver Hospital Stays

Nineteen (19) Model Waiver participants had at least one Medicaid-paid inpatient hospital stay in FY 2016. There were a total of 36 hospital stays. The average hospital length of stay was 14.1 days. Hospital expenditures totaled \$1.5 million, or an average cost of \$77,658 per person (Figure 13).

Figure 8. Medicaid Expenditures for Model Waiver Participants, by Expenditure Category, FY 2012 – FY 2016

	FY 12	Percentage	FY 13	Percentage	FY 14	Percentage	FY 15	Percentage	FY 16	Percentage
Waiver Expenditures	\$2,611,348	10%	\$2,613,852	10%	\$2,443,348	9%	\$2,566,622	10%	\$2,707,928	10%
Non-Waiver Expenditures*	\$24,074,325	90%	\$24,129,093	90%	\$24,859,586	91%	\$24,057,946	90%	\$23,423,325	90%
Total Expenditures	\$26,685,673	100%	\$26,742,945	100%	\$27,302,934	100%	\$26,624,568	100%	\$26,131,253	100%

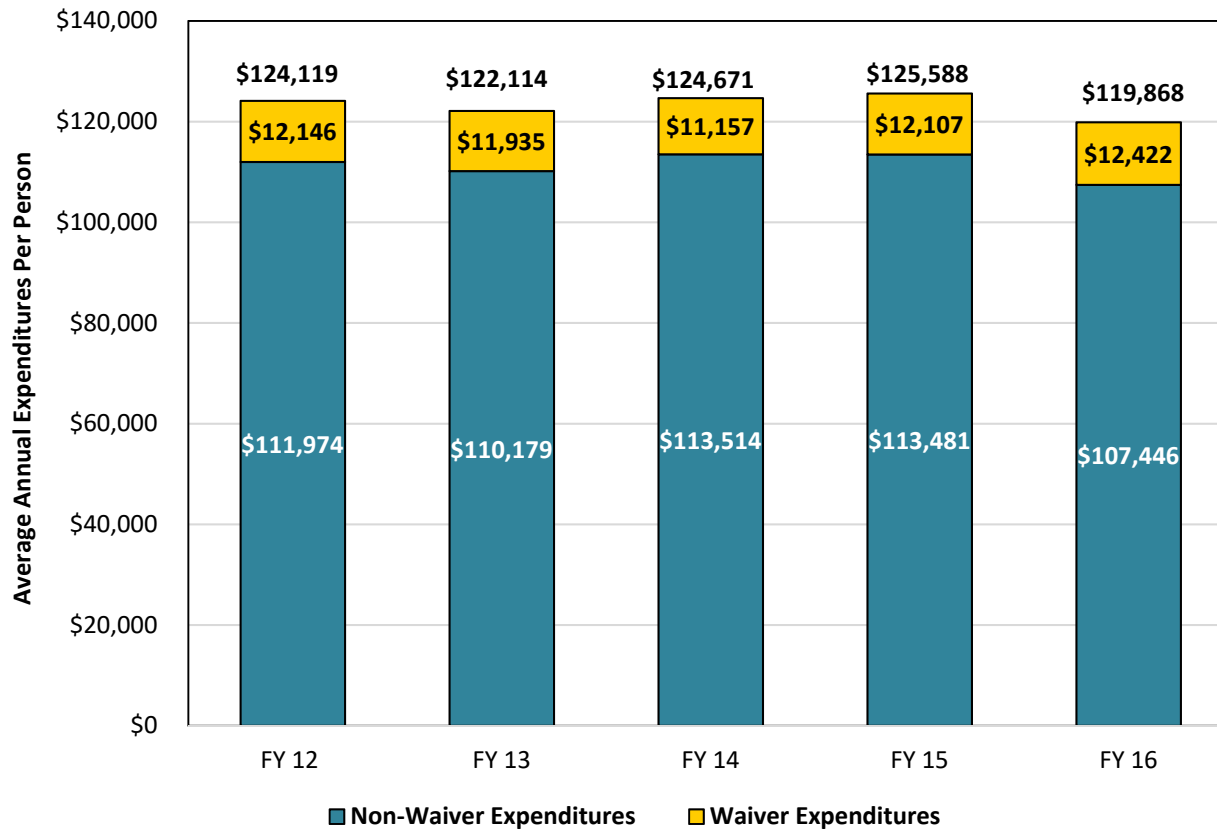
Total Medicaid expenditures for Model Waiver participants were lowest in FY 2016, at \$26.1 million, and highest in FY 2014, at \$27.3 million. Non-waiver expenditures made up the vast majority (90%) of total Medicaid expenditures for Model Waiver participants in FY 2016.

*Non-waiver expenditures include pharmacy costs.

Note: Does not include administrative costs.

