Health Services Cost Review Commission
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May 15, 2018

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-101 State House
Annapolis, MD 21401-1991

The Honorable Michael E. Busch
Speaker of the House
H-107 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 - Health General Article §19-207(b)(9)

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

I am pleased to submit to you the seventh Monitoring of Maryland's All-Payer Model Biannual Report, prepared under Section 19-207(b)(9) of the Health-General Article of the Annotated Code of Maryland. This report discusses the State's progress during the period from January 1, 2017 through December 31, 2017, which encompasses through the fourth quarter of the fourth year of Maryland's agreement with the Centers for Medicare & Medicaid Services (CMS).

Effective January 1, 2014, the State of Maryland and CMS entered into an initiative to modernize Maryland's unique all-payer rate-setting system for hospital services. This All-Payer Model replaced Maryland's 36-year-old Medicare waiver and allows Maryland to adopt new and innovative policies aimed at reducing per capita hospital expenditures and improving patient health outcomes. More information on the Health Services Cost Review Commission ("HSCRC") and Maryland hospital activities can be found on the HSCRC's website: http://hscrc.maryland.gov/.

Please contact me if you have any questions about this report, or you may contact Katie Wunderlich at katie.wunderlich@maryland.gov.

Sincerely,

Donna Kinzer
Executive Director

Monitoring of Maryland's New All-Payer Model

Biannual Report

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

April 2018

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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 replaces 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, 2017.[1] The purpose of this report is to inform the Maryland General Assembly on the status of the Maryland All-Payer Model.

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 proposed Total Cost of Care Model.[2]

- **Inpatient and Outpatient Hospital Per Capita Cost Growth** – CMS requires 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, and 0.80[3] percent between CYs 2015 and 2016. Per capita revenue grew 3.54[4] percent between CY 2016 and CY 2017. Average per capita growth over the length of the Model is 2.03%, well below the 3.58% limit.
- **Aggregate Medicare Savings** – CMS requires Maryland to achieve an aggregate savings in Medicare spending that is greater than or equal to $330 million over the five years of the agreement. Per CMS's calculation, Maryland realized $120 million in savings in CY 2014, $155 million in CY 2015, and $311 million[5] in CY 2016. Maryland achieved $330 million in CY 2017, bringing cumulative savings throughout the life of the Model to $916 million.
- **Shifting from a Per-Case Rate System to a Global Budget** – CMS requires Maryland to shift at least 80 percent of hospital revenue to global or population-based budgets. Maryland exceeded this target and has shifted 100 percent of regulated hospital revenues to global budget structures.
- **Reducing the Readmission Rate among Medicare Beneficiaries** – Readmission rates continued to steadily decline over the course of the All-Payer Model. With most recent data through CY 2017, the Maryland Medicare FFS Readmission Rate is 0.19 percentage points *lower than* the National Medicare FFS Readmission Rate. The All-Payer Model agreement requires Maryland's hospital readmission rate for Medicare FFS beneficiaries to be at or below the national readmission rate by the end of 2018. Thus Maryland is

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[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 $312 million.

working to maintain this improvement, as well as to further achieve any additional improvement over the nation.

- **Reducing Hospital-Acquired Conditions (HACs)** – CMS requires 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).[6] Compounded with previous reductions in complications since CY 2013, the state of Maryland has achieved a 52.72 percent reduction in all-payer, case-mix adjusted PPC rates. The reduction in the case-mix adjusted complication rate for Medicare FFS was even higher at 54.41 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 2017, Maryland's TCOC growth has 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 2017 and 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 100 percent of acute hospital revenue under global budgets as of April 2017.

- **Reports to CMS** – To date, the HSCRC has met all of CMS's reporting requirements.

- **Total Cost of Care Model Progression** – The All-Payer Model Agreement required Maryland to submit a new model proposal no later than January 2017, which shall limit, at a minimum, the Medicare beneficiary total cost of care growth rate. In early 2017, the federal government and State officials began negotiations for a new Total Cost of Care All-Payer Model (TCOC Model).[7] The new TCOC Model aims to move beyond hospitals to address patients' care in the community. In May 2017, the HSCRC concluded negotiations with CMS over the "term sheet" which broadly establishes the goals and expectations for the new TCOC Model. The Commission worked closely with the Maryland Secretary of Health and key State agencies, and also engaged diverse industry stakeholders in developing the terms. To assist in the transition to the TCOC Model, the HSCRC has implemented the Medicare Performance Adjustment (MPA). Additionally, eighteen hospitals are participating in the second performance period of the Care Redesign Amendment programs, which aim to align hospital and provider goals.

- **Reporting Adverse Consequences** – Under the All-Payer Model contract, CMMI monitors the total cost of care in Maryland to ensure that reductions in hospital potentially avoidable utilization (PAU) does not result in unreasonable increases in the 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

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[6] 3M Health Information Systems developed PPCs. The PPC software relies on "present on admission" indicators from administrative data to calculate the actual versus expected number of complications for each hospital.

[7] Also referred to as the Progression Plan, Phase II of the All-Payer Model, or Enhanced Model.

Medicare total cost of care may not exceed the nation. While the growth of total cost of care in Maryland exceeded that of the nation's total cost of care growth rate in CY 2015, the growth rate in CY 2016 was below that of the nation's, ensuring compliance with the terms of the contract. In CY 2016, Maryland's total cost of care was approximately 0.70 percent below the national growth rate. Total cost of care growth in CY 2017 is again higher than the nation's by 0.75 percent. The HSCRC will monitor this metric closely in CY 2018 to ensure that the two consecutive year requirement is not breached. The HSCRC will continue to develop monitoring tools, measure performance, and engage stakeholders in order to identify and resolve any adverse consequences that may arise as quickly as possible.

Introduction

Effective January 1, 2014, the State of Maryland and the Centers for Medicare & Medicaid Services (CMS) entered into a new 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. Success of the All-Payer Model will reduce cost to purchasers of care—patients, businesses, insurers, Medicare, and Medicaid—and improve the quality of the care that patients receive both inside and outside of the hospital. 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, achieved significant progress in this modernization effort in the past 48 months.

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 31, 2017, based on the most recent available information.[8] The HSCRC updates the report every six months. Figure 1 provides an overview of the reporting that is required by law under the Maryland All-Payer Model.[9]

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 Maryland residents to 3.58%	Per capita revenue for Maryland residents grew 1.47% between CYs 2013-2014; 2.31% between CYs 2014-2015; and 0.80% between CYs 2015-2016. CY 2017 shows a per capita	• Ongoing monthly measurement • Continued favorable performance is expected as global budgets result in predictable statewide revenue performance

[8] Health-General Article §19-207(b)(9) Maryland Annotated Code.
[9] *Id.*

Section	Achievement Requirement	Accomplishments	Ongoing Activities
		growth rate of 3.54%.[10] Average per capita growth over the length of the Model is 2.03%, well below the 3.58% limit.	
I.2.	Achieve aggregate 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), and $311 million in PY 3 (CY 2016).[11] CY 2017 savings are $330 million, yielding a cumulative Medicare savings of $916 million.	• HSCRC is working with an analytics contractor to examine and replicate CMS calculations of Medicare savings and per beneficiary growth rates for CY 2018
I.3.	Shift at least 80% of hospital revenue to a population-based payment structure (such as global budgets)	100% of hospital revenue shifted to global budgets.	• 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 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 0.19 percentage points **below** the national readmission rate.	• HSCRC is monitoring progress within Maryland using data it collects from hospitals and is working to maintain improvements and remain below the national readmission rate. • HSCRC recently updated its Readmission Reduction Incentive Program (RRIP) for rate year (RY) 2020
I.5.	Cumulative reduction in hospital acquired conditions (HACs) by 30% over 5 years	Compounded with previous reductions, there has been a 52.72% reduction in all-payer case-mix adjusted PPCs since CY 2013.	• HSCRC continues to incentivize PPC reductions through the Maryland Hospital Acquired Conditions (MHAC) program, despite having achieved the 30% required reduction • HSCRC recently updated its MHAC Policy for RY 2020
I.6	Monitor Total Cost of Care (TCOC) for Medicare and maintain growth within guardrails	For CYs 2014 through CY 2017, Maryland TCOC growth has met the requirements of the All-Payer Model.	• 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 Actions	The Performance Measurement Workgroup reviewed the annual quality policies that were approved by the Commission in Spring 2017. The Payment Models Workgroup convened in February to discuss the annual update factor. Staff also convened new	• Active workgroups continue to meet on a regular basis

[10] 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

[11] 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 $312 million.

Section	Achievement Requirement	Accomplishments	Ongoing Activities
		subgroups to discuss quality policies and rate setting methodologies.	
III	New alternative methods of rate determination	100% of hospital revenue is now under global budget arrangements.	• 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 HSCRC concluded negotiations and finalized a term sheet with CMS for the TCOC Model.	• HSCRC is pushing for clearance of the model by CMS
V.1	Medicare Performance Adjustment	The Medicare Performance Adjustment was approved by Commissioners in November 2017 for implementation on January 1, 2018.	• Stakeholders continue to refine the MPA for future performance years.
V.2	Care Redesign Amendment	Eighteen hospitals are participating in the second performance period for Care Redesign programs, effective January 1, 2018.	• Additional care redesign tracks are being considered and developed

Federal Reporting Requirements for Maryland's All-Payer Model

Maryland's All-Payer Model agreement with CMS establishes 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 the Model's Annual Monitoring Report to CMS in December 2017 and will submit its mid-year Annual Monitoring Report to CMS in June 2018.[12] In addition to the annual report, the HSCRC provides ongoing reporting to CMS on relevant policy and implementation developments. If Maryland fails to meet selected requirements, CMS would provide notification, and Maryland would have the opportunity to provide information and a corrective action plan, if warranted. At this time, CMS has not provided any failure notifications to Maryland.

Section I – Requirements under the All-Payer Model

Inpatient and Outpatient 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

[12] The annual report is currently submitted in two parts due to timeliness of data availability. A partial report detailing CY 2016 is submitted in June, and a final report with full CY 2016 data is submitted in December, as available.

capita revenue growth grew 0.80[13] percent between CYs 2015 and 2016. Based on final CY 2017 data, the all-payer hospital per capita growth rate is slightly higher than previous years at 3.54[14] percent. Since the beginning of the Model, the average annual growth rate is 2.03 percent, well below the 3.58 percent target. Continued favorable performance is expected as global budgets (discussed at length in Section III) result in predictable statewide revenue performance, enabling the HSCRC to actively manage compliance with the 3.58 percent target.

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. Medicare FFS per capita has grown by 2.23[16] percent between CY 2016 and CY 2017.

Aggregate Medicare Savings

The Maryland All-Payer Model agreement requires the State to achieve an aggregate 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, and $311 million in CY 2016, and $330 million in CY 2017, bringing cumulative savings throughout the life of the Model to $916 million.[17]

Shifting from a Per-Case Rate System to Global Budgets

As of April 2017, 100 percent of Maryland regulated hospital revenues are contained within global budget structures. 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, through policies approved by the Commission. 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 since 2011. At the beginning of the All-Payer Model, the Maryland readmission rate was 1.22 percent higher than the nation. Readmission rates have continued to steadily decline over

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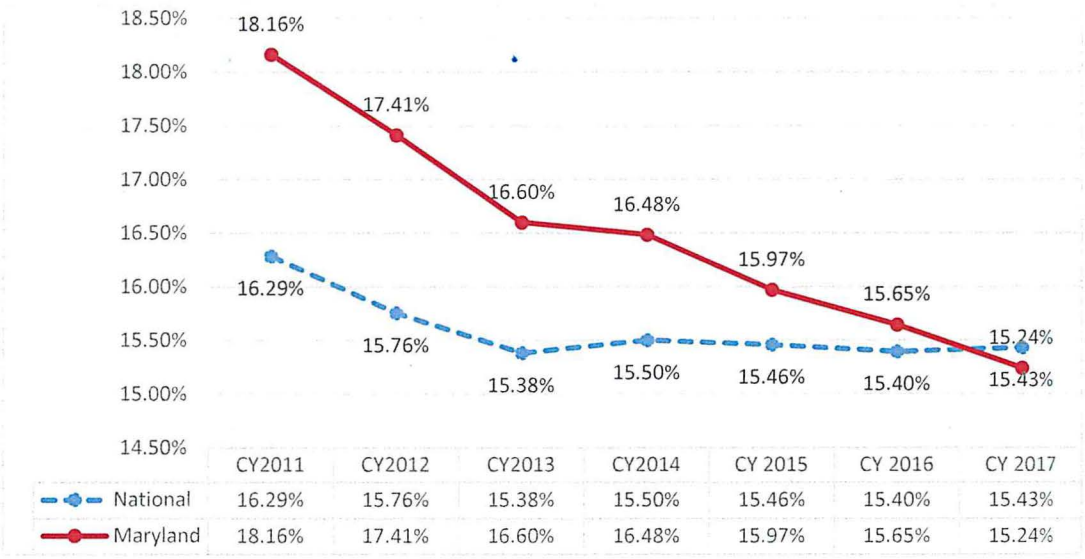
[13] The all-payer per capita growth rate reflects an adjustment to revenues to account for Maryland hospitals undercharging their global budgets from July to December 2016.
[14] *Id.*
[15] The Medicare FFS per capita growth rate reflects an adjustment to revenues to account for Maryland hospitals undercharging their global budgets from July to December 2016.
[16] *Id.*
[17] The statewide savings noted in this paragraph 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.

the course of the All-Payer Model, and, with most recent data through CY 2017, the Maryland Medicare FFS Readmission Rate is 0.19 percentage points *lower than* the National Medicare FFS Readmission Rate. The All-Payer Model agreement requires Maryland's hospital readmission rate for Medicare FFS beneficiaries to be at or below the national readmission rate by the end of 2018. Thus Maryland is working to maintain this improvement, and to further achieve any additional improvement that the nation experiences. The All-Payer Model requirement uses national Medicare data, which is summarized in

Figure 1 below.

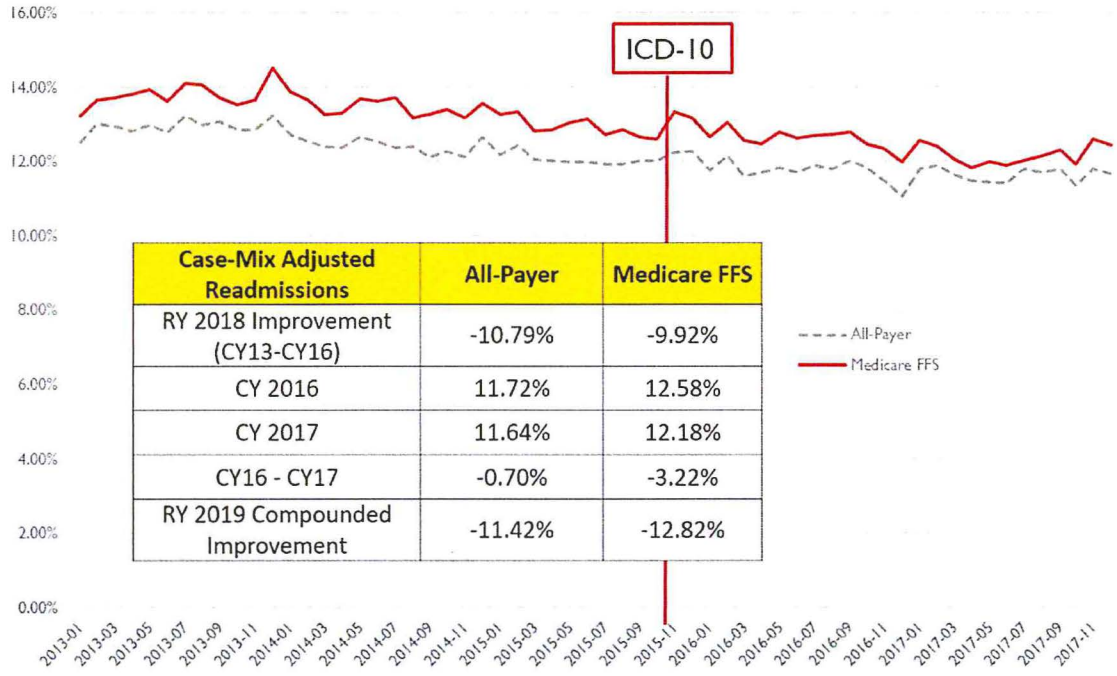
Figure 1. Medicare Readmissions - Rolling 12 Months Trend, CY 2012-CY 2017



	CY2011	CY2012	CY2013	CY2014	CY 2015	CY 2016	CY 2017
National	16.29%	15.76%	15.38%	15.50%	15.46%	15.40%	15.43%
Maryland	18.16%	17.41%	16.60%	16.48%	15.97%	15.65%	15.24%

Additionally, HSCRC's hospital data show that the monthly case-mix adjusted readmission rate through CY 2017 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 2017 was 11.64 percent, compared to 11.72 percent during CY 2016, a 0.70 percent reduction. Compounded with previous reductions in readmissions since CY 2013, the state of Maryland has achieved an 11.42 percent reduction in all-payer, case-mix adjusted readmissions. The corresponding compounded readmission reduction for Medicare FFS beneficiaries was slightly higher at 12.82 percent. This reduction highlights the difficulty and time involved in reducing readmissions, as it requires significant effort, investment, and coordination across providers.

Figure 2. Case-Mix Adjusted Readmissions in Maryland, CY 2013 - CY 2017



Case-Mix Adjusted Readmissions	All-Payer	Medicare FFS
RY 2018 Improvement (CY13-CY16)	-10.79%	-9.92%
CY 2016	11.72%	12.58%
CY 2017	11.64%	12.18%
CY16 - CY17	-0.70%	-3.22%
RY 2019 Compounded Improvement	-11.42%	-12.82%

In the RY 2019 and 2020 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.

Cumulative Reduction in Hospital Acquired Conditions

Maryland hospitals must 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).[18] PPCs are defined as 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 and preset positions on a scale constructed using the base year scores for all PPCs to determine penalties and rewards.

