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August 16, 2019

The Honorable Lawrence J. Hogan, Jr.
Governor of Maryland
100 State Circle
Annapolis, Maryland 21401

The Honorable Thomas V. Mike Miller, Jr.
President of the Senate
H-107 State House
Annapolis, MD 21401-1991

The Honorable Adrienne A. Jones
Speaker of the House
H-101 State House
Annapolis, MD 21401-1991

The Honorable Robert R. Neall
Secretary, Maryland Department of Health
201 W. Preston Street
Baltimore, MD 21201

RE: Monitoring Maryland's All-Payer Model: Biannual Report required by Health General Article §19-207(b)(9) (MSAR # 10266)

Dear Governor Hogan, President Miller, Speaker Jones, and Secretary Neall:

The Maryland Health Services Cost Review Commission (HSCRC) is pleased to submit the ninth "Monitoring of Maryland's All-Payer Model Biannual Report" as required under Section 19-207(b)(9) of the Health General Article of the Annotated Code of Maryland. This report summarizes the State's progress from January 1, 2018 through December 31, 2018 of Maryland's five year All-Payer Model agreement with the Centers for Medicare & Medicaid Services (CMS).

The All-Payer Model replaced Maryland's 36-year-old Medicare waiver and allowed Maryland to adopt new and innovative policies aimed at reducing per capita hospital expenditures and improving patient health outcomes. To build upon the success of the All-Payer system, on January 1, 2019, Maryland entered into a new agreement with CMS called the Total Cost of Care Model. Under this new Model, working together with partners across the State aim to improve population health, transform care across the delivery system, and ultimately reduce the total cost of care for Marylanders. More information on the HSCRC, the new Total Cost of Care Model, and Maryland hospital activities can be found on the HSCRC's website: http://hscrc.maryland.gov.

The HSCRC looks forward to continuing to work with members of the General Assembly and

stakeholders as we work to improve health for all Marylanders. If you have any questions about this report, please contact me at katie.wunderlich@maryland.gov.

Sincerely,

Katie Wunderlich
Executive Director

CC: Sarah Albert, Department of Legislative Services

Monitoring of Maryland's All-Payer Model

Biannual Report

Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland 21215
(410) 764-2605

April 2019

Table of Contents

Executive Summary

Introduction

Effective January 1, 2014, the State of Maryland and the Centers for Medicare & Medicaid Services (CMS) entered into an agreement to modernize Maryland's unique all-payer rate-setting system for hospital services. This initiative replaced Maryland's 36-year-old Medicare waiver and allows Maryland to adopt new, innovative policies aimed at reducing per capita hospital expenditures and improving patient health outcomes. This biannual report, prepared in accordance with Maryland law, contains a summary of implementation, monitoring, and other activities during the time period from January 1, 2014 through December 31, 2018.[1] The purpose of this report is to inform the Maryland General Assembly on the status of the Maryland All-Payer Model, which concluded December 31, 2018, and initial activities under the Total Cost of Care (TCOC) Model which began January 1, 2019.

Highlights

The following bullets highlight the progress that the Maryland Health Services Cost Review Commission (HSCRC or Commission) made in the nine reporting areas required by law. They also highlight information related to the progression of the new Total Cost of Care Model.[2]

- **Total Hospital Per Capita Cost Growth** – CMS required Maryland to limit the average annual growth in all-payer hospital per capita revenue for Maryland residents to 3.58 percent. To date, Maryland has met this target, with a growth rate of 1.47 percent between calendar years (CYs) 2013 and 2014, 2.31 percent between CYs 2014 and 2015, 0.80[3] percent between CYs 2015 and 2016, 3.54[4] percent between CY 2016 and CY 2017, and 1.50 percent between CY 2017 and CY 2018. Since the beginning of the Model, the average annual growth rate is 2.03 percent, well below the 3.58 percent target.
- **Aggregate Medicare Savings** – The Maryland All-Payer Model Agreement required the State to achieve an aggregate hospital savings in Medicare spending equal to or greater than $330 million over the five years of the agreement. Savings are calculated by comparing the rate of increase in Medicare hospital payments per Maryland beneficiary with the national rate of increase in payments per beneficiary. CMS completes this calculation and provides an aggregate monthly report to the HSCRC. Maryland realized $120 million in savings in CY 2014, $155 million in CY 2015, $311 million[5] in CY 2016, $330 million in CY 2017, and $506 million in CY 2018. The cumulative hospital savings throughout the five years of the All-Payer Model amounts to $1.4 billion.
- **Shifting from a Per-Case Rate System to a Global Budget** – CMS required Maryland to shift at least 80 percent of hospital revenue to global or population-based budgets. Maryland exceeded this target and has shifted 98 percent of regulated hospital revenues

[1] Health-General Article §19-207(b)(9) Maryland Annotated Code.
[2] *Id.*
[3] The all-payer per capita growth rate reflects an adjustment to revenues to account for Maryland hospitals undercharging their global budgets from July to December 2016
[4] *Id.*
[5] The statewide savings noted here reflect an adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. This adjustment reduces the amount of statewide savings otherwise shown in CY 2016. CY 2016 hospital savings without the undercharge adjustment is $336 million.

to global budget structures. The two percent of revenue not included in GBR accounts for drug costs which are funded based on volume.[6]

- **Reducing the Readmission Rate among Medicare Beneficiaries** – Readmission rates continued to steadily decline over the course of the All-Payer Model. With most recent twelve months' data through December 2018, the Maryland Medicare FFS Readmission Rate is 0.05 percentage points *lower than* the National Medicare FFS Readmission Rate (Maryland: 15.40 percent; Nation: 15.45 percent). The All-Payer Model agreement required Maryland's hospital readmission rate for Medicare FFS beneficiaries to be at or below the national readmission rate by the end of 2018, which Maryland successfully achieved. Maryland is working to maintain this improvement, as well as additional improvement over the nation.
- **Reducing Hospital-Acquired Conditions (HACs)** – CMS required Maryland to reduce the cumulative rate of HACs by 30 percent by the end of CY 2018. HSCRC measures HACs using a list of Potentially Preventable Complications (PPCs).[7] Through December 2018, the State of Maryland has achieved a 51.50 percent reduction in all-payer, case-mix adjusted PPC rates. The reduction in the case-mix adjusted complication rate for Medicare FFS was 53.03 percent. Staff continue to incentivize reductions in HACs through the quality incentive program.
- **Monitoring Total Cost of Care (TCOC)** – Under the All-Payer Model agreement, the total cost of care growth for Maryland Medicare beneficiaries may not exceed the national growth rate by more than one percent in any given year and may not exceed the national growth for two consecutive years. From CY 2014 to CY 2018, Maryland's TCOC growth met the requirements of the All-Payer Model.
- **Workgroup Activities** – The HSCRC continues to broadly engage with stakeholders in guiding policy and methodology development through various Workgroup meetings throughout CY 2018. Stakeholders representing consumers, businesses, payers, providers, physicians, nurses, and other health care professionals and experts have participated in these Workgroups. All Workgroup meetings are conducted in public sessions and comments from the public are solicited at each meeting.
- **Actions to Promote Alternative Methods of Rate Determination and Payment** – The All-Payer Model agreement allows Maryland to develop alternative methods of rate determination. The HSCRC developed the Global Budget Revenue (GBR) reimbursement model and has moved 98 percent of acute hospital revenue under global budgets as of CY 2016. The 2 percent of non-GBR revenue accounts for drug costs which are funded based on volume.[8]
- **Reports to CMS** – To date, the HSCRC has met all of CMS's reporting requirements.
- **Total Cost of Care Model Progression** – On July 9, 2018, Governor Hogan, alongside CMS and other State leaders, signed the Maryland Total Cost of Care Contract. The new Model aims to move beyond hospitals and to coordinate care for patients across both hospital and non-hospital settings, improve health outcomes, and contain the growth of

[6] Previous versions of this report have indicated that 100 percent of hospital revenue had moved under global budget arrangements as of 2017. The HSCRC has updated this number across all years of the Model to account for drug costs which are funded based on volume.

[7] 3M Health Information Systems developed the PPC measures. The PPC software relies on "present on admission" indicators from administrative data to calculate the actual versus expected number of complications for each hospital.

[8] Previous versions of this report have indicated that 100 percent of hospital revenue had moved under global budget arrangements as of 2017. The HSCRC has updated this number across all years of the Model to account for drug costs which are funded based on volume.

costs. The TCOC Model began on January 1, 2019 and the Commission has focused on implementation activities in the initial months of the Model.

- **Reporting Adverse Consequences** – Under the All-Payer Model contract, CMMI monitors the total cost of care in Maryland to ensure that reductions in hospital utilization does not result in unreasonable increases in total cost of care, which includes costs associated with all other health care providers. The All-Payer Model contract provides that in any one calendar year, Medicare total cost of care growth in Maryland may not grow more than 1 percent above Medicare total cost of care growth nationally. Additionally, in any two consecutive years, Maryland's Medicare total cost of care may not exceed the nation. The HSCRC monitored this measure closely in 2018 to ensure that the two consecutive year requirement was not breached, as Maryland total cost of care was 0.76 percent above the nation in CY 2017. Through the end of 2018, Maryland total cost of care is 1.30 percent below the nation for CY 2018.

Introduction

Effective January 1, 2014, the State of Maryland and the Centers for Medicare & Medicaid Services (CMS) entered into an initiative to modernize Maryland's unique all-payer rate-setting system for hospital services. This initiative replaced Maryland's 36-year-old Medicare waiver and allows Maryland to adopt innovative policies aimed at reducing per capita hospital expenditures and improving patient health outcomes. The All-Payer Model successfully reduced costs and improved the quality of care for patients and helped lay the foundation for the new TCOC Model, which began January 1, 2019. The Center for Medicare and Medicaid Innovation (CMMI) oversees the Model under the authority of CMS. The State, in close partnership with providers, payers, and consumers, have achieved significant progress in this modernization effort.

State and Federal Status Reporting Requirements for Maryland's All-Payer Model

State Reporting Requirements for Maryland's All-Payer Model

This report contains a summary of implementation, monitoring, and other activities to inform the Maryland General Assembly on the status of the Maryland All-Payer Model. This Maryland All-Payer Model Biannual Report, prepared in accordance with Maryland law, discusses the State's progress during the period from January 1, 2014, through December 30, 2018, based on the most recent available information.[9] The HSCRC updates the report every six months. Table 1 provides an overview of the reporting that is required by law under the Maryland All-Payer Model.[10]

Table 1. State Biannual Reporting of Maryland's All-Payer Model

Section	Achievement Requirement	Accomplishments	Ongoing Activities
I.1	Limit the annual growth in all-payer hospital per capita revenue for	Per capita revenue for Maryland residents grew 1.47% between CYs 2013-2014; 2.31% between CYs	• Ongoing monthly measurement • Continued favorable performance under the Total Cost of Care model is expected as global budgets result in

9 Health-General Article §19-207(b)(9) Maryland Annotated Code.
10 Id.

Section	Achievement Requirement	Accomplishments	Ongoing Activities
	Maryland residents to 3.58%	2014-2015; and 0.80% between CYs 2015-2016, 3.54% between CYs 2016-2017, and 1.50% between CYs 2017-2018.	predictable statewide revenue performance
I.2	Achieve aggregate hospital savings in Medicare spending equal to or greater than $330 million over 5 years	$120 million in Performance Year (PY) 1 (CY 2014), $155 million in PY 2 (CY 2015), $311 million in PY 3 (CY 2016), $330 million in PY 4 (CY 2017, and $506 million in PY 5 (CY 2018), bringing the cumulative savings to $1.4 billion.	• HSCRC is working with an analytics contractor to examine and replicate CMS calculations of Medicare savings and per beneficiary growth rates during the TCOC model.
I.3	Shift at least 80% of hospital revenue to a population-based payment structure (such as global budgets)	98% of hospital revenue shifted to global budgets.[11]	• All hospitals are engaged in global budgets under Global Budget Revenue (GBR) agreements • HSCRC continues to refine global budget methodology
I.4	Reduce the hospital readmission rate for Medicare FFS beneficiaries to be below the national rate over the 5-year period of the agreement	At the beginning of the model, Maryland's readmission rate was 1.22 percent higher than the nation. Maryland has narrowed its gap from the nation each year of the model and now has a readmission rate that is 0.05 percentage points **below** the national readmission rate.	• HSCRC is monitoring progress within Maryland across all-payers using data it collects from hospitals and is working to maintain improvements and remain below the national Medicare readmission rate. • HSCRC maintains an aggressive improvement target for hospitals under the Readmission Reduction Incentive Program (RRIP), while recognizing the high performing hospitals may have less opportunity to improve.
I.5	Cumulative reduction in hospital acquired conditions (HACs) by 30% over 5 years	Compounded with previous reductions in complications since CY 2013, the State of Maryland has achieved a 51.50 percent reduction in all-payer, case-mix adjusted PPC rates by the end of 2018.	• HSCRC will continue to incentivize PPC reductions through the Maryland Hospital Acquired Conditions (MHAC) program in the Total Cost of Care Model.
I.6	Monitor Total Cost of Care (TCOC) for Medicare and maintain growth within guardrails	Maryland TCOC growth met the requirements of the All-Payer Model for all five years.	• HSCRC is continuing to closely monitor TCOC growth trends for hospital and total cost of care to ensure that the two consecutive year requirement is not breached.
II	Workgroup Activities	The Performance Measurement Workgroup reviewed the annual quality policies that were approved by the Commission in Spring 2018. The Payment Models Workgroup reviewed the annual update factor that was approved by the Commission in June 2018. A	• Active workgroups continue to meet on a regular basis • Staff have convened new subgroups to discuss quality policies, rate setting methodologies, and care transformation initiatives.

[11] Previous versions of this report have indicated that 100 percent of hospital revenue had moved under global budget arrangements as of 2017. The HSCRC has updated this number across all years of the Model to account for drug costs which are funded based on volume.

Section	Achievement Requirement	Accomplishments	Ongoing Activities
		Care Transformation Steering Committee was convened in November 2018.	
III	New alternative methods of rate determination	98% of hospital revenue is now under global budget arrangements.[12]	• Global budget agreements are published on the HSCRC website • Staff continues to refine rate setting methodologies.
IV	Ongoing reporting to CMS of relevant policy development and implementation	The HSCRC provided CMS with the Annual Monitoring Report as required in the All-Payer Model contract, as well as quarterly progress reports.	• HSCRC continues to provide reports to CMS on an ongoing basis.
V.	Progress of Total Cost of Care (TCOC) Model	The State signed the TCOC Model Contract with CMS on July 9, 2018.	• HSCRC continues to work on implementation activities for the January 1, 2019 Model start date.

Federal Reporting Requirements for Maryland's All-Payer Model

Maryland's All-Payer Model agreement with CMS established a number of requirements that the State must fulfill. CMS must evaluate and provide an annual report on Maryland's calendar year performance. The HSCRC submitted a final transition report on the All-Payer Model to CMS in May 2019. In addition to the annual report, the HSCRC provides ongoing reporting to CMS on relevant policy and implementation developments. If Maryland failed to meet selected requirements, CMS would provide notification, and Maryland would have the opportunity to provide information and a corrective action plan, if warranted. CMS did not provide any failure notifications to Maryland during the course of the All-Payer Model.

Section I – Requirements under the All-Payer Model

Total Hospital Per Capita Cost Growth

The Maryland All-Payer Model agreement requires the State to limit the average annual growth in all-payer hospital per capita revenue for Maryland residents to the average growth in per capita gross state product (GSP) for the period 2002 through 2012, a 3.58 percent growth rate. Per capita revenue for Maryland residents increased by 1.47 percent between CYs 2013 and 2014 and by 2.31 percent between CYs 2014 and 2015. Per capita revenue growth grew 0.80[13] percent between CYs 2015 and 2016. The all-payer hospital per capita growth rate in CY 2017 was slightly higher than previous years at 3.54[14] percent. The CY 2018 per capita revenue for Maryland residents grew 1.50 percent, continuing the favorable performance. At the end of 2018, the average annual growth rate was 2.03 percent, well below the 3.58 percent target required under the All-Payer Model. The favorable performance is a result of global budgets with strong incentives to reduce avoidable utilization (discussed at length in Section III) creating predictable statewide revenue performance that allowed the HSCRC to actively manage compliance with the 3.58 percent growth target.

[12] *Id.*
[13] The all-payer per capita growth rate reflects an adjustment to revenues to account for Maryland hospitals undercharging their global budgets from July to December 2016.
[14] *Id.*

In addition to the all-payer hospital per capita growth, the HSCRC tracked Medicare FFS per capita cost trends from its own Maryland data. Based on these data, the Medicare FFS per capita revenue declined by 1.12 percent between CYs 2013 and 2014, and grew by 1.14 percent in CY 2015. In CY 2016, the Medicare FFS per capita revenue declined by 0.97[15] percent over the same time period in CY 2015, and Medicare FFS per capita grew by 2.23[16] percent between CY 2016 and CY 2017. CY 2018 had favorable results with a 1.63 percent decline over CY 2017.

Aggregate Medicare Savings

The Maryland All-Payer Model Agreement requires the State to achieve an aggregate hospital savings in Medicare spending equal to or greater than $330 million over the five years of the agreement. Savings are calculated by comparing the rate of increase in Medicare hospital payments per Maryland beneficiary with the national rate of increase in payments per beneficiary. Currently, CMS completes this calculation and provides an aggregate monthly report to the HSCRC. Maryland realized $120 million in savings in CY 2014, $155 million in CY 2015, $311 million[17] in CY 2016, $330 million in CY 2017, and $506 million in CY 2018. The cumulative hospital savings throughout the five years of the All-Payer Model amounts to $1.4 billion.

Shifting from a Per-Case Rate System to Global Budgets

As of CY 2016, 98 percent of Maryland regulated hospital revenues are contained within global budget structures. The remaining two percent of non-GBR revenue accounts for drug costs which are funded based on volume.[18] This exceeds the Maryland All-Payer Model agreement requirement of shifting at least 80 percent of hospital revenue to global or population based budgets. All regulated Maryland hospitals now operate under Global Budget Revenue (GBR) agreements. Global budget agreements are available on the Global Budgets webpage of the HSCRC website.

The HSCRC continues to work with stakeholder workgroups to refine the GBR methodology and develop a number of policies discussed in Section III.

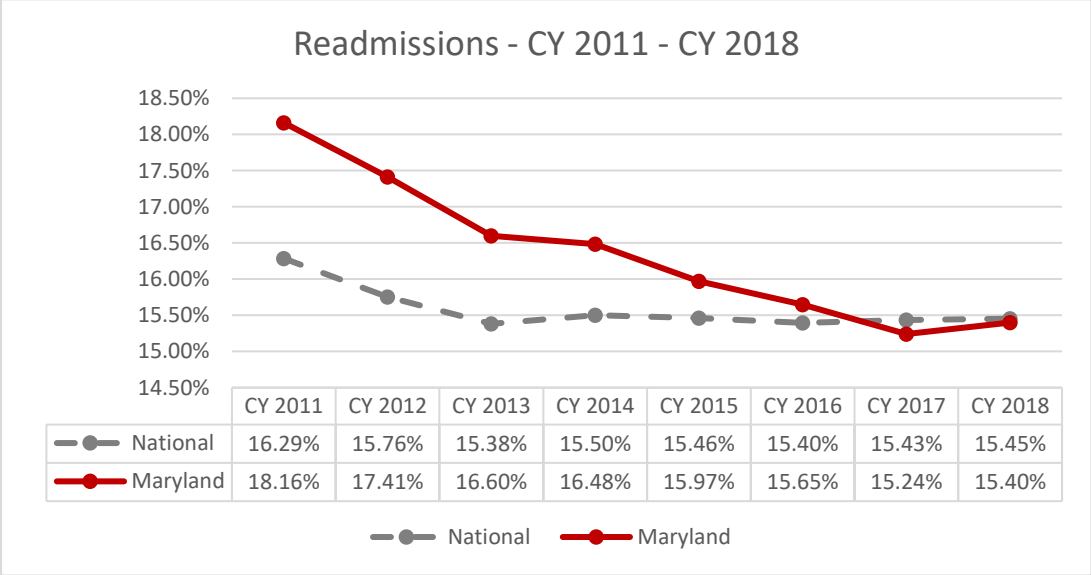
Reducing the Hospital Readmission Rate among Medicare Beneficiaries

Reducing hospital inpatient readmission rates has been an objective of the HSCRC policies since 2011. At the beginning of the All-Payer Model, the Maryland readmission rate was 1.22 percentage points higher than the nation (Maryland: 16.60 percent; Nation: 15.38 percent). Readmission rates have continued to steadily decline over the course of the All-Payer Model, and, with most recent twelve months' data through December 2018, the Maryland Medicare FFS Readmission Rate is 0.05 percentage points lower than the National Medicare FFS Readmission Rate (Maryland: 15.40 percent; Nation: 15.45 percent). The All-Payer Model agreement required Maryland's hospital readmission rate

[15] The Medicare FFS per capita growth rate reflects an adjustment to revenues to account for Maryland hospitals undercharging their global budgets from July to December 2016.
[16] *Id.*
[17] The statewide savings noted here reflect an adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. This adjustment reduces the amount of statewide savings otherwise shown in CY 2016. CY 2016 hospital savings without the undercharge adjustment is $336 million.
[18] Previous versions of this report have indicated that 100 percent of hospital revenue had moved under global budget arrangements as of 2017. The HSCRC has updated this number across all years of the Model to account for drug costs which are funded based on volume.

for Medicare FFS beneficiaries to be at or below the national readmission rate by the end of 2018, which Maryland successfully achieved. In 2019, Maryland is working to maintain this improvement, and to match or exceed any additional improvement that the nation experiences to maintain this achievement. The All-Payer Model requirement uses national Medicare data, which is summarized in Figure 1.

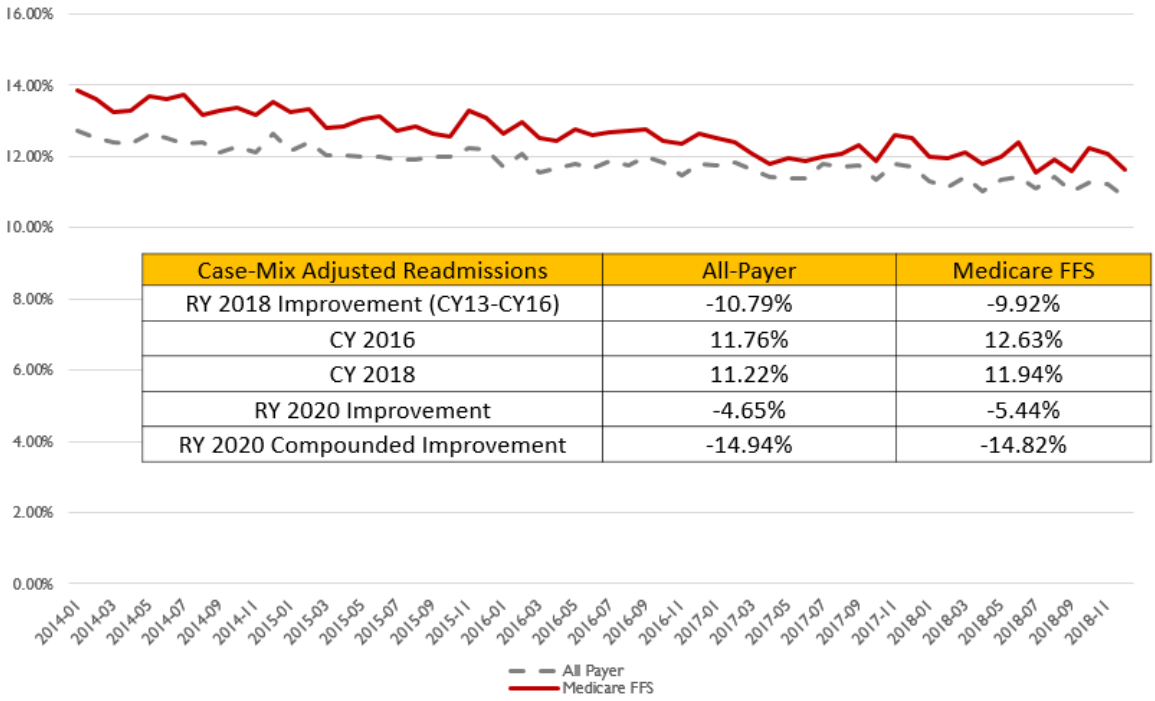
Figure 1. Medicare Readmissions - Rolling 12 Months Trend, Data through December 2018



	CY 2011	CY 2012	CY 2013	CY 2014	CY 2015	CY 2016	CY 2017	CY 2018
National	16.29%	15.76%	15.38%	15.50%	15.46%	15.40%	15.43%	15.45%
Maryland	18.16%	17.41%	16.60%	16.48%	15.97%	15.65%	15.24%	15.40%

Additionally, HSCRC's hospital data show that the monthly case-mix adjusted readmission rate through CY 2018 is substantially improved when compared to CY 2013 (Figure 2). This analysis includes all Maryland inpatient stays, including Medicare FFS. Based on these HSCRC data, the all-payer, case-mix adjusted readmission rate in CY 2018 was 11.22 percent, compared to 11.74 percent in CY 2016, a 4.22 percent reduction. Compounded with previous reductions in readmissions since CY 2013, the state of Maryland has achieved a 14.94 percent reduction in the all-payer, case-mix adjusted readmission rates. The corresponding compounded readmission reduction for Medicare FFS beneficiaries was slightly lower at 14.82 percent. This reduction is significant given difficulty and time involved in reducing readmissions, as it requires sustained effort, investment, and coordination across providers.

Figure 2. Case-Mix Adjusted Readmissions in Maryland, CY 2013 - CY 2018



Case-Mix Adjusted Readmissions	All-Payer	Medicare FFS
RY 2018 Improvement (CY13-CY16)	-10.79%	-9.92%
CY 2016	11.76%	12.63%
CY 2018	11.22%	11.94%
RY 2020 Improvement	-4.65%	-5.44%
RY 2020 Compounded Improvement	-14.94%	-14.82%

In the RY 2020 and 2021 policies, hospitals continue to be measured based on improvement and attainment. To help readmission reduction efforts, the HSCRC continues to improve its readmission reporting capability by leveraging resources available in the state Health Information Exchange and providing timely, monthly, and patient-specific data to hospitals. During CY 2019, the State is working with hospital quality experts and other measurement subject-matter experts to update the readmission policy and monitor for unintended consequences, as the State works to sustain the improvement hospitals achieved during the All-Payer Model through the Total Cost of Care Model.

Cumulative Reduction in Hospital Acquired Conditions

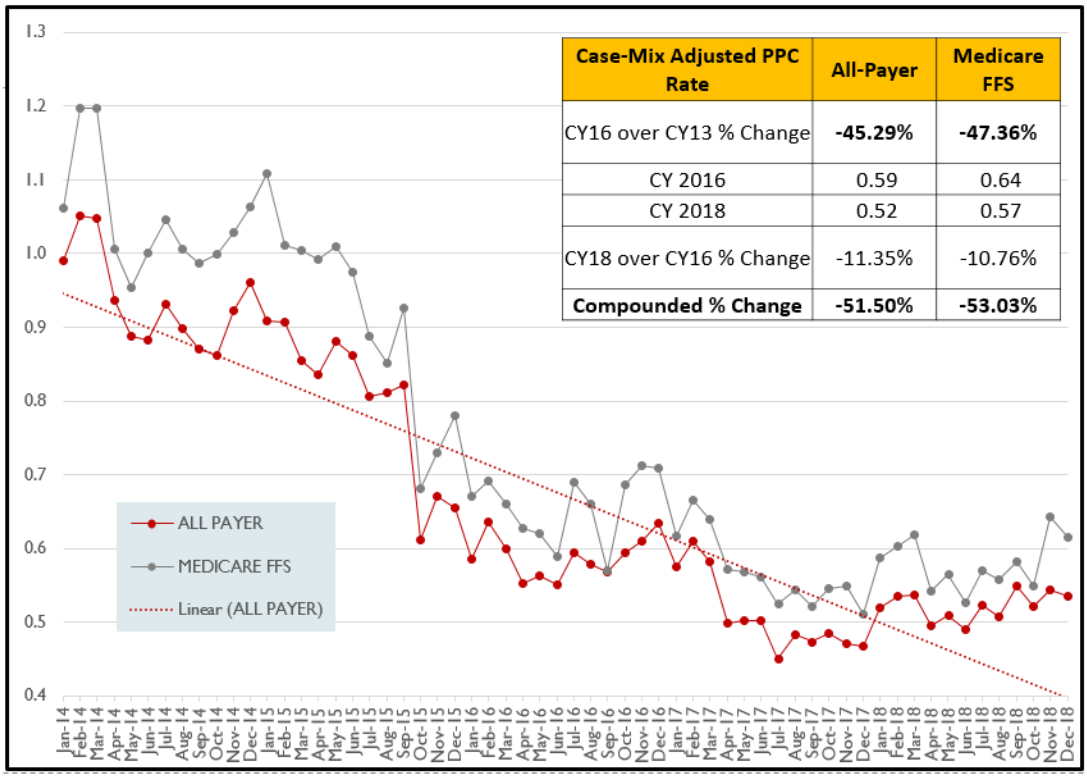
Maryland hospitals were required to achieve a 30 percent cumulative reduction in Hospital Acquired Conditions (HACs) by 2018 to comply with the Maryland All-Payer Model agreement. Maryland measures HACs using a list of potentially preventable complications (PPCs). PPCs are defined as post-admission harmful events (e.g. accidental laceration during a procedure) or negative outcomes (e.g. hospital-acquired pneumonia) that may result from the process of care and treatment rather than from a natural progression of underlying disease.

The HSCRC approved major revisions to the Maryland Hospital Acquired Conditions (MHAC) program in April 2014 in order to support the goal of reducing PPCs. The MHAC program calculates hospital rewards and penalties for case-mix adjusted rates of PPCs. Specifically, these calculations use observed-to-expected ratios as the basis of the measurement for all PPCs, converts the individual PPC performance into a standardized score, and then uses a preset scale to determine penalties and rewards.

Figure 3 shows the all-payer and Medicare FFS case-mix-adjusted PPC rates by month and year. In CY 2018, the all-payer case-mix adjusted PPC rate was 0.52 per 1,000, compared with 0.59 per 1,000 during CY 2016, which is an 11.35 percent reduction. Compounded with previous reductions in complications since CY 2013, the state of Maryland has achieved a 51.50 percent reduction in all-payer, case-mix adjusted PPC rates. The reduction in the case-mix adjusted complication rate for Medicare FFS was slightly higher at 53.03 percent.

While this reduction in the case-mix adjusted complication rate exceeds the All-Payer Model target of 30 percent by 2018, the HSCRC continues to incentivize hospitals to further reduce hospital-acquired infections and complications. In CY 2019, the HSCRC migrated to a pay-for-performance program that only rewards hospitals for achieving low PPC rates, removing the credit for improving PPC rates over time.

Figure 3. Case-Mix Adjusted PPC Rates in Maryland, CY 2014 – CY 2018



Case-Mix Adjusted PPC Rate	All-Payer	Medicare FFS
CY16 over CY13 % Change	**-45.29%**	**-47.36%**
CY 2016	0.59	0.64
CY 2018	0.52	0.57
CY18 over CY16 % Change	-11.35%	-10.76%
Compounded % Change	**-51.50%**	**-53.03%**

Note: Line graph based on v32 prior to October 2015; and v35 October 2015 to December 2018; all data are final, but are subject to validation.

Medicare Savings and Total Cost of Care Performance

Under the All-Payer Model agreement, the total cost of care growth for Maryland Medicare beneficiaries may not exceed the national growth rate by more than one percent in any given year and may not exceed the national growth for two consecutive years.

- In the first year of the Model, non-hospital costs were contained, and Medicare saved money on both hospital and non-hospital costs.
- In the second year of the Model, Maryland Medicare hospital cost growth remained stable, but non-hospital costs increased and even offset some of the hospital savings achieved in the first year. Maryland exceeded the national

Medicare total cost of care growth rate in CY 2015 by approximately 0.33 percent.

- In the third year of the Model, hospital cost growth rate was favorable compared to the nation, but non-hospital growth continued to be higher than the nation. Even so, Medicare total cost of care growth in Maryland was lower than the nation by 0.73 percentage points in CY 2016.
- In the fourth year of the Model, hospital cost growth rate continued to be favorable compared to the nation, and non-hospital growth continued to be a concern. Medicare total cost of care growth in Maryland was above than the nation by 0.75 percentage points in CY 2017.
- In the fifth year of the Model, hospital cost growth rate continued to be favorable compared to the nation. While Maryland non-hospital growth was marginally higher than the national growth rate, national trends in non-hospital utilization increased significantly. As a result, Maryland's total cost of care growth was 1.30 percentage points below the nation through December 2018.

The following figures represent actual growth trends over the five years of the All-Payer Model. The trend measures growth for the current calendar year month versus the prior calendar year month.