Source: DSS

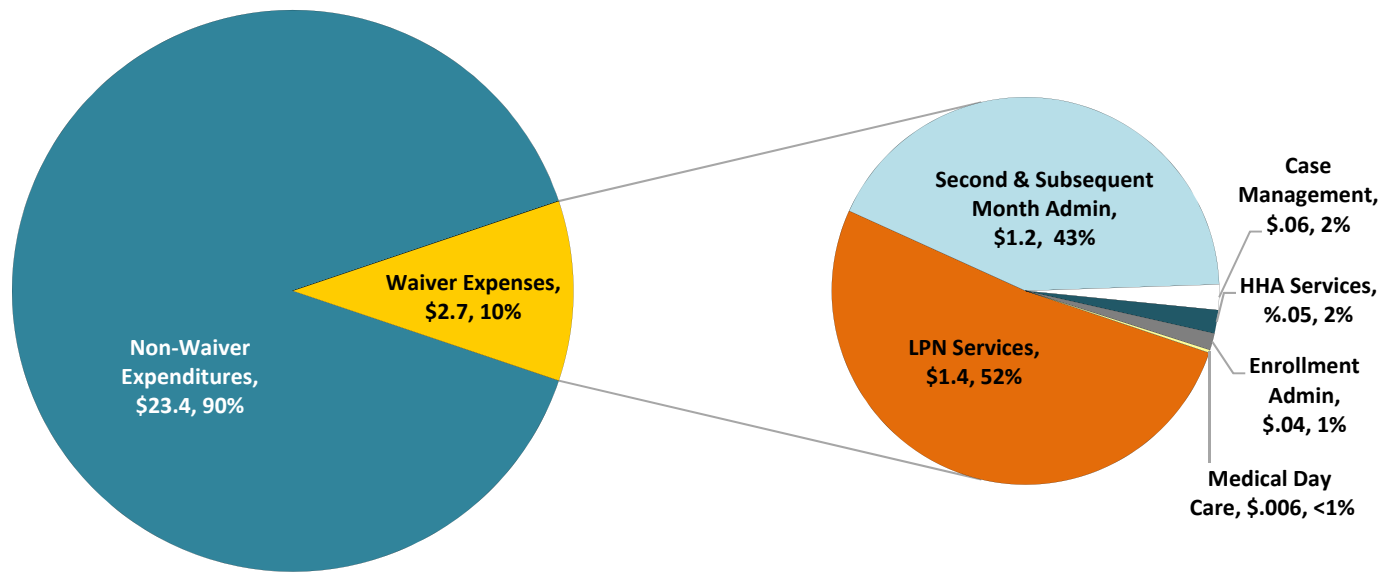
Figure 9. Average Annual Medicaid Expenditures per Person for Model Waiver Participants, FY 2012 – FY 2016



Average annual per-person Medicaid expenditures were lowest in FY 2016, at \$119,868. FY 2016 average annual expenditures were 4.6% lower than the highest expenditure year (FY 2015), and 3.4% lower than FY 2012. This difference was largely due to a decrease in non-waiver expenditures.

Source: DSS

Figure 10. Distribution of Total Medicaid Expenditures (in millions) for Model Waiver Participants, FY 2016



In FY 2016, 90% of Model Waiver expenditures were for non-waiver services.

At \$1.4 and \$1.2 million in FY 2016, LPN services and second/subsequent month administration costs accounted for the largest percentages of Medicaid waiver expenditures, respectively. The remaining services contributed to approximately 5% of the waiver expenditures.

Source: DSS

Figure 11. Model Waiver Service Utilization, by Service, FY 2015 – 2016

Service	FY 2015			FY 2016		
	Users	Expenditures		Users	Expenditures	
		Total	User		Total	User
Case Management Team Meeting	69	\$58,470	\$847	68	\$57,298	\$843
Enrollment Administration	18	\$33,000	\$1,833	21	\$38,000	\$1,810
HHA Services, Up To 15 Minutes	*	\$67,883	*	*	\$52,946	*
LPN Services, Up To 15 Minutes	12	\$1,238,119	\$103,177	13	\$1,397,276	\$107,483
Medical Day Care Services	0	\$0	\$0	*	\$6,407	*
Nurse Assessment Evaluation	*	\$150	*	0	\$0	\$0
Second & Subsequent Month Administration	209	\$1,169,000	\$5,593	214	\$1,156,000	\$5,402
Total	212	\$2,566,622	\$12,107	218	\$2,707,928	\$12,422

FY 2016 had the highest total and average expenditures per participant for LPN services. Expenditures totaled \$1.4 million for 13 users.

In FY 2016, average expenditures per user for second and subsequent month administration was \$5,402 (Figure 11), which was consistent with the other fiscal years.

Note: RN, LPN, and HHA services are provided as waiver services only for waiver participants aged 21 and over.

* Below HIPAA-recommended cell size (10 or fewer participants).