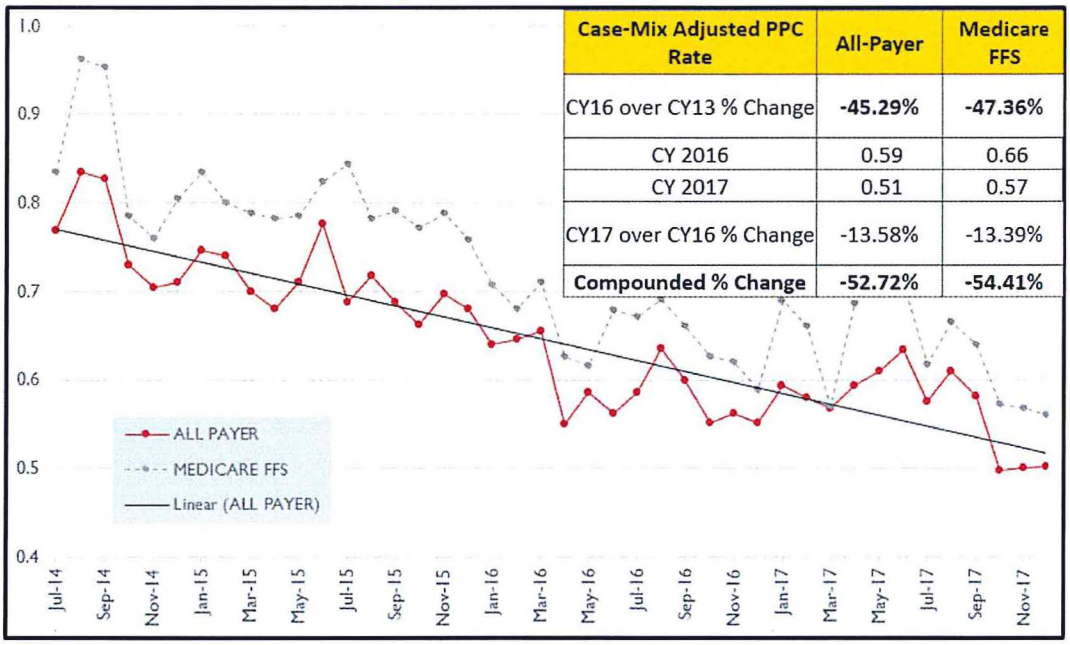
Figure 3 shows the all-payer and Medicare FFS case-mix-adjusted PPC rates by month and year. In CY 2017, the all-payer case-mix adjusted PPC rate was 0.51 per 1,000,

[18] 3M Health Information Systems developed PPCs. The PPC software relies on "present on admission" indicators from administrative data to calculate the actual versus expected number of complications for each hospital.

compared with 0.59 per 1,000 during CY 2016, which is a 13.58 percent reduction. Compounded with previous reductions in complications since CY 2013, the state of Maryland has achieved a 52.72 percent reduction in all-payer, case-mix adjusted PPC rates. The reduction in the case-mix adjusted complication rate for Medicare FFS was even higher at 54.41 percent. While this reduction in the case-mix adjusted complication rate exceeds the new waiver target of 30 percent by 2018, the HSCRC will continue to incentivize hospitals to further reduce hospital-acquired infections and complications in future years. The HSCRC is currently convening a sub-group of clinical and subject-matter experts to examine how best to measure and incentivize improvement on hospital-acquired infections and complications under the Total Cost of Care Model.

The HSCRC staff review annual audits of approximately ten hospitals to ensure coding accuracy with the medical record documentation. If audit issues are found, staff follows up with the hospital to understand the issue(s) and take appropriate action.

Figure 3. Case-Mix Adjusted PPC Rates in Maryland, CY 2014 – CY 2017



Case-Mix Adjusted PPC Rate	All-Payer	Medicare FFS
CY16 over CY13 % Change	**-45.29%**	**-47.36%**
CY 2016	0.59	0.66
CY 2017	0.51	0.57
CY17 over CY16 % Change	-13.58%	-13.39%
Compounded % Change	**-52.72%**	**-54.41%**

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. The results for Medicare for the first year of the All-Payer Model were positive, while the second year results were mixed. Results for the third year are positive, while results in the fourth year were mixed (see Figure 4 - Figure 6).

- 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 a concern. 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 approximately 0.75 percentage points in CY 2017. Staff is continuing to monitor growth trends for hospital and total cost of care.

The following figures represent actual growth trends for the current calendar year month versus the prior calendar year month.

Figure 4. Total Cost of Care per Capita, CY 2014-CY 2017

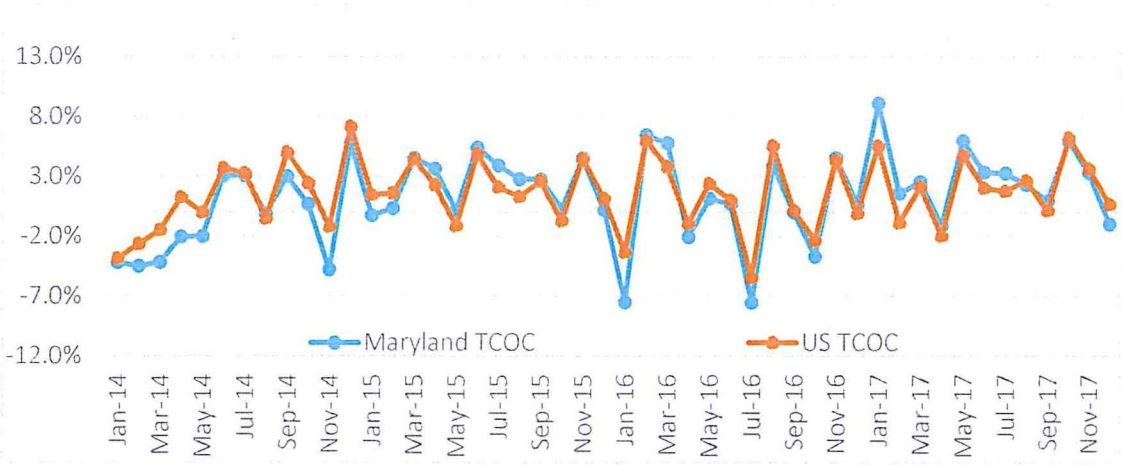


Figure 5. Medicare Hospital Spending per Capita, CY 2014-CY 2017

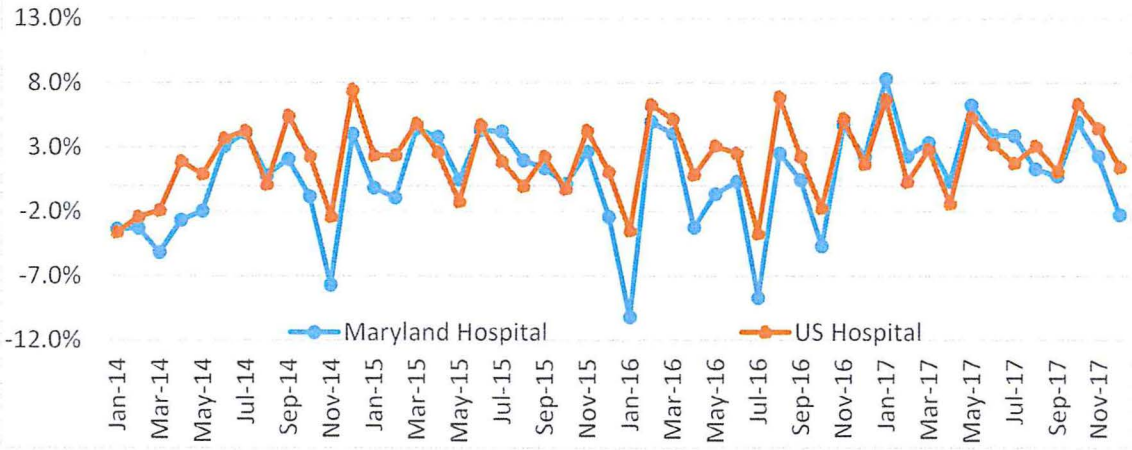
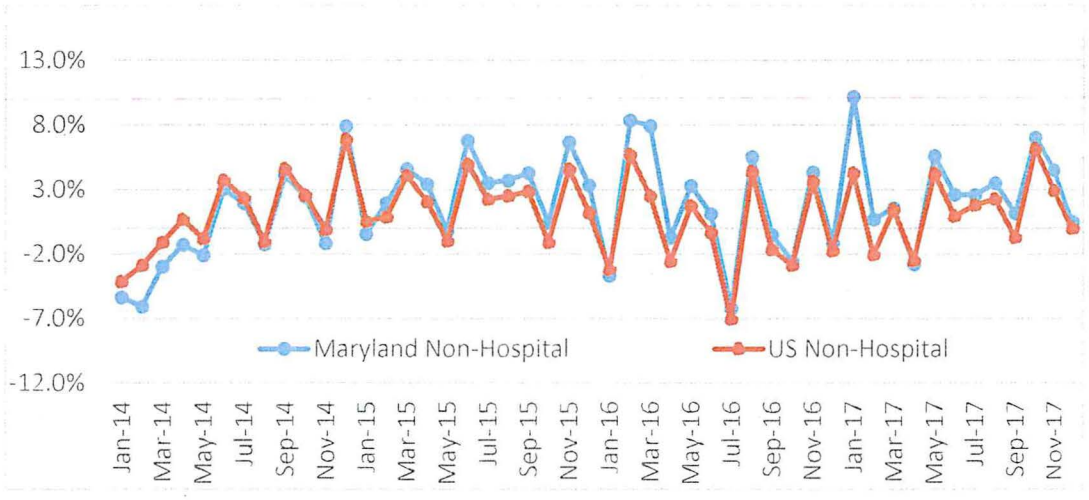


Figure 6. Medicare Non-Hospital Spending per Capita, CY 2014-CY 2017



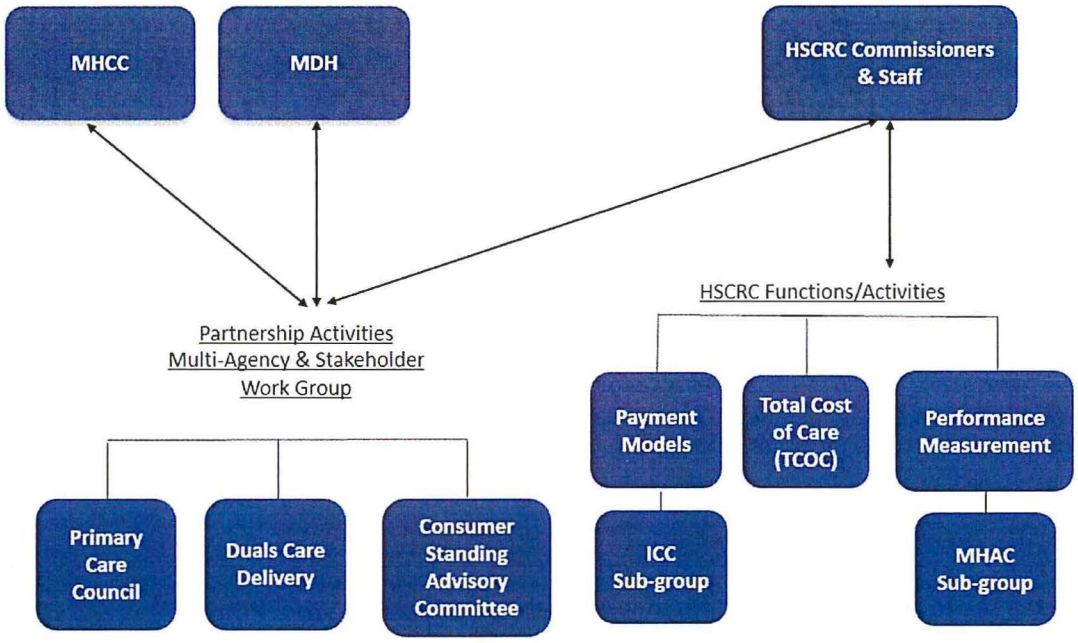
Section II – Stakeholder Engagement

The HSCRC continues to engage broadly with stakeholders in guiding policy and methodology development through various Workgroup meetings throughout CY 2017 and early CY 2018. The Performance Measurement and Total Cost of Care Workgroups have met monthly and the Payment Models Workgroup re-convened for monthly meetings in February 2018. Various subgroups have been convened to help further refine new policies and methodologies impacting hospitals.

Figure 7 depicts the current structure of the stakeholder engagement Workgroups. 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 reconvened in February 2018 to begin work on the FY 2019 Annual Update Factor and other payment policies. In addition to payment policy updates, the group has reviewed analysis of hospital drug cost growth and funding to inform future payment-related policymaking decisions.

Inter-hospital Cost Comparison Subgroup

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, efficiency and cost at different hospitals. The ICC is an important component in hospital full rate reviews, discussed in Section III of this report.

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 second half of CY 2017, the Performance Measurement Workgroup reviewed several policies, including the Maryland Hospital Acquired Conditions (MHAC) Program for RY 2020 and the Quality-Based Reimbursement (QBR) Policy for RY 2020. So far in 2018, the Workgroup has considered the Readmission Reduction Incentive Program (RRIP) for RY 2020 and the Potentially Avoidable Utilization Savings Policy for RY 2019.

Clinical Adverse Event Measures Subgroup

The Clinical Adverse Event Measures 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 hospital acquired conditions (HACs) and adverse events in hospitals. The workgroup will develop a list of clinical adverse events for use in Maryland's hospital pay-for-performance programs and help define the framework for measuring and reporting these events for use in payment programs under the new Total Cost of Care Model.

Consumer Standing Advisory Committee

The Consumer Standing Advisory Committee 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 All-Payer Model and ongoing modernization efforts; promoting understanding of the All-Payer 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. The group met several times throughout 2017 to receive updates on ongoing transformation activities and provide insight and feedback on those developments. The committee recommenced meetings in 2018 and received updates on hospitals transformation efforts, care redesign, and discussed consumer messaging and education strategies. Currently, the C-SAC is particularly focused on raising awareness and increasing knowledge of resources and programs that consumers can use to improve their health and the health of their families and communities, as well as consumer opportunity and responsibility under the new Total Cost of Care All-Payer 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 group convened at the end of CY 2016 and met throughout CY 2017 to assist in determining the technical aspects of calculating TCOC for the State's All-Payer Model. During 2017, the TCOC Workgroup focused on the development of the Medicare Performance Adjustment (MPA) to assist the State in the transition to the Total Cost of Care Model. The MPA was approved in November 2017 by HSCRC Commissioners for a January 1, 2018 implementation date. To date, the TCOC workgroup continued to meet in 2018 to further refine methodologies for the MPA and other key technical aspects of the TCOC Model.

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 April 2017, 100 percent of Maryland regulated hospital revenues are contained within GBR agreements. 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.

The GBR methodology is central to achieving the goals set forth in the Maryland All-Payer Model: promoting better care, better health, and lower cost for all Maryland patients. In contrast to the previous Medicare waiver that focused on controlling increases in Medicare inpatient payments per case, the Maryland All-Payer Model focuses 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, population growth, 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 was 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 transitions into 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 PAU, 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 increases 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. 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 periodic 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 are reflected rate orders as of RY 2017. Staff believes it is important to move money when patients shift from one institution to another, whereby the receiving institution 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.

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 now allows for a more accurate comparison of hospitals under the new global budget system. Staff are refining additional tools to assist in full rate reviews, such as the Inter-hospital Cost Comparison methodology, discussed earlier in the Stakeholder Engagement section of this report.

GBR Infrastructure Support

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: 1) disease management, 2) post-discharge and transitional care, 3) community care coordination, 4) case management, and 5) 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. The report may be incorporated into other hospital reporting requirements at a later time.

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. During the first round of a competitive application process, the Commission awarded $30 million to nine hospital partnerships to work with community partners to reduce PAU. These programs are above and beyond the care transitions initiatives that were funded in FYs 2014 and 2015. In October 2016, the Commission awarded an additional $6.5 million in funding to another five partnerships. Awardees submitted a mid-year report in February 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.

Section IV – Reports Submitted to CMS

The All-Payer Model agreement requires 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 December 2017. An updated report will be submitted in June 2017. It contains data for performance years 2014, 2015, and 2016 as well as 2013 baseline measures.
- Maryland All-Payer Model Quarterly Monitoring Report: On a quarterly basis, HSCRC staff prepare a quarterly update report for CMS with brief updates on model tests, metrics and State activities in each fiscal quarter. For a copy of these reports, please contact HSCRC staff.

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

Section V - Progression towards the Total Cost of Care Model

The All-Payer Model agreement called for Maryland to submit a proposal for a new model no later than January 2017, which shall limit, at a minimum, the Medicare beneficiary total cost of care growth rate. To prepare this proposal, the State engaged in a robust stakeholder engagement process, working with hundreds of stakeholders representing consumers, hospitals, physicians, skilled nursing and post-acute care facilities, payers, experts, and various State agencies. The State also solicited comments from the public. On December 16, 2016, Governor Larry J. Hogan Jr. submitted the "Progression Plan" to CMS, describing Maryland's proposal to accomplish the Model's expanded system-wide goals. In early 2017, the federal government and State officials, with input from Maryland health care leaders, began negotiations for a new model that will begin on January 1, 2019. The new Model must move beyond hospitals to address the total costs of Medicare patients' care in the community.

Under the proposed new "Maryland Total Cost of Care Model," Maryland will be 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 Total Cost of Care Model will give the State flexibility to tailor initiatives to the Maryland health care context, and encourage providers to drive health care innovation. The Total Cost of Care Model will also encourage continued Care Redesign, 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 will leverage the foundation already developed by Maryland for hospitals and build 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 a new Maryland Primary Care Program, which is intended to bring care coordination and support to approximately 400,000 Medicare beneficiaries and 2,000 physicians. 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 recently implemented the Medicare Performance Adjustment (MPA) to assist the State in the transition to the Total Cost of Care Model, which will focus on controlling TCOC. The MPA will adjust hospital Medicare payments based on Medicare TCOC performance. Commissioners voted on the policy in November 2017 to allow for a January 2018 implementation date, with payment adjustments beginning in July 2019 (RY 2020). The TCOC Workgroup, describe in Section II of this report, continues to refine the methodology of the MPA to guide implementation in CY 2019 and future years.

Care Redesign Amendment Programs

The Commission is also focusing on integrated care incentives, such as integrated care networks, pay-for-performance programs, and gain-sharing programs to achieve the goals of care coordination and provider alignment. 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.