Figure 4. Total Cost of Care per Capita, CY 2014-CY 2018

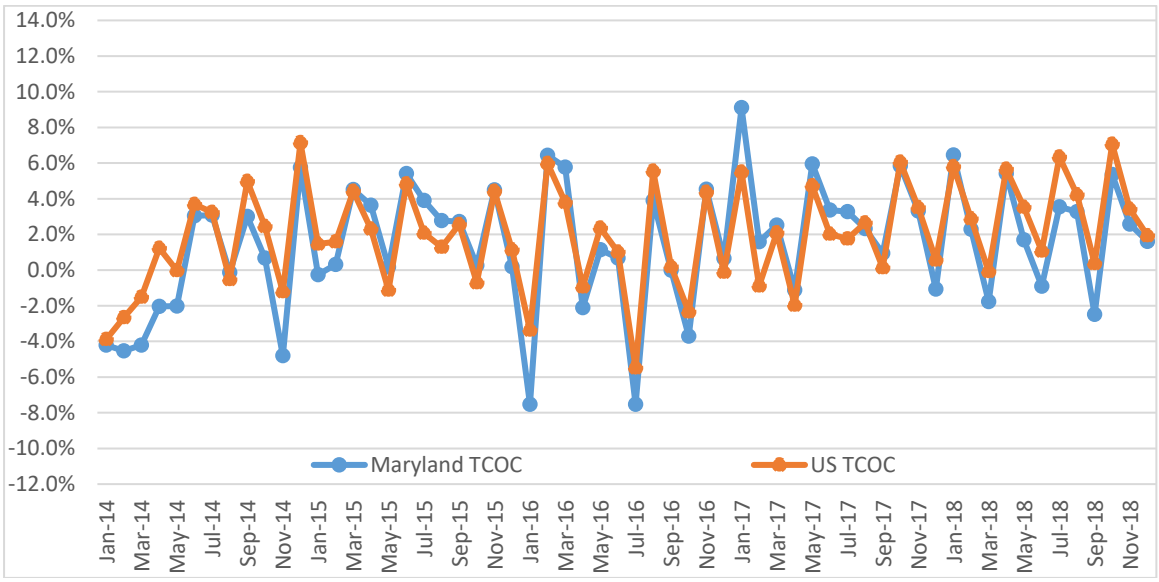


Figure 5. Medicare Hospital Spending per Capita, CY 2014- CY 2018

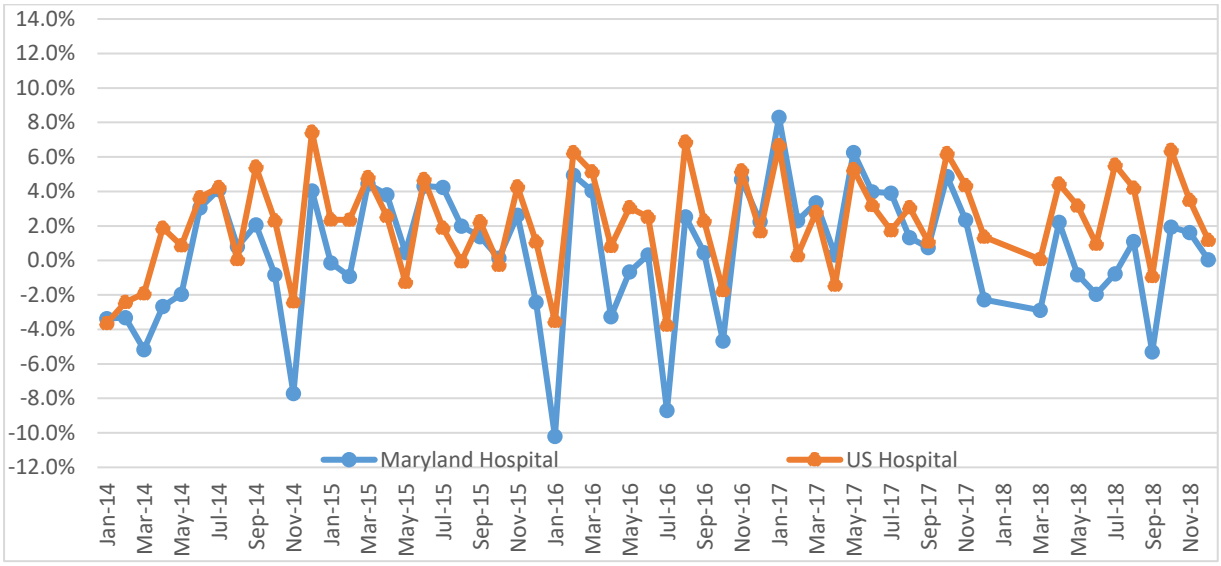
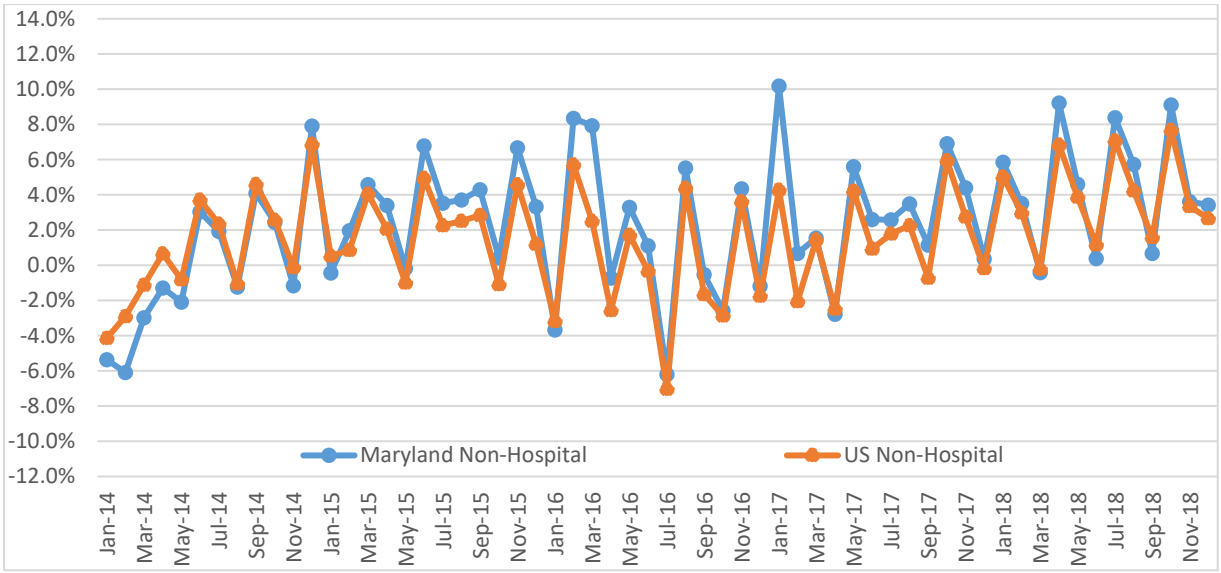


Figure 6. Medicare Non-Hospital Spending per Capita, CY 2014-CY 2018



Staff is continuing to monitor growth trends for hospital and total cost of care as we continue under the Total Cost of Care Model.

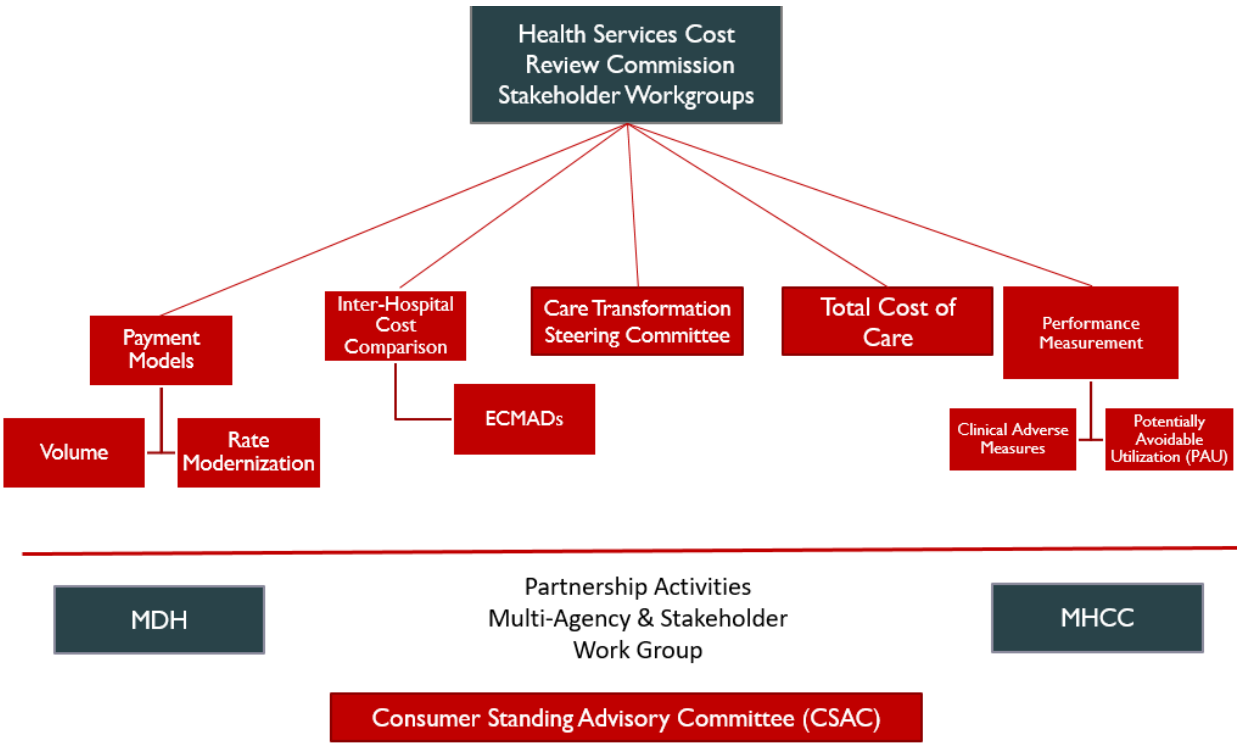
Section II – Workgroup Activities

The HSCRC continued to engage broadly with stakeholders in guiding policy and methodology development through various workgroup meetings throughout CY 2018. The Performance Measurement and Total Cost of Care Workgroups met monthly and the Payment Models Workgroup re-convened for monthly meetings in September 2018. Various subgroups were convened to help further refine new policies and methodologies impacting hospitals.

Figure 7 depicts the structure of the stakeholder engagement workgroups in 2018. All workgroup meetings are conducted in public sessions, and comments are solicited from the public at each meeting. There are also a number of sub-workgroup meetings and task forces to discuss technical, data-driven matters related to specific policies, which report back to the larger workgroups. Input is also solicited in informal meetings with stakeholders.

All proceedings and reports of the Workgroup activities may be found on the Workgroups page on the HSCRC website.

Figure 7. Stakeholder Engagement Structure



Payment Models Workgroup

The Payment Models Workgroup is charged with vetting potential recommendations for HSCRC consideration on the structure of payment models and how to balance its approach to payment updates. The Workgroup met monthly from February to May 2018 to review the FY 2019 Annual Update Factor and other payment policies. In September, the group reconvened to vet new payment-related policies such as adjusting the public-payer differential, drug cost policies, and hospital rate modernization. New subgroups of Payment Models convened in Fall 2018, focusing on rate modernization and volume measurements.

Volume Adjustment Subgroup

The Volume Adjustment Workgroup was convened in November 2018 to review the various methodologies that affect hospitals' global revenue caps and potentially revise or replace them. The subgroup reviewed various components of core and supplemental

volume based methodologies, including Market Shift, Demographic Adjustment, and Drug Volume Funding, in order to evaluate potential modifications and restructuring to align with new TCOC Model goals. As a result of this workgroup, the Commission voted to reduce the number of service lines and geographies evaluated in the Market Shift methodology, thereby improving the statistical stability of the methodology. Staff was also directed to use the analyses outlined in the workgroup to improve the distribution of the Demographic Adjustment.

Inter-hospital Cost Comparison Workgroup

The Inter-hospital Cost Comparison (ICC) Subgroup convened in December 2017 and was tasked with reviewing and vetting modifications to the ICC methodology. Taking into account factors such as regional location, hospital size and case mix, the ICC allows HSCRC staff to evaluate and compare within a peer group, and the cost efficiency of a hospitals. The ICC is an important component in hospital full rate reviews, discussed in Section III of this report.

Equivalent Casemix Adjusted Discharges (ECMAD) Subgroup

The Commission convened an ECMAD subgroup in March 2018 which was tasked with reviewing and vetting the ECMAD methodology. The ECMAD methodology accounts for the different array of services hospitals provide and allows staff to assess hospital volume with a singular statistic. The HSCRC recently developed a new algorithm to calculate ECMADs with the goal of addressing concerns about cycle billing and weight suppression among various Enhanced Ambulatory Patient Groupings (EAPGs) that are utilized in multiple clinical settings such as the emergency department and clinic settings. ECMADs form the basis of most commission methodologies such as those used to calculate hospital efficiency, market shift, demographic adjustment, and total cost of care performance.

Performance Measurement Workgroup

The Performance Measurement Workgroup develops recommendations for HSCRC consideration on measures that are reliable, informative, and practical for assessing a number of important quality and efficiency issues. In the spring of 2018, the Workgroup considered the Readmission Reduction Incentive Program (RRIP) for RY 2020 and the Potentially Avoidable Utilization Savings Policy for RY 2019. In Fall 2018, the Workgroup reviewed RY 2021 policies, including the Maryland Hospital Acquired Conditions (MHAC) Program, the Quality-Based Reimbursement (QBR) Program, and the Readmissions Reduction Incentive Program (RRIP).

Clinical Adverse Event Measures Subgroup

The Clinical Adverse Event Measures Subgroup, a subgroup of the Performance Measurement Workgroup, convened in 2018 to assist in the refinement of Maryland's performance-based payment programs. Maryland operates a complications program that aims to reduce Maryland hospital acquired conditions (MHACs) and adverse events in hospitals. The workgroup developed a revised list of clinical adverse events for use in Maryland's hospital pay-for-performance programs. This work will help define the framework for measuring and reporting these events for use in payment programs under the new Total Cost of Care Model.

Potentially Avoidable Utilization (PAU) Subgroup

The PAU Subgroup convened in August 2018 to consider the modernization and expansion of potentially avoidable utilization in order to improve the PAU measure for RY 2021 and future years. The group was primarily focused on incorporating low value care measures, refining the application of existing measures of prevention quality indicators (PQIs) and readmissions, and adding additional measures of avoidable utilization to the PAU policy. The group met throughout Fall 2018 to help refine PAU methodologies under the TCOC Model. The main accomplishment of the group was to determine a methodology to assess hospitals on their per capita rates of avoidable admissions, which is important under the TCOC model.

Total Cost of Care Workgroup

The Total Cost of Care (TCOC) Workgroup is charged with providing feedback to the HSCRC on the development of specific methodologies and calculations for TCOC. The TCOC workgroup met monthly in 2018 to further refine methodologies related to the CY 2019 Medicare Performance Adjustment policy which impacts RY 2021 rates. Commissioners approved the Year 2 MPA Policy in November 2018.

Consumer Standing Advisory Committee

The Consumer Standing Advisory Committee (CSAC) builds on existing consumer engagement and involvement across various HSCRC and MDH Workgroups in an effort to bring together a diverse cross-section of consumers, consumer advocates, relevant subject matter experts, and other stakeholders. Workgroup goals include: ensuring that the consumer perspective is reflected in and remains central to the TCOC Model and ongoing modernization efforts; promoting understanding of the TCOC Model and its impact on improving healthcare for patients; and gathering input from consumers to ensure those perspectives are used to inform the policymaking process. In 2018, the committee received updates on hospitals transformation efforts, care redesign, and discussed consumer messaging and education strategies.

Section III – Alternative Methods of Rate Determination

The Maryland All-Payer Model agreement affords the State the ability to innovate by developing alternative methods of rate determination. During the first six months of the Maryland All-Payer Model, the HSCRC developed the global budget revenue (GBR) reimbursement model and engaged all hospitals not already under a total patient revenue (TPR) agreement in GBR. As of CY 2016, 98 percent of Maryland regulated hospital revenues are contained within GBR agreements. The two percent of non-GBR revenue accounts for drug costs which are funded based on volume.[19] In addition to regulated acute hospital revenue under global budgets, the HSCRC sets the rates of non-governmental payers and purchasers for psychiatric hospitals and Mount Washington Pediatric Hospital.

[19] Previous versions of this report have indicated that 100 percent of hospital revenue had moved under global budget arrangements as of 2017. The HSCRC has updated this number across all years of the Model to account for drug costs which are funded based on volume.

The GBR methodology was central to the success of the Maryland All-Payer Model and continues to be an essential part of the new Total Cost of Care Model. In contrast to the previous Medicare waiver that focused on controlling increases in Medicare inpatient payments per case, the Maryland All-Payer Model focused on controlling increases in total hospital revenue per capita. GBR agreements prospectively establish a fixed annual revenue cap for each hospital to encourage hospitals to focus on care improvement and population-based health management.

Under GBR contracts, each hospital's total annual revenue is known at the beginning of each fiscal year. Annual revenue is determined from a historical base period that is adjusted to account for inflation updates, demographic driven volume increases, performance on quality-based or efficiency-based programs, changes in payer mix, and changes in the levels of approved uncompensated care. Annual revenue may also be modified for changes in service levels, market shifts, or shifts of services to unregulated settings.

Refining Global Budget Methodologies

While the majority of Maryland hospitals transitioned to global budgets during the first six months of the Maryland All-Payer Model, a number of essential policies were not yet finalized to address issues such as adjusting global budgets for market shifts or changes to inter-hospital transfer rates, establishing rates for new hospitals, and providing hospitals flexibility to achieve annual GBR revenue while reducing PAU. As shown in this report, HSCRC staff worked closely with the Payment Models Workgroup, as well as a number of technical sub-workgroups to develop policies to address these issues. Additionally, HSCRC staff and Workgroup members emphasized that these policies will continually progress as underlying data resources improve and the State continues under the Total Cost of Care Model.

Global Budget Charge Corridors

A unique feature of global budgets that was refined is the capacity of a GBR hospital to increase or decrease its approved unit rates to achieve its overall approved global revenue. This mechanism allows a hospital the flexibility to compensate for fluctuations in service volume over the course of the year and still reach its annual revenue target. The hospital must vary these unit rates in unison and within a defined charge corridor or be subject to penalties. If a hospital is experiencing significant volume declines as a result of reduced utilization, it may submit a request to expand this corridor so that it can achieve the approved global revenue necessary for financial stability and population health investment. HSCRC staff review these charge corridor requests to determine the cause of hospital volume changes and the impact of the charge corridor expansion on the patient population, surrounding hospitals, and other factors related to the goals and requirements of the All-Payer Model.

Transfer Case Payment Adjustment Implementation

An early concern with the expansion of global budgets was the possibility that transfer rates to academic medical centers (AMCs) would increase, and high cost care would leave community hospitals with the associated revenue for cases that had been transferred. Global budget hospitals are encouraged to reduce potentially avoidable utilization (PAU) and promote care management and quality improvement. This could result in hospitals transferring a greater number of complex cases to AMCs in order to

both provide patients with the advanced care they need, as well as to reduce the high costs associated with such cases that the initial hospital would incur. The Transfer Case Adjustment addresses these concerns by ensuring that "receiving" hospitals have the capacity to take on a possible influx of complex cases without facing financial penalties under a global budget. The HSCRC established a process to monitor and adjust for changes in transfer rates to AMCs and from sending hospitals on a quarterly basis. The Transfer Case Adjustment Policy began in RY 2016.

Market Shift Adjustment (MSA) Development

In CY 2016, the HSCRC worked extensively with stakeholders to understand and adequately account for shifts in market volume, which were reflected in rate orders as of RY 2017. Staff believes it is important to move money when patients shift from one institution to another, thereby maintaining a competitive market place where the institution that acquires increased market share from another hospital receives a marginal cost adjustment of 50 percent to care for the larger share of patients. Given the dynamic healthcare market in Maryland, the HSCRC makes market shift adjustments on a semi-annual basis. The volume workgroup began to review this policy in 2018 to make formal updates in 2019 that include reducing the number of service lines and geographies evaluated in the MSA methodology, thereby improving the statistical stability of the policy.

HSCRC staff continue to track emergency department volumes and alert trends, whereby patients may be diverted from one hospital's emergency department to another. Based on its findings, staff may incorporate these data into market shift adjustments. Additionally, staff continues to monitor any services shifting to unregulated sites, which is not represented by the current hospital market shift calculations. As always, the HSCRC will continue to make market shift adjustments when significant events occur (e.g., movement of a service, closure of a service, or other very large shifts).

Full Rate Reviews

A moratorium was issued on full rate reviews in November 2015 and expired on October 31, 2017. In anticipation of that date, the Commission voted in September 2017 to approve an amended process for full rate reviews. Full rate reviews allow staff to initiate or hospitals to apply for a full review of rates across all hospital rate centers. Staff may then adjust rates as appropriate based on review findings. Due to the unique nature of global budgets, former processes and methodologies under the previous rate setting system no longer provided adequate analysis for review. The amended process allows for a more accurate comparison of hospitals under the new global budget system. Specifically, staff now utilize total cost of care growth calculations as well as a more refined version of the historical cost per case analysis. Staff continue to refine tools, such as the ICC mentioned in Section II, to assist in full rate reviews and in the future may bring in additional efficiency tools, such as total cost of care national benchmark analyses.

GBR Infrastructure and Community Benefit Reporting

In FYs 2014 through 2016, the Commission included over $200 million in rates to support hospitals in developing services and mechanisms to improve care delivery, population health, and care management. Hospitals submitted reports on these investments with program descriptions, expenditures, and results. Key areas of

investment over this time period included disease management, post-discharge and transitional care, community care coordination, case management, and consumer education and engagement. Reporting for GBR Infrastructure spending was suspended for FY 2017 to encourage hospitals to focus on developing care redesign initiatives and to avoid diverting staff attention from those efforts.

Currently, staff are exploring ways to combine community benefits reporting with GBR infrastructure reporting, as many of the investments may overlap and have similar goals to improve community and population health. Staff is still in nascent planning stages and anticipates this to be a long-term project that may be utilized in future hospital efficiency methodologies.

Transformation Implementation Awards

As part of its update factor process for FY 2017, the Commission authorized up to 0.25 percent of hospital rates to be used for intensive community-based care coordination activities for chronically ill patients. In FY 2017, the Commission awarded $36.5 million to fourteen hospital partnerships to work with community partners to reduce PAU. Awardees submitted an annual report in September 2018. Ongoing reporting will be required of all awardees, and the Commission maintains the authority to curtail funding if it is not used in accordance with the proposals as approved by the Commission. HSCRC staff is considering updates to the program in 2019 to increase alignment with the goals of the TCOC Model and State population health improvement goals.

Section IV – Reports Submitted to CMS

The All-Payer Model agreement required the HSCRC to report to CMS on relevant policy and implementation developments. To date, the HSCRC has met all of the reporting requirements outlined in the All-Payer Model agreement by submitting the following information to CMS:

- Maryland All-Payer Model Annual Monitoring Report: This annual report was submitted to CMS in August 2018. It contains data for performance years 2014, 2015, 2016, and 2017, as well as 2013 baseline measures. A final report on select measures as agreed to by CMS was submitted May 2019.

Please find the most recent annual report submitted to CMS attached to this biannual report.

Section V - Implementation of the Total Cost of Care Model

On July 9, 2018, Governor Hogan, alongside CMS and other State leaders, signed the Maryland Total Cost of Care (TCOC) Contract, authorizing the January 1, 2019 start of the TCOC Model. Under the new TCOC Model, Maryland is expected to progressively transform care delivery across the health care system with the objective of improving health and quality of care. At the same time, State growth in Medicare spending must be maintained lower than the national growth rate. The new TCOC Model gives the State flexibility to tailor initiatives to the Maryland healthcare context, and encourage providers to drive health care innovation. The TCOC Model encourages continued Care Redesign and initiated the Maryland Primary Care Program (MDPCP) to provide new tools and resources for primary care providers to better meet the needs of patients with

complex and chronic conditions and help Marylanders achieve better health status overall.

Total Cost of Care Model Builds on Existing Momentum

The new Total Cost of Care Model leverages the foundation already developed by Maryland for hospitals and builds on the investments that hospitals have made since 2014. Maryland will continue to encourage provider- and payer-led development of care redesign programs to support innovation. Maryland is also continuing efforts to implement the MDPCP, which is voluntary to all qualifying Maryland primary care providers and provides funding and support for the delivery of advanced primary care throughout the State. The MDPCP supports the overall health care transformation process and allows primary care providers to play an increased role in prevention, management of chronic disease, and preventing unnecessary hospital utilization. Finally, the State will commit its public health resources to support population health improvements that are aligned with Model goals and Marylanders' needs.

Medicare Performance Adjustment

The HSCRC implemented the Medicare Performance Adjustment (MPA) to assist the State in the transition to the Total Cost of Care Model, which focuses on controlling TCOC. The MPA adjusts hospital Medicare payments based on Medicare TCOC performance. Commissioners voted on the initial policy in November 2017 to allow for a January 2018 implementation date, with payment adjustments beginning in July 2019 (RY 2020). Based on hospital performance in CY 2018, these adjustments are net positive payments to hospitals given favorable TCOC performance across the State. The TCOC Workgroup, describe in Section II of this report, worked throughout 2018 to refine the methodology of the MPA to guide implementation in CY 2019 and future years. Commissioners approved the CY 2019 policy in November 2018, which will impact Medicare payment adjustments for RY 2021.

Care Redesign Program

In April 2017, the State received approval from CMS for an amendment to the existing All-Payer Model contract to implement specific care redesign strategies and to provide hospitals and providers with the tools and flexibility necessary to achieve the goals of the All-Payer Model and transition to the Total Cost of Care Model. The Chesapeake Regional Information System for our Patients (CRISP) serves as the administrator of the program.

Two care redesign tracks were designed at the beginning of the program to encourage hospital and physician alignment: the Hospital Care Improvement Program (HCIP) and the Complex and Chronic Care Improvement Program (CCIP). HCIP aims to facilitate care improvement and efficiency within hospitals, while CCIP focuses on improving care for high-risk and rising needs patients through increased care coordination among hospitals and community physicians.

The Episode Care Improvement Program (ECIP) was developed in 2018 and allows hospitals to link payments to providers across certain clinical episodes of care. This is modeled off of CMS' Bundled Payments for Care Improvement Advanced (BPCI-Advanced) program. This episode payment approach aligns incentives across hospitals, physicians, and post-acute care facilities to generate savings and improve quality through

better care management during episodes, eliminating unnecessary care, and reducing post-discharge emergency department visits and hospital readmissions. CMS approved this track in June 2018 and sixteen hospitals are currently participating.

As of July 2019, there is a total of 42 unique participants across all tracks, with 40 hospitals participating in HCIP, sixteen hospitals participating in ECIP, and two hospitals participating in CCIP. Participation in CCIP declined significantly in 2019 as hospitals opted to participate in the Maryland Primary Care Program (MDPCP) instead. In February 2019, HSCRC notified CMMI of the intent to end CCIP at the end of 2019.

Additional information on care redesign can be found at https://hscrc.maryland.gov/Pages/CareRedesign.aspx.

Stakeholder Innovation Group

Maryland's Secretary of Health directed Maryland stakeholders to convene an advisory group to discuss ongoing health care delivery and payment innovations that may be leveraged or scaled, as well as to identify and develop any additional tools or programs needed to realize the goals of the TCOC Model. The group, known as the Stakeholder Innovation Group (SIG), is a broad group of health care industry representatives including hospitals, physicians, skilled nursing and long term care facilities, and payers. The group is staffed by the Maryland Hospital Association and attended by several State agencies including the HSCRC, Maryland Health Care Commission, and Maryland Department of Health. The group met throughout 2018 and early 2019 to collaborate on the development of new tools and make recommendations to the MDH that may be incorporated into the implementation strategy of the TCOC Model.

Key Elements of the New Model

Core requirements and expectations of the new model, which began January 1, 2019, include the following:

- The new Total Cost of Care Model will run for a 10-year term, so long as Maryland meets the model performance requirements.
- Average annual hospital cost growth per capita for all payers must not exceed 3.58 percent per year. The State has the opportunity to adjust this growth limit based on economic conditions, subject to federal review and approval.
- Maryland commits to saving $300 million in annual total Medicare spending for Medicare Part A and Part B by the end of 2023. The Medicare savings required in the TCOC Model will build on the ongoing work of Maryland stakeholders, which began in 2014. Maryland reached $273 million in annual TCOC savings in CY 2018, achieving $869 million cumulative TCOC savings over the course of the All-Payer Model.
- Resources will be invested in primary care and delivery system innovations, consistent with national and State goals to improve chronic care and population health.
- The Model will help physicians and other providers leverage voluntary initiatives and federal programs to align participation in efforts focused on improving care and care coordination, and participation in incentive programs that reward those results. These programs will be voluntary, and the State will not undertake in setting Medicare and private fee schedules for physicians and clinicians.
- Maryland will set aggressive quality of care goals.

- Maryland will set a range of population health goals.

Additional information about the new Total Cost of Care Model can be found at https://hscrc.maryland.gov/Pages/tcocmodel.aspx.

Section VI – Reporting Adverse Consequences

At this time, the HSCRC has not observed any adverse consequences on patients or the public generally as a result of the implementation of the Maryland All-Payer Model.

A number of policies developed in the past four years of implementation guard against potential adverse consequences that HSCRC staff and stakeholder workgroups identified as possible unintended outcomes of implementation. The GBR agreements initiated by the HSCRC for implementation of the global budgets contain consumer protection clauses. The HSCRC, in conjunction with the Payment Models Workgroup, developed the Transfer Adjustment Policy and a Market Shift Policy to help ensure that "the money will follow the patient" when shifts in utilization occur between hospitals or other health care settings. These policies aim to guard against hospitals inappropriately limiting the number of high-cost, high-risk cases admitted and to provide open access and resources when patients need to be transferred to receive highly specialized care offered in academic medical centers (AMCs).

Additionally, the HSCRC is continuing to refine tools to monitor changes in patterns of service, particularly shifts in utilization and expenditures across all healthcare providers. One area that has been under considerable scrutiny is the potential diversion of patients from one Emergency Department to other surrounding hospitals' Emergency Departments. In CY 2017, the HSCRC began to study the utilization of Emergency Department services, diversions from one hospital to another, and the efficiency of moving patients through the Emergency Department at a particular hospital. Although wait times and efficiency measures for Maryland Emergency Departments has been historically worse relative to the nation, the HSCRC has devoted time and resources to identify potential causes of Emergency Department delays or diversions and to appropriately address them. Additionally, in the RY 2020 Quality Based Reimbursement policy, the Commission voted to hold hospitals financially at risk for excessive emergency room wait times that show no sign of improvement.

Other tools to measure market shifts potentially associated with the All-Payer Model include a Total Cost of Care Reporting Template, which was developed with the aim of compiling public and private payer hospital and non-hospital claims in order to assess the growth and shifts that occur within the regulated and unregulated hospital markets, as well as those changes that occur among non-hospital healthcare providers. Claims data is compiled from the All Payer Claims Data operated by MHCC and from data submitted to the HSCRC by public payers. The HSCRC continues to improve its processes with MHCC and payers to obtain the needed data in the most efficient and timely manner possible to appropriately monitor changes in utilization and expenditures.

During CY 2016 through CY 2018, the HSCRC also continued its work to engage consumers through a Consumer Standing Advisory Committee (CSAC), which builds on the foundation laid by the Consumer Engagement and Outreach Workgroup in 2015.

The HSCRC workgroup process is considered a model for stakeholder engagement in major policy endeavors. Stakeholder engagement is key to the implementation and success of the TCOC Model. The HSCRC has made significant efforts to be as transparent as possible in its initiatives and policy developments by making these workgroup meetings open to the public and by posting the meeting materials and recordings on the HSCRC's website. More information can also be found in Section II of this report.

As mentioned earlier in the report, one area of caution for our current contract is the fluctuation in trends of the total cost of care. In the All-Payer Model contract, CMMI monitors the total cost of care in Maryland to ensure that reductions in hospital potentially avoidable utilization do not result in unreasonable increases in the total cost of care, which includes cost related to all health care providers, not just hospitals. The All-Payer Model contract provides that in any one calendar year, Medicare total cost of care growth in Maryland may not grow more than 1 percent above Medicare total cost of care growth nationally. Further, the growth in Maryland may not exceed the national average in two consecutive years. The HSCRC monitored this measure closely in 2018 to ensure that the two consecutive year requirement was not breached, as Maryland total cost of care was 0.76 percent above the nation in CY 2017. Through the end of 2018, Maryland total cost of care is 1.30 percent below the nation for CY 2018. More detailed information on Maryland's TCOC Performance can be found in Section I of this report.

Contact and More Information

For questions about this report or more information, please contact Tequila Terry, Deputy Director, at tequila.terry1@maryland.gov.

More information is available on HSCRC's website: http://www.hscrc.maryland.gov.

Appendix 1. Maryland All-Payer Model Monitoring Report to CMS

Maryland All-Payer Model Monitoring Report

August 15, 2018

Health Services Cost Review Commission

This report containing performance year 2017, with historical 2013 through 2016 data, is respectfully submitted by the Maryland Health Services Cost Review Commission to the Centers for Medicare & Medicaid Services, in compliance with the Maryland All-Payer Model Agreement.