Source: DSS

Figure 12. Medicaid Non-Waiver Expenditures for Model Waiver Participants

Service Category	FY 12	FY 13	FY 14	FY 15	FY 16
Ambulance Services	\$425	\$600	\$600	\$700	\$200
Anesthesiology	\$6,622	\$3,905	\$6,568	\$7,306	\$2,475
Dental	\$12,350	\$13,211	\$16,103	\$14,276	\$12,829
DME/DMS	\$1,185,353	\$988,824	\$759,933	\$635,876	\$575,916
Private Duty Nursing	\$19,473,329	\$20,003,181	\$20,860,954	\$20,175,359	\$19,982,698
ER Services	\$7,069	\$6,226	\$8,599	\$5,442	\$3,580
Evaluation and Management	\$62,303	\$71,963	\$86,514	\$80,921	\$58,419
Federally Qualified Health Centers	\$239	\$369	\$61	\$0	\$19
Home Health Services	\$8,275	\$12,235	\$14,586	\$4,965	\$1,234
Hospice	\$200	\$0	\$0	\$4,775	\$79,963
IEP/FSP School Health-Related Services	\$133,350	\$126,650	\$128,875	\$132,050	\$134,050
Inpatient Services	\$1,073,886	\$913,815	\$932,156	\$1,515,136	\$977,898
Lab Services	\$9,030	\$7,846	\$4,424	\$3,877	\$2,778
Medicare Crossover	\$12,836	\$9,592	\$9,188	\$12,939	\$11,923
Medicine*	\$142,197	\$108,250	\$123,739	\$102,736	\$104,242
Outpatient Services	\$495,591	\$452,186	\$426,275	\$291,509	\$282,865
Oxygen	\$214,952	\$161,489	\$227,705	\$192,240	\$172,957
Pharmacy	\$1,176,844	\$1,208,575	\$1,200,787	\$750,153	\$829,103
Radiology	\$5,196	\$3,811	\$4,289	\$4,167	\$2,162
Surgery	\$17,250	\$10,438	\$22,971	\$29,566	\$8,082
Supports Planning			\$1,566	\$19,478	\$28,106
Transportation	\$27,388	\$13,888	\$10,525	\$9,875	\$10,450
Other**	\$9,641	\$12,038	\$13,167	\$64,598	\$141,375
Total	\$24,074,325	\$24,129,093	\$24,859,586	\$24,057,946	\$23,423,325

Non-waiver expenditures decreased slightly over the reporting period, from \$24.1 million in FY 2012 to \$23.4 million in FY 2016. Private duty nursing services were the costliest of the non-waiver services, primarily due to the composition of the Model Waiver participants (i.e., the majority are under 21 years of age).

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

** "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

Figure 13. Model Waiver Participants’ Medicaid-Paid Inpatient Hospital Stays, FY 2016

	Total	Average
Number of Hospital Stays	36	1.9
Hospital Length of Stay, in Days	268	14.1
Cost of Hospital Stays	\$1,475,493	\$77,658

Note: Hospital inpatient stays were identified using MMIS2 inpatient claims with either an “inpatient” or “Medicare crossover – inpatient” claim type. Separate stays with a span of one day between admission and discharge were counted as a single stay.

Source: MMIS2

In FY 2016, 19 Model Waiver participants had 36 Medicaid-paid inpatient hospital stays. The number of inpatient stay days totaled 268, with the mean length of stay being 14.1 per person.

Total hospital expenditures for the 36 stays were \$1.5 million, or an average of \$77,658 per user. The cost for a hospital stay ranged from \$24 to \$659,515.

List of Figures

Chapter 2: Model Waiver Participants

Figure 1. Unduplicated Number of Model Waiver Participants, FY 2012 – FY 2016	8
Figure 2. Model Waiver Participants, by Age Group, FY 2012 – FY 2016	9
Figure 3. Model Waiver Participants, by Gender, FY 2012 – FY 2016	10
Figure 4. Model Waiver Participants, by Race, FY 2016	10
Figure 5. Model Waiver Participants' Conditions, FY 2016	11
Figure 6. Average Length of Stay in the Model Waiver, in Years, for Current Model Waiver Participants, FY 2012 – FY 2016	12
Figure 7. Number of Model Waiver Participants, by County, FY 2016	13

Chapter 3: Medicaid Expenditures and Service Utilization

Figure 8. Medicaid Expenditures for Model Waiver Participants, by Expenditure Category, FY 2012 – FY 2016.....	17
Figure 9. Average Annual Medicaid Expenditures per Person for Model Waiver Participants, FY 2012 – FY 2016	18
Figure 10. Distribution of Total Medicaid Expenditures (in millions) for Model Waiver Participants, FY 2016	19
Figure 11. Model Waiver Service Utilization, by Service, FY 2015 - FY 2016	20
Figure 12. Medicaid Non-Waiver Expenditures for Model Waiver Participants.....	21
Figure 13. Model Waiver Participants' Medicaid-Paid Inpatient Hospital Stays, FY 2016.....	22



The Hilltop Institute

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

www.hilltopinstitute.org