Two care redesign tracks were designed 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 Chesapeake Regional Information System for our Patients (CRISP) is serving as the administrator of the program. The first performance period (PP1) began on July 1, 2017, with potential gain-sharing payment distributed in CY 2018 for those hospitals that opt for this portion of the given program. In the first performance period (PP1), ten hospitals

participated in HCIP and six hospitals participated in CCIP. The second performance period (PP2) began on January 1, 2018 for hospitals that signed the initial version of the Participation Agreement. All hospitals that participated in Care Redesign programs during PP1 are participating in PP2. As of May 2018, there is a total of 18 unique participants across both tracks, with 15 hospitals participating in HCIP and eight hospitals participating in CCIP.

Stakeholder Innovations Group

To assist in the design of additional tracks for the Care Redesign Amendment, MDH directed Maryland care partners to convene an advisory group to share ideas for innovations and provide input on designing new tracks. The group, known as the Stakeholder Innovations Group (SIG), is composed of hospital representatives, payers, post-acute providers, physicians, and other healthcare providers. The group met every other week throughout 2018 and will continue to meet as-needed to collaborate on and review proposed care redesign tracks. Recommendations from the SIG will be evaluated by MDH and incorporated into the implementation strategy of the TCOC Model.

Key Elements of the New Model

Core requirements and expectations of the new model, which are subject to federal approval, include the following:

- The new Total Cost of Care Model will begin on January 1, 2019 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 All-Payer model will build off of the ongoing work of Maryland stakeholders, which began in 2014.
- Federal 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 other 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 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.

At this stage, the State and the federal government have completed negotiations regarding the basic structure of the new Total Cost of Care Model, described in the Progression Plan submitted in December 2016, and the Model is now undergoing federal clearance and approval. As a result, Maryland's progression can evolve from concept to planning for the implementation activities necessary to assure successful progression over time. Throughout the development of implementation plans, the State will continue its commitment to privately led innovation, voluntary participation in Care Redesign programs, and meaningful and ongoing stakeholder engagement to achieve the State's

vision for person-centered care, clinical innovation and excellence, and improved population health.

Additional information on the new Total Cost of Care Model can be found at http://hscrc.maryland.gov/Pages/progression.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.

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.

In CY 2016 and CY 2017, 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. Consumer advocacy organizations have described the HSCRC stakeholder engagement

process as a model for consumer engagement in a major policy endeavor. Stakeholder engagement is key to the development and success of the next phase of the All-Payer Model that will expand to all care settings. 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: http://www.hscrc.maryland.gov/. More information can 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.

Since 2014, Maryland's total cost of care has fluctuated above and below the national rate as illustrated in Section I. In CY 2014, Maryland's total cost of care rate was lower than the nation. However in CY 2015, Maryland's growth exceeded the national rate by 0.70 percent. In CY 2016, Maryland's growth rate was once again below that of the national average by 0.70 percent. Final data for CY 2017 shows Maryland's growth in total cost of care is 0.75 percent above the nation. The HSCRC will need to ensure that growth does not exceed the nation in 2018 in order to safeguard against a breach of the two consecutive year requirement. Additional information on Maryland's performance can be found in Section I of this report.

The HSCRC will continue to develop monitoring tools, measure performance, and engage stakeholders in order to ensure compliance with the requirements of the All-Payer Model agreement.

Contact and More Information

For questions about this report or more information, please contact Katie Wunderlich, the HSCRC Director of the Center for Engagement and Alignment, at katie.wunderlich@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

June 29, 2017

Revised 1/17/2018

Health Services Cost Review Commission

This report containing performance year 2016, with historical 2013 through 2015 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 hospitals from volume-based reimbursement systems to global budgets tied to populations of patients, ahead of the required schedule of 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, 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 will build 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 – 3rd Year

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

Preliminary results for Calendar Year 2016 show that Maryland saved $287 million in Medicare hospital expenditures. Combined with savings efforts through the first two years, the State achieved $586 million in aggregate Medicare hospital savings. The cumulative Medicare Total Cost of Care savings is $461 million.[1]

Maryland also continued to improve quality of care. The State lowered Potentially Preventable Conditions (PPCs) by an additional 8 percent (43 percent in aggregate, exceeding the Model goal of a 30 percent reduction in five years). Maryland also continued to reduce its all-cause readmissions, moving closer to its goal to be at or below the national readmission rate by 2018.

[1] Actual revenues were below the ceiling for CY 2016 and these numbers have been adjusted to reflect the hospital undercharge of approximately 1 percent that occurred in the second half of CY 2016.

In the current year of the Model, the State continues to limit all-payer hospital growth while developing the Total Cost of Care All-Payer Model (TCOC APM) which will 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 new Model will also expand efforts for delivery system transformation beyond hospitals by connecting health care providers across the health system. Included within the TCOC APM are the Care Redesign Programs, Maryland Primary Care Program, population health incentives and other alignment and engagement opportunities to create patient-centered care in Maryland. Throughout development, Maryland engaged its stakeholders and worked closely with CMMI to develop

the TCOC APM. Now, the TCOC APM is moving through federal clearance, a process the State aims to complete as soon as possible in order to implement the new Model on January 1, 2019.

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 will be successful if it is able to enhance the quality of health care delivery, improve population health, and reduce costs. In contrast to the previous Maryland Medicare waiver, 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 2016. Per HSCRC data, Maryland is on track to meet all Model requirements through the third year of the Model.

Table 1. Maryland All-Payer Model Performance, 2014-2016

Performance Measures	Targets	2014 Results	2015 Results[1]	2016 Results (preliminary)[2]
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[3]**
Medicare Savings in Hospital Expenditures	**≥ $330m over 5 years** (Lower than national average growth rate from 2013 base year)	**$120 m** (2.21% below national average growth)	**$155m** **$275 cumulative** (2.63% below national average growth since 2013)	**$311m** **$586m cumulative[3]** (5.50% 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)

All-Payer Quality Improvement Reductions in PPCs under MHAC Program	**30% reduction over 5 years**	**26%** reduction	**35%** reduction since 2013	**43%** reduction since 2013
Readmissions Reductions for Medicare	**≤ National average over 5 years**	**20%** reduction in gap above nation	**57%** reduction in gap above nation since 2013	**76%** reduction in gap above nation since 2013
Hospital Revenue to Global or Population-Based	**≥ 80% by year 5**	**95%**	**96%**	**100%**

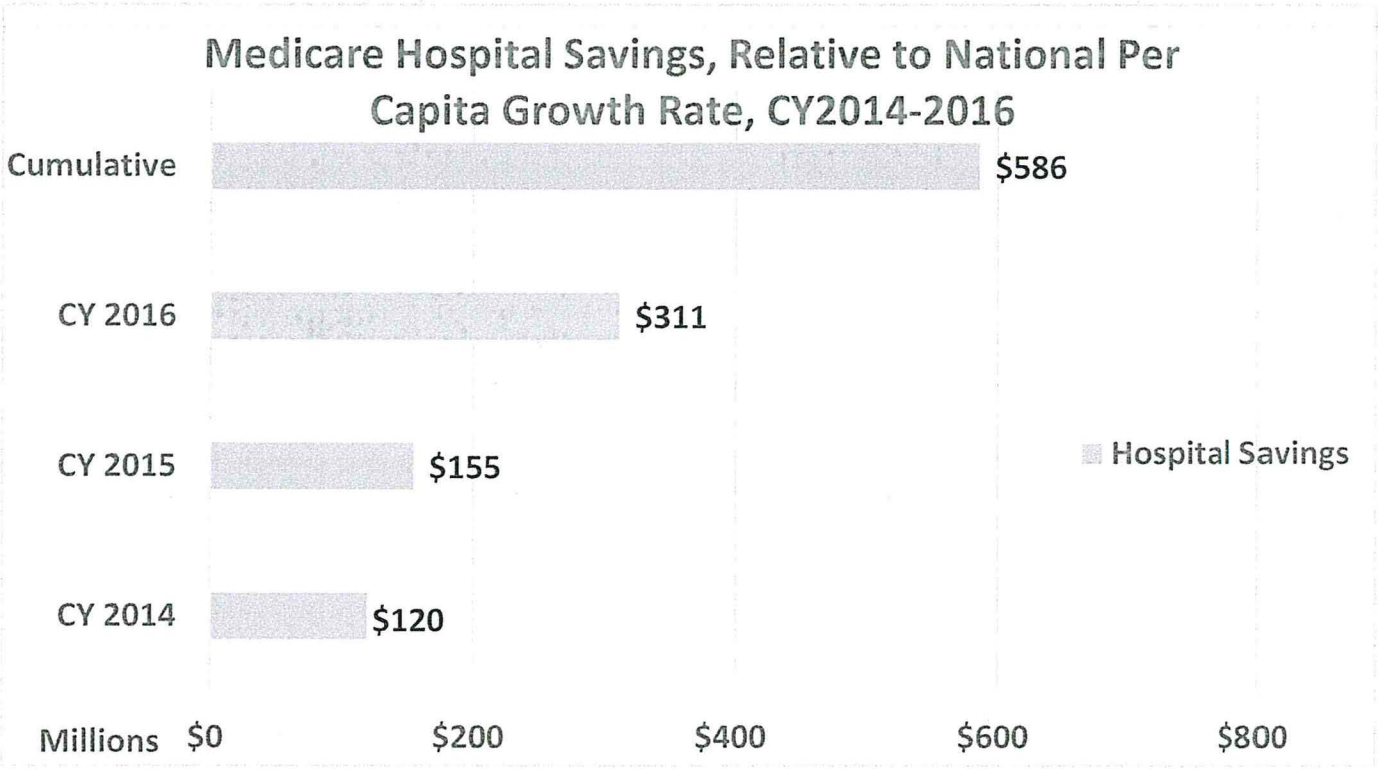
[1] 2015 figures for readmissions are preliminary because CMS is evaluating the readmission data after ICD-10.

[2]Preliminary results for calendar year 2016, these have not been validated by CMS.

[3]Actual revenues were below the ceiling for CY 2016 and these numbers have been adjusted to reflect the hospital undercharge of approximately 1% that occurred in the second half of CY 2016.

Figure 1 (below) highlights, in particular, the cumulative Medicare savings achieved under the All-Payer Model throughout the first three years. At the conclusion of 2016, Maryland had saved Medicare over $580 million across three years of the Model.

Figure 1. Medicare Hospital Savings, Relative to National per Capita Growth Rate, CY 2014-2016[1]



[1]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.

In addition to the above-listed goals, the submission of this report meets 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. The June report was submitted in partial fulfillment of the annual monitoring report requirement; a full annual monitoring report, containing data for all required measures, is submitted herewith.

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, 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.

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, the June 30 report presented available data through 2016 for the goals and measures outlined in Table 2. The full report with all measures is submitted in fulfillment of contractual reporting requirements at this time.

Table 2. Goals and Measures

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 4	Increase Patient Satisfaction – Ambulatory Care	4 – Patient's Rating of Provider
Goal 5	Enhance Care Transitions – Patient Experience – Hospital	5 – CTM-3 – Three-item care transition measure
Goal 6	Enhance Care Transitions – Patient Experience – Short Stay Nursing Homes	Goal suspended due to discontinued survey. Exploring alternative data sources.
Goal 7	Enhance Care Transitions – Coordination with Primary Care	7A – Rate of Physician Follow-Up After Discharge 7B – Discharges with Principal Provider Notified
Goal 8	Sustain High Physician Participation in Public Programs	8A – Medicare Participating Physicians per 1,000 Medicare Enrollees 8B – Medicaid Participating Physicians per Medicaid Enrollee
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 10	Improve Process of Care – Inpatient	10A – Heart Attack Care-Primary PCI received within 90 minutes of hospital arrival [AMI-8a] 10B – Heart Failure Care – LVF Assessment [HF-2] 10C – Pneumonia Care-Initial antibiotic selection for CAP in immunocompetent patient (both ICU and non-ICU) [PN-6] 10D – Surgical Care Improvement (SCIP)- Cardiac Surgery patients taking a Beta-Blocker before hospital admission who received a Beta-Blocker in the time frame of 24 hours before surgery through the time they were in the recovery room [SCIP-CARD-2] 10E – SCIP-Infection Prevention – Urinary Catheter Removed [SCIP-INF-9] 10F – SCIP – Infection Prevention –Patients having a surgery who received medicine to prevent infection (an antibiotic) within one hour before the skin was surgically cut [SCIP-INF-1] 10G – SCIP – Infection Prevention -Patients having surgery who received the appropriate medicine (antibiotic) which is shown to be effective for the type of surgery [SCIP-INF-2] 10H – SCIP – Infection Prevention -Patients who had surgery and received appropriate medicine that prevents infection (antibiotic) and the antibiotic was stopped within 24 hours after the surgery ended [SCIP-INF-3] 10I – SCIP – Venous Thromboembolism (VTE)-Patients having surgery who received the appropriate treatment to prevent blood clots which is shown to be effective for the type of surgery performed. *Note: Treatment may be medication, stockings, or mechanical devices for exercising the legs.* [SCIP-VTE-2] 10J – Children's Asthma Care (CAC) -Home Management Plan of Care (HMPC) document given to patient/caregiver [CAC-3] 10K – Blood Clot Prevention-Patients who got the treatment to prevent blood clots on the day of or day after hospital admission or surgery [VTE-1] 10L – Blood Clot Prevention-Patients who got treatment to prevent blood clots on the day of or day after being admitted to the intensive care unit (ICU) [VTE-2] 10M – Blood Clot Prevention-Patients who developed a blood clot while in the hospital who *did not* get treatment that could have prevented it [VTE-6] 10N – Blot Clot Prevention-Patients with blood clots who got the recommended treatment, which includes using two different blood thinner medicines at the same time [VTE-3]

		10O – Blood Clot Treatment-Patients with blood clots who were treated with an intravenous blood thinner, and then were checked to determine if the blood thinner was putting the patient at an increased risk of bleeding [VTE-4] 10P – Blood Clot Treatment-Patients with blood clots who were discharged on a blood thinner medicine and received written instructions about that medicine [VTE-5] 10Q – Ischemic stroke patients who got medicine to break up a blood clot within 3 hours after symptoms started [STK-4] 10R – Average (median) time patients spent in the emergency department, before they were admitted to the hospital as an inpatient [ED-1b] 10S – Average (median) time patients spent in the emergency department, after the doctor decided to admit them as an inpatient before leaving the emergency department for their inpatient room [ED-2b]
Goal 11	Improve Process of Care – Outpatient	11A – Average (median) number of minutes before outpatients with chest pain or possible heart attack got an ECG [OP-05] 11B – Average (median) time patients spent in the emergency department before leaving from the visit [OP-18b] 11C – Average (median) time patients spent in the emergency department before they were seen by a healthcare professional [OP-20] 11D – Percentage of patients who came to the emergency department with stroke symptoms who received brain scan results within 45 minutes of arrival [OP-23] 11E – Percentage of patients receiving appropriate recommendation for follow-up screening colonoscopy [OP-29] 11F – Percentage of patients with history of polyps receiving follow-up colonoscopy in the appropriate timeframe [OP-30] 11G – Percentage of patients who had cataract surgery and had improvement in visual function within 90 days following the surgery [OP-31]
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 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 18	Improve Cancer Control	18A – Percent of Adults who are Current Smokers 18B – Percent of HS youth using any kind of tobacco product
Goal 19	Improve Primary Prevention of Infectious Disease	19A – Annual seasonal influenza vaccination rate 19B – Percent of children with recommended vaccinations 19C – New HIV infection rate among adults and adolescents per 100,000 population
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 20C – Percent of High School Youth Considered Obese 20D – Percent of Adults at a Healthy Weight
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 23	Promote Health through Safe Physical Environments	23 – Fall-related deaths per 100,000 population
Goal 24	Reduce Overuse of Diagnostic Testing – Imaging	24A – Mammography Follow-up Rates 24B – Abdomen CT Use of Contrast Materials 24C – Thorax CT Use of Contrast Materials 24D – Outpatients who got cardiac imaging stress tests before low-risk outpatient surgery 24E – Outpatients with brain CT scans who got a sinus CT scan at the same time

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 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. As mentioned in the December 2016 report, some data have been re-run with identified ICD-9 to ICD-10 crosswalks, and other data are presented without trending across time periods that span the disease classification conversion.

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 is developing 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 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.

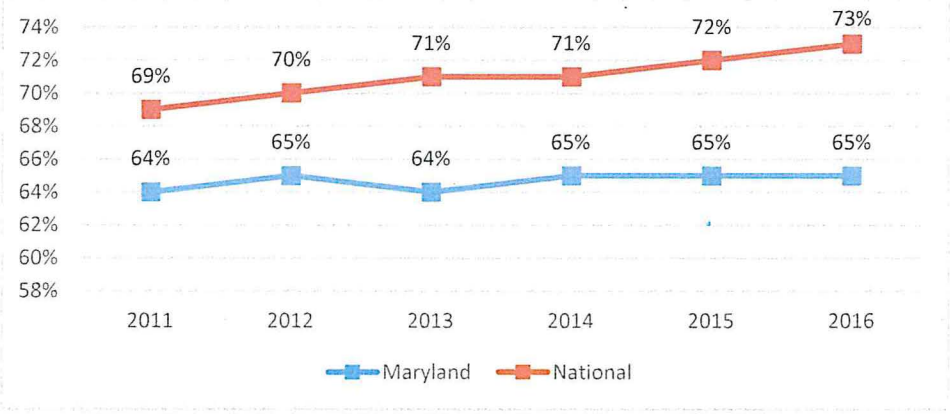
3.1.1 Goal 1: Increase Patient Satisfaction with Hospital

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) 2019 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 2020 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 (2011–2016), patients in Maryland indicated lower levels of hospital satisfaction than patients across the United States. In 2016, approximately 65 percent of Maryland patients rated their hospital experience as a "9" or "10", compared to 73 percent of patients nationwide. (Figure 2). ▪ Patient experience with physician communication was also rated higher in the United States than in Maryland. In 2016, about 77 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 2016 for either Maryland or U.S. patients (Table 3).