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1.0 Introduction

The State of Maryland is leading a transformative effort to improve care and lower the growth in health care spending. In 2014, the Centers for Medicare & Medicaid Services (CMS) approved the implementation of a new All-Payer Model for Maryland. As the State's hospital rate-setting authority, the Maryland Health Services Cost Review Commission (HSCRC) plays a vital role in the implementation of an innovative approach to healthcare reform. The State's ultimate goal is to create a healthcare system that enhances patient care, improves health, and lowers total costs.

In the first year of the Model, the State was successful in shifting all acute care hospitals from volume-based reimbursement systems to global budgets tied to populations of patients, ahead of the required schedule of five years. The State successfully shifted all revenue underneath the acute care hospitals within the allotted five years.

In the second year of the Model, the State implemented changes in its value-based and quality-based payment approaches to tie into the new Model and developed some additional tools for global budgets. Hospitals—along with other providers, community organizations, consumers, and the State—also focused extensive planning efforts on the care delivery transformations and improvements that are necessary to succeed under the Model. These delivery improvements include care coordination, incentive alignment, consumer engagement, and information technology and analytic infrastructure.

In the third year of the Model, the State continued to implement care redesign and infrastructure improvements as it focused on population health and outcomes improvement goals. The State also developed and submitted a proposal for a second iteration of the Maryland All-Payer Model that builds upon Maryland's hospital per capita model by expanding efforts to align hospitals, physicians, and other providers in delivery system reforms that improve outcomes, engage patients, and contain costs. This proposal, known as the "Progression Plan," was submitted to CMS on December 16, 2016.

Successes of the All-Payer Model – 4th Year

In the fourth year of the Maryland All-Payer Model, the State of Maryland expanded upon the first three years' successes and continued to improve cost savings and quality of care.

Final results for Calendar Year 2017 show that Maryland saved $330 million in Medicare hospital expenditures. Combined with savings efforts through the first three years, the State achieved $916 million in aggregate Medicare hospital savings. The cumulative Medicare Total Cost of Care savings is $599 million.

Maryland also continued to improve quality of care. The State lowered Potentially Preventable Conditions (PPCs) by an additional 10 percent (53 percent in aggregate, exceeding the Model goal of a 30 percent reduction in five years). Maryland also continued to reduce its all-cause readmissions, and is currently below the national readmission rate at the end of CY 2017.

In the fourth year of the Model, the State continued to limit all-payer hospital growth while developing the Total Cost of Care Model (TCOC Model), which aims to limit all-payer hospital growth on a per-capita basis, as well as on Medicare total cost of care for Parts A and B. The TCOC Model will also expand efforts for delivery system transformation beyond hospitals by connecting health care providers across the health system. Included within the TCOC Model are the Care Redesign Programs, Maryland Primary Care Program (MDPCP), population health incentives and other alignment and engagement

opportunities to create patient-centered care in Maryland. Per the Progression Plan, Maryland engaged its stakeholders and worked closely with CMS throughout development of the TCOC Model.

In the current, fifth year of the All-Payer Model, the State obtained federal approval of the new TCOC Model in May 2018 and signed a TCOC Model Agreement with CMS in July 2018. The HSCRC solicited diverse internal and external stakeholder input throughout development of the TCOC Model and Agreement through consumer and hospital work groups, discussions with non-hospital providers and non-acute care facilities, and meetings with Maryland General Assembly members and partner State agencies. The State continues robust stakeholder engagement to ensure design alignment and to prepare for the start of the TCOC Model on January 1, 2019, particularly with regards to primary care practice recruitment into the MDPCP and Care Redesign Program expansion. The State also continues its monitoring and reporting activities for this final year of the All-Payer Model.

The All-Payer Model utilizes a payment system that holds hospitals accountable for the total cost of hospital care on a per capita basis. The Model continues to be successful by enhancing the quality of health care delivery, improving population health, and reducing costs. In contrast to the previous Maryland Medicare waiver from 1977, which focused on controlling growth in Medicare inpatient payments *per case*, the Maryland All-Payer Model focuses on controlling growth in total hospital revenue *per capita*. The Maryland All-Payer Model Agreement established a five-year period during which a series of key requirements must be met. These requirements include:

- All-payer per capita total hospital revenue growth is limited to 3.58 percent per year over the first three years of the Agreement;
- Five-year Medicare per beneficiary total hospital cost savings must equal or exceed $330 million;
- The aggregate Medicare 30-day all-cause readmission rate is reduced to at or below the national average; and
- The rate of hospital-acquired conditions (HACs) is reduced by 30 percent.

Table 1 (below) presents progress on these All-Payer Model Agreement goals through 2017. Per HSCRC data, Maryland is on track to meet all Model requirements through the fourth year of the Model.

Table 1. Maryland All-Payer Model Performance, 2014-2017

Performance Measures	*Targets*	*2014 Results*	*2015 Results*	*2016 Results*	*2017 Results*
All-Payer Hospital Revenue Growth	**≤ 3.58% per capita annually**	**1.47%** growth per capita	**2.31%** growth per capita	**0.80%** growth per capita[1]	**3.54%** growth per capita
Medicare Savings in Hospital Expenditures	**≥ $330m cumulative over 5 years** (Lower than national average growth rate from 2013 base year)	**$120m** (2.21% below national average growth)	**$155m** **$275 cumulative** (2.63% below national average growth since 2013)	**$311m** **$586m cumulative[2]** (5.50% below national average growth since 2013)	**$330m** **$916m cumulative** (5.63% below national average growth since 2013)
Medicare Savings in Total Cost of Care	**Lower than the national average growth rate for total cost of care from 2013 base year**	**$142m** (1.62% below national average growth)	**$121m** **$263m cumulative** (1.31% below national average growth since 2013)	**$198m** **$461m cumulative[3]** (2.08% below national average growth since 2013)	**$118m** **$599m cumulative** (1.36% below national average growth since 2013)
All-Payer Quality Improvement Reductions in PPCs under MHAC Program	**30% reduction over 5 years**	**25%** reduction	**34%** reduction since 2013	**44%** reduction since 2013	**53%** reduction since 2013
Readmissions Reductions for Medicare	**≤ National average over 5 years**	**19%** reduction in gap above nation	**58%** reduction in gap above nation since 2013	**79%** reduction in gap above nation since 2013	**116% reduction in gap above nation since 2013** (Currently 0.19% lower than National RR)
Hospital Revenue to Global or Population-Based	**≥ 80% by year 5**	**95%**	**96%**	**100%**	**100%**

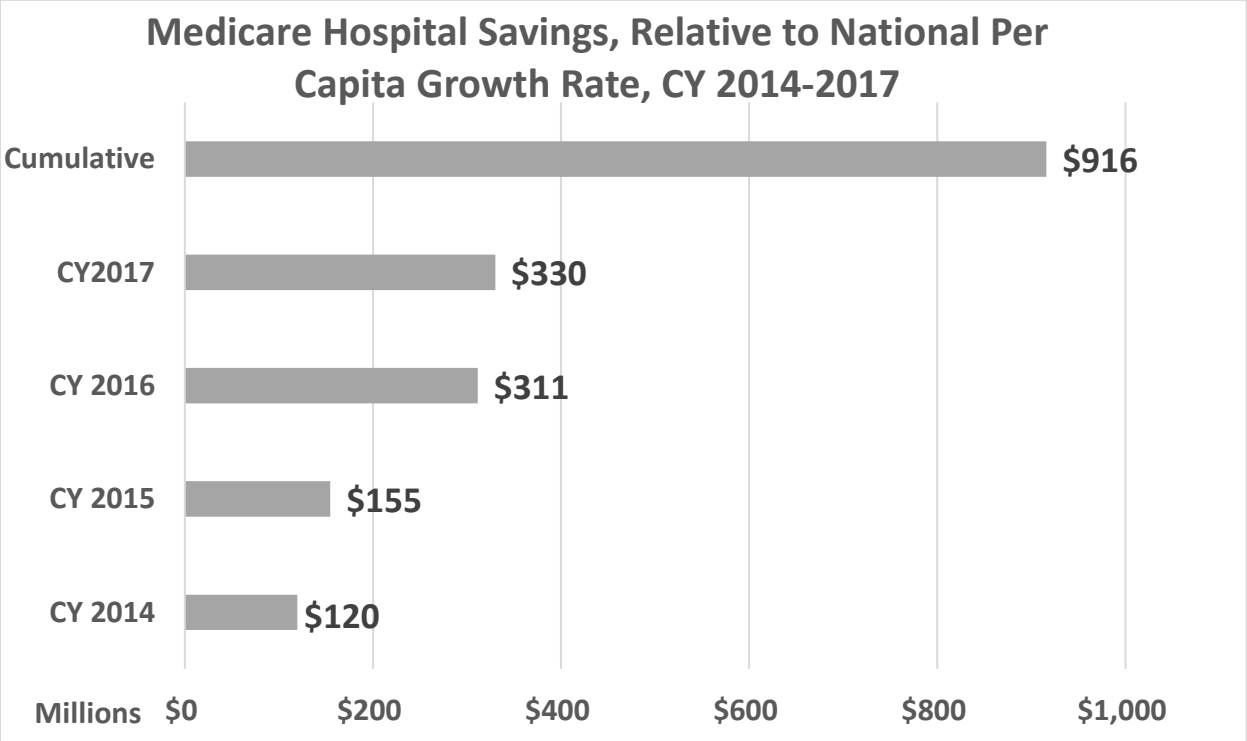
[1] During the last six months of CY 2016 (July – December of 2016), Hospitals undercharged their Global Budget Revenue mid-year targets by approximately 1 percent ($25M dollars). The measures reported have been adjusted to 'add back' the undercharge to the period of July – December 2016 to offset the decline in savings for January – June 2017

[2] Ibid.

[3] Ibid.

Figure 1 (below) highlights the cumulative Medicare savings achieved under the All-Payer Model throughout the first three years. At the conclusion of 2017, Maryland had saved Medicare over $916 million across four years of the Model.

Figure 1. Medicare Hospital Savings, Relative to National per Capita Growth Rate, CY 2014-2017[4]



In addition to the goals listed above, the submission of this report partially fulfills the Maryland Model Agreement requirement that the State provide an annual monitoring report to CMS. This report is intended to catalogue State performance with respect to selected quality and financial goals as outlined in the All-Payer Model Agreement Appendices 7 and 8 under three domains: Patient Experience of Care, Population Health, and Costs and Efficiency. A full annual monitoring report, containing data for all required measures, will be submitted in December 2018.

[4] These numbers have been adjusted to reflect the hospital undercharge of approximately 1 percent that occurred in the second half of CY 2016, reducing the CY 2016 savings shown above.

2.0 Domains and Measures Included in Monitoring Report

Measures that are tracked in the Monitoring Report correspond to three domains:

- **Patient Experience of Care Measures**: Patient satisfaction, effectiveness of care transitions, physician participation in public programs, processes of care, high priority complication rates, prevention quality indicators, and readmissions;
- **Population Health Measures**: Life expectancy, hospitalizations for ambulatory care sensitive conditions, primary and secondary prevention for cardiovascular disease, and behavioral health emergencies; and
- **Health Care Cost Measures**: Inpatient and outpatient cost trends, total cost of care for all residents and for specific payers including Medicare, Medicaid, and private insurance.

Data for the measures were compiled from existing publicly available national and State sources (e.g., CMS Hospital and Home Health Compare, Maryland Vital Statistics), as well as private-sector resources (e.g., Joint Commission Quality Check). In addition, several measures were developed using utilization and financial data from claims-based files obtained from CMS (e.g., Research Identifiable Files) and Maryland (e.g., HSCRC Hospital Abstract Data). As mentioned, this report presents available data through 2017 for the goals and measures outlined in Table 2.

Table 2. Goals and Measures Reported in June 2018

Goal	Description	Measures
Goal 7	Enhance Care Transitions – Coordination with Primary Care	7A – Rate of Physician Follow-Up After Discharge 7B – Discharges with Principal Provider Notified
Goal 9	Broaden Engagement in Innovative Models of Care	9A – Participation of Clinicians in NCQA Accredited Patient Centered Medical Homes 9B – Participation of Providers in Accountable Care Organization 9C – Participation of Providers in Bundled Payment Initiatives
Goal 12	Reduce high priority hospital complications	12A – Potentially Preventable Complications per 1,000 discharges 12B – Potentially Preventable Complications – Case-mix Adjusted Rates
Goal 14	Reduce Readmissions – Nursing Homes	14 – Readmission Rates for Inpatient Discharges to Nursing Homes
Goal 15	Reduce Readmissions – Hospital	15A – 30-Day, All Hospital, All-Cause Readmission Rate 15B – Readmissions Per 1,000 Maryland Residents 15C – Heart Failure Readmission Rate 15D – Pneumonia Readmission Rate 15E – Acute Myocardial Infarction 15F – Chronic Obstructive Pulmonary Disease Readmission Rate 15G – Hip/Total Knee Arthoplasty Readmission Rate
Goal 16	Improve Life Expectancy	16 – Average Life Expectancy at Birth
Goal 17	Reduce the rate of Hospitalizations for Ambulatory Care Sensitive Conditions	17A – PQI Acute Composite Rate 17B – PQI Chronic Composite Rate 17C – PQI Overall Composite Rate

Goal 20	Improve Prevention for Diabetes and Cardiovascular Disease	20A – Diabetes-Related emergency department (ED) Visit Rate per 1,000 population 20B – Hypertension-Related ED Visit Rate per 1,000 population
Goal 21	Improve Prevention for Asthma	21 - Asthma-Related ED Visit Rate
Goal 22	Promote Behavioral Health Integration in Primary Care	22A - Mental Health-Related ED Visit Rate 22B - Substance Abuse-Related ED Visit Rate
Goal 25	Control Expenditure Growth – Hospital	25A – All-Payer Maryland Hospital Charges per Capita 25B – Medicare Maryland Hospital Charges per Capita 25C – Medicaid Maryland Hospital Charges per Capita 25D – Private Payer Maryland Hospital Charges per Capita 25E – Dual Eligibles Maryland Hospital Charges per Capita
Goal 25a	Control Expenditure Growth – Specialty Hospital	25aA – All-Payer Maryland Specialty Hospital Charges 25aB – Medicare Maryland Specialty Hospital Charges 25aC – Medicaid Maryland Specialty Hospital Charges
Goal 26	Control Expenditure Growth – All Services	26A – All-Payer Maryland Total Expenditure 26B – Medicare Maryland Total Expenditure 26C – Medicaid Maryland Total Expenditure 26D – Private Payer Maryland Total Expenditure 26E – Dual Eligibles Maryland Total Expenditure

Performance on several of the above-listed goals is tracked using more than one measure, as itemized in the table. Due to implementation of the International Classification of Diseases, 10th edition (ICD-10), some charts do not trend the data across the ICD-9 and ICD-10 time periods, and charts trending case-mix data bridging ICD-9 and ICD-10 timeframes should be interpreted with caution.

In collaboration with CMS, the HSCRC plans to add new measures (such as additional efficiency measures) to this report as they are developed, and add any requested sub-group analyses if available. To this end, the HSCRC has developed the Medicare Performance Adjustment (MPA), which will adjust hospital payments based on Medicare total cost of care (TCOC) performance. Further measure development and reporting may also take place as the HSCRC works with CMS to adapt and enhance this monitoring plan for Total Cost of Care All-Payer Model. The HSCRC aims to ensure that CMS has the data it needs to show that the Maryland All-Payer Model is effective at achieving the goals of delivering better care and better health at lower cost, and the State will continue to work collaboratively with CMS to establish benchmarks or targets for other high-priority measures that are currently being monitored or that will be developed in the future.

3.0 Key Findings

This report presents results for each of the measures identified in Section 2.0, pursuant to Appendix 7 and 8 of the All-Payer Model Agreement. Along with the results, this section includes a brief description of each measure and a summary of the methods used to estimate each measure. Appendix A provides a table with results for all measures and the values of the numerators and denominators used to calculate these results, as applicable, organized by goal and year. Appendix B provides additional detail to support the methodology descriptions in the main report, where applicable.

3.1 Patient Experience of Care

Maryland believes that an All-Payer Model that holds providers accountable for the total cost of care can improve the quality of care and the patient's experience of care. Through the All-Payer Model, Maryland expects to enhance care transitions, sustain high levels of physician participation in public programs, and broaden provider engagement in innovative models of care. Through these efforts, as well as ongoing initiatives to reduce complications and readmissions, Maryland will improve both quality outcomes and patient satisfaction. Although patient satisfaction is identified in the goal names under this section, HSCRC recognizes that satisfaction is but one dimension of quality reflected in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey measures and other measures reported in this section.

3.1.7 Goal 7: Enhance Care Transitions – Coordination with Primary Care

Measures used to assess the improvement of care transitions consist of (A) the rate of physician follow-up after discharge and (B) the rate of discharges in which the principal provider was notified.

Goal 7. Enhance Care Transitions – Coordination with Primary Care	
Goal Summary	Management of transitions of care—from the hospital to a post-acute care provider or to home—including appropriate and timely outpatient physician follow-up is a key strategy to reduce hospital readmissions. This goal tracks the rate of physician follow-up after discharge, as well as the proportion of discharges for which a physician is notified of the admission and/or discharge.
Measurement Methodology	Follow-Up after Discharge The measure of post-hospitalization follow-up visit within 14 days is calculated using specifications developed by Mathematica Policy Research (MPR), which are based upon a methodology provided by RTI International. Post-discharge visits are included in the **numerator** if an eligible face-to-face visit procedure or revenue code is found on one or more outpatient claims with a service date 14 days post-discharge. Inpatient discharges are included in the **denominator** if they are billed for Maryland residents who: (1) are eligible for Medicare Part B in the month of the discharge, (2) have at least one fee-for-service (FFS) claim in the month of the discharge, and (3) are alive for 14 days post-discharge. Any discharge with a subsequent inpatient admission within 14 days is excluded. The percentage of inpatient discharge having a face-to-face follow-up visit within 14 days is calculated as proportion of the total eligible discharges. Historical data (2013-2016) have been refreshed with the methodology refined by MPR. In addition, national rates are now provided based upon the 5% Medicare sample of the CCW. Discharges with Principal Provider Notification Chesapeake Regional Information System for Our Patients (CRISP), Maryland's Health Information Exchange, provides an Encounter Notification Service (ENS), which sends information to providers on a real-time basis when a provider's patient visits a hospital. Providers can choose to receive different types of notifications through CRISP, such as ED registration events, inpatient admissions, and inpatient discharges. ENS works by gathering patient panels directly from providers rather than relying on self-reported data from patients during the admission process,

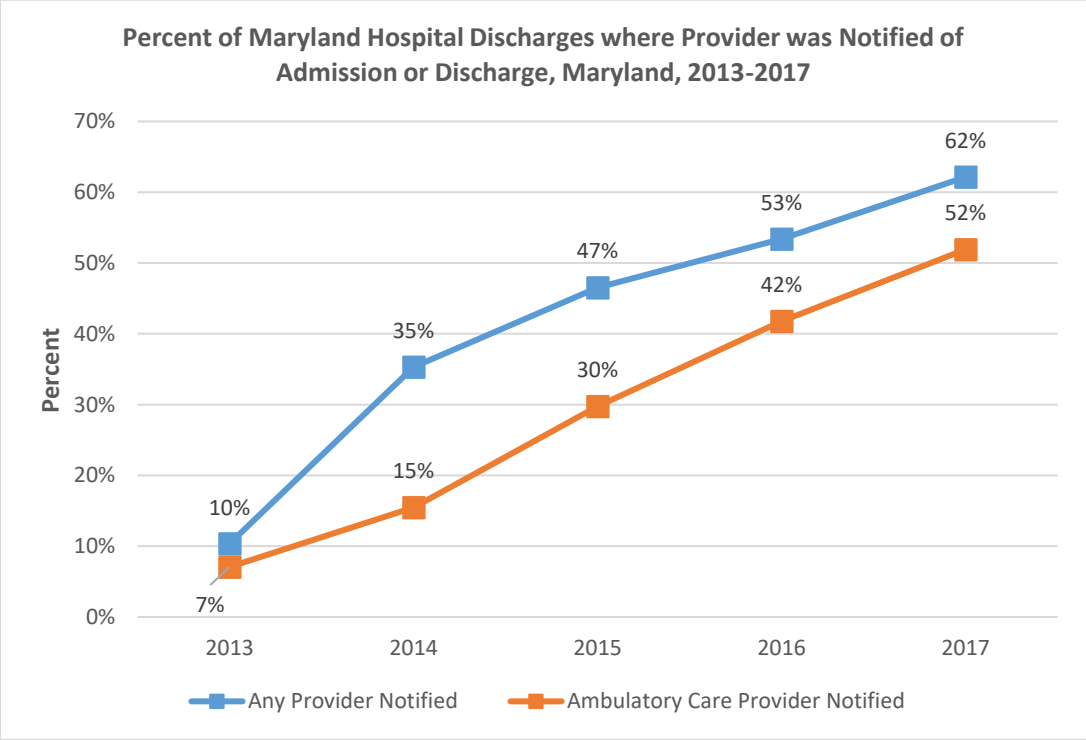
	which is known to be less reliable in Maryland as well as nationally. CRISP encourages organizations to update their panels at least monthly. As ENS has demonstrated importance and reliability among the provider community, the types of organizations submitting ENS panels have grown. In addition to ambulatory physicians, CRISP now receives panels from long-term care facilities, care coordination entities, behavioral health organizations, and payers. HSCRC staff use data from CRISP to calculate the percentage of inpatient discharges for which there is any associated ENS alert sent to a provider. Measuring discharges with the provider notified via ENS is not exactly consistent with the original CMS requirement of simply identifying a primary care provider. However, HSCRC makes a strong case that this measure is a better indicator of supporting transitions in care and more consistent with meaningful use requirements. In addition to the ENS notification, CRISP also sends providers the patient's most recent contact information; providers find this to be extremely valuable in connecting with patients post discharge. CRISP is also looking at additional ways to engage ambulatory providers in ENS. As CRISP builds the volume of ambulatory connectivity with providers submitting Consolidated Clinical Document Architecture, the CRISP team is developing attribution methods for providers to auto-populate ENS panels.
Monitoring Results ***See below*** Table 3 Figure 2	Follow-up After Discharge within 14 Days ▪ Using the MPR measure of Follow-up after Discharge within 14 days, Maryland has maintained a rate of physician follow-up after discharge for Maryland Medicare beneficiaries of between 65-69 percent from 2013 to 2017. In each year, Maryland had a higher rate compared to the nation. Maryland achieved a 69 percent rate of follow-up in 2017, compared to a rate of 67 percent at the national level. ▪ Care managers and community health workers have been deployed to enhance care transitions and broader care coordination efforts, which will further improve follow-up rates following a hospital discharge. Discharges with Principal Provider Notified in Maryland ▪ Between 2013 and 2017, there was an approximately six-fold increase in the discharges for which any provider received an ENS notification, from 10.36 percent to 62.15 percent. ▪ During the same time period, the proportion of discharges for which an ambulatory care provider received an ENS notification also increased sevenfold, from 7.07 percent to 51.92 percent.

Table 3. Care Coordination with Primary Care, 2013-2017

Measures	Population	2013	2014	2015	2016	2017
Rate of physician follow-up after discharge for Medicare beneficiaries	Maryland	67%	65%	66%	68%	69%
	National, an enhanced 5% Medicare Sample of the CCW	65%	64%	65%	67%	67%
Discharges with principal provider notified in Maryland	Any Provider Notified	10%	35%	47%	53%	62%
	Ambulatory Care Provider Notified	7%	15%	30%	42%	52%

Source: MPR Analysis of CCW; CRISP ENS Notification Reports, 2017.

Figure 2. Percent of Maryland Hospital Discharges where Provider was Notified of Admission or Discharge, Maryland, 2013-2017



Source: CRISP ENS Notification Reports, 2018. Notification provider types include: ambulatory, behavioral health, care coordinators, long-term care, payers, and other.

3.1.9 Goal 9: Broaden Engagement in Innovative Models of Care

This report will evaluate Engagement in Innovative Models of Care in three measures using data on (A) participation of clinicians in NCQA-accredited Patient- Centered Medical Homes (PCMHs); (B) participation of providers in Accountable Care Organizations (ACOs); and (C) participation of providers in Bundled Payment Initiatives, which, for purposes of this report, are considered to be Alternative Rate-setting Models, or ARMs.

Measure 9. Broaden Engagement in Innovative Models of Care	
Goal Summary	The All-Payer Model incentivizes the continued participation of providers in healthcare reform initiatives, such as patient-centered medical homes (PCMHs), accountable care organizations (ACOs), and bundled payment initiatives. Participation of Clinicians in NCQA-Accredited PCMHs PCMHs focus on the primary care practice as the central point of care. These models promote the core tenets of improving access, prevention, and care coordination, and improving patient outcomes and healthcare cost control. This measure tracks adoption of PCMH models in Maryland. Participation of Provider Organizations in ACOs According to CMS, "[ACOs] are groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high quality care to their Medicare patients. The goal of coordinated care is to ensure that patients, especially the chronically ill, get the right care at the right time, while avoiding unnecessary duplication of services and preventing medical errors." For more information on ACOs, please visit the CMS website: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO/ This measure tracks provider organization participation in ACOs in Maryland. Participation of Providers in Bundled Payment Initiatives The alternative rate-setting methodology (ARM) was developed to encourage innovative and cost-saving payment arrangements without compromising the Commission's long-standing principles of equity and access. This methodology assures that hospitals are paid HSCRC-approved rates under the arrangements. The entity involved assumes the risk associated with the ARM arrangement. There are two types of ARM arrangements: ▪ **Capitation**: This type involves significant risk to the hospital for a broad range of services, including regulated hospital services. ▪ **Global or Fixed Price**: This type encompasses not only the hospital rates associated with a case, but also the professional services provided during the course of treatment.
Measurement Methodology	Participation of Clinicians in NCQA-Accredited PCMHs The HSCRC's Physician Alignment Workgroup recommended relying on the information available through the national accrediting organizations (primarily NCQA). Although NCQA will not capture all the providers participating in PCMH, it will allow the HSCRC, in the short term, to monitor trends that may reflect the broader PCMH

	environment. The following website was used to obtain the number of providers and practices participating in PCMH: http://recognition.ncqa.org/index.aspx. Limitations and concerns about these data include the fact that they do not capture all PCMH programs, such as those by CareFirst. Additionally, these data are continuously updated by NCQA, and will therefore be considered up-to-date at the time they are pulled. Participation of Provider Organizations in ACOs The HSCRC staff obtained the number of ACOs located in Maryland and across the nation by conducting analysis of data from the following website: https://data.cms.gov/Special-Programs-Initiatives-Medicare-Shared-Savin/2017-Medicare-Shared-Savings-Program-Organizations/28pq-6hh8 Participation of Providers in Bundled Payment Initiatives The HSCRC reports the number of providers that were approved by the Commission to participate in an Alternative Rate-setting Methodology for each year.
Monitoring Results ***See below*** Table 4 Figure 3 Figure 4 Figure 5 Figure 6	Participation of Clinicians in NCQA-Accredited PCMHs In 2017, there were a total of 1,107 NCQA-accredited PCMH clinicians in Maryland, a 181.7 percent increase from 2013 (Figure 3**Error! Reference source not found.**). ▪ In addition to an increase in the number of clinicians, there were 237 practices with NCQA-accredited PCMHs in 2017, a 225 percent increase in the number of practices from 2013. Participation of Provider Organizations in ACOs ▪ The total number of ACOs in Maryland decreased to 21, down from 26 in 2016. This reduction partially reflects the fact that some ACOs in Maryland combined with one another. ▪ The number of provider organizations within these ACOs reduced to 636 in 2017 from 672 in 2016; however, this also partially represents the consolidation of practices. Participation of Providers in Bundled Payment Initiatives In 2017, 40 alternative rate-setting methodologies (ARMs) were approved by the Commission, representing more than a 25 percent increase when compared to the 32 ARMs that were effective during 2013. ▪ The number of ARMs approved by the Commission reached a high of 40 in 2017. The most recent peak in ARMs was in 2012 with 38 arrangements, while all other years remained below 36. ▪ No national ARM participation rates are available. In 2016, 75 percent of ARMs were global arrangements, ten percent were Medicaid MCOs, seven percent were Medicare Advantage plans, and eight percent were other forms of capitation.

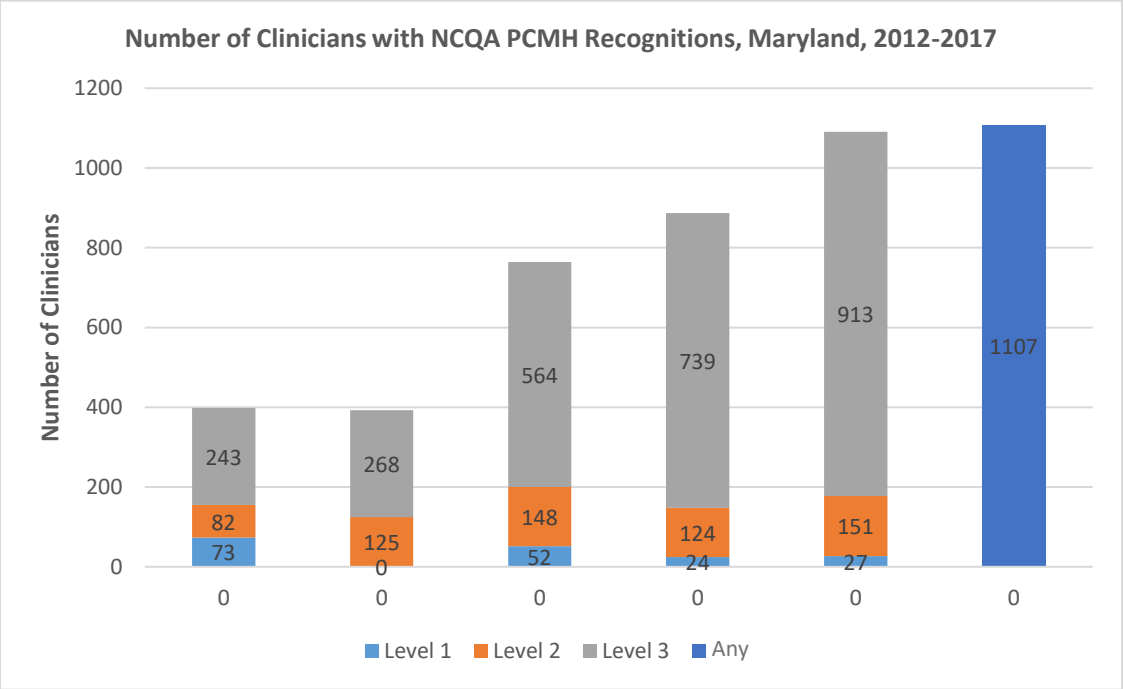
Table 4. Maryland Participation in Innovative Models of Care, 2011-2017

Measures	Population		2011	2012	2013	2014	2015	2016	2017
Participation of Maryland clinicians in NCQA accredited patient-centered medical homes	By Clinician	Level 1		73	0	52	24	27	
		Level 2		82	125	148	124	151	
		Level 3		243	268	564	739	913	
		Total		398	393	764	887	1,091	1,107[5]
	By Practice	Level 1		19	0	7	5	5	3
		Level 2		18	28	26	32	35	34
		Level 3		45	45	95	147	167	200
		Total		82	73	128	184	207	237
Participation of providers in accountable care organizations	Maryland ACOs					21	21	26	21
	Maryland Provider Organizations					482	506	672	636
	National ACOs					406	393	433	480
	National Provider Organizations					15,782	15,392	14,817	17,470
Participation of providers in alternative rate setting methodologies	Maryland		31	38	32	36	35	35	40
	National								

Source: HSCRC analysis of NCQA website, http://recognition.ncqa.org/index.aspx; HSCRC analysis of CMS ACO information: https://data.cms.gov/Special-Programs-Initiatives-Medicare-Shared-Savin/2017-Medicare-Shared-Savings-Program-Organizations/28pq-6hh8; Maryland HSCRC ARM data.