	▪ Experience with nurse communication also changed little between 2011 and 2016, increasing by only one percentage point for patients in Maryland (from 74 percent to 75 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, 2011-2016



Source: Centers for Medicare & Medicaid Services, Hospital Compare, 2011-2016

Table 3. Hospital Patient Experience Results, 2011-2016

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

Source: Centers for Medicare & Medicaid Services, Hospital Compare, 2011-2016

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, 81 percent of Maryland residents indicated that they received the best home health care possible (down two percent from 2015) 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 2016. 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, 2011-2016

Measures	Population	2011	2012	2013	2014	2015	2016
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%
	National	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%
	National	85%	85%	85%	85%	85%	85%

Source: Home Health CAHPS

3.1.3 Goal 3: Increase Patient Satisfaction with Nursing Home

Goal 3. Increase Patient Satisfaction with Nursing Home	
Goal Summary	Ongoing review of nursing home data has become even more important as hospitals and nursing homes increasingly collaborate to improve care for patients across settings. Maryland presents patient satisfaction data from the Maryland Nursing Facility Short Stay Resident Survey, and quality measures from Nursing Home Compare data, to evaluate patient care performance in nursing homes in Maryland.
Measurement Methodology	Overall patient experience with nursing home For 2014, the HSCRC tracked patient satisfaction in nursing homes through a state-administered survey—The Maryland Nursing Facility Short Stay Resident Survey—which was based on the Nursing Home CAHPS. The Maryland Nursing Facility Short Stay Resident Survey, based on the Nursing Home CAHPS, was discontinued, and as such, the HSCRC does not have data from that survey to present for Goal 3 in 2015 and 2016, but has included data through 2014 in Table 5. Nursing Home Quality Measures For 2015 and 2016, Maryland is presenting Nursing Home quality measures derived from the Minimum Data Set (MDS) and Medicare claims data to measure the quality of care provided in nursing homes, the data are collected from publicly available data on Nursing Home Compare. The measures have been broadly vetted and endorsed as valid and reliable, important, and influenced by facility practice. Maryland has focused on a subset of the Nursing Home Compare measures for this report, which are listed in Table 6. HSCRC believes that measures of performance in 1) patient independence and functionality; 2) negative occurrences such as falls resulting in major injury, UTIs, and pressure ulcers; 3) the use of prescriptions, including anti-anxiety medications and antipsychotics; and 4) vaccination prevalence are key indicators of patient experience and quality of care in nursing homes.

	Additional information on the Nursing Home Quality Measures (e.g., measure specifications, data availability, archived data, etc.) may be found at: https://data.medicare.gov/data/nursing-home-compare.
Monitoring Results ***See below:*** Table 5 Table 6	▪ From 2011 to 2014, patient survey ratings of nursing homes declined by .6 points based on a 0-10 point scale (10 being best). ▪ From 2015 to 2016, Maryland improved in seven of the nine quality measures listed in Table 6. The most notable improvements were in long-stay residents who received pneumonia vaccines, which increased by 1.26 percent, and a 0.51 percent reduction in the number of long-stay residents with urinary tract infections. ▪ Maryland did not improve in two of the measures provided. The percentage of long-stay residents with pressure ulcers increased by 0.46 percent, and the percentage of long-stay residents receiving anti-anxiety medications increased by 0.12 percent.

Table 5. Patient Experience with Nursing Home, 2011-2014

Measures	Population	2011	2012	2013	2014
Patient's rating of nursing home: Average ration of 0-10 (10 being best)	Maryland		8.3	8	7.7

Source: Maryland Nursing Facility Short Stay Resident Survey, Maryland Health Care Commission

Table 6. Patient Quality of Care at Nursing Home - Maryland Nation, 2015-2016

Measures	Population	2015*	2016
Percentage of short-stay residents who improved in their ability to move around on their own. [QM-471]	Maryland	65.19%	65.48%
	Nation	63.55%	64.45%
Percentage of short-stay residents who got antipsychotic medication for the first time. [QM-434]	Maryland	2.19%	1.95%
	Nation	2.18%	2.06%
Percentage of long-stay residents experiencing one or more falls with major injury. [QM-410]	Maryland	2.90%	2.84%
	Nation	3.33%	3.34%
Percentage of long-stay residents with a urinary tract infection. [QM-407]	Maryland	4.48%	3.97%
	Nation	4.85%	4.18%
Percentage of long-stay high-risk residents with pressure ulcers. [QM-403]	Maryland	6.64%	7.10%
	Nation	5.79%	5.67%
Percentage of long-stay residents who got an antianxiety or hypnotic medication. [QM-452]	Maryland	18.44%	18.56%
	Nation	23.55%	23.32%
Percentage of long-stay residents who needed and got a flu shot for the current flu season. [QM-411]	Maryland	95.24%	95.34%
	Nation	94.46%	94.62%

Percentage of long-stay residents who needed and got a vaccine to prevent pneumonia. [QM-415]	Maryland	92.10%	93.36%
	Nation	93.30%	93.71%
Percentage of long-stay residents who got an antipsychotic medication. [QM-419]	Maryland	14.02%	13.71%
	Nation	17.42%	16.29%

Source: CMS Nursing Home Compare Data, 2015-2016. *2015 data represent Q2-Q4 of 2015. Q1 is unavailable.

3.1.4 Goal 4: Increase Patient Satisfaction with Ambulatory Care

Goal 4. Increase Patient Satisfaction with Ambulatory Care	
Goal Summary	Measures from the Clinician and Group CAHPS (CG-CAHPS) file were used to assess patient experience with ambulatory care. Estimates for the state of Maryland are not reported separately and are not specifically presented in this report. Rather, Maryland patients' assessment of ambulatory care satisfaction is represented in data for the southern region of the United States. Data in this monitoring report are the "top box" scores for patients' ratings of their providers by region of the country. Top box scores are estimated as the percentage of responses in the most positive or "excellent" category.
Measurement Methodology	**CG-CAHPS Survey Question Reported** Global Ratings ▪ Using any number from 0 to 10, where 0 is the worst doctor possible and 10 is the best doctor possible, what number would you use to rate this doctor? Additional information on the CG-CAHPS database is available here: https://www.cahpsdatabase.ahrq.gov/CGSurveyGuidance.aspx
Monitoring Results ***See below:*** Table 7	▪ Patients' rating of ambulatory care provider in the southern region of the United States (of which Maryland is a part) was 2 percent higher than the national rating in 2015. Between 2013 and 2015 satisfaction with ambulatory care increased by 3 percentage points in the southern region (82 percent to 85 percent) but only increased by 1 percent nationally (82 percent to 83 percent). ▪ Results for Maryland's region (South) are unavailable for 2016.

Table 7. Patient Experience in Ambulatory Care Settings by Region, 2011-2016

Measures	Population	2011	2012	2013	2014	2015	2016
Patient's rating of provider: percent with top box scores	(South (includes Maryland)	79%	82%	82%	83%	85%	N/A
	Northeast	77%	80%	81%	82%	82%	83%
	Midwest	79%	80%	83%	83%	83%	82%
	West	76%	77%	79%	80%	83%	82%
	National	78%	80%	82%	82%	83%	82%

Source: https://www.cahpsdatabase.ahrq.gov/CAHPSIDB/Public/CG/CG_Topscores.aspx#Regional

Regions are as follows: **Southern Region:** Alabama, Arkansas, Delaware, DC, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. **Northeast Region:** Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Puerto Rico, Rhode Island, and Vermont. **Midwest Region:** Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. **Western Region:** Alaska, Arizona, California, Colorado, Guam, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

The State of Maryland is constantly looking for optimal data sources to present to CMS on the All-Payer Model's progress in improving patient experience of care, population health, and efficiency. The current measure of Patient Satisfaction with Ambulatory Care specified for the Model Agreement, derived from the Clinician and Group CAHPS (CG CAHPS) tool, is not ideal, as the data are available on a regional level (instead of a state level) and does not specifically reflect Maryland performance trends. In addition, for the 2016 reporting period, the data are unavailable for the Southern region (which includes Maryland) due to insufficient data reporting, driven by low voluntary participation by clinical groups in the Southern region.

To try and address the above concerns, Maryland is reviewing alternative options for data sources on patient experience with ambulatory care, including data on CMS Physician Compare.

The CMS Physician Compare data are publicly available and appear to be reported on Maryland-specific providers, but the data are limited to a small number of provider groups in the State that participate in the Physician Quality Reporting System (PQRS). Additionally, these data reflect the views of Medicare-only patients, and is older than the CG CAHPS data, with the most recent reporting period of 2015. The State will continue to explore the PQRS group CAHPS data as a potential source of patient experience information with physician care. These data may also be used to assess care redesign models, and/or the primary care model under development. The State will also consider these data as potentially useful under the Total Cost of Care Model.

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 8	▪ The CTM-3 linear transition scores for Maryland of respondents who "Strongly Agree" are five percent below national scores (47 v. 52 percent), and have decreased one percent since 2015.

Table 8. CTM-3 Scores - Strongly Agree, 2014-2016

Measures	Population	2014	2015	2016
Three Item Care Transition Measure - Strongly Agree	Maryland	48%	48%	47%
	National	52%	52%	52%

Source: CMS Hospital Compare

3.1.6 Goal 6: Enhance Care Transitions – Short-Stay Nursing Home

In the 2014 report, the HSCRC tracked transitional care following a nursing home stay through a state-administered survey—The Maryland Nursing Facility Short Stay Resident Survey—which was based on the Nursing Home CAHPS. This survey has been discontinued, and as such, the HSCRC does not have data to present for Goal 6 in 2015 or 2016. We continue to research other potential sources of data to understand nursing home patients' access to necessary discharge information and transitional support

following a nursing home short stay, which will become even more important as hospitals and nursing homes increasingly collaborate to improve care for patients across settings.

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 (2013-2015) 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

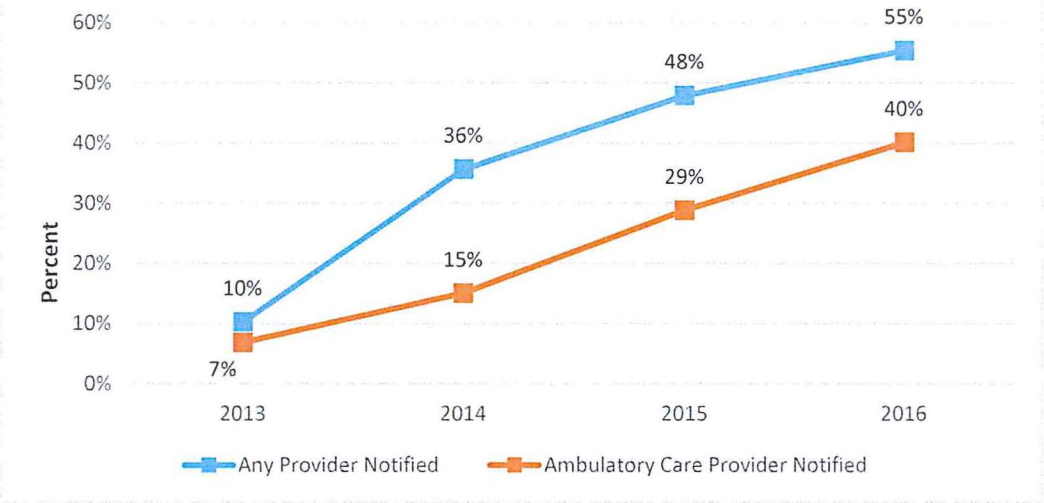
	physicians, CRISP now receives panels from long-term care facilities, care coordination entities, behavioral health organizations, and payers. HSCRC staff uses data from CRISP to calculate the percentage of inpatient discharges for which there is any associated ENS alert sent to a provider. Measuring 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. As there is runout in the CRISP ENS data, these data are refreshed from the June 2017 report, with slight differences.
Monitoring Results ***See below*** Table 9 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 65-68 percent from 2013 to 2016. Maryland achieved a 68 percent rate of follow-up in 2016, 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 2016, there was an approximately four-fold increase in the discharges for which a provider received an ENS notification, from 13.75 percent to 50.96 percent. ▪ During the same time period, the proportion of discharges for which an ambulatory care provider received an ENS notification also increased four-fold, from 9.40 percent to 40.17 percent.

Table 9. Care Coordination with Primary Care, 2013-2016

Measures	Population	2013	2014	2015	2016
Rate of physician follow-up after discharge for Medicare beneficiaries	Maryland	67%	65%	66%	68%
	Nation, a 5% Medicare Sample of the CCW	66%	65%	65%	67%
Discharges with principal provider notified in Maryland	Any Provider Notified	10%	36%	48%	55%
	Ambulatory Care Provider Notified	7%	15%	29%	40%

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, 2013-2016



Source: CRISP ENS Notification Reports, 2017. Notification provider types include: ambulatory, behavioral health, care coordinators, long-term care, payers, and other.

3.1.8 Goal 8: Sustain High Physician Participation in Public Programs

Goal 8. Sustain High Physician Participation in Public Programs	
Goal Summary	In an effort to ensure high physician participation in public programs, Maryland monitors participation rates for Maryland Medicare and Medicaid physicians.
Measurement Methodology	Medicare-Participating Providers per 1,000 Medicare Enrollees A list of Maryland physicians serving Medicare FFS beneficiaries was obtained directly from CMS in 2014 – only physicians enrolled before the end of calendar year 2014 were included in that year. Out of 17,296 providers, 16,701 were enrolled on or before December 31, 2014. For 2015 and 2016, CMS produced a count of Medicare-participating *providers*, using a definition that is potentially

	more inclusive than the prior definition. The Medicare enrollee counts are derived from reports that track Maryland's performance on the Medicare model sent to HSCRC by CMS; the reports include separate enrollment estimates for Medicare Part A and Part B on a monthly basis. Medicare Beneficiary Count for full Calendar Year 2015 and 2016 is obtained from the Final CY file produced by General Dynamics Information Technology for Hospital Savings, under 'Total' column. This enrollment file includes dually eligible beneficiaries. The number of providers are then divided by the Medicare Beneficiary Count and multiplied by 1,000 to generate a rate, as shown in the calculation in Appendix B. Medicaid-Participating Physicians per Medicaid Enrollee HSCRC obtained a count of Medicaid-participating physicians in SFYs 2013 through SFY 2016 directly from the Maryland Department of Health (MDH). The number of Medicaid beneficiaries was obtained from The Hilltop Institute at UMBC, in partnership with MDH. The count of beneficiaries includes enrollees in FFS Medicaid, HealthChoice (Medicaid managed care), and Maryland's Primary Adult Care (PAC) program. Medicare-Medicaid dual-eligibles are also included in this count, for a total number of Medicaid beneficiaries. The count of Medicaid beneficiaries is averaged over the 12 months of the state fiscal year (i.e., SFY 2013 beneficiaries are average monthly enrollment July 2012 through June 2013, etc.)
Monitoring Results ***See below*** Table 10	▪ Medicare provider participation rate for Maryland was 27.1 per 1,000 Medicare beneficiaries in 2016, a small increase from 26.8 in 2015. These data are not comparable to data prior to 2015, as the definition of providers likely expanded in 2015. ▪ Medicaid physician participation rate for Maryland approximated 35 per 1,000 Medicaid enrollees in 2016, a 1.61 percent increase from 2014.

Table 10. Medicare and Medicaid-Participating Physicians or Providers per 1,000 Enrollees, 2013-2016

Measures	Population	2013	2014	2015	2016
Medicare-participating providers per 1,000 Medicare Enrollees	Maryland	19.5	21.6	26.8	27.1
	National				
Medicaid-participating physicians per 1,000 Medicaid Enrollees	Maryland	34.8	34.0	32.7	34.6
	National				

Source: CMS; MDH Medicaid; Hilltop Institute at UMBC.

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; (B) participation of

providers in Accountable Care Organizations; and (C) participation of providers in Bundled Payment Initiatives.

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 11 Figure 4 Figure 5 Figure 6 Figure 7	Participation of Clinicians in NCQA-Accredited PCMHs In 2016, there were a total of 1,091 NCQA-accredited PCMH clinicians in Maryland, a 177.6 percent increase from 2013 (▪ Figure 4). ▪ There were 207 practices with NCQA-accredited PCMHs in 2016, a 183.6 percent increase from 2013. The majority of additional PCMHs, or 20 of the additional 23, are in the most comprehensive Level 3 accreditation (Figure 5). Participation of Provider Organizations in ACOs ▪ The total number of ACOs in Maryland increased to 26, up from 21 in 2014-2015. ▪ The number of provider organizations within these ACOs increased to 672 in 2016 from 506 in 2015, a 32.8 percent increase. Participation of Providers in Bundled Payment Initiatives In 2016, 35 alternative rate-setting methodologies (ARMs) became effective, representing more than a 9 percent increase when compared to 32 ARMs effective during 2013 (▪ Figure 6). ▪ Although between 2013 and 2015 the total number of ARMs increased, ARMs were highest during 2012 and decreased between 2014 and 2015. The number of ARMs remained unchanged in 2016. ▪ No national ARM participation rates are available.

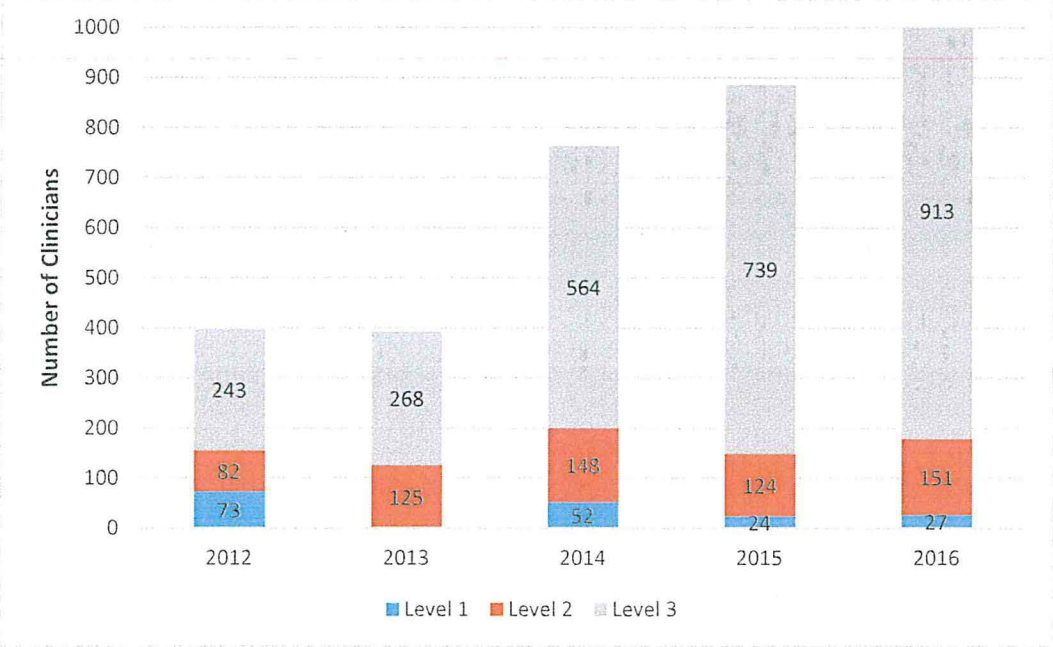
	▪ In 2016, 74 percent of ARMs were global arrangements, 11 percent were Medicaid MCOs, 6 percent were Medicare Advantage plans, and 9 percent were other forms of capitation (Figure 7).

Table 11. Maryland Participation in Innovative Models of Care, 2011-2016

Measures	Population		2011	2012	2013	2014	2015	2016
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	1091
	By Practice	Level 1		19	0	7	5	5
		Level 2		18	28	26	32	35
		Level 3		45	45	95	147	167
		Total		82	73	128	184	207
Participation of providers in accountable care organizations	Maryland ACOs					21	21	26
	Maryland Provider Organizations					482	506	672
	National ACOs					406	393	433
	National Providers					15,782	15,392	14,817
Participation of providers in alternative rate setting methodologies	Maryland		31	38	32	36	35	35
	National							

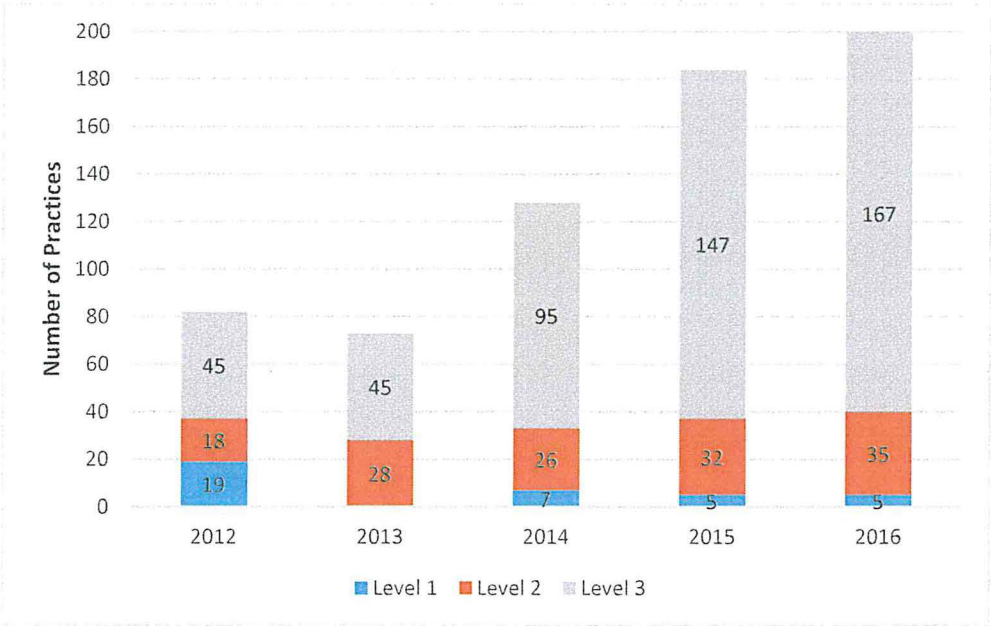
Source: HSCRC analysis of NCQA website, http://recognition.ncqa.org/index.aspx; HSCRC analysis of CMS ACO information: https://data.cms.gov/Special-Programs-Initiatives-Medicare-Shared-Savin/2017-Medicare-Shared-Savings-Program-Organizations/28pq-6hh8; Maryland HSCRC ARM data.

Figure 4. Number of Clinicians with NCQA PCMH Recognitions, Maryland, 2012-2016



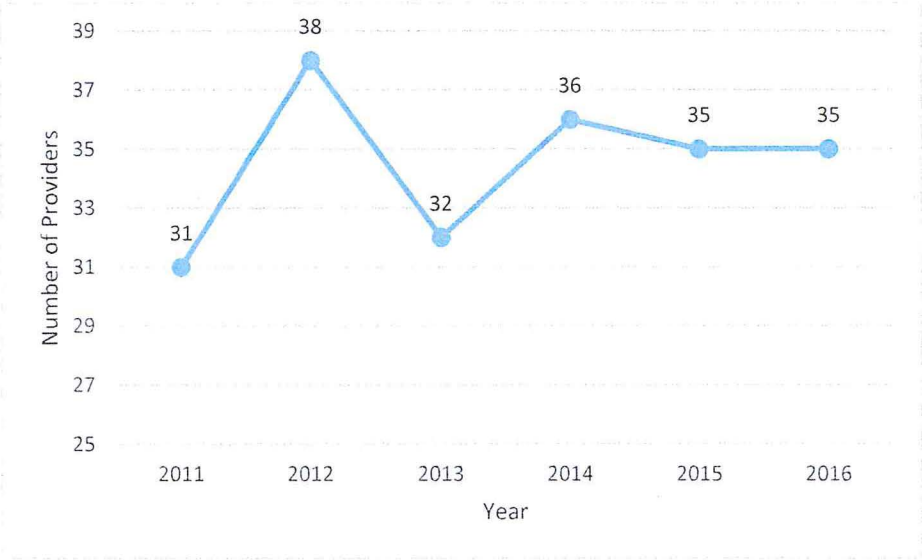
Source: HSCRC analysis of NCQA website, http://recognition.ncqa.org/index.aspx

Figure 5. Number of Practices with NCQA PCMH Recognitions, Maryland, 2012-2016



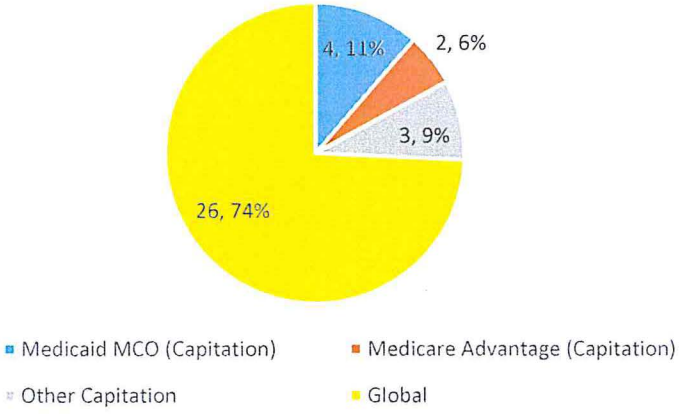
Source: HSCRC analysis of NCQA website, http://recognition.ncqa.org/index.aspx

Figure 6. Participation of Providers in Alternative Rate Setting Methodologies, Maryland, 2011-2016



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

Figure 7. Categorization of Alternative Rate Setting Methodologies, 2016



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

3.1.10 Goal 10: Improve Process of Care – Inpatient

Goal 10. Inpatient Process of Care Measures	
Goal Summary	Inpatient process of care measures report how often hospitals delivered recommended care processes in the following areas: heart attack (acute myocardial infarction or AMI), congestive heart failure (CHF), pneumonia, surgical

	care, and blood clot prevention (venous thromboembolism or VTE) and treatment. HSCRC gathered data on these measures, which have undergone extensive validation and reliability testing, from the Joint Commission's Quality Check. The Joint Commission's specifications for these measures align with CMS' Hospital Inpatient Quality Reporting measure specifications. Of note, the HSCRC has reported relevant measures for which CMS Hospital Compare published CY 2016 results. As previously mentioned, HSCRC has discontinued its reporting of measures that are no longer being reported on the CMS Hospital Compare website. In 2016, the HSCRC is also reporting on a measure of Stroke Care (STK), as well as two measures of Emergency Department efficiency for admitted patients (ED).
Measurement Methodology	These measures report how often hospitals delivered recommended care processes in the following eight areas: heart attack (AMI), heart failure (CHF), pneumonia care, surgical care improvement (Surgical Care Improvement Project or SCIP), children's asthma care (CAC), blood clot prevention and treatment (VTE), stroke care (STK), and emergency room efficiency for admitted patients (ED). The CMS Inpatient Quality Reporting (IQR) measures specifications are aligned with the Joint Commission's. The HSCRC derived the statewide average results for 2011 to 2015 for the following measures from Medicare's hospital compare website: heart attack, heart failure, pneumonia, surgical care improvement, children's asthma care, and blood clot prevention. Data presented for 2013 reflect March 1, 2013 to April 31, 2014. Calendar year 2013 was not available from CMS in the hospital compare archives due to a system malfunction. Several of the measures listed under this goal have been retired by CMS as performance has topped off and there is generally shifting emphasis placed on outcome measures by the Medicare program. In 2016, Maryland has added ED-1b, ED-2b, and STK-4, three measures of inpatient quality in the Timely and Effective Care category, which are reported by hospitals through the IQR program. For more information on the CMS Inpatient Process of Care measures, please see CMS Hospital Compare website.
Monitoring Results ***See below*** Table 12 Figure 8 Figure 9	Heart Attack ▪ This measure has been discontinued. In its final year of reporting in 2015, Maryland's percentage of patients receiving primary percutaneous coronary interventions (PCI) within 90 minutes of hospital arrival (94 percent) trended closely to the national rate (95 percent). Heart Failure ▪ This measure has been discontinued. In the final year of reporting in 2015, almost all Maryland and U.S. patients with heart failure received a left ventricle function (LVF) assessment (98 and 96 percent respectively), as appropriate. Surgical Care

- These measures have been discontinued. In 2015, Maryland and national performance on each of the SCIP measures differed little. Performance on all SCIP measures was estimated at 97 percent or higher for both Maryland and the United States.

Pneumonia Care

- This measure has been discontinued. In 2015, the percentage of patients receiving an initial antibiotic selection declined both in Maryland and nationally.

Children with Asthma

- This measure has been discontinued. In 2015, approximately 97 percent of children in Maryland for whom this measure was applicable received a written plan of care compared to 88 percent of children in the United States.

Venous Thromboembolism

As shown in

- Table 12, Maryland performance on measures of blood clot prevention was comparable to or better than the national average. The proportion of patients with potentially preventable VTE, as indicated in measure VTE-6, was also lower for Maryland than the United States at large. In 2016, approximately 1 percent of Maryland patients did not receive VTE prophylaxis and developed VTE during their hospital stay, compared to 2 percent of patients nationwide.

Stroke Care

- Maryland performed better than the nation by four percent on stroke patient care through blood clot treatment in 2016.
- Maryland 2016 performance improved by 28 percentage points, which is a 43.75 percent improvement, since 2014.

Emergency Room Efficiency for Admitted Patients

- Maryland performed below the nation on emergency room efficiency in 2016.
- Patient time spent in the emergency room grew by approximately 20 minutes from 2013 to 2016, a 5 percent increase. Maryland is currently 95 minutes less efficient than the nation.
- Patient time spent in the emergency department after the decision to admit remained similar in 2016 compared to 2013, although Maryland continued to underperform the nation by 44 minutes.

Table 12. Inpatient Process of Care Measures, 2011-2016

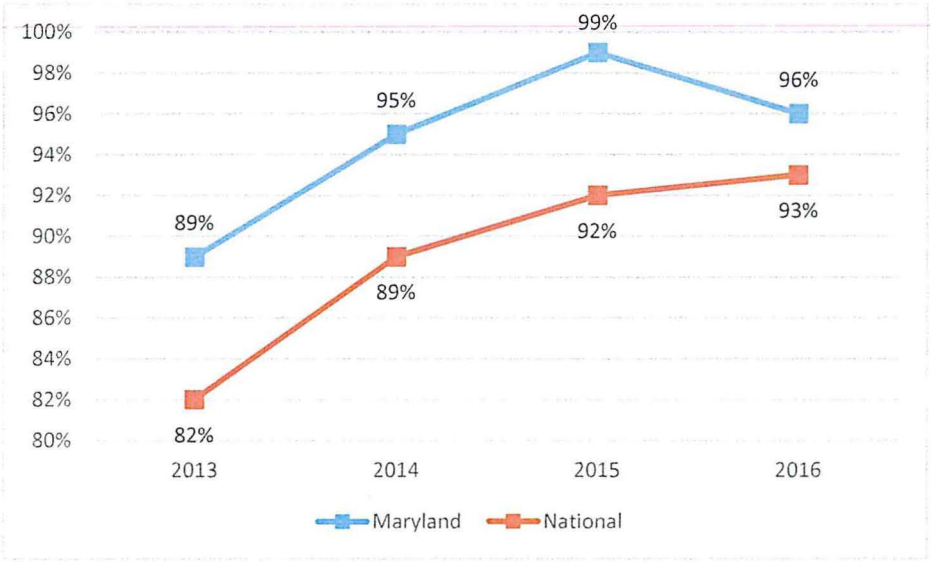
Measures	Population	2011	2012	2013	2014	2015	2016
Heart attack care - primary PCI received within 90 minutes of hospital arrival [AMI-8a]*	Maryland	91%	91%	94%	94%	94%	
	National	94%	95%	96%	96%	95%	
Heart failure care - LVF assessment [HF-2]*	Maryland	99%	99%	99%	100%	98%	
	National	99%	99%	99%	99%	96%	
Pneumonia Care - Initial antibiotic selection for CAP in immunocompetent - patient (both ICU and non-ICU) [PN-6]*	Maryland	96%	96%	97%	97%	94%	
	National	95%	95%	96%	96%	92%	
Surgical Care Improvement (SCIP) - Cardiac surgery patients taking a beta-blocker before hospital admission who received a beta-blocker within 24 hours before surgery through the time in the recovery room. [SCIP-CARD-2]*	Maryland	95%	97%	98%	98%	97%	
	National	96%	97%	98%	98%	97%	
Surgical care improvement (SCIP) - infection prevention-urinary catheter removed [SCIP-INF-9]*	Maryland	94%	96%	98%	99%	99%	
	National	94%	96%	98%	98%	98%	
Surgical care improvement (SCIP) - infection prevention- Patients having a surgery who received medicine to prevent infection (an antibiotic) within one hour before the skin was surgically cut [SCIP-INF-1]*	Maryland	97%	98%	96%	99%	99%	
	National	98%	99%	99%	99%	98%	
Surgical care improvement (SCIP) - infection prevention- Patients having a surgery who received appropriate medicine (antibiotic) which is shown to be effective for the type of surgery performed [SCIP-INF-2]*	Maryland	98%	98%	99%	98%	99%	
	National	98%	99%	99%	99%	98%	
Surgical care improvement (SCIP) - infection prevention- Patients having a surgery who received appropriate medicine (antibiotic) that prevents infection and the antibiotic was stopped within 24 hours after the surgery ended [SCIP-INF-3]*	Maryland	97%	98%	98%	98%	98%	
	National	97%	98%	98%	98%	98%	
Surgical care improvement (SCIP)- venous thromboembolism (VTE) - Patients having surgery who received the appropriate treatment to prevent blood clots which is shown to be effective for the type of surgery performed; Note: treatment may be medication, stockings, or mechanical devices for excursing the legs [SCIP-VTE-2]*	Maryland	97%	99%	98%	100%	100%	
	National	98%	98%	99%	100%	99%	
Children's Asthma Care (CAC) - home management plan of care (HMPC) document given to patient/caregiver [CAC-3]*	Maryland			97%	98%	97%	
	National	84%	87%	90%	91%	88%	

Measures	Population	2011	2012	2013	2014	2015	2016
Blood Clot Prevention - patients who got treatment to prevent blood clots on the day or day after hospital admission or surgery [VTE-1]*	Maryland			93%	96%	97%	
	National			88%	92%	94%	
Blood Clot Prevention - patients who got treatment to prevent blood clots on the day or day after being admitted to the intensive care unit (ICU) [VTE-2]*	Maryland			95%	97%	97%	
	National			94%	96%	97%	
Blood Clot Prevention - patients who developed a blood clot while in the hospital who did not get treatment that could have prevented it [VTE-6]	Maryland			5%	3%	1%	1%
	National			8%	6%	2%	2%
Blood Clot Treatment - patients with blood clots who got the recommended treatment, i.e., using two different blood thinner medicines at the same time [VTE-3]*	Maryland			96%	97%	96%	
	National			94%	95%	94%	
Blood Clot Treatment - patients with blood clots who were treated with an intravenous blood thinner, and then were checked to determine if the blood thinner was putting the patient at an increased risk of clotting [VTE-4]*	Maryland			99%	100%	100%	
	National			98%	99%	99%	
Blood Clot Treatment - patients with blood clots who were discharged on a blood thinner medicine and received written instructions about that medicine [VTE-5]	Maryland			89%	95%	99%	96%
	National			82%	89%	92%	93%
Ischemic stroke patients who got medicine to break up a blood clot within 3 hours after symptoms started [STK-4]	Maryland				64%	79%	92%
	National			66%	80%	86%	88%
Average (median) time patients spent in the emergency department, before they were admitted to the hospital as an inpatient [ED-1b]	Maryland			357	356	367	375
	National			274	275	280	280
Average (median) time patients spent in the emergency department, after the doctor decided to admit them as an inpatient before leaving the emergency department for their inpatient room [ED-2b]	Maryland			143	133	140	144
	National			98	96	99	100

* Measures have been suspended or retired and have no data reported for one or more time periods.