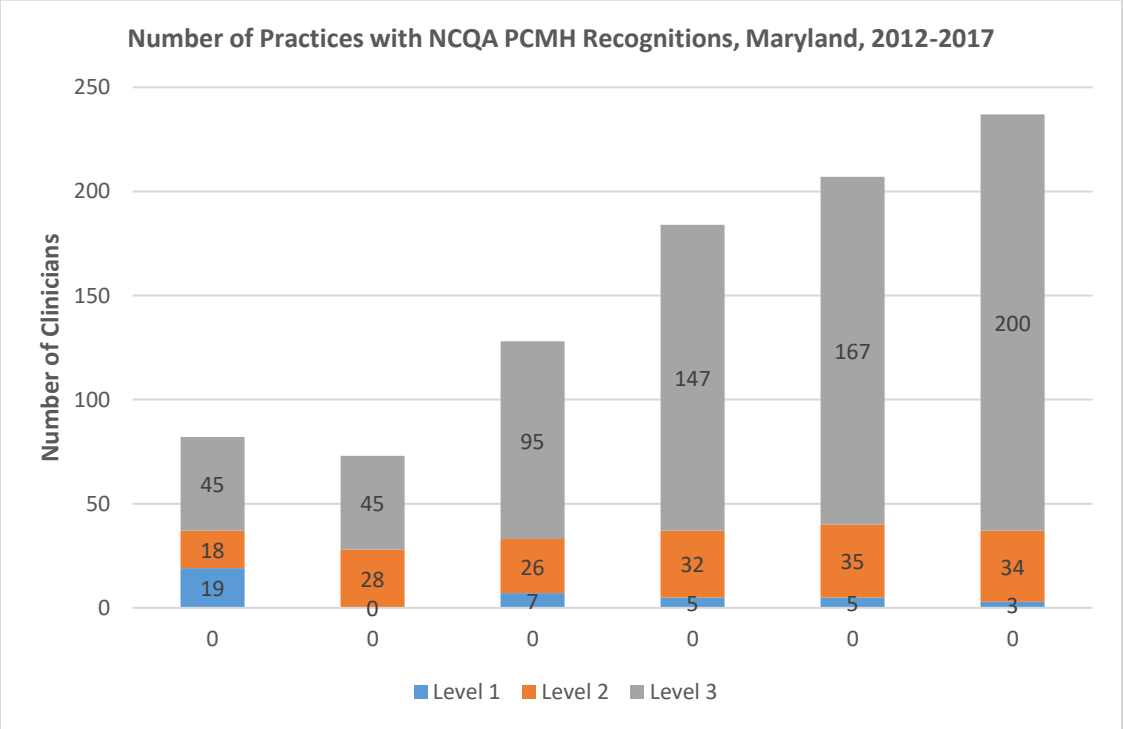
[5] Represents any practices who were NCQA accredited at any point during CY 2017, as calculated based on certification time period, as downloaded in October 2016 and May 2018. Due to a change in NCQA public data accessibility, clinician-specific levels of certification is not reported starting in 2017.

Figure 3. Number of Clinicians with NCQA PCMH Recognitions, Maryland, 2012-2017



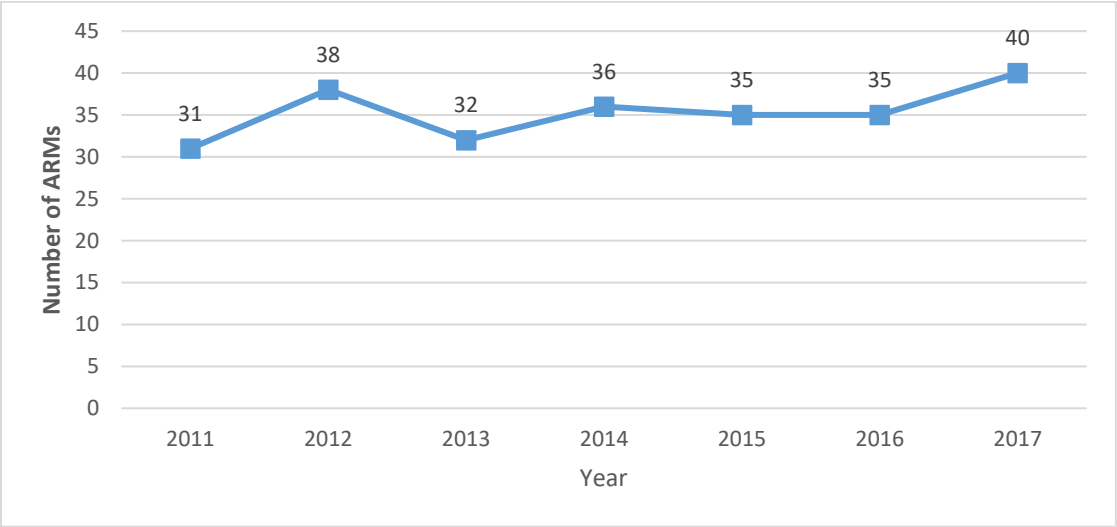
Source: HSCRC analysis of NCQA website, http://recognition.ncqa.org/index.aspx. Due to a change in NCQA public data accessibility, clinician-specific levels of certification is not reported starting in 2017.

Figure 4. Number of Practices with NCQA PCMH Recognitions, Maryland, 2012-2017



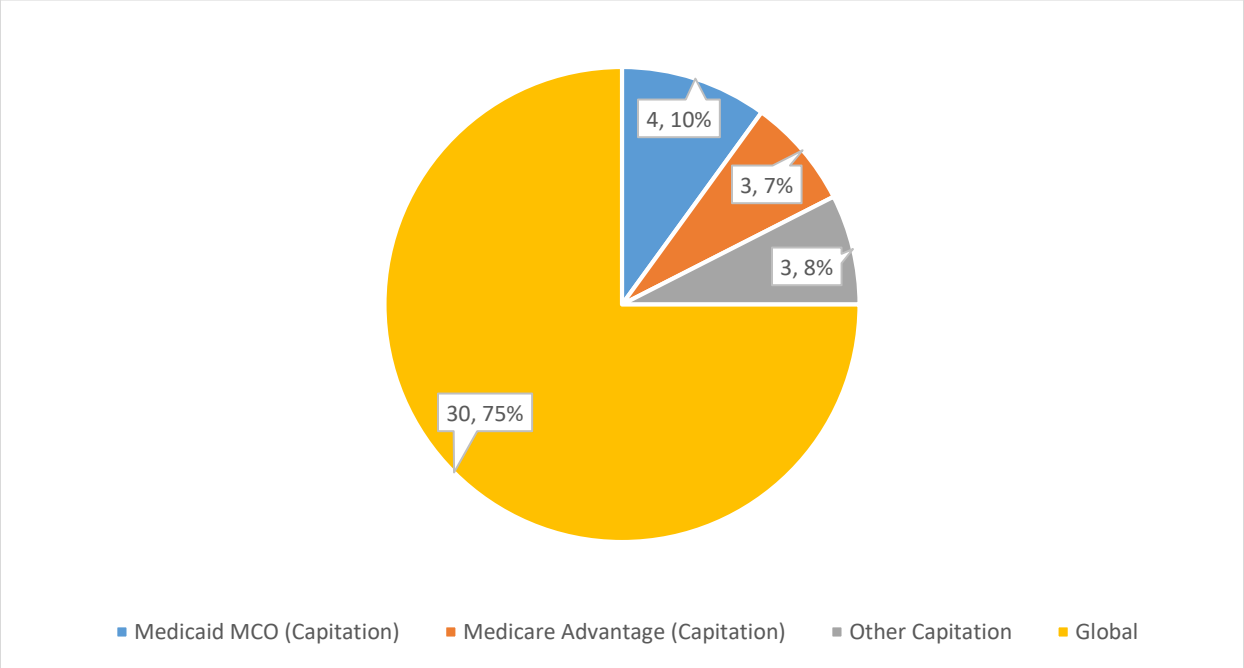
Source: HSCRC analysis of NCQA website, http://recognition.ncqa.org/index.aspx.

Figure 5. Participation of Providers in Alternative Rate Setting Methodologies, Maryland, 2011-2017



Source: Maryland Health Services Cost Review Commission, 2011-2016 ARM data.

Figure 6. Categorization of Alternative Rate Setting Methodologies, 2017



Source: Maryland Health Services Cost Review Commission, 2016 ARM data.

3.1.12 Goal 12: Reduce High-Priority Hospital Complications

Measures used to assess the reduction of high-priority hospital complications are: (A) the Standardized Infection Ratio (SIR) of Central-Line Associated Blood Stream Infections (CLABSI); and (B) the rate of Potentially Preventable Complications (PPCs). The June 2018 report will present measure B, the incidence of PPCs under the All-Payer Model to-date.

Goal 12: Reduce High-Priority Hospital Complications	
Goal Summary	Progress in reducing high-priority hospital complications is assessed using the rate of PPCs. PPCs are defined as harmful events or negative outcomes that may result from the process of care and treatment rather than from a natural progression of an underlying disease. Under the All-Payer Model, Maryland is expected to achieve an aggregate 30 percent reduction across an aggregated set of potentially preventable complications.
Measurement Methodology	PPC Rate per 1,000 At-Risk Discharges The PPC rate per 1,000 discharges is calculated by dividing the number of observed PPCS by the number of at-risk discharges (one discharge may be at-risk for multiple PPCs) * 1,000 discharges. This is an unadjusted PPC rate that does not take into account fluctuations in case-mix that may occur over time. Case-Mix Adjusted PPC Rate For purposes of the waiver test, the HSCRC reports additional data on the case-mix adjusted PPC rate. The case-mix adjusted PPC rate is calculated by multiplying the Observed / Expected ratio for each hospital by the statewide observed PPC rate. The expected number of PPCs for each hospital is calculated by taking the statewide PPC rate for each diagnosis and severity of illness category and multiplying it by the number of discharges at each hospital in each category. For additional information regarding the PPC measures, please refer to the RY 2019 MHAC Policy on the HSCRC Quality – MHAC website, http://hscrc.maryland.gov/Pages/init_qi_MHAC.aspx. Data have been re-stated under the Rate Year 2018 logic (through 2016), and then compounded with data re-stated under the Rate Year 2019 logic (2016-2017) – this is done to accommodate the transition from ICD-9 to ICD-10.
Monitoring Results ***See below*** Table 5	▪ Between 2013 and 2017, the unadjusted all-payer PPC rate for the state of Maryland declined from 0.92 per 1,000 at-risk discharges under RY 2018 logic to 0.49 per 1,000 at-risk discharges under RY 2019 logic. Compounded, this represents a reduction of 45.27 percent. ▪ Over the same time period, the case-mix adjusted all-payer PPC rate had a reduction of 52.72 percent. ▪ Between 2013 and 2017, the unadjusted Medicare FFS PPC rate per 1,000 at-risk discharges declined by 47.45 percent. The unadjusted Medicaid PPC rate declined by 41.78 percent during the same period. ▪ Similarly, the case-mix adjusted rate for Medicare and Medicaid was reduced by 48.01 percent and 63.25 percent, respectively.

Table 5. High-Priority Hospital Complications, 2013-2017

Measures	Population	2013	2014	2015	2016 (RY 2018 Logic)	2016 (RY 2019 Logic)	2017	Compounded Cumulative PPC Change[6]
All Payer Potentially preventable complications per 1,000 at-risk discharges	Maryland	0.92	0.70	0.64	0.56	0.54	0.49	
Change from 2013 (%).			-23.78%	-31.03%	-39.14%		-10.07%	-45.27%
Medicare Potentially preventable complications per 1,000 at-risk discharges	Maryland	1.35	0.99	0.91	0.78	0.78	0.71	
Change from 2013 (%).			-26.44%	-32.36%	-42.22%		-9.05%	-47.45%
Medicaid Potentially preventable complications per 1,000 at-risk discharges	Maryland	0.56	0.43	0.38	0.36	0.34	0.30	
Change from 2013 (%).			-23.33%	-31.66%	-35.18%		-10.18%	-41.78%
All Payer Case-mix Adjusted PPC rate	Maryland	1.00	0.74	0.65	0.55	0.59	0.51	
Change from 2013 (%).			-25.42%	-35.17%	-45.29%		-13.58%	-52.72%
Medicare Case-mix Adjusted PPC rate	Maryland	1.14	0.83	0.73	0.60	0.66	0.57	
Change from 2013 (%).			-17.24%	-26.81%	-39.97%		-13.39%	-48.01%
Medicaid Case-mix Adjusted PPC rate	Maryland	0.90	0.66	0.57	0.50	0.63	0.46	
Change from 2013 (%).			-33.97%	-42.47%	-49.90%		-26.64%	-63.25%

Source: HSCRC Inpatient Discharge Abstract Data, 2013-2016.

[6] Replication of some of these calculations may not be possible due to rounding; % Change in 2017 is compounded to evaluate performance under RY 2018 and RY 2019 logic.

3.1.14 Goal 14: Reduce Readmissions – Nursing Home

The goal of reducing readmissions among patients discharged to nursing homes is assessed by monitoring the current rates for patients discharged to a long-term care facility or skilled nursing facility.

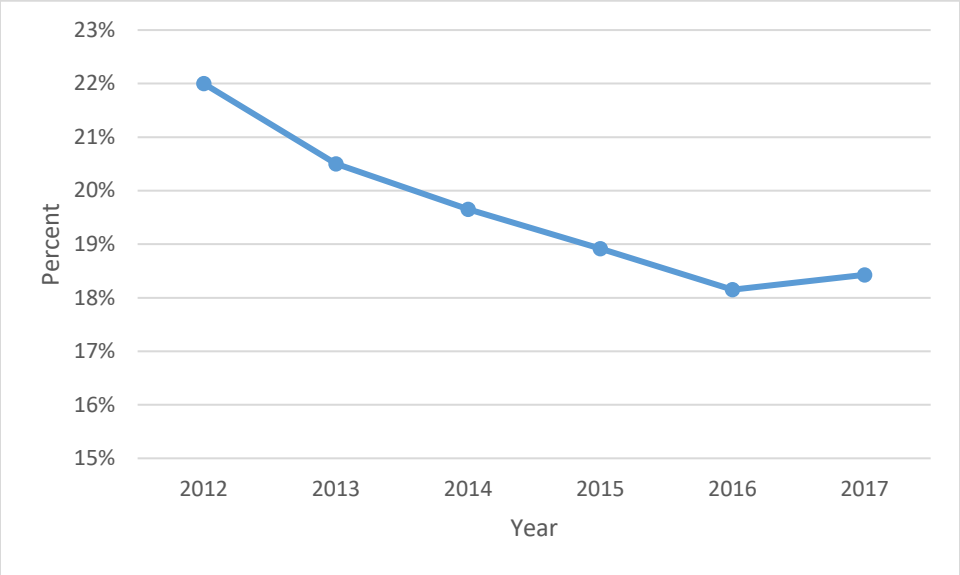
Measure 14: Readmission Rate Among Patients Discharged to Nursing Home	
Goal Summary	Readmissions among patients discharged to a nursing home may be high, due in part to the medical complexity of these patients; many nursing home patients are elderly and have multiple chronic conditions and physical limitations. In addition to their medical complexity, however, readmissions may increase due to hospital complications that develop post-discharge, deficiencies in quality of care, or patients being discharged from the hospital earlier than recommended by best practices. Coordination between the hospital and nursing home prior to and after discharge or transfer should reduce potentially avoidable readmissions.
Measurement Methodology	Percent Readmissions: **Numerator:** The number of All-Payer inpatient hospital stays where the patient was discharged to a nursing home but was readmitted to any hospital within 30 days of the initial hospital discharge date. **Denominator:** The total number of hospital discharges that have a nursing home or skilled nursing facility as discharge disposition. **Note:** These data are not case-mix adjusted. **Data Source:** HSCRC inpatient discharge abstract data with CRISP unique patient enterprise identifiers (EIDs) for 2012-2017.
Monitoring Results ***See below*** Table 6 Figure 7	There was a steady decline in readmissions from nursing homes from 2012 to 2016 (11.46% reduction). However, there was a slight increase in readmissions from SNFs between 2016 and 2017 (1.52% increase). When compared to the 2013 base year of the All-Payer Model, the 2017 readmission rate for inpatient discharges to nursing homes decreased by 10.12 percent. The observed reduction in readmissions may be partially attributable to an enhanced level of care coordination between Maryland hospitals and nursing facilities.

Table 6. Readmission Rates from Nursing Homes, 2012-2017

Measures	Population	2012	2013	2014	2015	2016	2017
Readmission rates for inpatient discharges to nursing homes	Maryland	22.00%	20.50%	19.65%	18.92%	18.15%	18.43%

Source: Analysis of HSCRC IP Data.

Figure 7. Hospital Readmissions among Patients Discharged to a Nursing Facility, 2012-2017



Source: HSCRC IP discharge abstract data, 2012-2017.

3.1.15 Goal 15: Reduce Readmissions – Hospital

This report evaluates hospital readmissions in two statewide measures and five condition-specific measures, including (A) 30-day all-hospital, all-cause readmission rates; (B) readmissions per 1,000 Maryland residents; (C) heart failure readmission rates; (D) pneumonia readmission rates; (E) acute myocardial infarction readmission rate; (F) chronic obstructive pulmonary disease readmission rates; and (G) hip/total knee arthroplasty readmission rates.

Goal 15. 30-Day All Cause and Condition-Specific Hospital Readmissions	
Goal Summary	Hospital readmissions rates for Medicare beneficiaries are higher in Maryland than in the rest of the nation. The new All-Payer Model is required to reduce Medicare readmissions in Maryland to at or below the national rate by 2018. The costs of 30-day readmissions at the receiving hospital are also included in the HSCRC measure of potentially avoidable utilization, which is used to adjust global budgets. The HSCRC has a Readmission/Potentially Avoidable Utilization Savings program and a Readmission Reduction Incentive program designed to incentivize hospitals to invest resources to reduce readmissions. In addition to the case-mix adjusted all-payer measures reported below, CMS provides the HSCRC with the unadjusted Medicare-specific readmission rate for Maryland that includes readmissions that occur outside of the state. Based on CMMI data from 2017, the state has closed the 2013 gap in the Medicare FFS readmission rates compared to the nation and anticipates achieving the waiver test. Reducing readmissions is an important quality improvement goal under the All-Payer Model, and as such, we measure and monitor our progress under several different payer sources and with slightly different measure definitions and adjustments.

Measurement Methodology	**Case-Mix Adjusted 30-Day All-Cause Readmission** = (Number of Observed Readmissions within 30 days of discharge ÷ Number of Expected Readmissions) x Statewide Unadjusted Readmission Rate in base period. Expected readmissions are estimated by applying the statewide rates by APR-DRG and severity of illness category to each hospital's discharges. **Readmissions per 1,000 Maryland Residents** = (Number of 30-Day Readmissions ÷ Total Maryland Resident Population) x 1,000. **Condition Specific Readmission Rates** = (Number of 30-Day Readmissions for Selected Condition ÷ Number of Condition Specific Discharges Eligible for a Readmission) x 100. Condition-specific readmission rates are unadjusted. Rates correspond to the following conditions: ○ Heart Failure (HF) ○ Acute Myocardial Infarction (AMI) ○ Pneumonia (PNA) ○ Chronic Obstructive Pulmonary Disease (COPD) ○ Hip/Total Knee Arthroplasty (THA/TKA) Note: The condition-specific readmission rates reflect full CY2012-2017 data. Data under ICD-10 (October 2015 – Present) use diagnosis and procedure codes from the 2018 CMS condition-specific readmission measures and may not match previously submitted data. Furthermore, these rates may not match results calculated by a separate entity, as they are calculated using HSCRC all-payer data, are not risk-adjusted, and HSCRC interpreted the CMS measurement specifications to approximate these rates. Last, numbers for condition specific readmissions trended over ICD-9 and ICD-10 should be interpreted with caution. **Data:** Population estimates for 2012-2017, which were used in estimating readmissions per 1,000 population, were obtained from the Maryland Department of Planning.
Monitoring Results ***See below*** **Table** 7	▪ The Maryland 30-day case-mix adjusted, all-cause readmission rate fell from 12.93 percent in 2013 to 11.54 percent in 2016, a reduction of 10.74 percent. Under the latest logic, the readmission rate in 2016 is 11.72% and fell to 11.65% in 2017, which is a compounded reduction of 11.36% since 2013. ▪ Readmissions per 1,000 Maryland residents fell by 17.08 percent from 11.74 per thousand in 2013 to 9.73 per thousand in 2016. Using the latest logic, the readmissions per 1,000 Maryland residents in 2016 is 9.68, and fell to 9.63 in 2017, a compounded 17.50 percent reduction since 2013. ▪ Between 2013 and 2017, readmission rates for all the specific conditions decreased: heart failure by 6.15 percent; pneumonia by 0.51 percent; AMI by 9.54 percent; COPD by 4.81 percent; and Hip/Knee arthoplasty by 27.45 percent.

Table 7. Readmission Rates, including Condition-Specific Readmission Rates, 2012-2017

Measures	Population	2012	2013	2014	2015	2016 (RY2018)	2016 (RY2019)	2017	Compounded Cumulative Readmission Rate Change
30-day all-hospital, all-cause readmission	Maryland	12.49%	12.93%	12.43%	12.02%	11.54%	11.72%	11.65%	
	Change from 2013			-3.90%	-7.07%	-10.79%		-0.64%	-11.36%
Readmissions per 1,000 Maryland residents	Maryland	12.65	11.74	10.84	10.24	9.73	9.68	9.63	
	Change from 2013			-7.68%	-12.72%	-17.08%		-0.50%	-17.50%

Measures	Population	2012	2013	2014	2015	2016	2017
Heart failure readmission rate	Maryland	24.70%	23.12%	22.68%	22.14%	20.82%	21.69%
	Change from 2013			-1.90%	-4.22%	-9.92%	-6.15%
Acute myocardial infarction readmission rate	Maryland	13.42%	13.04%	12.06%	11.98%	11.94%	11.80%
	Change from 2013			-7.57%	-8.19%	-8.44%	-9.54%
Pneumonia readmission rate	Maryland	15.29%	14.37%	14.31%	13.72%	14.23%	14.29%
	Change from 2013			-0.40%	-4.47%	-0.95%	-0.51%
Chronic obstructive pulmonary disease readmission rate	Maryland	21.62%	20.76%	20.32%	19.78%	19.79%	19.76%
	Change from 2013			-2.10%	-4.69%	-4.65%	-4.81%
Hip/total knee arthroplasty readmission rate	Maryland	4.26%	3.80%	3.38%	3.08%	3.06%	2.76%
	Change from 2013			-11.12%	-18.98%	-19.54%	-27.45%

Source: Derived from HSCRC Inpatient Discharge Abstract Data, 2012-2017.

3.2 Population Health

Maryland believes that an all-payer model that is accountable for the total cost of care can establish incentives that improve population health outcomes and reduce health disparities. As broad population health measures, progress will take time, long-term investment, and commitment to achieve results.

3.2.1 Goal 16: Improve Life Expectancy

Goal 16. Improve Life Expectancy	
Goal Summary	The All-Payer Model seeks to improve life expectancy for Maryland residents over time. Maryland remains concerned about declines in life expectancy, as well as ongoing disparities in the life expectancy of black and white residents. The June 2018 report presents refreshed 2016 data, reflective of the time lag in reporting life expectancy.
Measurement Methodology	Life expectancy is calculated by the Maryland Vital Statistics Administration, a bureau of MDH. Please note that the 2016 Annual Report is available on the Maryland Vital Statistics website, at the link below: https://health.maryland.gov/vsa/Pages/reports.aspx
Monitoring Results ***See below*** Table 8	▪ The average life expectancy in Maryland declined slightly, from 79.5 in 2015 to 79.1 in 2016. ▪ The average life expectancy in United States declined slightly, from 78.7 in 2015 to 78.6 in 2016. National data by race for 2016 are currently unavailable at the national level. ▪ There are persistent disparities in the life expectancy by race, at both the national and state levels.

Table 8. Life Expectancy at Birth, 2011-2016

Measure	Population	2011	2012	2013	2014	2015	2016
Average life expectancy at birth	Maryland	79.5	79.7	79.7	79.8	79.5	79.1
	White (MD)	80.3	80.4	80.3	80.3	80.2	79.8
	Black (MD)	77.1	77.3	77.4	77.6	77.0	76.8
	National	78.7	78.8	78.8	78.9	78.7	78.6
	White	79	79.1	79	79.1	79	
	Black	75.3	75.5	75.5	75.6	75.5	

Source: Maryland data from the Maryland Vital Statistics Administration; National data from CDC.

3.2.2 Goal 17: Reduce the Rate of Hospitalization for Ambulatory Sensitive Conditions

This report evaluates the rate of hospitalizations for ambulatory sensitive conditions using three composites of Prevention Quality Indicator (PQI) rates, including (A) PQI acute composite rates, (B) PQI chronic composite rates, and (C) PQI overall composite rates. While the PQI composite rates are typically risk-adjusted, the Agency for Healthcare Research and Quality (AHRQ) has not yet released a risk-adjustment procedure that is compatible with the ICD-10 codes. Therefore the rates presented below are unadjusted but will be updated once risk-adjustment has been developed.

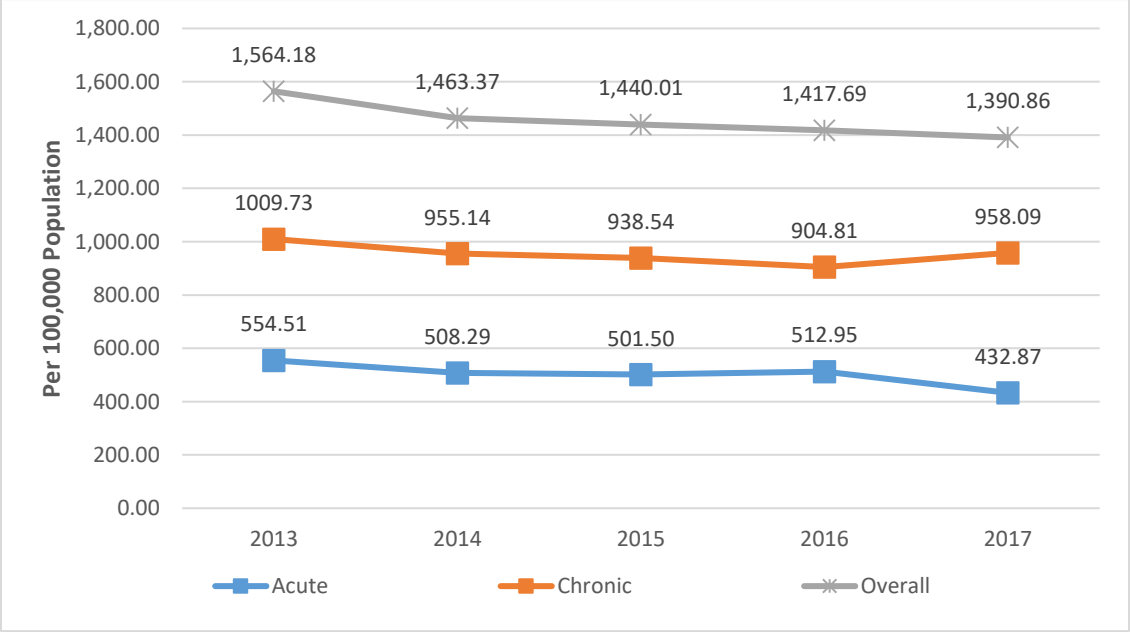
Measure 17. Chronic, Acute, and Overall Preventive Quality Indicators	
Goal Summary	PQIs are a set of measures developed by AHRQ that flag hospitalizations for ambulatory care sensitive conditions. These conditions and hospitalizations are preventable if patients have access to high-quality outpatient care. Examples of these conditions include hypertension, diabetes and its associated complications, and heart failure. The individual PQI measures can be collapsed into composite measures, which include acute, chronic, and overall composite rates. Typically, these measures are population-based and are adjusted for covariates such as sex and age (currently unavailable under ICD-10). The HSCRC uses the PQI measures to identify revenue associated with potentially avoidable utilization (PAU). Tracking PAU costs aims to incentivize hospitals to work within their communities to improve care coordination outside the hospital and thus reduce potentially avoidable hospital utilization. A risk-adjusted version of the AHRQ software is not currently available for use with ICD-10 codes. In this report, we are therefore providing the number of PQIs per 100,000 population without the normal AHRQ risk-adjustment.
Measurement Methodology	The method for calculating the acute, chronic, and overall composite PQI rates per 100,000 of the adult Maryland population is as follows: The total acute, chronic, or overall composite counts divided by the adult Maryland population (composite counts ÷ number of Maryland residents aged 18 and over) multiplied by 100,000. The PQI **acute** composite includes admissions with diagnosis codes for dehydration, bacterial pneumonia, or urinary tract infection. The PQI **chronic** composite includes admissions with diagnosis codes for one of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, diabetes with lower-extremity amputation, chronic obstructive pulmonary disease, asthma, hypertension, and heart failure. The PQI **overall** composite includes admissions in both the acute and chronic composites.
Monitoring Results ***See below*** Table 9 Figure 8	▪ The Maryland **acute** PQI composite score rate was 432.87 in 2017, a 21.94% percent decrease over the base year 2013 rate. ▪ The Maryland **chronic** PQI composite score rate decreased by 5.12 percent between the 2013 base year of the model and 2017, declining from 1,009.73 to 958.09. ▪ Maryland **overall** PQI composite score rate decreased by 11.08 percent between the 2013 base year of the model and 2017, declining from 1,564.18 to 1,390.86. ▪ As mentioned below, PQI trends between CY 2016 and prior years should be interpreted with caution due to differences in the PQI logic following the implementation of ICD-10.

Table 9. Prevention Quality Indicators in Maryland, 2012-2017

Measures	Population	2013	2014	2015	2016[7]	2017
Preventive quality indicator (PQI) **acute** composite rate per 100,000 population, age 18 and over	Maryland	554.51	508.29	501.50	512.95	432.87
Preventive quality indicator **chronic** composite rate per 100,000 population, age 18 and over	Maryland	1009.73	955.14	938.54	904.81	958.09
Preventive quality indicator **overall** composite rate per 100,000 population, age 18 and over	Maryland	1,564.18	1,463.37	1,440.01	1,417.69	1,390.86

Source: HSCRC inpatient abstract data run through AHRQ software version 6 compatible with ICD9 through 2015, version 7.01 compatible with ICD10 for 2016 and 2017 data.

Figure 8. Overall, Chronic, and Acute PQI Rate per 100,000 Population Aged 18+, Maryland 2013-2017[8]



Source: HSCRC inpatient abstract data run through AHRQ software version 6 compatible with ICD9 through 2015, version 7.01 compatible with ICD10 for 2016 and 2017 data.

[7] PQI trends between CY 2016 and prior years should be interpreted with caution due to differences in the PQI logic following the implementation of ICD-10.

[8] NOTE: PQI trends between CY 2016 and prior years should be interpreted with caution due to differences in the PQI logic following the implementation of ICD-10.

3.2.5 Goal 20: Improve Prevention for Diabetes and Cardiovascular Disease

Goal 20 includes four measures: (A) diabetes-related ED visit rates; and (B) hypertension-related ED visit rates.

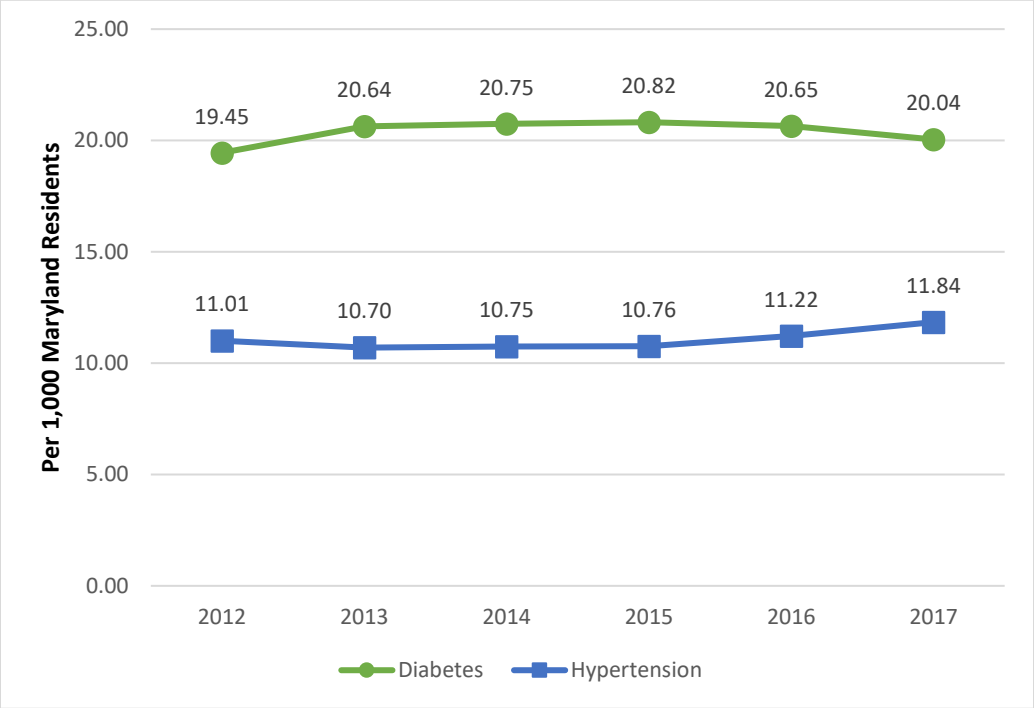
Goal 20. Improve Prevention for Diabetes and Cardiovascular Disease	
Goal Summary	Diabetes and Hypertension-Related ED Visit Rate The chronic condition Emergency Department Visit Rates (Annual Visits per 1,000) have been re-stated under the most recent version of the AHRQ CCS Categories.
Measurement Methodology	Diabetes- and Hypertension-Related ED Visit Rate The method for calculating the rate of diabetes- and hypertension-related ED visits per 1,000 Maryland residents is as follows: The total number of ED visits related to the condition, as determined by the AHRQ CCS Categories (further information is included in Appendix B), divided by the total number of Maryland residents multiplied by 1,000. **Data Source:** **Numerator**: HSCRC outpatient abstract data of relevant condition-specific ICD-9 codes and preliminary ICD-10 codes, as defined by AHRQ CCS Categories. **Denominator**: Updated Maryland Department of Planning population estimates for 2012-2017.
Monitoring Results ***See below*** Table 10 Figure 9	Diabetes and Hypertension-Related ED Visit Rate ▪ The Maryland diabetes-related ED visit rate increased slightly each year until 2015, and has declined slightly (during the ICD-10 time period). Between 2013 and 2017, the ED rate declined from 20.64 to 20.04 per 1,000 residents, a decrease of 2.89 percent. ▪ Between 2013 and 2017, the hypertension ED rate increased from 10.70 to 11.84 per 1,000 Maryland residents. This represents an increase of 10.69 percent.