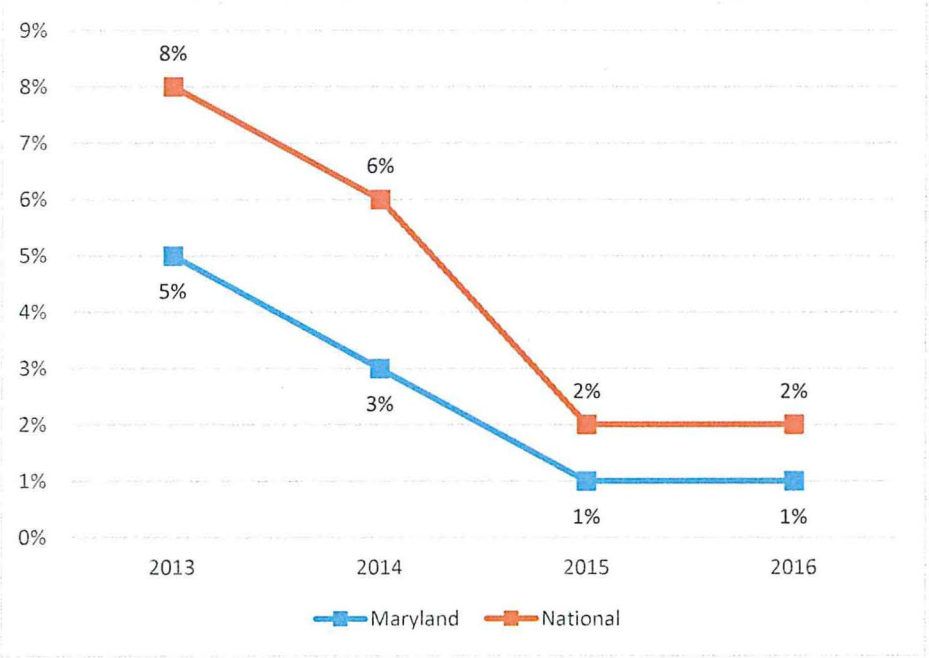
Source: CMS Hospital Compare.

Figure 8. Patients with blood clots who were discharged with medicine and written instructions (VTE-5), Maryland and Nation, 2013-2016



Source: CMS Hospital Compare.

Figure 9. Patients who developed a blood clot while in the hospital who did not get treatment that could have prevented it (VTE-6), Maryland and Nation, 2013-2016



Source: CMS Hospital Compare.

3.1.11 Goal 11: Improve Process of Care – Outpatient

Goal 11. Outpatient Process of Care	
Goal Summary	Per the terms of the All-Payer Model Agreement, the HSCRC continues to monitor additional measures to support continued quality improvement. In this report, the HSCRC has included four outpatient process of care measures related to Timely and Effective Care: for EKGs, and three emergency department throughput measures. New in 2016, Maryland is also including two additional outpatient measures, which are germane to the Goal of "Improve process of Care - Outpatient" – these measures are OP-29 and OP-30. Maryland also removed one measure, OP-20 – Average (median) time patients spent in the emergency department before they were seen by a healthcare professional. This measure is due to be suspended in future years, and as such, Maryland has removed it from this report.
Measurement Methodology	The HSCRC is reporting the following quality measures of Outpatient Process of Care for the 2016 Annual Report: ▪ OP-05 – Average (median) number of minutes before outpatients with chest pain or possible heart attack got an ECG ▪ OP-18b – Average (median) time patients spent in the emergency department before leaving from the visit ▪ OP-23 – Percentage of patients who came to the emergency department with stroke symptoms who received brain scan results within 45 minutes of arrival ▪ OP-29 – Percentage of patients receiving appropriate recommendation for follow-up screening colonoscopy ▪ OP-30 – Percentage of patients with history of polyps receiving follow-up colonoscopy in the appropriate timeframe For more information on these measures, please see CMS Hospital Compare.
Monitoring Results **See below** Table 13	▪ Maryland wait times for OP-05 and OP-18b are longer than national wait times. ▪ The percentage of patients with stroke symptoms who received brain scan results within 45 minutes of arrival increased significantly in Maryland, from 62 percent in 2014 to 75 percent in 2016. Nationally there were smaller increases (from 65 percent in 2014 to 71 percent in 2016). ▪ Maryland improved in 2016 over 2015 in the percentage of patients receiving appropriate colonoscopy recommendations and procedures (if the patient had a history of polyps) and outperformed the nation by 9 percent and 4 percent, respectively.

Table 13. Outpatient Process of Care Measures, 2014-2016

Measures	Population	2014	2015	2016
Average (median) number of minutes before outpatients with chest pain or possible heart attack got an ECG [OP-05]	Maryland	9	10	10
	National	7	7	7
Average (median) time patients spent in the emergency department before leaving from the visit [OP-18b]	Maryland	192	203	218
	National	140	141	138
Percentage of patients who came to the emergency department with stroke symptoms who received brain scan results within 45 minutes of arrival[OP-23]	Maryland	62%	69%	75%
	National	65%	68%	71%
Percentage of patients receiving appropriate recommendation for follow-up screening colonoscopy [OP-29]	Maryland		85%	90%
	National		74%	81%
Percentage of patients with history of polyps receiving follow-up colonoscopy in the appropriate timeframe [OP-30]	Maryland		87%	91%
	National		80%	87%

Source: CMS Hospital Compare

3.1.12 Goal 12: Reduce High-Priority Hospital Complications

Measure 12A. Potentially Preventable Complications (PPCs)	
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 conditions that comprise the Maryland Hospital Acquired Condition Program.
Measurement Methodology	PPC Rate per 1,000 At-Risk Discharges and Case-Mix Adjusted PPC Rate 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 changes in case-mix that may occur over time. For the 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.
Monitoring Results ***See below*** Table 14	▪ Between 2013 and 2016, the unadjusted all-payer PPC rate for the state of Maryland declined from 1.08 per 1,000 at-risk discharges to 0.69 per 1,000 at-risk discharges. This represents a reduction of 35.70 percent. ▪ Over the same time period, the case-mix adjusted all-payer PPC rate had a reduction of 43.33 percent. ▪ Between 2013 and 2016, the unadjusted Medicare FFS PPC rate per 1,000 at-risk discharges declined by 40.57 percent. The unadjusted Medicaid PPC rate declined by 35.77 percent during the same period. ▪ Similarly, the case-mix adjusted rate for Medicare and Medicaid was reduced by 45.43 percent and 42.13 percent, respectively.

Table 14. High-Priority Hospital Complications, 2013-2016

Measures	Population	2013	2014	2015	2016
All Payer Potentially preventable complications per 1,000 at-risk discharges	Maryland	1.08	0.83	0.76	0.69
Change from 2013 (%)			-22.74%	-29.28%	-35.70%
Medicare Potentially preventable complications per 1,000 at-risk discharges	Maryland	1.37	1.01	0.94	0.82
Change from 2013 (%)			-26.34%	-31.40%	-40.57%
Medicaid Potentially preventable complications per 1,000 at-risk discharges	Maryland	0.84	0.63	0.56	0.54
Change from 2013 (%)			-24.87%	-33.25%	-35.77%
All Payer Casemix-Adjusted PPC rate	Maryland	1.24	0.94	0.82	0.70
Change from 2013 (%)			-24.69%	-33.88%	-43.33%
Medicare Casemix-Adjusted PPC rate	Maryland	1.44	1.05	0.94	0.78
Change from 2013 (%)			-27.25%	-34.54%	-45.43%
Medicaid Casemix-Adjusted PPC rate	Maryland	1.09	0.83	0.72	0.63
Change from 2013 (%)			-23.71%	-33.77%	-42.13%

Source: HSCRC Inpatient Discharge Abstract Data, 2013-2016. NOTE: Replication of some of these calculations may not be possible due to rounding.

Goal 12B. Central-line Associated Bloodstream Infections	
Goal Summary	CLABSIs are serious infections that significantly increase length of stay, hospital costs, and mortality. CLABSIs can be prevented though proper insertion and management of the central line. The SIR is used in this report to measure CLABSIs; a SIR greater than 1.0 means that more infections were observed in the state than predicted, and a SIR less than 1.0 means that there were fewer infections observed than predicted. Beginning in CY 2015, the SIRs were re-based to a new national standard of 1 (the previous national standard of 1 was based on 2006-2008 data.)
Measurement Methodology	CLABSI cases are identified as a laboratory-confirmed bloodstream infection (LCBI), where a central line (CL) or umbilical catheter (UC) was in place for more than two calendar days on the date of event, with day of device placement being day one, and a CL or UC was in place on the date of event or the day before. If a CL or UC was in place for more than two calendar days and then removed, the date of event of the LCBI must be the day of discontinuation or the next day. If the patient is admitted or transferred into a facility with an implanted central line (port) in place, and that is the patient's only central line, day of first access in an inpatient location is considered day one. "Access" is defined as line placement, infusion, or withdrawal through the line. Such lines continue to be eligible for CLABSI once they are accessed until they are either discontinued or until the day after patient discharge (per the Transfer Rule). Note that the "de-access" of a port does not result in the patient's removal from CLABSI surveillance. The following are excluded: ▪ Pacemaker wires and other non-lumened devices inserted into central blood vessels or the heart ▪ Peripheral intravenous lines Hospitals with expected cases less than one are not included in the CLABSI measure. Additional information on CLABSI can be found at: http://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf.
Monitoring Results ***See below*** Table 15	▪ Between 2013 and 2015, central line bloodstream SIRs in Maryland increased from 0.474 to 0.566 (Figure 20). Over all time periods, the SIR for Maryland was less than one, indicating lower CLABSI rates in Maryland than nationally. ▪ Under the re-based methodology, Maryland's SIR of 1.125 indicates that Maryland is experiencing higher rates of CLABSI than nationally.

Table 15. Central-Line Associated Bloodstream Infection (CLABSI) Standardized Infection Ratios, 2013-2016

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

Source: CMS Hospital Compare and National Healthcare Safety Network.

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 16	▪ Between 2013 and 2016, the Maryland admission rate from home health agencies to hospitals decreased slightly from 17 percent to 16.3 percent. The national admission rate increased slightly from 16 percent to 16.4 percent from 2013 to 2016. ▪ Maryland home health patients' rate of unplanned urgent care visits to the ED rose slightly by 1.3 percent from 11 percent in 2013 to 12.3 percent in 2016. The national rate also increased by 0.7 percent to 12.7 percent during the same time period.

Table 16. Hospital Utilization from Home Health Services, 2012-2016

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

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.

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 patients being discharged from the hospital earlier than recommended by best practices, hospital complications that develop post-discharge, or deficiencies in quality of care. 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 2012-2016.
Monitoring Results ***See below*** Table 17	▪ There has been a steady decline in readmissions from nursing homes since 2012. When compared to the 2013 base year of the All-Payer Model, the 2016 readmission rate for inpatient discharges to nursing homes decreased by 11.46 percent. The observed reduction in readmissions could be partially attributable

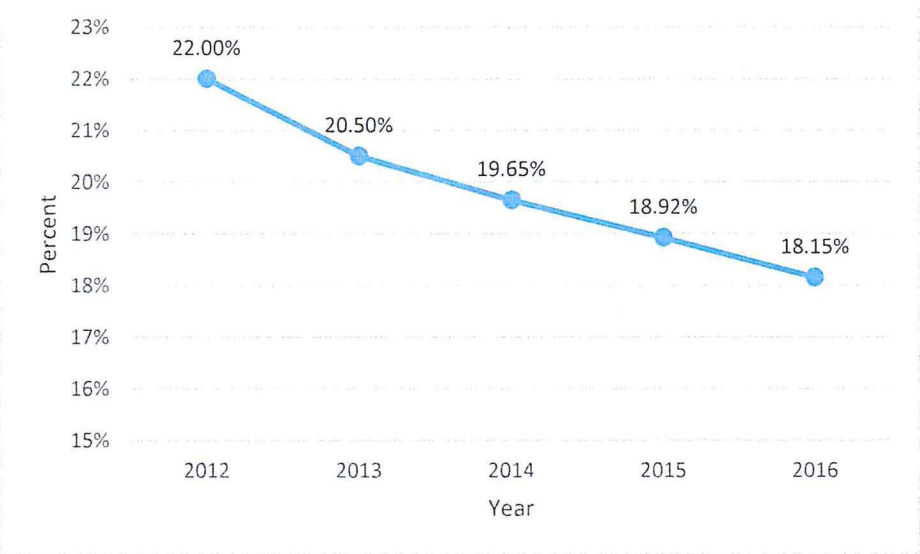
Figure 10	to an enhanced level of care coordination between Maryland hospitals and nursing facilities.

Table 17. Readmission Rates from Nursing Homes, 2012-2016

Measures	Population	2011	2012	2013	2014	2015	2016
Readmission rates for inpatient discharges to nursing homes	Maryland		22.00%	20.50%	19.65%	18.92%	18.15%

Source: Analysis of HSCRC IP Data.

Figure 10. Hospital Readmissions among Patients Discharged to a Nursing Facility, 2012-2016



Source: HSCRC IP discharge abstract data, 2012-2016.

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. 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 CY2012-2016 data. Data from October-December 2015 and 2016 reflect the updated condition-specific logic under ICD-10 from the National Quality Forum. Data have been re-stated with the most recent Rate Year logic. **Data:** Population estimates for 2012-2016, which were used in estimating readmissions per 1,000 population, were obtained from the Maryland Department of Planning.

Monitoring Results ***See below*** Table 18	▪ 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. ▪ Readmissions per 1,000 Maryland residents fell by 16.99 percent from 11.74 per thousand in 2013 to 9.75 per thousand in 2016. ▪ Between 2013 and 2016, readmission rates for all the specific conditions decreased: heart failure by 9.98 percent; pneumonia by 9.70 percent; AMI by 6.47 percent; COPD by 8.87 percent; and Hip/Knee arthoplasty by 19.15 percent.

Table 18. Readmission Rates, including Condition-Specific Readmission Rates, 2012-2016

Measures	Population	2012	2013	2014	2015	2016
30-day all-hospital, all-cause readmission	Maryland	12.49%	12.93%	12.43%	12.02%	11.54%
	Change from 2013			-3.85%	-7.02%	-10.74%
Readmissions per 1,000 Maryland residents	Maryland	12.65	11.74	10.84	10.25	9.75
	Change from 2013			-7.66%	-12.67%	-16.99%
Heart failure readmission rate	Maryland	24.70%	23.12%	22.68%	22.13%	20.81%
	Change from 2013			-1.90%	-4.25%	-9.98%
Acute myocardial infarction readmission rate	Maryland	13.42%	13.04%	12.06%	12.02%	12.20%
	Change from 2013			-7.57%	-7.86%	-6.47%
Pneumonia readmission rate	Maryland	15.29%	14.37%	14.31%	13.22%	12.97%
	Change from 2013			-0.40%	-7.99%	-9.70%
Chronic obstructive pulmonary disease readmission rate	Maryland	21.62%	20.76%	20.32%	19.66%	18.92%
	Change from 2013			-2.10%	-5.27%	-8.87%
Hip/total knee arthroplasty readmission rate	Maryland	4.25%	3.80%	3.38%	3.08%	3.07%
	Change from 2013			-11.12%	-19.09%	-19.15%

Source: Derived from HSCRC Inpatient Discharge Abstract Data, 2012-2016.

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 white and black residents.
Measurement Methodology	Life expectancy is calculated by the Maryland Vital Statistics Administration, a bureau of MDH. Please note that 2016 data are preliminary, until such time as the 2016 Annual Report is posted to the Maryland Vital Statistics website, at the link below: https://health.maryland.gov/vsa/Pages/reports.aspx
Monitoring Results ***See below*** Table 19	▪ 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 78.9 in 2014 to 78.8 in 2015. Data 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 19. 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	78.8	
	White	79	79.1	79.1	79	78.7	
	Black	75.3	75.5	75.5	75.3	75.1	

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 score ÷ number of Maryland residents aged 18 and over) multiplied by 100,000.

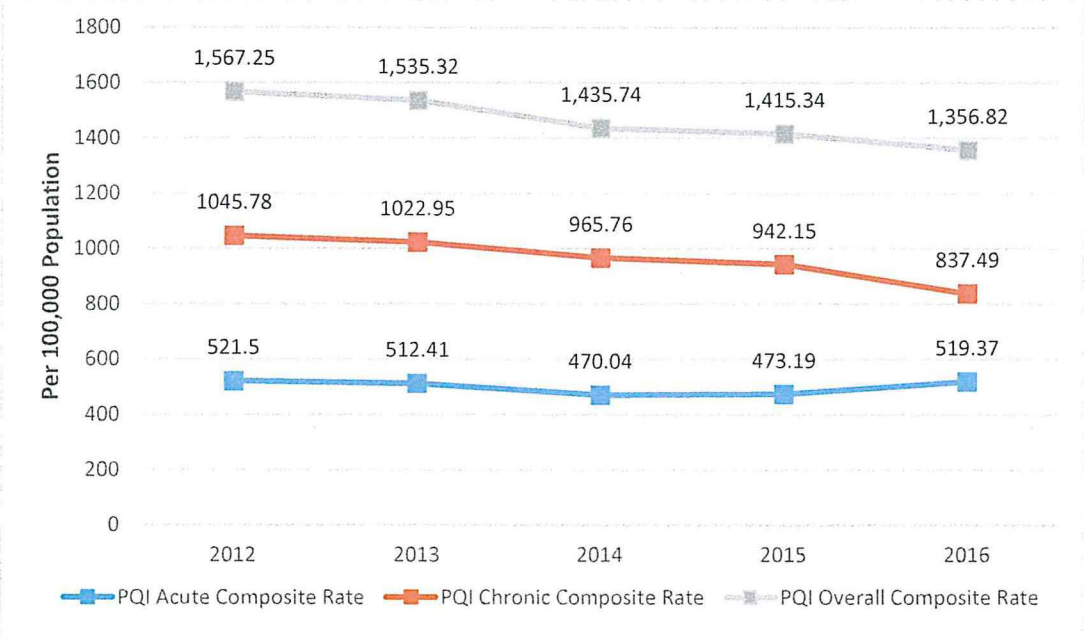
	The PQI **acute** composite includes admissions with diagnosis codes for dehydration, bacterial pneumonia, or urinary tract infection. The PQI **chronic** composite includes admissions with diagnosis codes for one of the following conditions: diabetes with short-term complications, diabetes with long-term 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. **Data Sources:** PQIs are identified using the HSCRC Inpatient Discharge Abstract data. The annual adult Maryland population (over 18 years of age) is calculated from Maryland Department of Planning population estimates.
Monitoring Results ***See below*** Table 20 Figure 11	▪ The Maryland **acute** PQI composite score rate was 519.16 in 2016, a 1.31 percent increase over the base year 2013 rate. ▪ The Maryland **chronic** PQI composite score rate decreased by 18.16 percent between the 2013 base year of the model and 2016, declining from 1,022.95 to 837.15. ▪ Maryland **overall** PQI composite score rate decreased by 11.66 percent between the 2013 base year of the model and 2016, declining from 1,535.32 to 1,356.27. ▪ 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 20. Prevention Quality Indicators in Maryland, 2012-2016

Measures	Population	2012	2013	2014	2015	2016
Preventive quality indicator (PQI) **acute** composite rate per 100,000 population, age 18 and over	Maryland	521.5	512.41	470.04	473.19	519.16
Preventive quality indicator **chronic** composite rate per 100,000 population, age 18 and over	Maryland	1045.78	1022.95	965.76	942.15	837.15
Preventive quality indicator **overall** composite rate per 100,000 population, age 18 and over	Maryland	1,567.25	1,535.32	1,435.74	1,415.34	1,356.27

Source: HSCRC inpatient abstract data run through AHRQ software version 4.5a/5 through 2015, using version 6 in 2016.
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.

Figure 11. Overall, Chronic, and Acute PQI Rate per 100,000 Population Aged 18+, Maryland 2012-2016



Source: HSCRC inpatient abstract data run through AHRQ software version 4.5a/5 through 2015, version 6 for 2016 data.
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.

3.2.3 Goal 18: Improve Cancer Control

Goal 18. Improve Cancer Control	
Goal Summary	Cigarette smoking is the cause of almost 6,800 Maryland deaths each year, and 150,000 residents suffer from diseases/cancers caused by cigarette smoking. Reducing smoking among adults and preventing youth from using any tobacco products are critical to improving the health of Marylanders. The Maryland State Health Improvement Process (SHIP) also monitors the percentage of adults who are current smokers and youth who use any kind of tobacco product.
Measurement Methodology	**Measures**: (1) Percentage of adults who are current smokers and (2) Percentage of high school youth using any kind of tobacco product **Data Source**: Behavioral Risk Factor Surveillance System (BRFSS) and the Youth Risk Behavior Survey (YRBS), which can be found here: www.marylandbrfss.org. The YRBS is conducted in the spring of odd-numbered years, and results are released in the summer of the following year, thus, data on tobacco use among children are unavailable for even-numbered years.

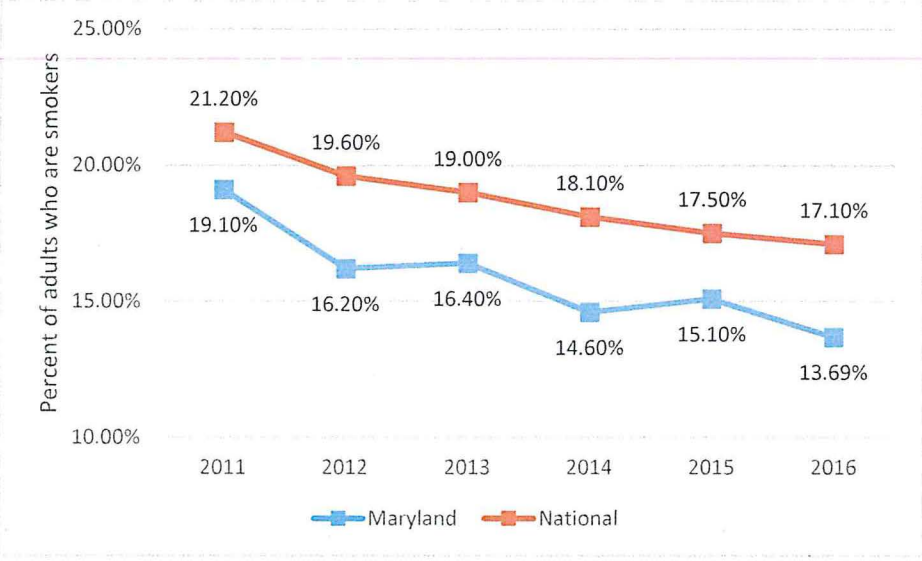
	For the 2016 report, these data are re-stated to enable consistent reporting across years. Additional information regarding the methodology used may be found in Appendix B of this report. Additional information about Maryland's SHIP can be found here: https://pophealth.health.maryland.gov/Pages/SHIP.aspx.
Monitoring Results ***See below*** Table 21	▪ The overall percentage of Maryland adults who smoke declined by 16.52 percent between 2013 and 2016, from 16.4 percent to 13.69 percent. In comparison, adult smoking rates for the nation declined by 10 percent during the same time period. ▪ Use of tobacco products among Maryland high school youth declined modestly between 2013 and 2015, from 16.9 percent in 2013 to 16.4 percent in 2015. A greater reduction in tobacco use among youth was observed for the United States, although the national rates were higher than for Maryland: 22.4 percent of children in the U.S. reported using a tobacco product in 2013 compared to 18.5 percent in 2015. These data are unavailable for 2016.

Table 21. Tobacco Use among Adults and HS Youth, 2011-2016

Measures	Population	2011	2012	2013	2014	2015	2016
Percent of adults who are current smokers	Maryland	19.10%	16.20%	16.40%	14.60%	15.10%	13.69%
	National	21.20%	19.60%	19.00%	18.10%	17.50%	17.10%
Percent of HS youth using any kind of tobacco product	Maryland	17.90%		16.90%		16.40%	
	National	23.40%		22.40%		18.50%	

Source: Prevention and Health Promotion Administration, Maryland Department of Health. NOTE: Youth Risk Behavior Survey data are submitted only in odd years, and are not refreshed for 2016.

Figure 12. Tobacco Use among Adults, Maryland and Nation, 2011-2016



Source:

3.2.4 Goal 19: Improve Primary Prevention of Infectious Diseases

Goal 19. Improve Primary Prevention of Infectious Diseases	
Goal Summary	The Maryland SHIP monitors the percentage of people vaccinated annually for seasonal influenza, children with recommended vaccinations, and the rate of new HIV infections.
Measurement Methodology	Influenza Vaccination **Measure Description:** The National Immunization Survey's Influenza Vaccination rate has three components: the NIS which includes households with children 19-35 months, the NIS-Teen which includes households with children 13-17 years, and a short flu vaccination module which is conducted for households with children 6-18 months and 3-12 years. Respondents aged 18 years and older were asked if their child had received a flu vaccination since July 1, 2014 and, if so, in which month and year. The BRFSS is an ongoing state-based monthly telephone survey that collects information on health conditions and risk behaviors from randomly selected persons 18 years or older among the non-institutionalized U.S. civilian population. Additional information can be found here: http://www.cdc.gov/flu/fluvaxview/reportshtml/reporti1415/trends/index.html Childhood Immunizations **Measure Description**: This indicator shows the percentage of children (19-35 months) who received the recommended vaccines. Vaccines are among the most cost-effective clinical preventive services and are a core component of any

	preventive services package. Increasing vaccination rates can reduce preventable infectious diseases among young children. Additional information can be found here: http://www.cdc.gov/vaccines/imz-managers/coverage/nis/child/index.html#chart New HIV Infections **Measure Description**: This indicator shows the rate of adolescent and adults (aged 13 years and older) newly diagnosed with HIV (per 100,000 population). HIV is a significant and preventable public health problem. An estimated 21 percent of people with HIV are undiagnosed. We have the knowledge and tools needed to slow the spread of HIV infection and improve the health of people living with HIV. Additional information can be found here: http://www.cdc.gov/hiv/library/reports/surveillance/
Monitoring Results ***See below*** Table 22	Influenza Vaccination ▪ Between 2013 and 2016, the proportion of Maryland residents who received a seasonal influenza vaccination grew from 48.90 percent to 53.50 percent, a 9.4 percent increase. Across the United States, seasonal influenza vaccinations grew slightly by 0.60 percent, from 46.20 percent in 2013 to 46.80 percent in 2016. ▪ The Maryland vaccination rate also increased by over 10 percent in 2016 compared to 2015, which was Maryland's lowest annual rate. Maryland continues to outperform the nation on this measure, as it has for the last six years. Childhood Immunizations ▪ Maryland performance on the childhood vaccination measure was slightly higher than that of the overall United States. The percentage of Maryland children who received all recommended vaccinations decreased from 75.80 percent in 2013 to 74.40 percent in 2016. Across the nation, 70.70 percent of children received all recommended vaccinations in 2016, a decrease of about 2 percentage points from 2015 (Table 22). New HIV Infections ▪ The rate of new HIV infections among adolescents and adults in Maryland decreased from 36.7 per 100,000 population in 2013 to 26.7 per 100,000 population in 2015. ▪ The national rate of new infections remains lower than that of Maryland at 14.7 per 100,000 in 2015. ▪ 2016 data have not yet been published.

Table 22. Prevention of Infectious Disease Measures, 2011-2016

Measures	Population	2011	2012	2013	2014	2015	2016
Annual seasonal influenza vaccination rate	Maryland	47.4%	53.1%	48.9%	52.1%	42.9%	53.5%
	National	41.8%	45.0%	46.2%	47.1%	40.3%	46.8%
Percent of children with recommended vaccinations	Maryland	73.80%	67.10%	75.80%	74.40%	76.80%	74.4%
	National	68.50%	68.40%	70.40%	71.60%	72.20%	70.7%
New HIV infection rate among adults and adolescents rate per 100,000 population	Maryland	30.6	30.8	36.7	23.3	26.7	
	National	15.8	15.3	15	13.8	14.7	

Source: BRFSS and NIS; CDC; CDC.

3.2.5 Goal 20: Improve Prevention for Diabetes and Cardiovascular Disease

Goal 20 includes four measures: (A) diabetes-related ED visit rates; (B) hypertension-related ED visit rates; (C) percentage of children considered obese; and (D) percent of adults at a healthy weight.

Goal 20. Improve Prevention for Diabetes and Cardiovascular Disease	
Goal Summary	Diabetes and Hypertension-Related ED Visit Rate The Maryland SHIP monitors diabetes and cardiovascular disease prevalence as indicators of population health, and encourages the development of local health improvement coalitions (LHICs) to address these chronic conditions outside of the emergency department. ED visits related to complications with diabetes or hypertension may indicate that these conditions are not well controlled and, as with PQIs, may represent lack of access to or poor quality outpatient care. This Model works in tandem with the SHIP objective of reducing condition-specific emergency department visits, and builds off of related SHIP measures to create the HSCRC measure methodology outlined below; accordingly, rates will differ between this report and those displayed on the SHIP website. Percent of High School Youth Considered Obese Youth obesity is a risk factor for the development of diabetes and hypertension. The Maryland SHIP monitors obesity rates in high school youth and encourages the development of LHICs to address the issue. Percent of Adults at a Healthy Weight Maintaining a healthy weight reduces the risk for the development of diabetes and hypertension.
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 divided by the total number of Maryland residents multiplied by 1,000. **Data Source:** **Numerator**: HSCRC outpatient data of relevant condition-specific ICD-9 codes and preliminary ICD-10 codes. **Denominator**: Updated Maryland Department of Planning population estimates for 2012-2016. Percentage of High School Youth Considered Obese The method for calculating percent of children considered obese is the percent of students in grades 9-12 attending U.S. high schools that were obese (≥95th percentile BMI) by age and sex, based on reference data. **Data Source:** YRBS, which can be found here: www.marylandbrfss.org Percentage of Adults at a Healthy Weight The method for calculating the percent of adults at a healthy weight is the percent of Maryland residents aged 18 years and older with BMI between 18 and 24 kg/m^2 (in previous reports this measure was defined as BMI under 25 kg/m^2) **Data Source:** BRFSS, which can be found here: www.marylandbrfss.org
Monitoring Results ***See below*** Table 23 Figure 13	Diabetes and Hypertension-Related ED Visit Rate ▪ The Maryland diabetes-related ED visit rate increased slightly each year. Between 2013 and 2016, the ED rate increased from 2.15 to 2.40 per 1,000 residents, an increase of 11.65 percent. ▪ Between 2013 and 2016, the hypertension ED rate increased from 2.79 to 3.23 per 1,000 Maryland residents. This represents an increase of 15.74 percent. Percentage of High School Youth Considered Obese ▪ While lower than the nation, the percentage of high school youth considered obese increased slightly in Maryland between 2013 and 2015, from 11.0 percent to 11.5 percent. ▪ Nationally, the percentage of high school youth considered obese also rose from 13.70 percent in 2013 to 13.90 percent in 2015. Percentage of Adults at a Healthy Weight ▪ The percentage of Maryland adults at a healthy weight is 33.74 percent, which is higher than the 2015 rate of 32.80 percent, but is lower than the

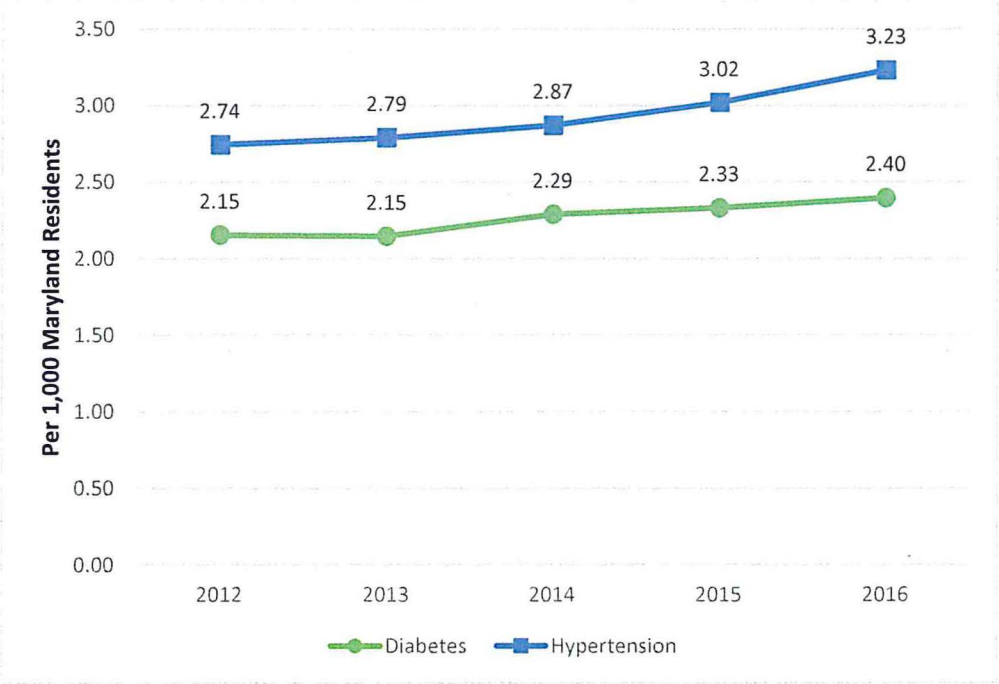
	2013 rate of 34.10 percent. The 2016 Maryland rate is also higher than the national rate of 32.90 percent.

Table 23. Prevention and Diabetes and Cardiovascular Disease, 2012-2016

Measures	Population	2011	2012	2013	2014	2015	2016
Diabetes-related ED visit rate per 1,000 population	Maryland		2.15	2.15	2.29	2.33	2.40
Hypertension-related ED visit rate per 1,000 population	Maryland		2.74	2.79	2.87	3.02	3.23
Percent of High School youth considered obese	Maryland	12.00%		11.00%		11.50%	
	National	13.00%		13.70%		13.90%	
Percent of adults at a healthy weight	Maryland	33.90%	34.20%	34.10%	33.60%	32.80%	33.74%
	National	34.50%	34.20%	33.40%	33.40%	32.70%	32.90%

Source: HSCRC Outpatient Abstract data, 2012-2016; YRBS; BRFSS.
Note: Data for ED visit rates are preliminary pending finalized ICD-9 to ICD-10 crosswalks.

Figure 13. Diabetes and Hypertension - Related Emergency Department Visit Rate, Maryland, 2012-2016



Source: HSCRC Outpatient Abstract data, 2012-2016.
Note: Data for ED visit rates are preliminary pending finalized ICD-9 to ICD-10 crosswalks.

3.2.6 Goal 21: Improve Prevention for Asthma

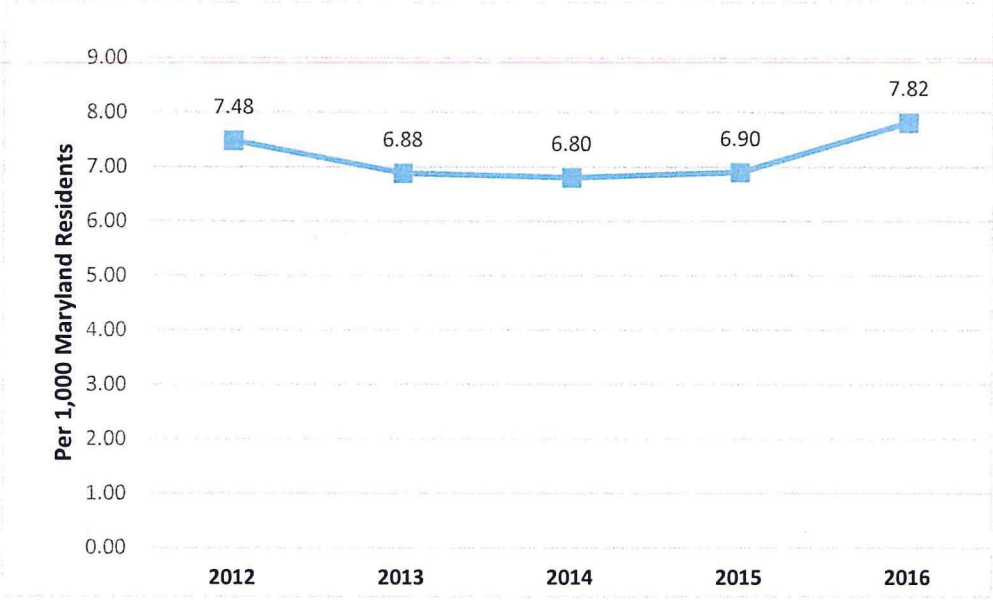
Goal 21. Improve Prevention for Asthma	
Goal Summary	The Maryland SHIP monitors asthma prevalence as an indicator of population health, and encourages the development of LHICs to address these chronic conditions outside of the emergency department. ED visits related to complications with asthma may indicate that this condition is not well controlled and, as with PQIs, may represent lack of access to or poor quality outpatient care. This Model works in tandem with the SHIP objective of reducing condition-specific emergency department visits, and builds off of related SHIP measures to create the HSCRC measure methodology outlined below; accordingly, rates will differ between this report and those displayed on the SHIP website.
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 data of relevant condition-specific ICD-9 codes and preliminary ICD-10 codes. **Denominator**: Updated Maryland Department of Planning population estimates for 2012-2016.
Monitoring Results ***See below*** Table 24 Figure 14	▪ The Maryland asthma-related ED visit rate increased by 13.67 percent between the 2013 base year of the model and 2016, increasing from 6.88 to 7.82 per 1,000 Maryland residents.