Table 10. Diabetes and Cardiovascular Disease ED Visits per 1,000 Residents, 2012-2017

Measures	Population	2012	2013	2014	2015	2016	2017
Diabetes-related ED visit rate per 1,000 population	Maryland	19.45	20.64	20.75	20.82	20.65	20.04
Hypertension-related ED visit rate per 1,000 population	Maryland	11.01	10.70	10.75	10.76	11.22	11.84

Source: HSCRC Outpatient Abstract data, 2012-2017.

Figure 9. Diabetes and Hypertension - Related Emergency Department Visit Rate, Maryland, 2012-2016



Source: HSCRC Outpatient Abstract data, 2012-2017.

3.2.6 Goal 21: Improve Prevention for Asthma

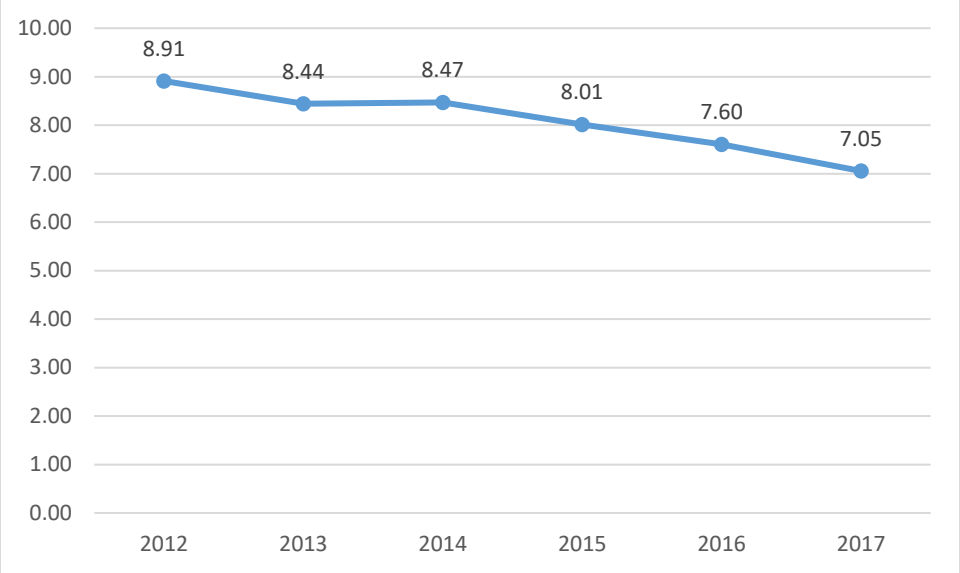
Goal 21. Improve Prevention for Asthma	
Goal Summary	The chronic condition Emergency Department Visit Rates (Annual Visits per 1,000) have been re-stated under the most recent version of the AHRQ CCS Categories.
Measurement Methodology	The method for calculating the rate of asthma-related ED visits per 1,000 Maryland residents is as follows: The total number of ED visits related to asthma divided by the total number of Maryland residents multiplied by 1,000. **Data Source:** **Numerator**: HSCRC outpatient abstract data of relevant condition-specific ICD-9 codes and preliminary ICD-10 codes, as defined by AHRQ CCS Categories. **Denominator**: Updated Maryland Department of Planning population estimates for 2012-2017.
Monitoring Results ***See below*** Table 11 **Figure** 10	▪ The Maryland asthma-related ED visit rate decreased by 16.42 percent between the 2013 base year of the model and 2017, from 8.44 to 7.05 per 1,000 Maryland residents.

Table 11. Prevention of Asthma, 2012-2017

Measure	Population	2012	2013	2014	2015	2016	2017
Asthma-related emergency department visit rate per 1,000 population	Maryland	8.91	8.44	8.47	8.01	7.60	7.05

Source: HSCRC Outpatient Abstract data, 2012-2017.

Figure 10. Asthma-Related Emergency Department Visit Rate, Maryland, 2012-2017



Source: HSCRC Outpatient Abstract data, 2012-2017.

3.2.7 Goal 22: Promote Behavioral Health in Primary Care

This report evaluates the promotion of behavioral health in primary care by tracking ED visits for behavioral health conditions in two measures, including (A) mental health-related ED visit rates, and (B) substance abuse-related ED visit rates.

Measure 22. Mental Health and Substance Abuse ED Visit Rate	
Goal Summary	The chronic condition Emergency Department Visit Rates (Annual Visits per 1,000) have been re-stated under the most recent version of the AHRQ CCS Categories.
Measurement Methodology	The method for calculating the rate of mental health and substance abuse related ED visits per 1,000 Maryland residents is as follows: The total number of ED visits related to the condition divided by the total number of Maryland residents multiplied by 1,000, as defined by AHRQ CCS Categories. **Numerator**: HSCRC outpatient abstract data of relevant condition-specific ICD-9 codes and preliminary ICD-10 codes.

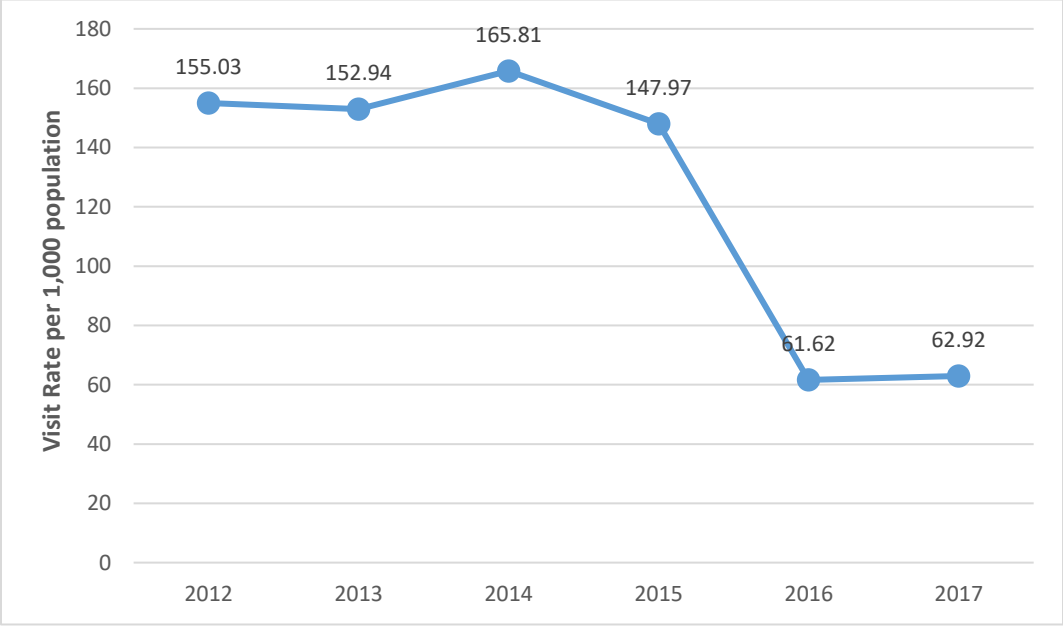
	Denominator: Updated Maryland Department of Planning population estimates for 2012-2017.
Monitoring Results ***See below*** Table 12 Figure 11	▪ The Maryland behavioral health-related ED visit rate trends between 2013 and 2017 should be interpreted with caution, as the ICD-9 to ICD-10 transition may impact the rates of condition-specific ED Visit Rates. ▪ In 2017, behavioral health-related ED visits were 62.92 per 1,000 residents; this is a 1.3 percentage point increase from 2016.

Table 12. Behavioral Health-related Emergency Department Visit Rate per 1,000, Maryland, 2012-2017

Measures	Population	2012	2013	2014	2015	2016	2017
Behavioral Health-Related	Maryland	155.03	152.94	165.81	147.97	61.62	62.92

Source: Data Source: HSCRC outpatient data, 2012-2017.

Figure 11. Mental Health and Substance-Abuse related Emergency Department Visits per 1,000, Maryland, 2012-2017



Source: Data Source: HSCRC outpatient data, 2012-2017.

3.3 Costs and Efficiency

Maryland believes that an all-payer model accountable for the total cost of care can control the growth in health care expenditures at a reasonable level. The goal is to achieve meaningful savings for all payers, including to Medicare, Medicaid, and the Children's Health Insurance Program (CHIP).

3.3.2 Goal 25: Control Expenditure Growth – Hospitals

This report evaluates hospital expenditure growth by tracking per-capita Maryland hospital charges in five payer categories: (A) all-payer Maryland hospital charges, (B) Medicare Maryland hospital charges, (C) Medicaid Maryland hospital charges, (D) private payer Maryland hospital charges, and (E) dually eligible Maryland hospital charges.

Measure 25. Hospital Per Capita Total Charges	
Goal Summary	Controlling hospital expenditure growth is one of the primary metrics on which the Maryland All-Payer Model is to be assessed. Data on hospital expenditure growth are available across all payers, as well as for Medicare FFS (including dually eligible), Medicaid (including dually eligible), Medicare/Medicaid dually eligible separately, and for those with private insurance only. The data for each category captures in-state spending on Maryland residents.
Measurement Methodology	All-Payer Maryland Hospital Per Capita Charges for Maryland Residents: (Total inpatient and outpatient charges for all Maryland residents) ÷ (Total population in the state of Maryland) Medicare Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Inpatient expenditures for Medicare beneficiaries with Part A ÷ Maryland Part A Beneficiaries) + (Outpatient expenditures for Medicare beneficiaries with Part B ÷ Maryland Part B Beneficiaries) Medicaid Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Total fee-for-service and managed care expenditures for Maryland Medicaid recipients) ÷ (Total number of Medicaid beneficiaries with at least one day of enrollment) Medicare/Medicaid Dually Eligible Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Total inpatient and outpatient hospital expenditures for dual eligible beneficiaries) ÷ (Number of Maryland residents with dual eligibility status) Private Payer Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Total inpatient and outpatient costs for private payer Maryland beneficiaries) ÷ (Total estimated private payer beneficiaries) **Data Sources:** **Hospital Expenditures**: HSCRC Financial Data (All-Payer and Medicare) and Inpatient and Outpatient Abstract Data (Medicaid, Commercial and Dual). **Population Estimates**: All-Payer (Maryland Dept. of Planning), Medicare (CMS), Medicaid and Dual Eligible (Maryland Medicaid eHealth Statistics), Private Payer (State Health Access Data Assistance Center (SHADAC)

Monitoring Results ***See below*** Table 13	▪ Between 2013 and 2017, all-payer per capita hospital charges grew by 8.74 percent. ▪ Medicare per beneficiary hospital charges increased by almost 3 percent between 2013 and 2017, from $6,979 to $7,183. ▪ During the same time period, per beneficiary hospital charges increased for Medicaid by 6.70 percent. ▪ Between 2013 and 2017, per beneficiary hospital charge for Medicare/Medicaid dually eligible beneficiaries increased by 8.35 percent. ▪ Per beneficiary hospital charges for private payers decreased 2.41 percent between 2013 and 2016. The per beneficiary hospital charge for 2017 are not yet available, as an estimated number of private payer beneficiaries has not yet been released.

Table 13. Total Maryland Hospital per Capita Charges (Inpatient and Outpatient) and Growth, by Payer, Maryland, 2013-2017

Measures		2013	2014	2015	2016	2017
All-payer per capita Maryland Hospital charges for MD residents	Charges ($)	2,372	2,416	2,472	2,491[9]	2,579
	Change from 2013 (%)		1.86%	4.22%	5.02%	8.74%
Medicare FFS Maryland hospital per beneficiary charges for MD Medicare Beneficiaries	Charges ($)	6,979	6,980	7,071	7,017[10]	7,183
	Change from 2013 (%)		0.00%	1.31%	0.03%	2.92%
Medicaid Maryland hospital per beneficiary charges for MD Medicaid Beneficiaries (includes Medicaid Expansion beneficiaries)[11]	Charges e ($)	2,069	2,126	2,099	2,156	2,208
	Change from 2013 (%)		2.73%	1.44%	4.17%	6.70%
Medicare/Medicaid dually eligible Maryland per beneficiary hospital charges for MD Dual Beneficiaries[3]	Charges ($)	7,280	7,156	7,349	7,399	7,888
	Change from 2013 (%)		-1.70%	0.95%	1.64%	8.35%
Private payer Maryland hospital per beneficiary charges for MD Privately insured residents	Charges ($)	1,288	1,266	1,264	1,257	
	Change from 2013 (%)		-1.71%	-1.94%	-2.41%	

[9] For 2016, hospitals undercharged their global budget revenues in the second half of CY 2016. The all payer per capita figure reflects an adjustment to all payer hospital charges of approximately $75.5m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016.

[10] The Medicare FFS inpatient figure reflects an adjustment to hospital Medicare FFS charges of approximately $18.5 million to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. The Medicare FFS outpatient figure reflects an adjustment to hospital Medicare FFS charges of approximately $10.1 million to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016.

[11] The enrollment data for MD Medicaid and Medicare/Medicaid dually eligible excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services. Dually eligible beneficiaries are included in the calculation for Maryland Medicaid beneficiaries and dually eligible beneficiaries. The Medicaid Expansion was implemented in 2014; 2013 figures include the enrollees of the limited-benefit Primary Adult Care program.

3.3.2 Goal 25a: Control Expenditure Growth – Specialty Hospitals

This report also evaluates specialty hospital expenditure growth by tracking per-capita Maryland specialty hospital charges in three payer categories, including (A) all-payer Maryland specialty hospital charges, (B) Medicare FF Maryland specialty hospital charges, and (C) Medicaid Maryland specialty hospital charges.

Goal 25a. Specialty Hospitals Per Capita Total Charges	
Goal Summary	Maryland is required to monitor expenditure growth for hospitals where the HSCRC regulates the non-governmental payer rates, such as for specialty care hospitals. Data on specialty care hospital expenditure growth are available across all payers, as well as for Medicaid (including dually eligible) and Medicare FFS (including dually eligible). The data for each category capture in-state spending on Maryland residents.
Measurement Methodology	All-Payer Maryland Specialty Hospital Per Capita Charges for Maryland Residents: (Total inpatient and outpatient specialty hospital charges for all Maryland residents) ÷ (Total Maryland resident population). Medicare Maryland Specialty Hospital Per Beneficiary Charges for Maryland Residents*:* (Inpatient per capita specialty charges for Medicare beneficiaries with Part A) + (Outpatient per capita specialty charges for Medicare beneficiaries with Part B). Medicaid Maryland Specialty Hospital Per Beneficiary Charges for Maryland Residents: (Total FFS and managed care specialty charges for Maryland Medicaid recipients) ÷ (Total average Medicaid annual enrollment). **Data Sources:** **Hospital Charges:** HSCRC Financial Data (all-payer and Medicare FFS) and Inpatient and Outpatient Abstract data (Medicaid); **Population Estimates:** All-Payer (Maryland Dept. of Planning), Medicare (CMS), and Medicaid (Maryland Medicaid).
Monitoring Results ***See below*** Table 14	▪ Maryland all-payer specialty per capita charges decreased from $59.86 in 2013 to $58.68 in 2017, a decline of 1.98 percent. ▪ Medicare per beneficiary specialty hospital charges also decreased by 38.99% percent between 2013 and 2017, from $162.62 to $99.21. ▪ Medicaid per beneficiary charges also declined from $90.11 to $75.22 from 2013 to 2017, a decrease of 16.52 percent.

Table 14. Specialty Hospital per Capita Charges and Growth, by Payer, Maryland, 2013-2017[12]

Measures		2013	2014	2015	2016	2017
All-payer Maryland specialty hospital per capita total charges for MD residents	Charges	$59.86	$52.96	$54.79	$57.36	$58.68
	% Change since 2013		-11.53%	-8.47%	-4.17%	-1.98%
Medicare Maryland specialty hospital per beneficiary total charges for MD residents	Charges	162.62	109.92	110.39	100.57	99.21
	% Change since 2013		-32.41%	-32.12%	-13.91%	-38.99%
Medicaid Maryland specialty hospital per beneficiary total charges for MD residents[13]	Charges	90.11	82.88	67.21	77.68	75.22
	% Change since 2013		-8.02%	-25.42%	-13.80%	-16.52%

3.3.3 Goal 26: Control Expenditure Growth – All Health Services

This report evaluates the expenditure growth of all health services by tracking per-capita Maryland health services charges in five payer categories: (A) All-payer total expenditures, (B) Medicare total expenditures, (C) Medicaid total expenditures, (D) Dually Eligible Medicaid-only total expenditures, and (E) Private payer Maryland total expenditures.

Measure 26: Per Capita Total Expenditures for All Health Services	
Goal Summary	Total health expenditure growth is used to monitor potential shifting of costs between categories of health services under the new model agreement.
Measurement Methodology	All-payer Per Capita Health Expenditures: (Total health care expenditures for all Maryland residents) ÷ (Total Maryland resident population) This data is currently not available. Separate estimates are generated for the following populations: Medicare Per Beneficiary Health Expenditures: The sum of inpatient per capita expenditures for Medicare beneficiaries with Part A and outpatient per capita expenditures for Medicare beneficiaries with Part B Medicaid Per Beneficiary Health Expenditures: (Total fee-for-service and managed care expenditures for Maryland Medicaid recipients) ÷ (Total number of Medicaid beneficiaries with at least one day of enrollment)) Dually Eligible Medicaid/Medicare per Beneficiary Health Expenditures: (Total Medicaid costs for dually eligible beneficiaries) ÷ (Total number of Dually eligible Maryland beneficiaries) Private Payer per Beneficiary Health Expenditures: (Total Costs for private payer Maryland residents) ÷ (Total member insured months) , annualized to reflect a 12 month period)

[12] Specialty hospital charges in 2013 includes Levindale. Beginning in 2014, Levindale became an acute facility and was excluded from the specialty hospital charges.

[13] The enrollment data for MD Medicaid and Medicare/Medicaid Dually eligible excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services.

	Data Sources: **Health Expenditures:** Medicare (CMS Financial Reports), Medicaid and Dual-Eligible (Maryland Medicaid), Private Payer (MHCC All-Payer Claims Database); **Population Estimates**: Medicare (CMS); Medicaid and Dual-Eligible (Maryland Medicaid); Private Payer (MHCC All-Payer Claims Database).
Monitoring Results ***See below*** Table 15	▪ Maryland Medicare per capita health expenditures increased by 4.89 percent between 2013 and 2017, compared to an increase of 6.25 percent for the U.S. ▪ Total Maryland Medicaid per beneficiary health expenditure increased by 3.56% between 2013 and 2015. Health expenditure data for 2016 and 2017 are not yet available. ▪ Conversely, Medicare/Medicaid dually eligible health expenditures per beneficiary has declined by 4.82%, from $14,572 to $13,870. ▪ Per beneficiary health expenditures for private payer beneficiaries increased from 3,132 in 2013 to 3,504 in 2016 – an 11.88% increase.

Table 15. Per Capita Annual Health Expenditures by Payer, 2013-2017

Measures	Population	2013	2014	2015	2016	2017
All-payer per capita health expenditure	Maryland ($)					
	National ($)					
Medicare per beneficiary health expenditure	Maryland ($)	11,142	11,079	11,337	11,351[14]	11,687
	MD change from 2013 (%)		-0.56%	1.75%	1.60%	4.89%
	National ($)	9,540	9,640	9,832	9,917	10,136
	National change from 2013 (%)		1.05%	3.06%	3.95%	6.25%
Medicaid per beneficiary health expenditure (includes dually eligible) [15]	Maryland ($)	5,937	5,974	6,149		
	MD change from 2013 (%)		0.61%	3.56%		
Medicare/Medicaid dually eligible per beneficiary health expenditure (Medicaid expenditures only) [16]	Maryland	14,572	14,169	13,870		
	MD change from 2013 (%)		-2.77%	-4.82%		
Private payer per beneficiary health expenditure	Maryland ($)	3,132	3,240	3,444	3,504	
	MD change from 2013 (%)		3.45%	9.96%	11.88%	

[14]The CY 2016 Medicare FFS Part A expenditures reflect an adjustment of approximately $17.2m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted inpatient charges are $6.626 billion. The CY 2016 Medicare FFS Part B expenditures reflects an adjustment of approximately $7.7m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted outpatient charges are $4.407 billion.

[15] Please note that this row represents total Medicaid enrollment, including those eligible for both full and partial benefits.

[16] These numbers reflect the Medicaid-only portion of expenditures for services for the dually eligible. This includes individuals for which Medicaid pays the Part B premiums only. Medicaid expenditures reflect payments for services only and do not include premiums.

4.0 Conclusion

The All-Payer Model continues to incentivize broad collaboration among hospitals and non-hospital providers to increase patient satisfaction, improve health outcomes and population health, and slow growth in healthcare spending. Although more incremental, progress on broader population health will accelerate alongside the progression of the All-Payer Model as it broadens stakeholder engagement in improving quality outcomes and containing the growth of the total cost of care.

Appendix A: Summary Results for All Goals and Measures, Maryland 2011-2017 (including Numerators and Denominators Used to Estimate Measures, as appropriate)

Goal 7									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Rate of Physician Follow-up after discharge	Maryland Medicare	Discharges with Visits within 14 Days			113,674	107,953	109,687	110,263	108,139
		Eligible Discharges			169,306	166,080	165,025	161,603	156,273
		Percent with Follow-up After Discharge			67%	65%	66%	68%	69%
	National 5% Medicare Sample of the CCW	Discharges with Visits within 14 Days			283,238	270,485	273,273	279,243	280,724
		Eligible Discharges			434,510	421,579	421,624	419,839	419,161
		Percent with Follow-up After Discharge			65%	64%	65%	67%	67%
Discharges with Principal Provider Notified, Any Provider	Maryland	Discharges with Notification			63,207	228,568	293,113	331,816	380,311
		Total Discharges			609,853	647,229	629,672	621,604	611,959
		Rate of Notification			10.36%	35.31%	46.55%	53.38%	62.15%
Discharges with Principal Provider Notified, Ambulatory Care Provider	Maryland	Discharges with Notification			43,099	100,154	187,277	259,750	317,729
		Total Discharges			609,853	647,229	629,672	621,604	611,959
		Rate of Notification			7.07%	15.47%	29.74%	41.79%	51.92%

Goal 9									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Participation of Maryland clinicians in NCQA accredited patient-centered medical homes[17]	By Clinician	Level 1		73	0	52	24	27	
		Level 2		82	125	148	124	151	
		Level 3		243	268	564	739	913	
		Total		398	393	764	887	1,091	1,107
	By Practice	Level 1		19	0	7	5	5	3
		Level 2		18	28	26	32	35	34
		Level 3		45	45	95	147	167	200
		Total		82	73	128	184	207	237
Participation of providers in accountable care organizations	Maryland ACOs					21	21	26	21
	Maryland Provider Organizations					482	506	672	636
	National ACOs					406	393	433	480
	National Providers					15,782	15,392	14,817	17,470[18]
Participation of providers in alternative rate setting methodologies	Maryland		31	38	32	36	35	35	40[19]
	National								

[17] Represents any practices who were NCQA accredited at any point during CY2017, as calculated based on certification time period as downloaded in October 2016 and May 2018

[18] Provider organizations

[19] 2017 data on participation of providers in ARMs includes a categorization of the different ARMs in the report narrative.

Goal 12							
Measures	Population	2011	2012	2013	2014	2015	2016
Central-line Acquired Bloodstream Infection (CLABSI) Standardized Infection Ratio (1=National Average)	Maryland	0.750	0.532	0.474	0.492	0.566	
	National	1	1	1	1	1	
Central-line Acquired Bloodstream Infection (CLABSI) Standardized Infection Ratio (1=National Average) Re-Based	Maryland					1.15	1.125
	National					1	1

Goal 12 (Continued)										
Measures	Population		2011	2012	2013	2014	2015	2016 (RY2018)	2016 (RY2019)	2017
Potentially Preventable Complications Rate per 1,000 discharges (by-Payer PPCs)	Maryland All-Payer	Total Number of Observed PPCs			20,597	14,944	12,992	11,356	10,774	9,482
		Number at-risk Discharges			22,310,634	21,236,295	20,402,945	20,210,813	19,831,893	19,408,501
		PPCs per 1,000 at-risk Discharges			0.92	0.70	0.64	0.56	0.54	0.49
Potentially Preventable Complications Rate per 1,000 discharges (by-Payer PPCs)	Maryland Medicare FFS	Total Number of Observed PPCs			11,529	8,171	7,318	6,128	6,050	5,309
		Number at-risk Discharges			8,552,500	8,240,316	8,025,624	7,868,200	7,801,003	7,526,311
		PPCs per 1,000 at-risk Discharges			1.35	0.99	0.91	0.78	0.78	0.71
Potentially Preventable Complications Rate per 1,000 discharges (by Payer PPCs)	Maryland Medicaid	Total Number of Observed PPCs			2,229	2,010	1,749	1,650	1,502	1,370
		Number at-risk Discharges			3,978,778	4,679,600	4,568,289	4,543,790	4,441,547	4,510,517
		PPCs per 1,000 at-risk Discharges			0.56	0.43	0.38	0.36	0.34	0.30
Casemix-Adjusted PPC Rate	Maryland All-Payer				1.00	0.74	0.65	0.55	0.59	0.51
	Maryland Medicare FFS				1.14	0.83	0.73	0.60	0.66	0.57
	Maryland Medicaid				0.90	0.66	0.57	0.50	0.63	0.46

Goal 14									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Readmission rates for inpatient discharges to nursing homes	Maryland	Readmissions		9,969	9,523	8,880	9,611	8,930	9,474
		Eligible Discharges		45,310	46,464	45,194	50,806	49,197	51,418
		Readmission Rate		22.00%	20.50%	19.65%	18.92%	18.15%	18.43%

Goal 15										
Measures	Population		2011	2012	2013	2014	2015	2016 (RY2018)	2016 (RY2019)	2017
30-day All-Hospital, All-Cause readmission (Case-mix Adjusted)	Maryland	Readmissions		74,518	69,640	64,701	61,474	58,643	58,341	58,311
		Expected Readmissions		77,132	69,627	67,315	66,140	65,723	58,628	58,977
		Readmission Rate		12.49%	12.93%	12.43%	12.02%	11.54%	11.72%	11.65%
Readmissions per 1,000 Maryland residents	Maryland	Readmissions		74,518	69,640	64,701	61,474	58,643	58,341	58,311
		Population		5,891,680	5,932,654	5,970,245	6,000,561	6,024,752	6,024,752	6,052,177
		Readmission Rate		12.65	11.74	10.84	10.24	9.73	9.68	9.63

Goal 15 (continued)									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Heart failure readmission rate	Maryland	Readmissions		4,333	3,949	3,926	4,039	3,747	3,900
		Eligible Discharges		17,544	17,084	17,314	18,244	17,996	17,978
		Readmission Rate		24.70%	23.12%	22.68%	22.14%	20.82%	21.69%
Acute myocardial infarction readmission rate	Maryland	Readmissions		1,059	1,003	959	1,004	969	975
		Eligible Discharges		7,890	7,689	7,954	8,383	8,113	8,263
		Readmission Rate		13.42%	13.04%	12.06%	11.98%	11.94%	11.80%
Pneumonia readmission rate	Maryland	Readmissions		2,323	2,096	2,004	2,128	3,023	2,669
		Eligible Discharges		15,194	14,589	14,004	15,505	21,243	18,672
		Readmission Rate		15.29%	14.37%	14.31%	13.72%	14.23%	14.29%
Chronic obstructive pulmonary disease readmission rate	Maryland	Readmissions		3,486	3,265	2,957	2,841	2,835	3,308
		Eligible Discharges		16,122	15,731	14,552	14,362	14,325	16,743
		Readmission Rate		21.62%	20.76%	20.32%	19.78%	19.79%	19.76%
Hip/total knee arthroplasty readmission rate	Maryland	Readmissions		664	608	576	548	570	517
		Eligible Discharges		15,601	15,986	17,040	17,783	18,627	18,737
		Readmission Rate		4.25%	3.80%	3.38%	3.08%	3.06%	2.76%

Goal 16								
Measure	Population	2011	2012	2013	2014	2015	2016	2017
Average life expectancy at birth	Maryland	79.5	79.7	79.7	79.8	79.5	79.1	
	White (MD)	80.3	80.4	80.3	80.3	80.2	79.8	
	Black (MD)	77.1	77.3	77.4	77.6	77.0	76.8	
	National	78.7	78.8	78.8	78.9	78.7	78.6	
	White	79.0	79.1	79.0	79.1	79.0		
	Black	75.3	75.5	75.5	75.6	75.5		

Goal 17[20]									
Measure	Population		2011	2012	2013	2014	2015	2016	2017
PQI Acute Composite Rate	Maryland	Number of acute ACSC discharges			25,131	23,403	23,318	23,943	20,168
		Population age 18 and over			4,532,085	4,604,251	4,649,690	4,667,719	4,659,189
		Composite PQI Rate			554.51	508.29	501.50	512.95	432.87
PQI Chronic Composite Rate	Maryland	Number of chronic ACSC discharges			45,762	43,977	43,639	42,234	44,639
					4,532,085	4,604,251	4,649,690	4,667,719	4,659,189
					1009.73	955.14	938.54	904.81	958.09
PQI Overall Composite Rate	Maryland	Number of overal ACSC discharges			70,890	67,377	66,956	66,174	64,803
		Population age 18 and over			4,532,085	4,604,251	4,649,690	4,667,719	4,659,189
		Composite PQI Rate			1,564.18	1,463.37	1,440.01	1,417.69	1,390.86

Goal 20									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Diabetes-related ED visit rate per 1,000 population	Maryland	Number of ED visits		114,580	122,439	123,875	124,928	124,420	121,301
		Population		5,891,680	5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Visit Rate per 1,000		19.45	20.64	20.75	20.82	20.65	20.04
Hypertension-related ED visit rate per 1,000 population	Maryland	Number of ED visits		64,887	63,471	64,193	64,577	67,626	71,672
		Population		5,891,680	5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Visit Rate per 1,000		11.01	10.70	10.75	10.76	11.22	11.84

[20] PQIs are expressed as the number of PQIs from inpatient admissions among Maryland population aged 18+.

Goal 21									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Asthma-related ED visit rate per 1,000 population	Maryland	Number of ED visits		52,502	50,077	50,557	48,083	45,811	42,697
		Population		5,891,680	5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Visit Rate per 1,000		8.91	8.44	8.47	8.01	7.60	7.05

Goal 22									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Behavioral Health-related ED visit rate per 1,000 population	Maryland	Number of ED visits		913,377	907,317	989,927	887,881	371,227	380,791
		Population		5,891,680	5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Visit Rate per 1,000		155.03	152.94	165.81	147.97	61.62	62.92

Goal 25									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
All-payer Maryland Hospital per capita total charges for MD residents	Maryland	Total Hospital Charges ($)			14,070,827,137	14,423,877,798	14,831,869,496	15,006,289,824[21]	15,609,318,168
		Population			5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Per capita charges ($)			2,372	2,416	2,472	2,491	2,579
		% Change from 2013				1.86%	4.22%	5.02%	8.74%
		Total Inpatient Charges ($)			3,577,606,896	3,644,282,856	3,738,655,187	3,722,621,740[22]	3,811,938,681

[21] This CY 2016 all payer number reflects an adjustment of approximately $75.5m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $14.93 billion.

[22] This CY 2016 Medicare FFS inpatient number reflects an adjustment of approximately $18.5m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $3.704 billion.

Goal 25									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Medicare FFS Maryland hospital per capita total charges per Beneficiary		Part A Beneficiaries			792,589	818,030	843,204	857,336	866,356
		Part A Per capita charges ($)			4,514	4,455	4,434	4,342	4,400
		Total Outpatient Charges ($)			1,704,310,983	1,800,667,592	1,938,206,962	1,989,608,507[23]	2,078,424,354
		Part B Beneficiaries			691,255	713,229	734,983	743,868	746,712
		Part B Per capita charges ($)			2,466	2,525	2,637	2,675	2,783
		Total Hospital Per capita charges ($)			6,979	6,980	7,071	7,017	7,183
		% Change from 2013				0.00%	1.31%	0.03%	2.92%
Medicaid Maryland hospital per capita total charges per Beneficiary[24]	Maryland	Total Charges ($)			2,595,383,354	3,158,443,053	3,255,818,344	3,276,406,945	3,489,724,898
		Total Enrollees			1,254,123	1,485,688	1,550,967	1,519,812	1,580,403
		Per capita charges ($)			2,069	2,126	2,099	2,156	2,208
		% Change from 2013				2.73%	1.44%	4.17%	6.70%
Medicare/Medicaid dual eligible Maryland hospital per capita total charges per Beneficiary	Maryland	Total Charges ($)			1,047,382,694	1,099,859,606	1,179,437,379	1,216,794,880	1,327,513,600
		Total Enrollees			143,874	153,695	160,482	164,450	168,300
		Per capita charges ($)			7,280	7,156	7,349	7,399	7,888
		% Change from 2013				-1.70%	0.95%	1.64%	8.35%
Private Payer (SHADAC)	Maryland	Total Charges ($)			4,844,844,194	4,778,551,032	4,853,940,314	4,835,010,444	
		Total Enrollees			3,762,456	3,775,719	3,841,538	3,847,557	
		Per capita charges ($)			1,288	1,266	1,264	1,257	
		% Change from 2013				-1.71%	-1.87%	-2.41%	

[23] This CY 2016 Medicare FFS outpatient number reflects an adjustment of approximately $10.1m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $1.979 billion.

[24] Medicaid and Dual Enrollment excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services

Goal 25a									
Measures	Population		2011	2012	2013[25]	2014[26]	2015	2016	2017
All-payer Maryland specialty hospital total charges per capita for MD residents	Maryland	Total Charges ($)			355,140,844	316,174,501	328,786,950	345,598,234	355,130,840
		Population			5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Per capita charges ($)			59.86	52.96	54.79	57.36	58.68
		% Change from 2013				-11.53%	-8.47%	-4.17%	-1.98%
Medicare Maryland specialty hospital total charges per beneficiary for MD Medicare Beneficiaries	Maryland	Total Inpatient Charges ($)			119,603,089	83,078,192	84,948,145	77,592,830	77,217,351
		Part A Beneficiaries			792,589	818,030	843,204	857,336	866,356
		Inpatient Per capita charges ($)			150.90	101.56	100.74	90.50	89.13
		Total Outpatient Charges ($)			8,101,643	5,961,383	7,085,633	7,483,637	7,529,162
		Part B Beneficiaries			691,255	713,229	734,983	743,868	746,712
		Outpatient Per capita charges ($)			11.72	8.36	9.64	10.06	10.08
		Total Hospital Per capita charges ($)			162.62	109.92	110.39	100.57	99.21
		% Change from 2013				-32.41%	-32.12%	-13.80%	-38.99%
Medicaid Maryland specialty hospital total charges per beneficiary for MD Medicaid Beneficiaries[27]	Maryland	Total Charges ($)			113,012,939	123,136,211	104,238,495	118,053,890	118,883,520
		Total Enrollees			1,254,123	1,485,688	1,550,967	1,519,812	1,580,403
		Per capita charges ($)			90.11	82.88	67.21	77.68	75.22
		% Change from 2013				-8.02%	-25.42%	-13.80%	-16.52%

[25] Specialty hospital charges in 2013 include Levindale.

[26] Beginning in 2014, Levindale became an acute facility and was excluded from the specialty hospital charges.

[27] The enrollment data for MD Medicaid and Medicare/Medicaid Dually eligible excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services.

Goal 26									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
All-payer per capita total expenditure	Maryland	Expenditures ($)							
		Population							
		Per capita expenditures ($)							
		% Change from 2013							
Medicare per capita total expenditure	Maryland	Total Part A Expenditures ($)			4,419,176,140	4,453,864,493	4,647,893,548	4,643,279,641[28]	4,760,107,623
		Part A Beneficiaries			792,589	818,030	843,204	857,336	866,356
		Part A Per capita expenditures ($)			5,576	5,445	5,512	5,416	5,494
		Total Part B Expenditures ($)			3,847,620,277	4,018,654,324	4,281,147,173	4,414,866,281[29]	4,624,152,783
		Part B Beneficiaries			691,255	713,229	734,983	743,868	746,712
		Part B Per capita expenditures ($)			5,566	5,634	5,825	5,935	6,193
		Total Per capita expenditures ($)			11,142	11,079	11,337	11,351	11,687
		% Change from 2013				-0.56%	1.75%	1.60%	4.89%
	National	Total Part A Expenditures ($)			178,838,635,359	178,178,351,596	180,373,125,394	182,814,719,396	183,888,260,472
		Part A Beneficiaries			36,435,042	36,595,134	36,808,487	37,408,582	37,439,857
		Part A Per capita expenditures ($)			4,908	4,869	4,900	4,887	4,912
		Total Part B Expenditures ($)			152,511,071,263	157,348,954,987	163,143,031,967	168,597,171,080	174,312,716,496
		Part B Beneficiaries			32,927,792	32,978,847	33,080,477	33,520,460	33,362,852

[28] This CY 2016 Medicare FFS Part A expenditures reflect an adjustment of approximately $17.2m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $4.626 billion.

[29] This CY 2016 Medicare FFS Part B expenditures reflect an adjustment of approximately $7.7m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $4.407 billion.

Goal 26									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
		Part B Per capita expenditures ($)			4,632	4,771	4,932	5,030	5,225
		Total Per capita expenditures ($)			9,540	9,640	9,832	9,917	10,136
		% Change from 2013				1.05%	3.06%	3.95%	6.25%
Medicaid per capita total expenditure (includes Dually eligible)[30]	Maryland	Expenditures ($)			7,575,448,645	8,982,202,145	9,636,095,863		
		Yearly Average Total Member Months			1,275,913	1,503,627	1,567,154		
		Per capita expenditures ($)			5,937	5,974	6,149		
		% Change from 2013				0.61%	3.56%		
Medicare/Medicaid dual eligibles per capita total expenditure (Medicaid expenditures only)[31]	Maryland	Expenditures ($)			2,055,772,516	2,118,602,765	2,151,976,525		
		Yearly Average Total Member Months			141,075	149,522	155,156		
		Per capita expenditures ($)			14,572	14,169	13,870		
		% Change from 2013				-2.77%	-4.82%		
Private Payer per capita total expenditure	Maryland	Expenditures ($)			7,760,817,042	7,753,726,521	7,817,319,646	7,878,377,510	
		Yearly Average Total Member Months			29,722,861	28,716,584	27,252,709	26,944,898	
		Per capita expenditures ($)			3,132	3,240	3,444	3,504	
		% Change from 2013				3.45%	9.96%	11.88%	

[30] Please note that this row represents total Medicaid enrollment, including those eligible for both full and partial benefits.

[31] These numbers reflect the Medicaid-only portion of expenditures for services for the dually eligible. This includes individuals for which Medicaid pays the Part B premiums only. Medicaid expenditures reflect payments for services only and do not include premiums

Appendix B: Measure Methodology – Supplemental Information

Goal 7. Enhance Care Transitions – Coordination with Primary Care

Follow-Up after Discharge

The measure of post-hospitalization follow-up visit within 14 days is calculated using specifications developed by Mathematica Policy Research (MPR), which are based upon a methodology provided by RTI International.

Post-discharge visits are included in the numerator if the following codes are listed on the carrier line or outpatient revenue files within 14 days of the discharge:

1) Current Procedural Terminology (CPT) codes (HCPCS_CD variable):
99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99315, 99316, 99318, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99339, 99340, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, 99411, 99442, 99443, 99374, 99375, 99376, 99377, 99378, 99379, 99380, 99495, 99496,

2) Revenue center codes 521 or 522 (Outpatient revenue file only- not applicable to Carrier Part B Line file)

Percent of Discharges with ENS Alert Sent to Provider

Numerator: Number of discharges for which an associated ENS alert (admission or discharge) is sent to at least one provider. Provider types include: ambulatory, behavioral health, care coordinators, long-term care, payers, and other.
Denominator: Total number of discharges
Source: Data obtained from the CRISP ENS.

Goal 9. Broaden Engagement in Innovative Models of Care

Participation of Provider Organizations in ACOs

ACO Definition from: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ACO/index.html?redirect=/aco/

Goal 12. Reduce High-Priority Complications

Potentially Preventable Complications – PPC Rate per 1,000 at-risk Discharges

Numerator: Number of observed PPCs – please note that some discharges may experience more than one PPC.
Denominator: Total number of at-risk discharges, please note that some discharges are at-risk for multiple PPCs, which makes this number larger than the total number of annual discharges.
Rate Calculation: Multiply Numerator / Denominator by 1,000 (Observed PPCs / At-Risk Discharges * 1,000)
Source: Calculated by the HSCRC using the RY 2018 and RY 2019 by-Payer Monitoring logic.

Potentially Preventable Complications – Case-mix Adjusted PPC Rate

Numerator: Number of observed PPCs – please note that some discharges may experience more than one PPC.

Denominator: Number of expected PPCs, based on applying statewide averages by diagnosis and severity of illness to a hospital's patient case-mix.
Rate Calculation: Multiply Numerator / Denominator by the Statewide Rate (Observed/Expected * Statewide)
Source: Calculated by the HSCRC using the RY 2018 and RY 2019 by-Payer Monitoring logic.

Goal 14. Readmission Rate among Patients Discharged to a Nursing Home

Numerator: The number of All-Payer inpatient hospital stays where the patient was discharged to a nursing home, but was readmitted to the hospital within 30 days of the initial hospital discharge date.
Denominator: The total number of hospital discharges that have a nursing home or skilled nursing facility as discharge disposition.
Note: These data are not case-mix adjusted. Discharge disposition is self-reported by hospitals. Data from 2017 are run under readmission logic from RY 2019 Readmission Reduction Incentive program (RRIP); previous years' data were run under readmission logic from the RY 2018 RRIP. Trending across different rate-year logic may be approximate, as there are minor updates to inclusion and exclusion criteria with each new policy.
Data Source: HSCRC inpatient discharge abstract data with CRISP unique patient enterprise identifiers (EIDs) for 2012-2017. Discharge disposition to a nursing home (code 71) is self-reported by hospitals.

Goal 15. Reduce Readmissions from Hospital

Condition-Specific Readmission Rates

Condition-specific readmission rates are sourced from to 2018 CMS measure specifications, which can be found on QualityNet:
https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841

Goal 16. Improve Life Expectancy

Source: As mentioned in the report, Maryland life expectancy data may be found at https://health.maryland.gov/vsa/Pages/reports.aspx .

National data for 2015 and 2016 are sourced from https://www.cdc.gov/nchs/data/databriefs/db293.pdf, pg 1. There are separate sources because national rate retroactively declined for 2015. National data by race for 2014 and 2015 can be found at https://www.cdc.gov/nchs/data/hus/hus16.pdf, Table 15, pg. 116.

Goal 17. Reduce the Rate of Hospitalization for Ambulatory Sensitive Conditions

Chronic, Acute, and Overall Preventive Quality Indicators

Data Sources: PQIs are identified using the HSCRC Inpatient Discharge Abstract data. Prior year data has been re-stated under most recent applicable version of PQI software. The annual adult Maryland population (over 18 years of age) is calculated from Maryland Department of Planning population estimates.

Goal 20. Improve Prevention for Diabetes and Cardiovascular Disease

Diabetes- and Hypertension-Related ED Visit Rate (Condition-Specific ED Visit Rates)

In October 2015, there was a national update to ICD codes from ICD-9 to ICD-10. All data that are trended across ICD versions (i.e., before and after October 2015) should be interpreted with caution. These changes impact all measures that are derived from ICD-coded data from the Health Service and

Cost Review Commission (HSCRC) – for purposes of this report, these include visits to the emergency department due to: hypertension, diabetes, asthma, and mental health.

For purposes of this measure, diabetes is defined as CCS Categories 49-50, and hypertension is defined as CCS Categories 98-99. ICD-9 CCS Codes may be found here: https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp (Appendix A: Single-Level Diagnoses). ICD-10 CCS Codes may be found here: https://www.hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp (version 2018.1).

Goal 21-22. Improve Prevention for Asthma; Promote Behavioral Health in Primary Care

Condition-Specific ED Visit Rates

In October 2015, there was a national update to ICD codes from ICD-9 to ICD-10. All data that are trended across ICD versions (i.e., before and after October 2015) should be interpreted with caution. These changes impact all measures that are derived from ICD-coded data from the Health Service and Cost Review Commission (HSCRC) – for purposes of this report, these include visits to the emergency department due to: hypertension, diabetes, asthma, and mental health.

For purposes of this measure, asthma is defined as CCS Category 128, and behavioral health is defined as CCS Categories 650-670. ICD-9 CCS Codes may be found here: https://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp (Appendix A: Single-Level Diagnoses). ICD-10 CCS Codes may be found here: https://www.hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp (version 2018.1).

Goal 23. Promote Health through Safe Physical Environment

Maryland Source: 2015 data on fall-related deaths available in 2015 Vital Statistics Annual Report, https://health.maryland.gov/vsa/Documents/15annual.pdf, Table 46, pg 165. 2016 data on fall-related deaths available in 2016 Vital Statistics Annual Report, https://health.maryland.gov/vsa/Documents/2016_Annual_Report.pdf, Table 46, pg 165.

National Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2016. Data are from the Multiple Cause of Death Files, 1999-2015, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Using Number of unintentional deaths from falls (ICD-10 codes W00-W19)
Accessed at http://wonder.cdc.gov/mcd-icd10.html on Nov 20, 2017 4:03:22 PM

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Maryland All-Payer Model
Transition Report

May 31, 2019

Health Services Cost Review Commission

This report containing performance year 2017, with historical 2013 through 2016 data, is respectfully submitted by the Maryland Health Services Cost Review Commission to the Centers for Medicare & Medicaid Services, as HSCRC and CMS transition to annual monitoring under the Total Cost of Care Model.

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1.0 Introduction

The State of Maryland is leading a transformative effort to improve care and lower the growth in health care spending. In 2014, the Centers for Medicare & Medicaid Services (CMS) approved the implementation of the Maryland All-Payer Model (Model). As the State's hospital rate-setting authority, the Maryland Health Services Cost Review Commission (HSCRC) plays a vital role in the implementation of an innovative approach to healthcare reform. The State's ultimate goal is to create a healthcare system that enhances patient care, improves health, and lowers total costs.

In the first year of the Model, the State was successful in shifting all acute care hospitals from volume-based reimbursement systems to global budgets, ahead of the required schedule of five years. The State successfully shifted nearly all revenue underneath the acute care hospitals within the allotted five years.

In the second year of the Model, the State implemented changes in its value-based and quality-based payment approaches to tie into the new Model and developed some additional tools for global budgets. Hospitals—along with other providers, community organizations, consumers, and the State—also focused extensive planning efforts on the care delivery transformations and improvements necessary to succeed under the Model. These delivery improvements include care coordination, incentive alignment, consumer engagement, and information technology and analytic infrastructure.

In the third year of the Model, the State continued to implement care redesign and infrastructure improvements as it focused on population health and outcomes improvement goals. The State also developed and submitted a proposal for the Total Cost of Care (TCOC) Model, the replacement of the Maryland All-Payer Model that builds on Maryland's hospital per capita model by expanding efforts to align hospitals, physicians, and other providers in delivery system reforms that improve outcomes, engage patients, and contain costs. This proposal, known as the "Progression Plan," was submitted to CMS on December 16, 2016.

Successes of the All-Payer Model – 4th Year

In the fourth year of the Maryland All-Payer Model, the State of Maryland expanded upon the first three years' successes and continued to improve cost savings and quality of care.

Final results for Calendar Year 2017 show that Maryland saved $330 million in Medicare hospital expenditures. Combined with savings efforts through the first three years, the State achieved $916 million in aggregate Medicare hospital savings. The cumulative Medicare Total Cost of Care savings is $599 million.

Maryland also continued to improve quality of care. The State lowered Potentially Preventable Conditions (PPCs) by an additional 10 percent (53 percent in aggregate, exceeding the Model goal of a 30 percent reduction in five years). Maryland also continued to reduce its all-cause readmissions, and is currently below the national readmission rate at the end of CY 2017.

In the fourth year of the Model, the State continued to limit all-payer hospital growth while developing the Total Cost of Care Model (TCOC Model), which aims to limit all-payer hospital growth on a per capita basis, as well as on Medicare total cost of care for Parts A and B. The TCOC Model will also expand efforts for delivery system transformation beyond hospitals by connecting health care providers across the health system. Included within the TCOC Model are the Care Redesign Program, Maryland Primary Care Program (MDPCP), population health incentives, and other alignment and engagement

opportunities to further promote patient-centered care in Maryland. Per the Progression Plan, Maryland engaged its stakeholders and worked closely with CMS throughout development of the TCOC Model.

In the fifth year of the All-Payer Model, the State obtained federal approval of the new TCOC Model and signed a TCOC Model Agreement with CMS in July 2018. The HSCRC solicited diverse internal and external stakeholder input throughout development of the TCOC Model through consumer and hospital work groups, discussions with non-hospital providers and non-acute care facilities, and meetings with Maryland General Assembly members and partner State agencies. The State continues robust stakeholder engagement to ensure design alignment and successful implementation of the TCOC Model, which began on January 1, 2019. The State is also continuing its monitoring and reporting activities for the final year of the All-Payer Model and the beginning of the TCOC Model.

The All-Payer Model utilizes a payment system that holds hospitals accountable for the total cost of hospital care on a per capita basis. The Model continues to be successful by enhancing the quality of health care delivery, improving population health, and reducing costs. In contrast to the previous Maryland Medicare waiver from 1977, which focused on controlling growth in Medicare inpatient payments *per case*, the Maryland All-Payer Model focuses on controlling growth in total hospital revenue *per capita*. The Maryland All-Payer Model Agreement established a five-year period during which a series of key requirements must be met. These requirements include:

- All-payer per capita total hospital revenue growth is limited to 3.58 percent per year compounded over the Agreement;
- Five-year Medicare per beneficiary total hospital cost savings must equal or exceed $330 million;
- The aggregate Medicare 30-day all-cause readmission rate is reduced to at or below the national average; and
- The rate of hospital-acquired conditions (HACs) is reduced by 30 percent.

Table 1 (below) presents progress on these All-Payer Model Agreement goals through 2017. Per HSCRC data, Maryland is on track to meet all Model requirements through the fourth year of the Model.

Table 1. Maryland All-Payer Model Performance, 2014-2017

Performance Measures	*Targets*	*2014 Results*	*2015 Results*	*2016 Results*	*2017 Results*
All-Payer Hospital Revenue Growth	**≤ 3.58% per capita annually**	**1.47%** growth per capita	**2.31%** growth per capita	**0.80%** growth per capita[1]	**3.54%** growth per capita
Medicare Savings in Hospital Expenditures	**≥ $330m cumulative over 5 years** (Lower than national average growth rate from 2013 base year)	**$120m** (2.21% below national average growth)	**$155m** **$275 cumulative** (2.63% below national average growth since 2013)	**$311m** **$586m cumulative[2]** (5.50% below national average growth since 2013)	**$330m** **$916m cumulative** (5.63% below national average growth since 2013)
Medicare Savings in Total Cost of Care	**Lower than the national average growth rate for total cost of care from 2013 base year**	**$142m** (1.62% below national average growth)	**$121m** **$263m cumulative** (1.31% below national average growth since 2013)	**$198m** **$461m cumulative[3]** (2.08% below national average growth since 2013)	**$118m** **$599m cumulative** (1.36% below national average growth since 2013)
All-Payer Quality Improvement Reductions in PPCs under MHAC Program	**30% reduction over 5 years**	**25%** reduction	**34%** reduction since 2013	**44%** reduction since 2013	**53%** reduction since 2013
Readmissions Reductions for Medicare	**≤ National average over 5 years**	**19%** reduction in gap above nation	**58%** reduction in gap above nation since 2013	**79%** reduction in gap above nation since 2013	**116% reduction in gap above nation since 2013** (0.19% lower than nation)

[1] During the last six months of CY 2016 (July – December of 2016), Hospitals undercharged their Global Budget Revenue mid-year targets by approximately 1 percent ($25M dollars). The measures reported have been adjusted to 'add back' the undercharge to the period of July – December 2016 to offset the decline in savings for January – June 2017

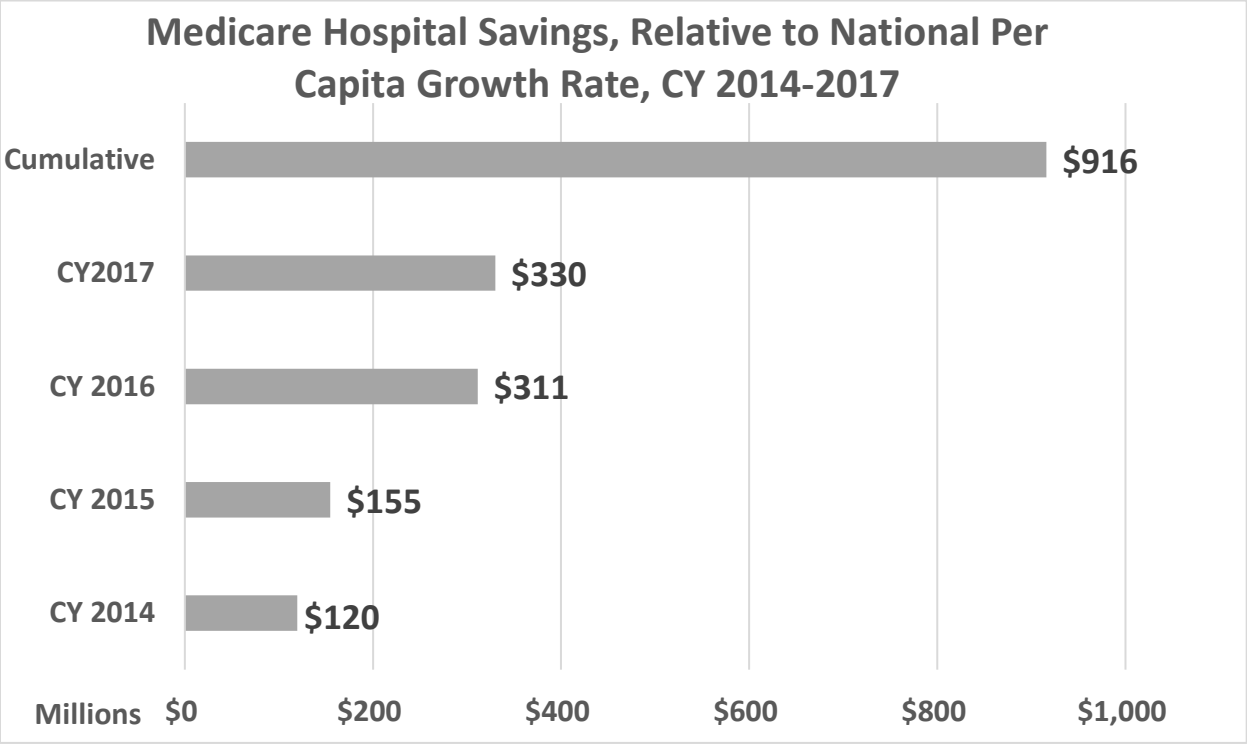
[2] Ibid.

[3] Ibid.

Hospital Revenue to Global or Population-Based	**≥ 80% by year 5**	**95%**	**96%**	**98%[4]**	**98%[5]**

Figure 1 (below) highlights the cumulative Medicare savings achieved under the All-Payer Model over the first four years. At the conclusion of 2017, Maryland had saved Medicare over $916 million across four years of the Model.

Figure 1. Medicare Hospital Savings, Relative to National per Capita Growth Rate, CY 2014-2017[6]



In addition to the goals listed above, the submission of this report partially fulfills the Maryland Model Agreement requirement that the State provide an annual monitoring report to CMS. This report is intended to catalogue State performance with respect to selected quality and financial goals as outlined in the All-Payer Model Agreement Appendices 7 and 8 under three domains: Patient Experience of Care, Population Health, and Costs and Efficiency.

[4] Previous reports indicated that 100% of regulated hospital revenue was governed by a global or population-based agreement. However, in FY17 the HSCRC began funding high-cost oncology and other infusion drugs on the basis of actual volumes. This policy change updates performance years' 2016 and 2017.

[5] Ibid.

[6] These numbers have been adjusted to reflect the hospital undercharge of approximately 1 percent that occurred in the second half of CY 2016, reducing the CY 2016 savings shown above.

2.0 Domains and Measures Included in Transition Report

Measures that were previously tracked in the Monitoring Report correspond to three domains: patient experience of care, population health, and health care costs.

- **Patient Experience of Care Measures**: Patient satisfaction, effectiveness of care transitions, physician participation in public programs, processes of care, high priority complication rates, prevention quality indicators, and readmissions;
- **Population Health Measures**: Life expectancy, hospitalizations for ambulatory care sensitive conditions, primary and secondary prevention for cardiovascular disease, and behavioral health emergencies; and
- **Health Care Cost Measures**: Overuse of diagnostic imaging, inpatient and outpatient cost trends, total cost of care for all residents and for specific payers including Medicare, Medicaid, and private insurance.

Of note, this report omits some Patient Experience of Care measures, nursing home quality measures and Population Health Measures — measures that were previously reported under the All-Payer Model. These omissions were discussed with the Center for Medicare and Medicaid Innovation (CMMI) staff as the Model transitions into the TCOC Model State Agreement. These data were excluded due to availability, progression to the TCOC Model where they are no longer required, and general usefulness for Model evaluation. For information on the historical performance on these measures, please refer to the Annual Monitoring Report submitted on January 18, 2018, containing information on Maryland performance compared to the nation through 2016.

The HSCRC will work with CMMI to enhance the utility of the data reported in fulfillment of Appendix D of the TCOC Model Agreement, by identifying more reliable data sources where available, and or adding meaningful measures to monitor under the TCOC Model.

Data for the measures were compiled from existing publicly available national and State sources (e.g., CMS Hospital and Home Health Compare). In addition, several measures were developed using utilization and financial data from claims-based files obtained from CMS (e.g., Research Identifiable Files) and Maryland (e.g., HSCRC Hospital Abstract Data). The monitoring report submitted August 16, 2018 presented available data through 2017 for the goals and measures outlined in Table 2. This transitional report with agreed-upon, available measures is submitted at this time.

Table 2. Goals and Measures included in the Transition Report

Goal	Description	Measures
Goal 1	Increase Patient Satisfaction – Hospital	1A – Patient's Rating of a Hospital 1B – Communication with Doctors 1C – Communication with Nurses
Goal 2	Increase Patient Satisfaction – Home Health	2A – Patient's Rating of Home Health Agency 2B – Communication with Home Health Team
Goal 3	Increase Patient Satisfaction – Nursing Homes	3A – Percentage of short-stay residents who improved in their ability to move around on their own 3B – Percentage of short-stay residents who got antipsychotic medication for the first time 3C – Percentage of long-stay residents experiencing one or more falls with major injury 3D – Percentage of long-stay residents with a urinary tract infection 3E – Percentage of long-stay high-risk residents with pressure ulcers 3F – Percentage of long-stay residents who got an antianxiety or hypnotic medication 3G – Percentage of long-stay residents who needed and got a flu shot for the current flu season 3H – Percentage of long-stay residents who needed and got a vaccine to prevent pneumonia 3I – Percentage of long-stay residents who got an antipsychotic medication
Goal 5	Enhance Care Transitions – Patient Experience – Hospital	5 – CTM-3 – Three-item care transition measure
Goal 7	Enhance Care Transitions – Coordination with Primary Care	7A – Rate of Physician Follow-Up After Discharge 7B – Discharges with Principal Provider Notified
Goal 12	Reduce high priority hospital complications	12A – Potentially Preventable Complications 12B – Central-Line Associated Bloodstream Infections
Goal 13	Reduce Readmissions – Home Health	13A – Admission rate from home health agencies to acute inpatient hospital 13B – Unplanned urgent visits to the emergency department for patients receiving home health
Goal 14	Reduce Readmissions – Nursing Homes	14 – Readmission Rates for Inpatient Discharges to Nursing Homes

Goal 15	Reduce Readmissions – Hospital	15A – 30-Day, All Hospital, All-Cause Readmission Rate 15B – Readmissions Per 1,000 Maryland Residents 15C – Heart Failure Readmission Rate 15D – Pneumonia Readmission Rate 15E – Acute Myocardial Infarction 15F – Chronic Obstructive Pulmonary Disease readmission rate 15G – Hip/Total Knee Arthoplasty readmission rate
Goal 25	Control Expenditure Growth – Hospital	25A – All-Payer Maryland Hospital Charges per Capita 25B – Medicare Maryland Hospital Charges per Capita 25C – Medicaid Maryland Hospital Charges per Capita 25D – Private Payer Maryland Hospital Charges per Capita 25E – Dual Eligibles Maryland Hospital Charges per Capita
Goal 25a	Control Expenditure Growth – Specialty Hospital	25aA – All-Payer Maryland Specialty Hospital Charges 25aB – Medicare Maryland Specialty Hospital Charges 25aC – Medicaid Maryland Specialty Hospital Charges
Goal 26	Control Expenditure Growth – All Services	26A – All-Payer Maryland Total Expenditure 26B – Medicare Maryland Total Expenditure 26C – Medicaid Maryland Total Expenditure 26D – Private Payer Maryland Total Expenditure 26E – Dual Eligibles Maryland Total Expenditure

Performance on several of the above-listed goals is tracked using more than one measure, as itemized in Table 2. Due to International Classification of Diseases, 10th edition (ICD-10) implementation, some measures in this report present interim measures because an ICD-10 version is not yet available (e.g., unadjusted prevention quality indicators), and some charts do not trend the data across the ICD-9 and ICD-10 time periods.

Further measure development and reporting may also take place as the HSCRC works with CMS to adapt and enhance this monitoring plan for Total Cost of Care Model. The HSCRC aims to ensure that CMS has the data it needs to show that the Maryland Model continues to be effective at achieving the goals of delivering better care and better health at lower cost. The State will continue to work collaboratively with CMS to establish benchmarks or targets for other high-priority measures that are currently being monitored or that will be developed in the future under the TCOC Model.

3.0 Key Findings

This report presents results for each of the measures identified in Section 2.0. Along with the results, this section includes a brief description of each measure and a summary of the methods used to estimate each measure. Appendix A provides a table with results for all measures and the values of the numerators and denominators used to calculate these results, as applicable, organized by goal and year. Appendix B provides additional detail to support the methodology descriptions in the main report, where necessary.

3.1 Patient Experience of Care

Maryland believes that an All-Payer Model that holds providers accountable for the total cost of care can improve the quality of care and the patient's experience of care. Through the All-Payer Model, Maryland expects to enhance care transitions, sustain high levels of physician participation in public programs, and broaden provider engagement in innovative models of care. Through these efforts, as well as ongoing initiatives to reduce complications and readmissions, Maryland will improve both quality outcomes and patient satisfaction. Although patient satisfaction is identified in the goal names under this section, HSCRC recognizes that satisfaction is but one dimension of quality reflected in the CAHPS survey measures and other measures reported in this section.

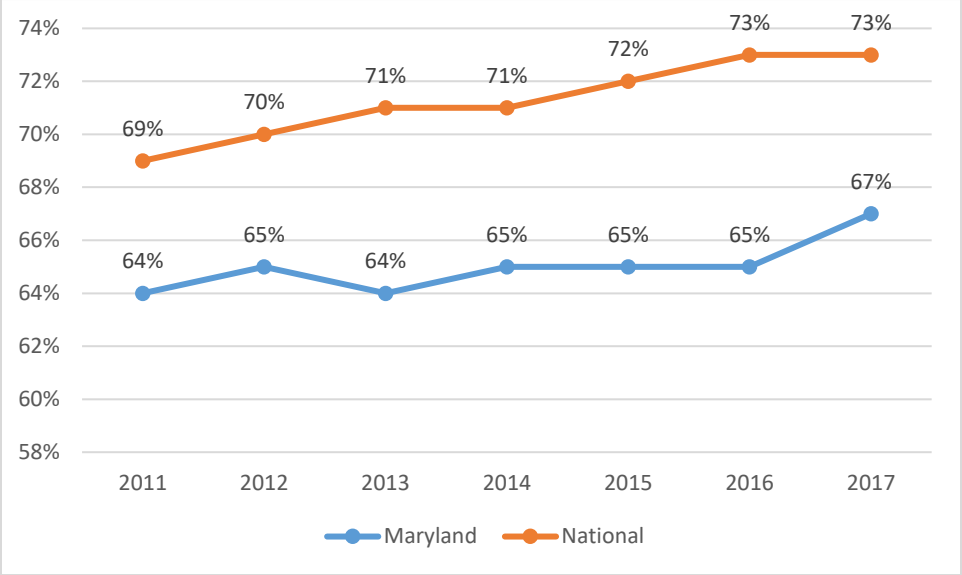
3.1.1 Goal 1: Increase Patient Satisfaction with Hospital

Goal 1. Increase Patient Satisfaction with Hospital	
Goal Summary	Patient experience with hospital care is monitored using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. The HCAHPS survey is a standardized tool that allows comparisons across hospitals for public reporting and is used by CMS as part of its Value-Based Purchasing (VBP) program. The HSCRC also uses the HCAHPS results to reward or penalize hospitals based on patient experience as part of its state-level Quality-Based Reimbursement (QBR) program. For fiscal year (FY) 2020 rates, 2 percent of revenue for the QBR program is at-risk, and the HCAHPS domain weighting remains at 50 percent due to concerns about Maryland lagging behind the nation on patient experience. The HSCRC has finalized its FY 2021 QBR policy, which continues to weigh the Person and Community Engagement domain at 50 percent. For this report, we include results on overall satisfaction with the hospital, as well as the composite scores for communication with doctors and nurses.

Measurement Methodology	**HCAHPS Survey Questions** Overall patient satisfaction This is a global item with one survey question. The measure is the percentage of survey respondents reporting a "9" or "10" when asked the following: "Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?" Doctors always communicated well This is a composite measure combining responses from three survey questions. The measure is the percentage of survey respondents reporting "always" for each of the following questions: ▪ During this hospital stay, how often did doctors treat you with courtesy and respect? ▪ During this hospital stay, how often did doctors listen carefully to you? ▪ During this hospital stay, how often did doctors explain things in a way you could understand? Nurses always communicated well This is a composite measure combining responses from three survey questions. The measure is the percentage of survey respondents reporting "always" for each of the following questions: ▪ During this hospital stay, how often did nurses treat you with courtesy and respect? ▪ During this hospital stay, how often did nurses listen carefully to you? ▪ During this hospital stay, how often did nurses explain things in a way you could understand? Additional information on the HCAHPS survey (e.g., number of surveys collected, survey methods, and exclusion criteria) can be found at: http://www.hcahpsonline.org/home.aspx.
Monitoring Results ***See below -*** Figure 2 Table 3	▪ Across all years (2011–2017), patients in Maryland indicated lower levels of hospital satisfaction than patients across the United States. In 2017, approximately 67 percent of Maryland patients rated their hospital experience as a "9" or "10", compared to 73 percent of patients nationwide. (Figure 2). The Maryland performance represents a 2 percent improvement when compared to 2016 survey responses. ▪ Patient experience with physician communication was also rated higher in the United States than in Maryland. In 2017, about 78 percent of Maryland patients expressed a high level of satisfaction with the way their physician communicated; this compares to 82 percent of patients nationally. Experience

	with physician communication changed little between 2011 and 2017 for either Maryland or U.S. patients (Table 3). ▪ Experience with nurse communication also changed little between 2011 and 2017, increasing by only two percentage points for patients in Maryland (from 74 percent to 76 percent) and for patients across the United States (78 percent to 80 percent) (Table 3).

Figure 2. Overall Patient Experience with Hospital - Maryland and the Nation, 2011-2017



Source: Centers for Medicare & Medicaid Services, Hospital Compare, 2011-2017

Table 3. Hospital Patient Experience Results, 2011-2017

Measures	Population	2011	2012	2013	2014	2015	2016	2017
Patient's rating of hospital: Percentage of survey respondents reporting a 9 or 10 (10 being best)	Maryland	64%	65%	64%	65%	65%	65%	67%
	National	69%	70%	71%	71%	72%	73%	73%
Communication with doctors: Percentage of survey respondents reporting "always" on three questions (composite measure)	Maryland	78%	78%	77%	78%	78%	77%	78%
	National	81%	81%	82%	82%	82%	82%	82%
Communication with nurses: Percentage of survey respondents reporting "always" on six questions (composite measure)	Maryland	74%	75%	75%	76%	76%	75%	76%
	National	78%	78%	79%	79%	80%	80%	80%

Source: Centers for Medicare & Medicaid Services, Hospital Compare, 2011-2017

3.1.2 Goal 2: Increase Patient Satisfaction with Home Health

Goal 2. Increase Patient Satisfaction with Home Health	
Goal Summary	Patient experience with home health care is assessed using the Home Health CAHPS (HHCAHPS). As with the hospital survey, the HHCAHPS is a standardized survey that allows comparisons across home health agencies for public reporting. For this

	report, we include results on overall satisfaction with home health, as well as the composite score for communication with the home health team.
Measurement Methodology	**HHCAHPS Survey Questions** Overall patient experience with home health agency This is a global item with one survey question. The measure is the percentage of survey respondents reporting a "9" or "10" when asked the following: "Using any number from 0 to 10, where 0 is the worst home health care possible and 10 is the best home health care possible, what number would you use to rate your care from this agency's home health providers?" Home health team always communicated well This is a composite measure combining responses from six survey questions. The measure is the percentage of survey respondents reporting "always" to each of the following questions: ▪ When you first started getting home health care from this agency, did someone from the agency tell you what care and services you would get? ▪ In the last two months of care, how often did home health providers from this agency keep you informed about when they would arrive at your home? ▪ In the last two months of care, how often did home health providers from this agency explain things in a way that was easy to understand? ▪ In the last two months of care, how often did home health providers from this agency listen carefully to you? ▪ In the last two months of care, when you contacted this agency's office did you get the help or advice you needed? ▪ When you contacted this agency's office, how long did it take for you to get the help or advice you needed? Additional information on the HHCAHPS survey (e.g., number of surveys collected, survey methods, and exclusion criteria) may be found at: https://homehealthcahps.org/Home.aspx.
Monitoring Results ***See below:*** Table 4	▪ In 2016, 82 percent of Maryland residents indicated that they received the best home health care possible (up one percent from 2016) compared to 84 percent nationwide (nationwide score remains unchanged since 2011). ▪ Maryland and national experience ratings of the home health team's communication were identical in 2017. Approximately 85 percent of both Maryland and United States residents reported a high level of satisfaction with their home health care providers' communication.

Table 4. Home Health Patient Experience Results, 2011-2017

Measures	Population	2011	2012	2013	2014	2015	2016	2017
Patient's rating of home health agency: percentage of survey respondents reporting a 9 or 10 (10 being the best)	Maryland	83%	83%	82%	82%	83%	81%	82%
	National	84%	84%	84%	84%	84%	84%	84%
Communication with home health team: percentage of survey respondents reporting "always" on six questions	Maryland	86%	86%	85%	85%	85%	85%	85%
	National	85%	85%	85%	85%	85%	85%	85%

Source: Home Health CAHPS

3.1.5 Goal 5: Enhance Care Transitions – Hospital

Goal 5. Enhance Care Transitions - Hospital	
Goal Summary	The three-item Care Transition Measure (CTM-3) assesses overall patient experience with hospital care transitions. The CTM-3 includes three major domains: 1) patients' understanding of their role in self-care, 2) patients' understanding of their medications' purpose, and 3) patients' perception that their preferences and those of their families were taken into account when discharge plans were being made. These three items were added to the HCAHPS survey, and hospitals in Maryland and nationwide began reporting them in January 2014. The CTM-3 item has been added to Maryland's QBR programs beginning in FY 2018. The HSCRC is particularly interested in this measure due to the importance of educating patients on the care they will need post-hospitalization to reduce future potentially avoidable hospital utilization.
Measurement Methodology	This is a composite measure combining responses from three questions on the HCAHPS survey. The measure is the linear transformation score of survey respondents reporting "Strongly Agree" for each of the following questions: ○ During this hospital stay, the hospital staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left. ○ When I left the hospital, I had a good understanding of the things I was responsible for in managing my health. ○ When I left the hospital, I clearly understood the purpose for taking each of my medications.

	Additional information on the CTM-3 and HCAHPS survey (e.g., number of surveys collected, survey methods, and exclusion criteria) can be found at: http://www.hcahpsonline.org/home.aspx.
Monitoring Results ***See below*** Table 5	▪ The CTM-3 linear transition scores for Maryland of respondents who "Strongly Agree" are four percent below national scores (49 v. 53 percent), and have increased two percent since 2016.

Table 5. CTM-3 Scores, 2014-2017

Measures		Population	2014	2015	2016	2017
Three Item Care Transition Measure	Strongly Agree	Maryland	48%	48%	47%	49%
		National	52%	52%	52%	53%
	Agree	Maryland	45%	45%	46%	45%
		National	43%	43%	43%	42%
	Disagree or Strongly Disagree	Maryland	7%	7%	7%	6%
		National	5%	5%	5%	5%

Source: CMS Hospital Compare

3.1.7 Goal 7: Enhance Care Transitions – Coordination with Primary Care

Measures used to assess the improvement of care transitions consist of (A) the rate of physician follow-up after discharge and (B) the rate of discharges in which the principal provider was notified.

Goal 7. Enhance Care Transitions – Coordination with Primary Care	
Goal Summary	Management of transitions of care—from the hospital to a post-acute care provider or to home—including appropriate and timely outpatient physician follow-up is a key strategy to reduce hospital readmissions. This goal tracks the rate of physician follow-up after discharge, as well as the proportion of discharges for which a physician is notified of the admission and/or discharge.
Measurement Methodology	Follow-Up after Discharge The measure of post-hospitalization follow-up visit within 14 days is calculated using specifications developed by Mathematica Policy Research (MPR), which are based upon a methodology provided by RTI International. Post-discharge visits are included in the **numerator** if an eligible face-to-face visit procedure or revenue code is found on one or more outpatient claims with a service date 14 days post-discharge. Inpatient discharges are included in the **denominator** if they are billed for Maryland residents who: (1) are eligible for Medicare Part B in the month of the discharge, (2) have at least one fee-for-service (FFS) claim in the month of the

discharge, and (3) are alive for 14 days post-discharge. Any discharge with a subsequent inpatient admission within 14 days is excluded.

The percentage of inpatient discharge having a face-to-face follow-up visit within 14 days is calculated as proportion of the total eligible discharges.

Historical data (2013-2016) have been refreshed with the methodology refined by MPR. In addition, national rates are now provided based upon the 5% Medicare sample of the CCW.

Discharges with Principal Provider Notification

Chesapeake Regional Information System for Our Patients (CRISP), Maryland's Health Information Exchange, provides an Encounter Notification Service (ENS), which sends information to providers on a real-time basis when a provider's patient visits a hospital. Providers can choose to receive different types of notifications through CRISP, such as ED registration events, inpatient admissions, and inpatient discharges. ENS works by gathering patient panels directly from providers rather than relying on self-reported data from patients during the admission process, which is known to be less reliable in Maryland as well as nationally. CRISP encourages organizations to update their panels at least monthly. As ENS has demonstrated importance and reliability among the provider community, the types of organizations submitting ENS panels have grown. In addition to ambulatory physicians, CRISP now receives panels from long-term care facilities, care coordination entities, behavioral health organizations, and payers.

HSCRC staff use data from CRISP to calculate the percentage of inpatient discharges for which there is any associated ENS alert sent to a provider. Measuring discharges with the provider notified via ENS is not exactly consistent with the original CMS requirement of simply identifying a primary care provider. However, HSCRC makes a strong case that this measure is a better indicator of supporting transitions in care and more consistent with meaningful use requirements.

In addition to the ENS notification, CRISP also sends providers the patient's most recent contact information; providers find this to be extremely valuable in connecting with patients post discharge. CRISP is also looking at additional ways to engage ambulatory providers in ENS. As CRISP builds the volume of ambulatory connectivity with providers submitting Consolidated Clinical Document Architecture, the CRISP team is developing attribution methods for providers to auto-populate ENS panels.

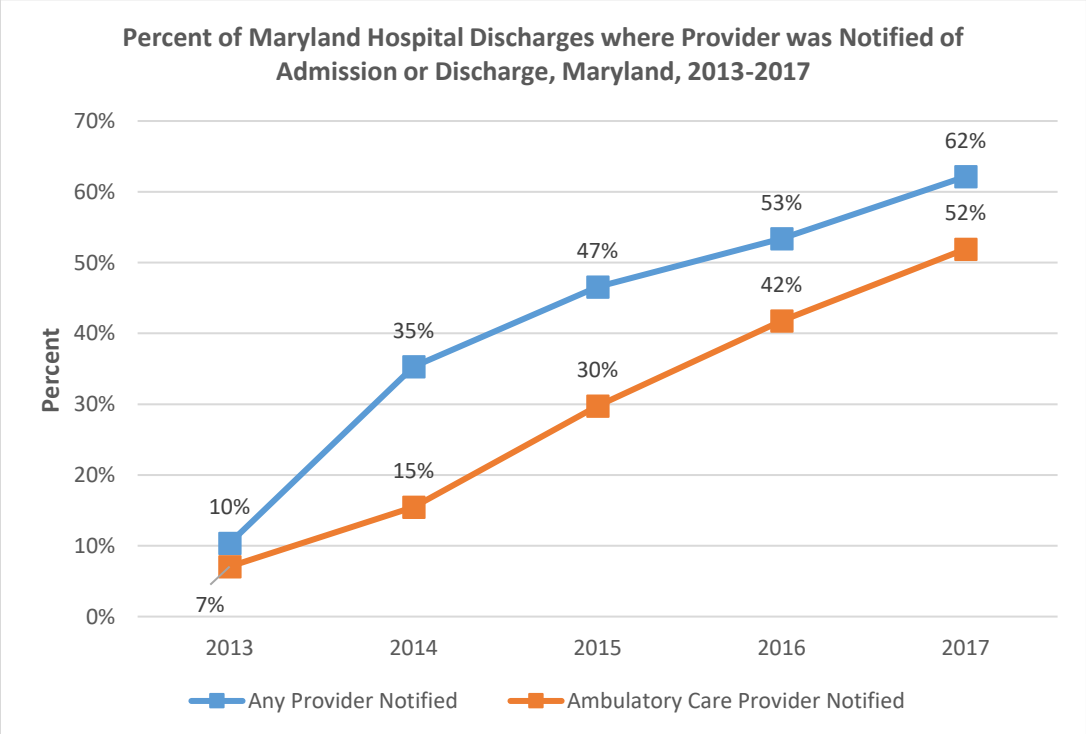
Monitoring Results ***See below*** Table 6 Figure 3	Follow-up After Discharge within 14 Days ▪ Using the MPR measure of Follow-up after Discharge within 14 days, Maryland has maintained a rate of physician follow-up after discharge for Maryland Medicare beneficiaries of between 65-69 percent from 2013 to 2017. In each year, Maryland had a higher rate compared to the nation. Maryland achieved a 69 percent rate of follow-up in 2017, compared to a rate of 67 percent at the national level. ▪ Care managers and community health workers have been deployed to enhance care transitions and broader care coordination efforts, which will further improve follow-up rates following a hospital discharge. Discharges with Principal Provider Notified in Maryland ▪ Between 2013 and 2017, there was an approximately six-fold increase in the discharges for which any provider received an ENS notification, from 10.36 percent to 62.15 percent. ▪ During the same time period, the proportion of discharges for which an ambulatory care provider received an ENS notification also increased sevenfold, from 7.07 percent to 51.92 percent.

Table 6. Care Coordination with Primary Care, 2013-2017

Measures	Population	2013	2014	2015	2016	2017
Rate of physician follow-up after discharge for Medicare beneficiaries	Maryland	67%	65%	66%	68%	69%
	National, an enhanced 5% Medicare Sample of the CCW	65%	64%	65%	67%	67%
Discharges with principal provider notified in Maryland	Any Provider Notified	10%	35%	47%	53%	62%
	Ambulatory Care Provider Notified	7%	15%	30%	42%	52%

Source: MPR Analysis of CCW; CRISP ENS Notification Reports, 2017.

Figure 3. Percent of Maryland Hospital Discharges where Provider was Notified of Admission or Discharge, Maryland, 2013-2017



Source: CRISP ENS Notification Reports, 2018. Notification provider types include: ambulatory, behavioral health, care coordinators, long-term care, payers, and other.

3.1.12 Goal 12: Reduce High-Priority Hospital Complications

Measures used to assess the reduction of high-priority hospital complications are: (A) the Standardized Infection Ratio (SIR) of Central-Line Associated Blood Stream Infections (CLABSI); and (B) the rate of Potentially Preventable Complications (PPCs). The June 2018 report will present measure B, the incidence of PPCs under the All-Payer Model to-date.

Goal 12: Reduce High-Priority Hospital Complications	
Goal Summary	Progress in reducing high-priority hospital complications is assessed using the rate of PPCs. PPCs are defined as harmful events or negative outcomes that may result from the process of care and treatment rather than from a natural progression of an underlying disease. Under the All-Payer Model, Maryland is expected to achieve an aggregate 30 percent reduction across an aggregated set of potentially preventable complications.
Measurement Methodology	PPC Rate per 1,000 At-Risk Discharges The PPC rate per 1,000 discharges is calculated by dividing the number of observed PPCS by the number of at-risk discharges (one discharge may be at-risk for multiple PPCs) * 1,000 discharges. This is an unadjusted PPC rate that does not take into account fluctuations in case-mix that may occur over time. Case-Mix Adjusted PPC Rate For purposes of the waiver test, the HSCRC reports additional data on the case-mix adjusted PPC rate. The case-mix adjusted PPC rate is calculated by multiplying the Observed / Expected ratio for each hospital by the statewide observed PPC rate. The expected number of PPCs for each hospital is calculated by taking the statewide PPC rate for each diagnosis and severity of illness category and multiplying it by the number of discharges at each hospital in each category. For additional information regarding the PPC measures, please refer to the RY 2019 MHAC Policy on the HSCRC Quality – MHAC website, http://hscrc.maryland.gov/Pages/init_qi_MHAC.aspx. Data have been re-stated under the Rate Year 2018 logic (through 2016), and then compounded with data re-stated under the Rate Year 2019 logic (2016-2017) – this is done to accommodate the transition from ICD-9 to ICD-10.
Monitoring Results	▪ Between 2013 and 2017, the unadjusted all-payer PPC rate for the state of Maryland declined from 0.92 per 1,000 at-risk discharges under RY 2018 logic to

See below Table 7	0.49 per 1,000 at-risk discharges under RY 2019 logic. Compounded, this represents a reduction of 45.27 percent. ▪ Over the same time period, the case-mix adjusted all-payer PPC rate had a reduction of 52.72 percent. ▪ Between 2013 and 2017, the unadjusted Medicare FFS PPC rate per 1,000 at-risk discharges declined by 47.45 percent. The unadjusted Medicaid PPC rate declined by 41.78 percent during the same period. ▪ Similarly, the case-mix adjusted rate for Medicare and Medicaid was reduced by 48.01 percent and 63.25 percent, respectively.

Table 7. High-Priority Hospital Complications, 2013-2017

Measures	Population	2013	2014	2015	2016 (RY 2018 Logic)	2016 (RY 2019 Logic)	2017	Compounded Cumulative PPC Change[7]
All Payer Potentially preventable complications per 1,000 at-risk discharges	Maryland	0.92	0.70	0.64	0.56	0.54	0.49	
Change from 2013 (%).			-23.78%	-31.03%	-39.14%		-10.07%	-45.27%
Medicare Potentially preventable complications per 1,000 at-risk discharges	Maryland	1.35	0.99	0.91	0.78	0.78	0.71	
Change from 2013 (%).			-26.44%	-32.36%	-42.22%		-9.05%	-47.45%
Medicaid Potentially preventable complications per 1,000 at-risk discharges	Maryland	0.56	0.43	0.38	0.36	0.34	0.30	
Change from 2013 (%).			-23.33%	-31.66%	-35.18%		-10.18%	-41.78%
All Payer Case-mix Adjusted PPC rate	Maryland	1.00	0.74	0.65	0.55	0.59	0.51	
Change from 2013 (%).			-25.42%	-35.17%	-45.29%		-13.58%	-52.72%

[7] Replication of some of these calculations may not be possible due to rounding; % Change in 2017 is compounded to evaluate performance under RY 2018 and RY 2019 logic.

Medicare Case-mix Adjusted PPC rate	Maryland	1.14	0.83	0.73	0.60	0.66	0.57	
Change from 2013 (%).			-17.24%	-26.81%	-39.97%		-13.39%	-48.01%
Medicaid Case-mix Adjusted PPC rate	Maryland	0.90	0.66	0.57	0.50	0.63	0.46	
Change from 2013 (%).			-33.97%	-42.47%	-49.90%		-26.64%	-63.25%

Source: HSCRC Inpatient Discharge Abstract Data, 2013-2016.

3.1.13 Goal 13: Reduce Readmissions – Home Health

Goal 13. Reduce Readmissions – Home Health	
Goal Summary	Home health agencies may be able to assist hospitals in reducing potentially avoidable inpatient and ED utilization. For example, hospitals could collaborate with home health agencies to avoid unnecessary care by having home health staff remind patients to call the agency first for non-life threatening emergencies. In addition, it is important to monitor admissions from home health agencies to identify potential quality of care/care coordination issues. Home Health Compare publicly reports the quality of care provided by Medicare-certified home health agencies, including measures on admission rates to acute inpatient hospitals and unplanned urgent visits to the ED for those receiving home health care. Measures of home health readmission included are: (1) the percent of home health patients who had to be admitted to the hospital and (2) the percent of home health patients who had an unplanned urgent visit to an ED.
Measurement Methodology	Data to estimate these measures were obtained from the CMS Home Health Compare website. They present the percentage of home health patients who had to be admitted to the hospital and the percentage who had an unplanned urgent visit to an ED. Additional information on Home Health Compare can be found at: http://www.medicare.gov/homehealthcompare/search.html.
Monitoring Results ***See below*** Table 8	▪ Between 2013 and 2017, the Maryland admission rate from home health agencies to hospitals decreased from 17 percent to 15.3 percent. The national admission rate decreased slightly from 16 percent to 15.8 percent from 2013 to 2017. ▪ Maryland home health patients' rate of unplanned urgent care visits to the ED rose from 11 percent in 2013 to 13 percent in 2017. The national rate also from 12 percent to 13 percent during the same time period.

Table 8. Hospital Utilization from Home Health Services, 2012-2017

Measures	Population	2012	2013	2014	2015	2016	2017
Admission rate from home health agencies to acute inpatient hospital	Maryland	17%	17%	16.4%	16.0%	16.3%	15.3%
	National	17%	16%	15.9%	16.2%	16.4%	15.8%
Unplanned urgent visits to the ED for patients receiving home health	Maryland	11%	11%	11.7%	12.4%	12.3%	13.0%
	National	12%	12%	12.2%	12.5%	12.7%	13.0%

Source: Home Health Compare.

3.1.14 Goal 14: Reduce Readmissions – Nursing Home

The goal of reducing readmissions among patients discharged to nursing homes is assessed by monitoring the current rates for patients discharged to a long-term care facility or skilled nursing facility.

Measure 14: Readmission Rate Among Patients Discharged to Nursing Home	
Goal Summary	Readmissions among patients discharged to a nursing home may be high, due in part to the medical complexity of these patients; many nursing home patients are elderly and have multiple chronic conditions and physical limitations. In addition to their medical complexity, however, readmissions may increase due to hospital complications that develop post-discharge, deficiencies in quality of care, or patients being discharged from the hospital earlier than recommended by best practices. Coordination between the hospital and nursing home prior to and after discharge or transfer should reduce potentially avoidable readmissions.
Measurement Methodology	Percent Readmissions: **Numerator:** The number of All-Payer inpatient hospital stays where the patient was discharged to a nursing home but was readmitted to any hospital within 30 days of the initial hospital discharge date. **Denominator:** The total number of hospital discharges that have a nursing home or skilled nursing facility as discharge disposition. **Note:** These data are not case-mix adjusted. **Data Source:** HSCRC inpatient discharge abstract data with CRISP unique patient enterprise identifiers (EIDs) for 2012-2017.
Monitoring Results ***See below***	There was a steady decline in readmissions from nursing homes from 2012 to 2016 (11.46% reduction). However, there was a slight increase in readmissions from SNFs between 2016 and 2017 (1.52% increase). When compared to the 2013 base year of the All-Payer Model, the 2017 readmission rate for inpatient discharges to nursing homes decreased by 10.12 percent. The observed reduction in

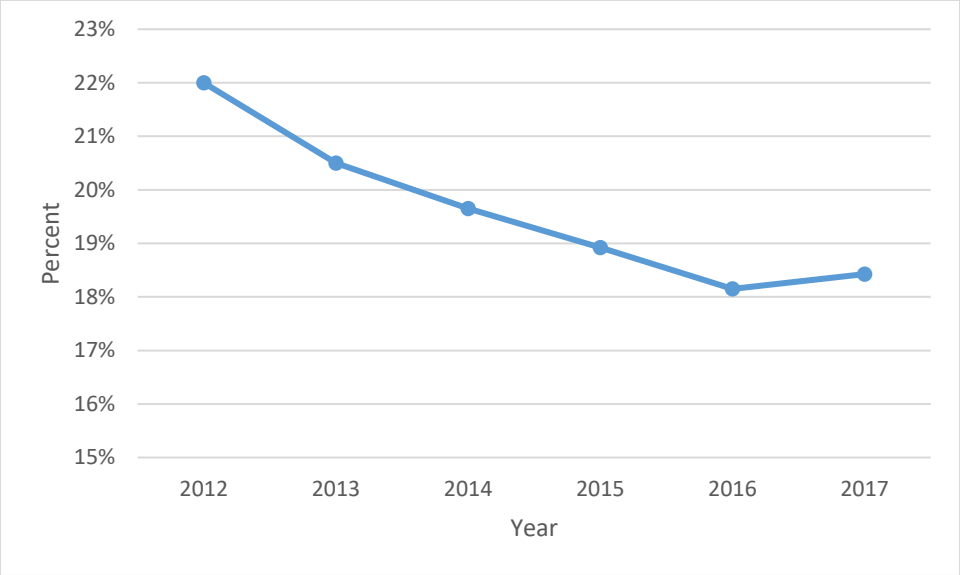
Table 9 Figure 4	readmissions may be partially attributable to an enhanced level of care coordination between Maryland hospitals and nursing facilities.

Table 9. Readmission Rates from Nursing Homes, 2012-2017

Measures	Population	2012	2013	2014	2015	2016	2017
Readmission rates for inpatient discharges to nursing homes	Maryland	22.00%	20.50%	19.65%	18.92%	18.15%	18.43%

Source: Analysis of HSCRC IP Data.

Figure 4. Hospital Readmissions among Patients Discharged to a Nursing Facility, 2012-2017



Source: HSCRC IP discharge abstract data, 2012-2017.

3.1.15 Goal 15: Reduce Readmissions – Hospital

This report evaluates hospital readmissions in two statewide measures and five condition-specific measures, including (A) 30-day all-hospital, all-cause readmission rates; (B) readmissions per 1,000 Maryland residents; (C) heart failure readmission rates; (D) pneumonia readmission rates; (E) acute myocardial infarction readmission rate; (F) chronic obstructive pulmonary disease readmission rates; and (G) hip/total knee arthroplasty readmission rates.

Goal 15. 30-Day All Cause and Condition-Specific Hospital Readmissions

Goal Summary	Hospital readmissions rates for Medicare beneficiaries are higher in Maryland than in the rest of the nation. The new All-Payer Model is required to reduce Medicare readmissions in Maryland to at or below the national rate by 2018. The costs of 30-day readmissions at the receiving hospital are also included in the HSCRC measure of potentially avoidable utilization, which is used to adjust global budgets. The HSCRC has a Readmission/Potentially Avoidable Utilization Savings program and a Readmission Reduction Incentive program designed to incentivize hospitals to invest resources to reduce readmissions. In addition to the case-mix adjusted all-payer measures reported below, CMS provides the HSCRC with the unadjusted Medicare-specific readmission rate for Maryland that includes readmissions that occur outside of the state. Based on CMMI data from 2017, the state has closed the 2013 gap in the Medicare FFS readmission rates compared to the nation and anticipates achieving the waiver test. Reducing readmissions is an important quality improvement goal under the All-Payer Model, and as such, we measure and monitor our progress under several different payer sources and with slightly different measure definitions and adjustments.
Measurement Methodology	**Case-Mix Adjusted 30-Day All-Cause Readmission** = (Number of Observed Readmissions within 30 days of discharge ÷ Number of Expected Readmissions) x Statewide Unadjusted Readmission Rate in base period. Expected readmissions are estimated by applying the statewide rates by APR-DRG and severity of illness category to each hospital's discharges. **Readmissions per 1,000 Maryland Residents** = (Number of 30-Day Readmissions ÷ Total Maryland Resident Population) x 1,000. **Condition Specific Readmission Rates** = (Number of 30-Day Readmissions for Selected Condition ÷ Number of Condition Specific Discharges Eligible for a Readmission) x 100. Condition-specific readmission rates are unadjusted. Rates correspond to the following conditions: ○ Heart Failure (HF) ○ Acute Myocardial Infarction (AMI) ○ Pneumonia (PNA) ○ Chronic Obstructive Pulmonary Disease (COPD) ○ Hip/Total Knee Arthroplasty (THA/TKA)

	Note: The condition-specific readmission rates reflect full CY2012-2017 data. Data under ICD-10 (October 2015 – Present) use diagnosis and procedure codes from the 2018 CMS condition-specific readmission measures and may not match previously submitted data. Furthermore, these rates may not match results calculated by a separate entity, as they are calculated using HSCRC all-payer data, are not risk-adjusted, and HSCRC interpreted the CMS measurement specifications to approximate these rates. Last, numbers for condition specific readmissions trended over ICD-9 and ICD-10 should be interpreted with caution. **Data:** Population estimates for 2012-2017, which were used in estimating readmissions per 1,000 population, were obtained from the Maryland Department of Planning.
Monitoring Results ***See below*** Table 10	▪ The Maryland 30-day case-mix adjusted, all-cause readmission rate fell from 12.93 percent in 2013 to 11.54 percent in 2016, a reduction of 10.74 percent. Under the latest logic, the readmission rate in 2016 is 11.72% and fell to 11.65% in 2017, which is a compounded reduction of 11.36% since 2013. ▪ Readmissions per 1,000 Maryland residents fell by 17.08 percent from 11.74 per thousand in 2013 to 9.73 per thousand in 2016. Using the latest logic, the readmissions per 1,000 Maryland residents in 2016 is 9.68, and fell to 9.63 in 2017, a compounded 17.50 percent reduction since 2013. ▪ Between 2013 and 2017, readmission rates for all the specific conditions decreased: heart failure by 6.15 percent; pneumonia by 0.51 percent; AMI by 9.54 percent; COPD by 4.81 percent; and Hip/Knee arthroplasty by 27.45 percent.

Table 10. Readmission Rates, including Condition-Specific Readmission Rates, 2012-2017

Measures	Population	2012	2013	2014	2015	2016 (RY2018)	2016 (RY2019)	2017	Compounded Cumulative Readmission Rate Change
30-day all-hospital, all-cause readmission	Maryland	12.49%	12.93%	12.43%	12.02%	11.54%	11.72%	11.65%	
	Change from 2013			-3.90%	-7.07%	-10.79%		-0.64%	-11.36%
Readmissions per 1,000 Maryland residents	Maryland	12.65	11.74	10.84	10.24	9.73	9.68	9.63	
	Change from 2013			-7.68%	-12.72%	-17.08%		-0.50%	-17.50%

Measures	Population	2012	2013	2014	2015	2016	2017
Heart failure readmission rate	Maryland	24.70%	23.12%	22.68%	22.14%	20.82%	21.69%
	Change from 2013			-1.90%	-4.22%	-9.92%	-6.15%
Acute myocardial infarction readmission rate	Maryland	13.42%	13.04%	12.06%	11.98%	11.94%	11.80%
	Change from 2013			-7.57%	-8.19%	-8.44%	-9.54%
Pneumonia readmission rate	Maryland	15.29%	14.37%	14.31%	13.72%	14.23%	14.29%
	Change from 2013			-0.40%	-4.47%	-0.95%	-0.51%
Chronic obstructive pulmonary disease readmission rate	Maryland	21.62%	20.76%	20.32%	19.78%	19.79%	19.76%
	Change from 2013			-2.10%	-4.69%	-4.65%	-4.81%
Hip/total knee arthroplasty readmission rate	Maryland	4.26%	3.80%	3.38%	3.08%	3.06%	2.76%
	Change from 2013			-11.12%	-18.98%	-19.54%	-27.45%

Source: Derived from HSCRC Inpatient Discharge Abstract Data, 2012-2017.

3.2 Population Health

Maryland believes that an all-payer model that is accountable for the total cost of care can establish incentives that improve population health outcomes and reduce health disparities. As broad population health measures, progress will take time, long-term investment, and commitment to achieve results.

As stated in Section 2, this transition report does not include population health measures. For population health measures reported under the first three years of the All-Payer Model, please see the Annual Monitoring Report submitted on January 13, 2018, or the interim report submitted on August 16, 2018. The HSCRC intends to present more meaningful population health measures and data as specified in Appendix D of the TCOC Model State Agreement.

3.3 Costs and Efficiency

Maryland believes that an all-payer model accountable for the total cost of care can control the growth in health care expenditures at a reasonable level. The goal is to achieve meaningful savings for all payers, including to Medicare, Medicaid, and the Children's Health Insurance Program (CHIP).

3.3.2 Goal 25: Control Expenditure Growth – Hospitals

This report evaluates hospital expenditure growth by tracking per-capita Maryland hospital charges in five payer categories: (A) all-payer Maryland hospital charges, (B) Medicare Maryland hospital charges, (C) Medicaid Maryland hospital charges, (D) private payer Maryland hospital charges, and (E) dually eligible Maryland hospital charges.

Measure 25. Hospital Per Capita Total Charges	
Goal Summary	Controlling hospital expenditure growth is one of the primary metrics on which the Maryland All-Payer Model is to be assessed. Data on hospital expenditure growth are available across all payers, as well as for Medicare FFS (including dually eligible), Medicaid (including dually eligible), Medicare/Medicaid dually eligible separately, and for those with private insurance only. The data for each category captures in-state spending on Maryland residents.
Measurement Methodology	All-Payer Maryland Hospital Per Capita Charges for Maryland Residents: (Total inpatient and outpatient charges for all Maryland residents) ÷ (Total population in the state of Maryland) Medicare Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Inpatient expenditures for Medicare beneficiaries with Part A ÷ Maryland Part A Beneficiaries) + (Outpatient expenditures for Medicare beneficiaries with Part B ÷ Maryland Part B Beneficiaries) Medicaid Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Total fee-for-service and managed care expenditures for Maryland Medicaid recipients) ÷ (Total number of Medicaid beneficiaries with at least one day of enrollment) Medicare/Medicaid Dually Eligible Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Total inpatient and outpatient hospital expenditures for dual eligible beneficiaries) ÷ (Number of Maryland residents with dual eligibility status) Private Payer Maryland Hospital Per Beneficiary Charges for Maryland Residents*:* (Total inpatient and outpatient costs for private payer Maryland beneficiaries) ÷ (Total estimated private payer beneficiaries) **Data Sources:**

	Hospital Expenditures: HSCRC Financial Data (All-Payer and Medicare) and Inpatient and Outpatient Abstract Data (Medicaid, Commercial and Dual). **Population Estimates**: All-Payer (Maryland Dept. of Planning), Medicare (CMS), Medicaid and Dual Eligible (Maryland Medicaid eHealth Statistics), Private Payer (State Health Access Data Assistance Center (SHADAC)
Monitoring Results ***See below*** Table 11	▪ Between 2013 and 2017, all-payer per capita hospital charges grew by 8.74 percent. ▪ Medicare per beneficiary hospital charges increased by almost 3 percent between 2013 and 2017, from $6,979 to $7,183. ▪ During the same time period, per beneficiary hospital charges increased for Medicaid by 6.70 percent. ▪ Between 2013 and 2017, per beneficiary hospital charge for Medicare/Medicaid dually eligible beneficiaries increased by 8.35 percent. ▪ Per beneficiary hospital charges for private payers decreased 2.41 percent between 2013 and 2016. The per beneficiary hospital charge for 2017 are not yet available, as an estimated number of private payer beneficiaries has not yet been released.

Table 11. Total Maryland Hospital per Capita Charges (Inpatient and Outpatient) and Growth, by Payer, Maryland, 2013-2017

Measures		2013	2014	2015	2016	2017
All-payer per capita Maryland Hospital charges for MD residents	Charges ($)	2,372	2,416	2,472	2,491[8]	2,579
	Change from 2013 (%)		1.86%	4.22%	5.02%	8.74%
Medicare FFS Maryland hospital per beneficiary charges for MD Medicare Beneficiaries	Charges ($)	6,979	6,980	7,071	7,017[9]	7,183
	Change from 2013 (%)		0.00%	1.31%	0.03%	2.92%
	Charges ($)	2,069	2,126	2,099	2,156	2,208

[8] For 2016, hospitals undercharged their global budget revenues in the second half of CY 2016. The all payer per capita figure reflects an adjustment to all payer hospital charges of approximately $75.5m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016.

[9] The Medicare FFS inpatient figure reflects an adjustment to hospital Medicare FFS charges of approximately $18.5 million to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. The Medicare FFS outpatient figure reflects an adjustment to hospital Medicare FFS charges of approximately $10.1 million to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016.

Medicaid Maryland hospital per beneficiary charges for MD Medicaid Beneficiaries (includes Medicaid Expansion beneficiaries)[10]	Change from 2013 (%)		2.73%	1.44%	4.17%	6.70%
Medicare/Medicaid dually eligible Maryland per beneficiary hospital charges for MD Dual Beneficiaries[3]	Charges ($)	7,280	7,156	7,349	7,399	7,888
	Change from 2013 (%)		-1.70%	0.95%	1.64%	8.35%
Private payer Maryland hospital per beneficiary charges for MD Privately insured residents	Charges ($)	1,288	1,266	1,264	1,257	
	Change from 2013 (%)		-1.71%	-1.94%	-2.41%	

3.3.2 Goal 25a: Control Expenditure Growth – Specialty Hospitals

This report also evaluates specialty hospital expenditure growth by tracking per-capita Maryland specialty hospital charges in three payer categories, including (A) all-payer Maryland specialty hospital charges, (B) Medicare FF Maryland specialty hospital charges, and (C) Medicaid Maryland specialty hospital charges.

Goal 25a. Specialty Hospitals Per Capita Total Charges	
Goal Summary	Maryland is required to monitor expenditure growth for hospitals where the HSCRC regulates the non-governmental payer rates, such as for specialty care hospitals. Data on specialty care hospital expenditure growth are available across all payers, as well as for Medicaid (including dually eligible) and Medicare FFS (including dually eligible). The data for each category capture in-state spending on Maryland residents.
Measurement Methodology	All-Payer Maryland Specialty Hospital Per Capita Charges for Maryland Residents: (Total inpatient and outpatient specialty hospital charges for all Maryland residents) ÷ (Total Maryland resident population). Medicare Maryland Specialty Hospital Per Beneficiary Charges for Maryland Residents*:* (Inpatient per capita specialty charges for Medicare beneficiaries with Part A) + (Outpatient per capita specialty charges for Medicare beneficiaries with Part B). Medicaid Maryland Specialty Hospital Per Beneficiary Charges for Maryland Residents: (Total FFS and managed care specialty charges for Maryland Medicaid recipients) ÷ (Total average Medicaid annual enrollment). **Data Sources:**

[10] The enrollment data for MD Medicaid and Medicare/Medicaid dually eligible excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services. Dually eligible beneficiaries are included in the calculation for Maryland Medicaid beneficiaries and dually eligible beneficiaries. The Medicaid Expansion was implemented in 2014; 2013 figures include the enrollees of the limited-benefit Primary Adult Care program.

	Hospital Charges: HSCRC Financial Data (all-payer and Medicare FFS) and Inpatient and Outpatient Abstract data (Medicaid); **Population Estimates:** All-Payer (Maryland Dept. of Planning), Medicare (CMS), and Medicaid (Maryland Medicaid).
Monitoring Results ***See below*** Table 12	▪ Maryland all-payer specialty per capita charges decreased from $59.86 in 2013 to $58.68 in 2017, a decline of 1.98 percent. ▪ Medicare per beneficiary specialty hospital charges also decreased by 38.99% percent between 2013 and 2017, from $162.62 to $99.21. ▪ Medicaid per beneficiary charges also declined from $90.11 to $75.22 from 2013 to 2017, a decrease of 16.52 percent.

Table 12. Specialty Hospital per Capita Charges and Growth, by Payer, Maryland, 2013-2017[11]

Measures		2013	2014	2015	2016	2017
All-payer Maryland specialty hospital per capita total charges for MD residents	Charges	$59.86	$52.96	$54.79	$57.36	$58.68
	% Change since 2013		-11.53%	-8.47%	-4.17%	-1.98%
Medicare Maryland specialty hospital per beneficiary total charges for MD residents	Charges	162.62	109.92	110.39	100.57	99.21
	% Change since 2013		-32.41%	-32.12%	-13.91%	-38.99%
Medicaid Maryland specialty hospital per beneficiary total charges for MD residents[12]	Charges	90.11	82.88	67.21	77.68	75.22
	% Change since 2013		-8.02%	-25.42%	-13.80%	-16.52%

3.3.3 Goal 26: Control Expenditure Growth – All Health Services

This report evaluates the expenditure growth of all health services by tracking per-capita Maryland health services charges in five payer categories: (A) All-payer total expenditures, (B) Medicare total expenditures, (C) Medicaid total expenditures, (D) Dually Eligible Medicaid-only total expenditures, and (E) Private payer Maryland total expenditures.

Measure 26: Per Capita Total Expenditures for All Health Services	
Goal Summary	Total health expenditure growth is used to monitor potential shifting of costs between categories of health services under the new model agreement.

[11] Specialty hospital charges in 2013 includes Levindale. Beginning in 2014, Levindale became an acute facility and was excluded from the specialty hospital charges.

[12] The enrollment data for MD Medicaid and Medicare/Medicaid Dually eligible excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services.

Measurement Methodology	All-payer Per Capita Health Expenditures: (Total health care expenditures for all Maryland residents) ÷ (Total Maryland resident population) This data is currently not available. Separate estimates are generated for the following populations: Medicare Per Beneficiary Health Expenditures: The sum of inpatient per capita expenditures for Medicare beneficiaries with Part A and outpatient per capita expenditures for Medicare beneficiaries with Part B Medicaid Per Beneficiary Health Expenditures: (Total fee-for-service and managed care expenditures for Maryland Medicaid recipients) ÷ (Total number of Medicaid beneficiaries with at least one day of enrollment)) Dually Eligible Medicaid/Medicare per Beneficiary Health Expenditures: (Total Medicaid costs for dually eligible beneficiaries) ÷ (Total number of Dually eligible Maryland beneficiaries) Private Payer per Beneficiary Health Expenditures: (Total Costs for private payer Maryland residents) ÷ (Total member insured months) , annualized to reflect a 12 month period) **Data Sources:** **Health Expenditures:** Medicare (CMS Financial Reports), Medicaid and Dual-Eligible (Maryland Medicaid), Private Payer (MHCC All-Payer Claims Database); **Population Estimates**: Medicare (CMS); Medicaid and Dual-Eligible (Maryland Medicaid); Private Payer (MHCC All-Payer Claims Database).
Monitoring Results ***See below*** Table 13	▪ Maryland Medicare per capita health expenditures increased by 4.89 percent between 2013 and 2017, compared to an increase of 6.25 percent for the U.S. ▪ Total Maryland Medicaid per beneficiary health expenditure increased by 3.56% between 2013 and 2015. Health expenditure data for 2016 and 2017 are not yet available. ▪ Conversely, Medicare/Medicaid dually eligible health expenditures per beneficiary has declined by 4.82%, from $14,572 to $13,870. ▪ Per beneficiary health expenditures for private payer beneficiaries increased from 3,132 in 2013 to 3,504 in 2016 – an 11.88% increase.

Table 13. Per Capita Annual Health Expenditures by Payer, 2013-2017

Measures	Population	2013	2014	2015	2016	2017
	Maryland ($)	11,142	11,079	11,337	11,351[13]	11,687

[13]The CY 2016 Medicare FFS Part A expenditures reflect an adjustment of approximately $17.2m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted inpatient charges

Medicare per beneficiary health expenditure	MD change from 2013 (%)		-0.56%	1.75%	1.60%	4.89%
	National ($)	9,540	9,640	9,832	9,917	10,136
	National change from 2013 (%)		1.05%	3.06%	3.95%	6.25%
Medicaid per beneficiary health expenditure (includes dually eligible) [14]	Maryland ($)	5,937	5,974	6,149		
	MD change from 2013 (%)		0.61%	3.56%		
Medicare/Medicaid dually eligible per beneficiary health expenditure (Medicaid expenditures only) [15]	Maryland	14,572	14,169	13,870		
	MD change from 2013 (%)		-2.77%	-4.82%		
Private payer per beneficiary health expenditure	Maryland ($)	3,132	3,240	3,444	3,504	
	MD change from 2013 (%)		3.45%	9.96%	11.88%	

4.0 Conclusions

The All-Payer Model encouraged collaboration among hospitals and non-hospital providers to increase patient satisfaction, improve health outcomes and population health, and slow growth in healthcare spending. Although more incremental, progress on broader population health will accelerate alongside the transition from the All-Payer Model to the TCOC Model, as it broadens stakeholder engagement in improving quality outcomes and containing the growth of the total cost of care.

are $6.626 billion. The CY 2016 Medicare FFS Part B expenditures reflects an adjustment of approximately $7.7m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted outpatient charges are $4.407 billion.

[14] Please note that this row represents total Medicaid enrollment, including those eligible for both full and partial benefits.

[15] These numbers reflect the Medicaid-only portion of expenditures for services for the dually eligible. This includes individuals for which Medicaid pays the Part B premiums only. Medicaid expenditures reflect payments for services only and do not include premiums.

Appendix A: Summary Results for All Goals and Measures, Maryland 2011-2017 (including Numerators and Denominators Used to Estimate Measures, as appropriate)

Goal 1									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Patient's rating of hospital: Percentage of survey respondents reporting a 9 or 10 (10 being best)	Maryland		64%	65%	64%	65%	65%	65%	67%
	National		69%	70%	71%	71%	72%	73%	73%
Communication with doctors: Percentage of survey respondents reporting "always" on three questions (composite measure)	Maryland		78%	78%	77%	78%	78%	77%	78%
	National		81%	81%	82%	82%	82%	82%	82%
Communication with nurses: Percentage of survey respondents reporting "always" on six questions (composite measure)	Maryland		74%	75%	75%	76%	76%	75%	76%
	National		78%	78%	79%	79%	80%	80%	80%

Goal 2									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Patient's rating of home health agency: percentage of survey respondents reporting a 9 or 10 (10 being the best)	Maryland		83%	83%	82%	82%	83%	81%	82%
	National		84%	84%	84%	84%	84%	84%	84%
Communication with home health team: percentage of survey respondents reporting "always" on six questions	Maryland		86%	86%	85%	85%	85%	85%	85%
	National		85%	85%	85%	85%	85%	85%	85%

Goal 5									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Three Item Care Transition Measure - Strongly Agree	Maryland					48%	48%	47%	49%
	National					52%	52%	52%	53%

Goal 7									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Rate of Physician Follow-up after discharge	Maryland Medicare	Discharges with Visits within 14 Days			113,674	107,953	109,687	110,263	108,139
		Eligible Discharges			169,306	166,080	165,025	161,603	156,273
		Percent with Follow-up After Discharge			67%	65%	66%	68%	69%
	National 5% Medicare Sample of the CCW	Discharges with Visits within 14 Days			283,238	270,485	273,273	279,243	280,724
		Eligible Discharges			434,510	421,579	421,624	419,839	419,161
		Percent with Follow-up After Discharge			65%	64%	65%	67%	67%
Discharges with Principal Provider Notified, Any Provider	Maryland	Discharges with Notification			63,207	228,568	293,113	331,816	380,311
		Total Discharges			609,853	647,229	629,672	621,604	611,959
		Rate of Notification			10.36%	35.31%	46.55%	53.38%	62.15%
Discharges with Principal Provider Notified, Ambulatory Care Provider	Maryland	Discharges with Notification			43,099	100,154	187,277	259,750	317,729
		Total Discharges			609,853	647,229	629,672	621,604	611,959
		Rate of Notification			7.07%	15.47%	29.74%	41.79%	51.92%

Goal 12

Measures	Population	2011	2012	2013	2014	2015	2016
Central-line Acquired Bloodstream Infection (CLABSI) Standardized Infection Ratio (1=National Average)	Maryland	0.750	0.532	0.474	0.492	0.566	
	National	1	1	1	1	1	
Central-line Acquired Bloodstream Infection (CLABSI) Standardized Infection Ratio (1=National Average) Re-Based	Maryland					1.15	1.125
	National					1	1

Goal 12 (Continued)

Measures	Population		2011	2012	2013	2014	2015	2016 (RY2018)	2016 (RY2019)	2017
Potentially Preventable Complications Rate per 1,000 discharges (by-Payer PPCs)	Maryland All-Payer	Total Number of Observed PPCs			20,597	14,944	12,992	11,356	10,774	9,482
		Number at-risk Discharges			22,310,634	21,236,295	20,402,945	20,210,813	19,831,893	19,408,501
		PPCs per 1,000 at-risk Discharges			0.92	0.70	0.64	0.56	0.54	0.49
Potentially Preventable Complications Rate per 1,000 discharges (by-Payer PPCs)	Maryland Medicare FFS	Total Number of Observed PPCs			11,529	8,171	7,318	6,128	6,050	5,309
		Number at-risk Discharges			8,552,500	8,240,316	8,025,624	7,868,200	7,801,003	7,526,311
		PPCs per 1,000 at-risk Discharges			1.35	0.99	0.91	0.78	0.78	0.71
Potentially Preventable Complications Rate per 1,000 discharges (by Payer PPCs)	Maryland Medicaid	Total Number of Observed PPCs			2,229	2,010	1,749	1,650	1,502	1,370
		Number at-risk Discharges			3,978,778	4,679,600	4,568,289	4,543,790	4,441,547	4,510,517

		PPCs per 1,000 at-risk Discharges			0.56	0.43	0.38	0.36	0.34	0.30
Casemix-Adjusted PPC Rate	Maryland All-Payer				1.00	0.74	0.65	0.55	0.59	0.51
	Maryland Medicare FFS				1.14	0.83	0.73	0.60	0.66	0.57
	Maryland Medicaid				0.90	0.66	0.57	0.50	0.63	0.46

Goal 13

Measures	Population	2011	2012	2013	2014	2015	2016	2017
Admission rate from home health agencies to acute inpatient hospital	Maryland		17%	17%	16.4%	16.0%	16.3%	15.3%
	National		17%	16%	15.9%	16.2%	16.4%	15.8%
Unplanned urgent visits to the ED for patients receiving home health	Maryland		11%	11%	11.7%	12.4%	12.3%	13.0%
	National		12%	12%	12.2%	12.5%	12.7%	13.0%

Goal 14

Measures	Population		2011	2012	2013	2014	2015	2016	2017
Readmission rates for inpatient discharges to nursing homes	Maryland	Readmissions		9,969	9,523	8,880	9,611	8,930	9,474
		Eligible Discharges		45,310	46,464	45,194	50,806	49,197	51,418
		Readmission Rate		22.00%	20.50%	19.65%	18.92%	18.15%	18.43%

Goal 15

Measures	Population		2011	2012	2013	2014	2015	2016 (RY2018)	2016 (RY2019)	2017

30-day All-Hospital, All-Cause readmission (Case-mix Adjusted)	Maryland	Readmissions		74,518	69,640	64,701	61,474	58,643	58,341	58,311
		Expected Readmissions		77,132	69,627	67,315	66,140	65,723	58,628	58,977
		Readmission Rate		12.49%	12.93%	12.43%	12.02%	11.54%	11.72%	11.65%
Readmissions per 1,000 Maryland residents	Maryland	Readmissions		74,518	69,640	64,701	61,474	58,643	58,341	58,311
		Population		5,891,680	5,932,654	5,970,245	6,000,561	6,024,752	6,024,752	6,052,177
		Readmission Rate		12.65	11.74	10.84	10.24	9.73	9.68	9.63

Goal 15 (continued)

Measures	Population		2011	2012	2013	2014	2015	2016	2017
Heart failure readmission rate	Maryland	Readmissions		4,333	3,949	3,926	4,039	3,747	3,900
		Eligible Discharges		17,544	17,084	17,314	18,244	17,996	17,978
		Readmission Rate		24.70%	23.12%	22.68%	22.14%	20.82%	21.69%
Acute myocardial infarction readmission rate	Maryland	Readmissions		1,059	1,003	959	1,004	969	975
		Eligible Discharges		7,890	7,689	7,954	8,383	8,113	8,263
		Readmission Rate		13.42%	13.04%	12.06%	11.98%	11.94%	11.80%
Pneumonia readmission rate	Maryland	Readmissions		2,323	2,096	2,004	2,128	3,023	2,669
		Eligible Discharges		15,194	14,589	14,004	15,505	21,243	18,672
		Readmission Rate		15.29%	14.37%	14.31%	13.72%	14.23%	14.29%
	Maryland	Readmissions		3,486	3,265	2,957	2,841	2,835	3,308
		Eligible Discharges		16,122	15,731	14,552	14,362	14,325	16,743

Chronic obstructive pulmonary disease readmission rate		Readmission Rate		21.62%	20.76%	20.32%	19.78%	19.79%	19.76%
Hip/total knee arthroplasty readmission rate	Maryland	Readmissions		664	608	576	548	570	517
		Eligible Discharges		15,601	15,986	17,040	17,783	18,627	18,737
		Readmission Rate		4.25%	3.80%	3.38%	3.08%	3.06%	2.76%

Goal 25

Measures	Population		2011	2012	2013	2014	2015	2016	2017
All-payer Maryland Hospital per capita total charges for MD residents	Maryland	Total Hospital Charges ($)			14,070,827,137	14,423,877,798	14,831,869,496	15,006,289,824[16]	15,609,318,168
		Population			5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Per capita charges ($)			2,372	2,416	2,472	2,491	2,579
		% Change from 2013				1.86%	4.22%	5.02%	8.74%
Medicare FFS Maryland hospital per capita total charges per Beneficiary		Total Inpatient Charges ($)			3,577,606,896	3,644,282,856	3,738,655,187	3,722,621,740[17]	3,811,938,681
		Part A Beneficiaries			792,589	818,030	843,204	857,336	866,356
		Part A Per capita charges ($)			4,514	4,455	4,434	4,342	4,400
		Total Outpatient Charges ($)			1,704,310,983	1,800,667,592	1,938,206,962	1,989,608,507[18]	2,078,424,354

[16] This CY 2016 all payer number reflects an adjustment of approximately $75.5m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $14.93 billion.

[17] This CY 2016 Medicare FFS inpatient number reflects an adjustment of approximately $18.5m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $3.704 billion.

[18] This CY 2016 Medicare FFS outpatient number reflects an adjustment of approximately $10.1m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $1.979 billion.

Goal 25									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
		Part B Beneficiaries			691,255	713,229	734,983	743,868	746,712
		Part B Per capita charges ($)			2,466	2,525	2,637	2,675	2,783
		Total Hospital Per capita charges ($)			6,979	6,980	7,071	7,017	7,183
		% Change from 2013				0.00%	1.31%	0.03%	2.92%
Medicaid Maryland hospital per capita total charges per Beneficiary[19]	Maryland	Total Charges ($)			2,595,383,354	3,158,443,053	3,255,818,344	3,276,406,945	3,489,724,898
		Total Enrollees			1,254,123	1,485,688	1,550,967	1,519,812	1,580,403
		Per capita charges ($)			2,069	2,126	2,099	2,156	2,208
		% Change from 2013				2.73%	1.44%	4.17%	6.70%
Medicare/Medicaid dual eligible Maryland hospital per capita total charges per Beneficiary	Maryland	Total Charges ($)			1,047,382,694	1,099,859,606	1,179,437,379	1,216,794,880	1,327,513,600
		Total Enrollees			143,874	153,695	160,482	164,450	168,300
		Per capita charges ($)			7,280	7,156	7,349	7,399	7,888
		% Change from 2013				-1.70%	0.95%	1.64%	8.35%
Private Payer (SHADAC)	Maryland	Total Charges ($)			4,844,844,194	4,778,551,032	4,853,940,314	4,835,010,444	
		Total Enrollees			3,762,456	3,775,719	3,841,538	3,847,557	
		Per capita charges ($)			1,288	1,266	1,264	1,257	
		% Change from 2013				-1.71%	-1.87%	-2.41%	

[19] Medicaid and Dual Enrollment excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services

Goal 25a									
Measures	Population		2011	2012	2013[20]	2014[21]	2015	2016	2017
All-payer Maryland specialty hospital total charges per capita for MD residents	Maryland	Total Charges ($)			355,140,844	316,174,501	328,786,950	345,598,234	355,130,840
		Population			5,932,654	5,970,245	6,000,561	6,024,752	6,052,177
		Per capita charges ($)			59.86	52.96	54.79	57.36	58.68
		% Change from 2013				-11.53%	-8.47%	-4.17%	-1.98%
Medicare Maryland specialty hospital total charges per beneficiary for MD Medicare Beneficiaries	Maryland	Total Inpatient Charges ($)			119,603,089	83,078,192	84,948,145	77,592,830	77,217,351
		Part A Beneficiaries			792,589	818,030	843,204	857,336	866,356
		Inpatient Per capita charges ($)			150.90	101.56	100.74	90.50	89.13
		Total Outpatient Charges ($)			8,101,643	5,961,383	7,085,633	7,483,637	7,529,162
		Part B Beneficiaries			691,255	713,229	734,983	743,868	746,712
		Outpatient Per capita charges ($)			11.72	8.36	9.64	10.06	10.08
		Total Hospital Per capita charges ($)			162.62	109.92	110.39	100.57	99.21
		% Change from 2013				-32.41%	-32.12%	-13.80%	-38.99%
	Maryland	Total Charges ($)			113,012,939	123,136,211	104,238,495	118,053,890	118,883,520

[20] Specialty hospital charges in 2013 include Levindale.

[21] Beginning in 2014, Levindale became an acute facility and was excluded from the specialty hospital charges.

Medicaid Maryland specialty hospital total charges per beneficiary for MD Medicaid Beneficiaries[22]		Total Enrollees			1,254,123	1,485,688	1,550,967	1,519,812	1,580,403
		Per capita charges ($)			90.11	82.88	67.21	77.68	75.22
		% Change from 2013				-8.02%	-25.42%	-13.80%	-16.52%

Goal 26

Measures	Population		2011	2012	2013	2014	2015	2016	2017
All-payer per capita total expenditure	Maryland	Expenditures ($)							
		Population							
		Per capita expenditures ($)							
		% Change from 2013							
Medicare per capita total expenditure	Maryland	Total Part A Expenditures ($)			4,419,176,140	4,453,864,493	4,647,893,548	4,643,279,641[23]	4,760,107,623
		Part A Beneficiaries			792,589	818,030	843,204	857,336	866,356
		Part A Per capita expenditures ($)			5,576	5,445	5,512	5,416	5,494
		Total Part B Expenditures ($)			3,847,620,277	4,018,654,324	4,281,147,173	4,414,866,281[24]	4,624,152,783

[22] The enrollment data for MD Medicaid and Medicare/Medicaid Dually eligible excludes limited benefit coverage groups, such as individuals who are only eligible for family planning services.

[23] This CY 2016 Medicare FFS Part A expenditures reflect an adjustment of approximately $17.2m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $4.626 billion.

[24] This CY 2016 Medicare FFS Part B expenditures reflect an adjustment of approximately $7.7m to account for Maryland hospitals' undercharge of their Global Budgets which occurred from July -December 2016. Total unadjusted charges are $4.407 billion.

Goal 26									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
		Part B Beneficiaries			691,255	713,229	734,983	743,868	746,712
		Part B Per capita expenditures ($)			5,566	5,634	5,825	5,935	6,193
		Total Per capita expenditures ($)			11,142	11,079	11,337	11,351	11,687
		% Change from 2013				-0.56%	1.75%	1.60%	4.89%
	National	Total Part A Expenditures ($)			178,838,635,359	178,178,351,596	180,373,125,394	182,814,719,396	183,888,260,472
		Part A Beneficiaries			36,435,042	36,595,134	36,808,487	37,408,582	37,439,857
		Part A Per capita expenditures ($)			4,908	4,869	4,900	4,887	4,912
		Total Part B Expenditures ($)			152,511,071,263	157,348,954,987	163,143,031,967	168,597,171,080	174,312,716,496
		Part B Beneficiaries			32,927,792	32,978,847	33,080,477	33,520,460	33,362,852
		Part B Per capita expenditures ($)			4,632	4,771	4,932	5,030	5,225
		Total Per capita expenditures ($)			9,540	9,640	9,832	9,917	10,136
		% Change from 2013				1.05%	3.06%	3.95%	6.25%
	Maryland	Expenditures ($)			7,575,448,645	8,982,202,145	9,636,095,863		
		Yearly Average Total Member Months			1,275,913	1,503,627	1,567,154		

Goal 26									
Measures	Population		2011	2012	2013	2014	2015	2016	2017
Medicaid per capita total expenditure (includes Dually eligible)[25]		Per capita expenditures ($)			5,937	5,974	6,149		
		% Change from 2013				0.61%	3.56%		
Medicare/Medicaid dual eligibles per capita total expenditure (Medicaid expenditures only)[26]	Maryland	Expenditures ($)			2,055,772,516	2,118,602,765	2,151,976,525		
		Yearly Average Total Member Months			141,075	149,522	155,156		
		Per capita expenditures ($)			14,572	14,169	13,870		
		% Change from 2013				-2.77%	-4.82%		
Private Payer per capita total expenditure	Maryland	Expenditures ($)			7,760,817,042	7,753,726,521	7,817,319,646	7,878,377,510	
		Yearly Average Total Member Months			29,722,861	28,716,584	27,252,709	26,944,898	
		Per capita expenditures ($)			3,132	3,240	3,444	3,504	
		% Change from 2013				3.45%	9.96%	11.88%	

[25] Please note that this row represents total Medicaid enrollment, including those eligible for both full and partial benefits.

[26] These numbers reflect the Medicaid-only portion of expenditures for services for the dually eligible. This includes individuals for which Medicaid pays the Part B premiums only. Medicaid expenditures reflect payments for services only and do not include premiums

Appendix B: Measure Methodology – Supplemental Information

Goal 7. Enhance Care Transitions – Coordination with Primary Care

Follow-Up after Discharge

The measure of post-hospitalization follow-up visit within 14 days is calculated using specifications developed by Mathematica Policy Research (MPR), which are based upon a methodology provided by RTI International.

Post-discharge visits are included in the numerator if the following codes are listed on the carrier line or outpatient revenue files within 14 days of the discharge:

1) Current Procedural Terminology (CPT) codes (HCPCS_CD variable):
99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99315, 99316, 99318, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99339, 99340, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, 99411, 99442, 99443, 99374, 99375, 99376, 99377, 99378, 99379, 99380, 99495, 99496,

2) Revenue center codes 521 or 522 (Outpatient revenue file only- not applicable to Carrier Part B Line file)

Percent of Discharges with Any ENS Alert Sent to Provider

Numerator: Number of discharges for which an associated ENS alert (admission or discharge) is sent to at least one provider (notification provider types include: ambulatory, behavioral health, care coordinators, long-term care, payers, and other).
Denominator: Total number of discharges
Source: Data obtained from the CRISP ENS

Goal 12. Reduce High-Priority Complications

Central Line-associated Blood Stream Infections

Measure calculation: SIR of healthcare-associated CLABSIs calculated among patients in the ICU.

- Numerator: Total number of observed healthcare-associated CLABSI among patients in ICUs, NICUs, SCAs, and other acute care hospital locations where patients reside overnight.
- Denominator: Total number of expected CLABSIs, calculated by multiplying the number of central line device days for each location under surveillance for CLABSI during the period by the CLABSI rate for the same types of locations obtained from the standard population. Central line device day denominator data that are collected differ according to the location of the patients being monitored.

An SIR greater than 1.0 means that more healthcare-associated infections were observed in a facility or state than predicted, and a SIR less than 1.0 means there were fewer healthcare-associated infections observed than predicted.

Goal 13. Readmissions from Home Health

Home Health Population in these measures excludes:

- Pediatric home health patients.
- Home health patients receiving maternity care only.
- Home health clients receiving non-skilled care only.
- Home health patients for whom the payment source is neither Medicare nor Medicaid.
- Medicare beneficiaries enrolled in a Part C (Medicare Advantage) plan.
- Medicaid beneficiaries who are not also enrolled in Medicare.

Measure Calculation: Percent of home health patients who had to be admitted to the hospital:

Numerator: Number of home health episodes of care for which the assessment completed at the conclusion of the episode indicates the patient was admitted to a hospital for a reason other than a scheduled treatment or procedure.
Denominator: Number of home health episodes of care ending with a discharge or transfer to inpatient facility during the reporting period, other than those covered by generic or measure-specific exclusions.
Exclusions: Home health episodes of care that end in patient death.

Percent of home health patients who had an unplanned urgent visit to an ED:

Numerator: Number of home health episodes of care where Medicare claims indicate the patient required emergency medical treatment from a hospital emergency department during the first 60 days of home health care, but that the patient was not admitted to the hospital as an inpatient.

Denominator: Number of home health episodes of care beginning during the reporting period, other than those covered by generic or measure-specific exclusions.

Exclusions: 1) Home health stays for patients who are not continuously enrolled in fee-for-service Medicare for the 6 months before or 60 days after the start of the home health stay or until death; 2) Home health stays that begin with a Low Utilization Payment Adjustment (LUPA) claim; 3) Home health stays in which the patient receives service from multiple agencies during the first 60 days.

Source: https://data.medicare.gov/data/archives/home-health-compare
NOTE: These data present Calendar Year data for the specified years in the table. For more information, please see: https://www.medicare.gov/HomeHealthCompare/Data/Current-Data-Collection-Periods.html#.

Goal 14. Readmission Rate among Patients Discharged to a Nursing Home

Numerator: The number of All-Payer inpatient hospital stays where the patient was discharged to a nursing home, but was readmitted to the hospital within 30 days of the initial hospital discharge date.

Denominator: The total number of hospital discharges that have a nursing home or skilled nursing facility as discharge disposition.

Note: These data are not case-mix adjusted. Discharge disposition is self-reported by hospitals.

Data Source: HSCRC inpatient discharge abstract data with CRISP unique patient enterprise identifiers

(EIDs) for 2012-2016. Discharge disposition to a nursing home (code 71) is self-reported by hospitals.

Goal 15. Reduce Readmissions from Hospital

Condition-Specific Readmission Rates

NQF crosswalks for condition-specific readmission rates (all rates besides THA-TKA) were current as of October 18, 2016 and, per the NQF website, may be subject to revision.

Condition-specific readmission rates for THA-TKA are sourced from: http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1219069855273

Goal 26. Control Expenditure Growth – All Health Services

Per Capita Total Expenditures for Medicaid Enrollees

The Medicaid Total Cost of Care report consists of three main parts:

- **Enrollment**: Beneficiaries
- **Institutional Claims:** Claims submitted as Universal Billing (UB) forms
- **Professional Claims:** Claims submitted as CMS 1500 forms

Each part of the TCOC report is stratified by geography, market segment, and age categories. This stratification varies depending upon the submitting entity. The goal of this report is to classify every Maryland resident claim into exactly one of the TCOC categories with no duplication of claims and no splitting of claims.

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