Table 24. Prevention of Asthma, 2012-2016

Measures	Population	2012	2013	2014	2015	2016
Asthma-related emergency department visit rate per 1,000 population	Maryland	7.48	6.88	6.80	6.90	7.82

Source: HSCRC Outpatient Abstract data, 2012-2016.
Note: Data for ED visit rates are preliminary pending finalized ICD-9 to ICD-10 crosswalks.

Figure 14. Asthma-Related Emergency Department Visit Rate, Maryland, 2012-2016



Source: HSCRC Outpatient Abstract data, 2012-2016.
Note: Data for ED visit rates are preliminary pending finalized ICD-9 to ICD-10 crosswalks.

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 Maryland SHIP monitors mental health and substance abuse-related ED visits and encourages the development of local Health Improvement Coalitions to address these issues outside of the emergency department. This Model works in tandem with the SHIP objective of reducing condition-specific emergency department visits, and builds off of related SHIP measures to create the HSCRC measure methodology outlined below; accordingly, rates will differ between this report and those displayed on the SHIP website.
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. **Numerator**: HSCRC outpatient data of relevant condition-specific ICD-9 codes and preliminary ICD-10 codes.

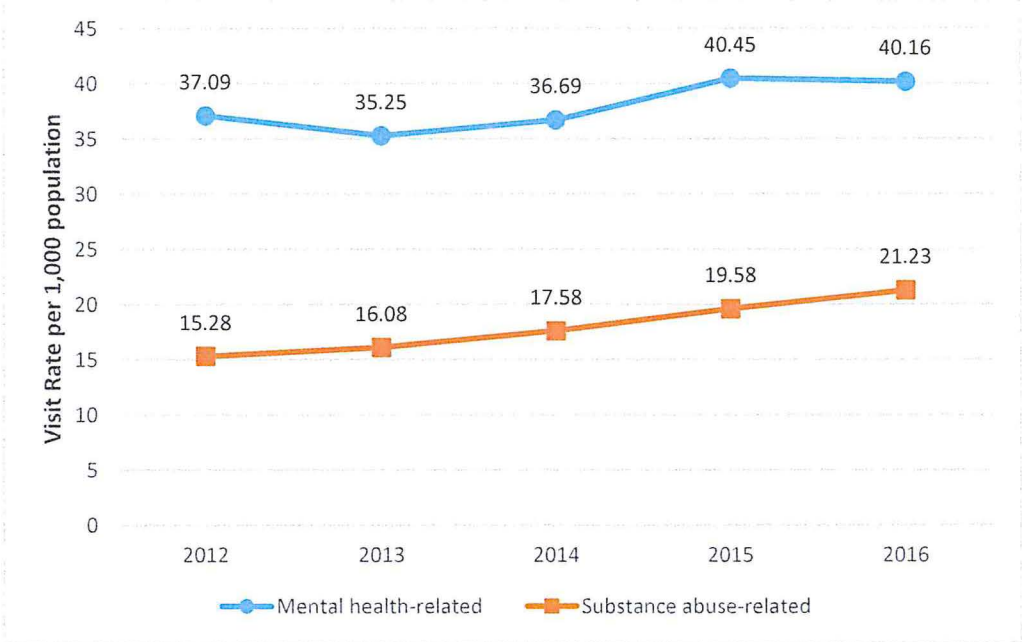
	Denominator: Updated Maryland Department of Planning population estimates for 2012-2016.
Monitoring Results ***See below*** Table 25 Figure 15	▪ The Maryland mental health-related ED visit rate increased by 14.76 percent between 2013 and 2015, while the substance-abuse related ED Visit rate increased by 21.73 percent over the same time period. These trends should be interpreted with caution, given the change from ICD-9 to ICD-10. ▪ In 2016, mental-health related ED visits were 40.16 per 1,000 residents, while substance-abuse related ED visits were 21.23 per 1,000 residents.

Table 25. Behavioral Health-related Emergency Department Visit Rate per 1,000, Maryland, 2012-2016

Measures	Population	2012	2013	2014	2015	2016
Mental health-related	Maryland	37.09	35.25	36.69	40.45	40.16
Substance abuse-related	Maryland	15.28	16.08	17.58	19.58	21.23

Source: Data Source: HSCRC outpatient data, 2012-2016.
Note: Data for ED visit rates are preliminary pending finalized ICD-9 to ICD-10 crosswalks.

Figure 15. Mental Health and Substance-Abuse related Emergency Department Visits per 1,000, Maryland, 2012-2016



Source: Data Source: HSCRC outpatient data, 2012-2016.
Note: Data for ED visit rates are preliminary pending finalized ICD-9 to ICD-10 crosswalks.

3.2.8 Goal 23: Promote Health through Safe Physical Environments

Goal 23. Promote Health through Safe Physical Environments	
Goal Summary	Accidents were the fifth leading cause of death in Maryland in 2012, with motor vehicle accidents and falls accounting for about one-third of all accidental deaths. Fall-related deaths in the state have increased over the last decade by 70 percent, while motor vehicle accidents have decreased by 26 percent.
Measurement Methodology	Calculation: Fall-related death rate = (Count of fall related deaths / Count of Maryland Residents) * 100,000 The Maryland Vital Statistics annual report contains the number of fall-related deaths. Please note that 2016 data are preliminary, until such time as the 2016 Annual Report is posted to the Maryland Vital Statistics website, at the link below: https://health.maryland.gov/vsa/Pages/reports.aspx. (Reports for previous years are final, and may be found at the above hyperlink.)
Monitoring Results ***See below*** Table 26	▪ The fall-related death rate for Maryland rose from 9.0 per 100,000 population in 2013 to 11.5 per 100,000 population in 2016, an increase of 27.8 percent. Due to population aging, future reports should aim to provide a fall-related death rate that is age-adjusted. ▪ The national fall-related death rate rose from 9.6 per 100,000 population in 2013 to 10.4 in 2015. 2016 data are not yet available for this measure.

Table 26. Fall-related Deaths per 100,000 Population, 2011-2016

Measures	Population	2011	2012	2013	2014	2015	2016*
Fall-related death rate per 100,000 population	Maryland	8.8	9.1	9	9.4	10.3	11.5
	National	8.8	9.2	9.6	10	10.4	

Source: Maryland Vital Statistics Administration, Centers for Disease Control and Prevention.
*2016 Maryland data are preliminary at this time.

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).

3.3.1 Goal 24: Reduce Overuse of Diagnostic Testing/Imaging

Goal 24. Reduce Overuse of Diagnostic Testing/Imaging	
Goal Summary	Advances in diagnostic imaging have allowed physicians to diagnose health problems at earlier stages and monitor therapy progress more precisely, resulting in improved patient care. Simultaneously, Medicare Part B expenditures for diagnostic imaging have doubled between the reporting years of 2000–2006, reaching $14 billion. CMS has established imaging efficiency core measures. These include: (A) mammography follow-up rates, (B) abdomen CT with contrast, (C) thorax with contrast, (D) cardiac imaging for preoperative risk assessment for non-cardiac low risk surgery, and (E) simultaneous use of brain CT and sinus CT. Additional information on these measures is available at: http://www.medicare.gov/HospitalCompare/data/Measures-Displayed.html#UMI.
Measurement Methodology	Maryland is reporting the statewide average results for 2011 to 2016 for the following measures from Medicare's hospital compare website: OP-9 – Mammography Follow-Up Rates Outpatients who had a follow-up mammogram, breast ultrasound, or breast MRI within the 45 days after a screening mammogram. OP-10 – Abdomen CT – Use of Contrast Material Outpatient CT scans of the abdomen that were "combination" (double) scans. OP-11 – Thorax Computed Tomography (CT) – Use of Contrast Material Outpatient CT scans of the chest that were "combination" (double) scans OP-13 – Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac Low-Risk Surgery Outpatients who got cardiac imaging stress tests before low-risk outpatient surgery OP-14 – Simultaneous Use of Brain Computed Tomography (CT) and Sinus CT Outpatients with brain CT scans who got a sinus CT scan at the same time
Monitoring Results ***See below*** Table 27	▪ In 2016, 5.8 percent of abdominal CTs in Maryland (compared to nearly 8 percent of abdominal CTs across the U.S.) were performed with and without contrast. ▪ In 2016 the rate of use of contrast material with a CT of the thorax was approximately twice as high across the U.S. (1.8 percent) compared to Maryland (0.8 percent). ▪ Approximately 2.6 percent of Maryland outpatients who received a brain CT also received a CT of the sinus, compared to 1.6 percent at the national level.

	▪ 2015 data were suppressed for Maryland for all measures listed. ▪ In all measures except for OP-10, Maryland has reduced its overuse of Diagnostic Testing between 2014 and 2016.

Table 27. Use of Diagnostic Imaging Testing, 2014-2016

Measures	Population	2011	2012	2013	2014	2015	2016
Mammography Follow-up Rates [OP-9]	Maryland				10.0		9.4
	National				8.9	8.9	8.8
Abdomen CT Use of Contrast Materials [OP-10]	Maryland				4.3		5.8
	National				9.4	8.4	7.8
Thorax CT Use of Contrast Materials [OP-11]	Maryland				1.0		0.8
	National				2.4	2.1	1.8
Outpatients who got cardiac imaging stress tests before low-risk outpatient surgery [OP-13]	Maryland				5.8		5.4
	National				5.0	4.8	4.8
Outpatients with brain CT scans who got a sinus CT scan at the same time [OP-14]	Maryland				4.5		2.6
	National				2.8	2.9	1.6

Source: Data Source: CMS Hospital Compare.

Note: The data are presented on a SFY basis, meaning that 2014 presents data from July 2013 through June 2014. 2015 data for Maryland have been suppressed by CMS.

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) dual eligible Maryland hospital charges, and (E) private payer 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 dual-eligibles), Medicaid (including dual-eligibles), dual-eligibles separately, and for those with private insurance only. The data for each category capture in-state spending on Maryland residents.
Measurement Methodology	All-Payer Maryland Hospital Per Capita Total 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 Total 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 Total Charges for Maryland Residents: (Total fee-for-service and managed care expenditures for Maryland Medicaid beneficiaries) ÷ (Total average Medicaid annual enrollment) Private Payer Maryland Hospital Beneficiary Total Charges for Maryland Residents: (Total inpatient and outpatient costs for private payer Maryland beneficiaries) ÷ (Total estimated private payer beneficiaries) Medicare/Medicaid Dual Eligibles Maryland Hospital Beneficiary Total Charges for Maryland Residents: (Total inpatient and outpatient hospital expenditures for dual eligible beneficiaries) ÷ (Number of Maryland residents with dual eligibility status) **Data Sources:** **Hospital Expenditures**: HSCRC Financial Data (All-Payer and FFS); HSCRC Inpatient and Outpatient Abstract (Medicaid and Commercial). **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); CMS Office of the Actuary (CMS OACT)).
Monitoring Results ***See below*** Table 28	▪ Between 2013 and 2016, all-payer total per capita hospital charges grew by 4.15 percent. ▪ Medicare total per capita hospital charges decreased slightly by 0.22 percent between 2013 and 2016, from $7,009 to $6,952. ▪ During the same time period, total per capita hospital charges increased for Medicaid by 4.16 percent. ▪ Between 2013 and 2016, total hospital charges for Medicare/Medicaid dual eligibles increased by 11.68 percent. ▪ Private payer beneficiaries are difficult to estimate, so this report includes two estimate sources, the SHADAC and the OACT. ▪ Using the SHADAC data, total hospital charges for private payers decreased 2.43 percent between 2013 and 2016. Using the OACT data, total hospital charges decreased for private payers by 1.91 percent between 2013 and 2014. Total hospital charges for 2015 and 2016 are not yet available as an estimated number of private payer beneficiaries for those years has not yet been released from OACT.

Table 28. Total Maryland Hospital per Capita Charges (Inpatient and Outpatient) and Growth, by Payer, Maryland, 2012-2016*

Measures		2012	2013	2014	2015	2016
All-payer Maryland Hospital total charges for MD residents	Charges ($)	2,343	2,383	2,414	2,469	2,482
	Change from 2013 (%)			1.30%	3.61%	4.15%
Medicare Maryland hospital total charges for MD Medicare Beneficiaries	Charges ($)	6,918	7,023	6,972	7,071	6,982
	Change from 2013 (%)			-0.73%	0.68%	-0.59%
Medicaid Maryland hospital per capita total charges for MD Medicaid Beneficiaries (includes Medicaid Expansion beneficiaries)	Charges e ($)	2,398	2,382	2,466	2,518	2,481
	Change from 2013 (%)			3.53%	5.71%	4.16%
Private payer Maryland hospital per capita total charges for MD Privately insured residents (SHADAC estimates)	Charges ($)	1,290	1,288	1,266	1,263	1,256
	Change from 2013 (%)			-1.71%	-1.94%	-2.43%
Private payer Maryland hospital per capita total charges for MD Privately insured residents (OACT estimates)	Charges ($)	1,226	1,223	1,200		
	Change from 2013 (%)			-1.91%		
Medicare/Medicaid dual eligible Maryland hospital total charges for MD Dual Beneficiaries	Charges ($)	7,859	7,839	7,723	7,996	8,754
	Change from 2013 (%)			-1.48%	2.00%	11.68%

* Hospitals undercharged their global budget revenues in the second half of CY 2016. Please see Appendix A for further details on the impact to All-Payer and Medicare data.

NOTE: Total hospital charges for 2015 and 2016 are not yet available as an estimated number of private payer beneficiaries for those years has not yet been released from OACT.

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 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 dual-eligibles). The data for each category capture in-state spending on Maryland residents.

Measurement Methodology	All-Payer Maryland Specialty Hospital Per Capita Total 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 Total 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 Total Charges for Maryland Residents: (Total FFS and managed care specialty charges for Maryland Medicaid beneficiaries) ÷ (Total average Medicaid annual enrollment). **Data Sources:** **Hospital Charges**: HSCRC Financial Data (All-Payer and Medicare FFS); HSCRC Inpatient and Outpatient Abstract (Medicaid and Commercial). **Population Estimates**: All-Payer (Maryland Dept. of Planning), Medicare (CMS), and Medicaid (UMBC Hilltop Institute).
Monitoring Results ***See below*** Table 29	▪ Maryland all-payer specialty per capita charges increased from $44.99 in 2013 to $51.86 in 2016, an increase of 15.27 percent. ▪ Medicare per beneficiary specialty hospital charges also increased by 4.23 percent between 2013 and 2016, from $102.63 to $106.97. ▪ Medicaid per beneficiary charges also increased from $85.38 to $89.38 from 2013 to 2016, an increase of 4.69 percent.

Table 29. Specialty Hospital per Capita Charges (Inpatient and Outpatient) and Growth, by Payer, Maryland, 2013-2016

Measures		2013	2014	2015	2016
All-payer Maryland specialty hospital per capita total charges for MD residents	Charges	$44.99	$45.91	$49.23	$51.86
	% Change since 2013		2.06%	9.44%	15.27%
Medicare Maryland specialty hospital per capita total charges for MD residents	Charges	$102.73	$102.63	$110.60	$107.17
	% Change since 2013		-0.09%	7.66%	4.33%
Medicaid Maryland specialty hospital per capita total charges for MD residents	Charges	$85.38	$75.81	$63.76	$89.38
	% Change since 2013		-11.21%	-25.32%	4.69%

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 (currently unavailable), (B) Medicare total expenditures, (C) Medicaid total expenditures, (D) private payer Maryland total expenditures, and (E) Dual Eligibles' Medicaid-only 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	Per Capita Total Expenditures (Total health care charges for all Maryland residents) ÷ (Total Maryland resident population). These data are currently not available. Medicare Per Capita Total Expenditures (Part A expenditures for Medicare beneficiaries with Part A ÷ Maryland Part A Beneficiaries) + (Part B expenditures for Medicare beneficiaries with Part B ÷ Maryland Part B Beneficiaries) 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 Capita Total Expenditures (Total expenditures for Maryland Medicaid Non-Dual beneficiaries) ÷ (Medicaid Non-Dual enrollment months, annualized to reflect a 12 month period) Private Payer per Capita Total Expenditures (Total Costs for private payer Maryland residents) ÷ (Total member insured months, annualized to reflect a 12 month period) Dual Eligibles Medicaid Total Expenditures (Total Medicaid costs for dually eligible beneficiaries) ÷ (Total number of Dually eligible Maryland beneficiaries) **Data Sources:** **Total 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 30	▪ Maryland Medicare per capita total health expenditures increased by 1.42 percent between 2013 and 2016, compared to an increase of 3.20 percent for the U.S. ▪ In this report, Maryland has included updated numbers for Private Payer total expenditures, reflecting the most recent data captured in the MHCC All-Payer Claims Database. ▪ Also in this report, Maryland is reporting Medicaid Non-Dual total expenditures and total Medicaid expenditures for the dually eligible, for the first time. Total per capita expenditures for Medicaid have increased 13.18 percent in 2015 compared to 2013, while total per capita expenditures for the dually eligible have decreased 4.55 percent over the same time period. The increase in non-dual Medicaid expenditures per capita in 2015 may be at least partially due to the resumption of Medicaid eligibility redeterminations in spring 2015.

	Healthier Medicaid enrollees experienced comparatively longer lapses in coverage, causing the per capita cost to rise. ▪ HSCRC will report additional data related to expenditure growth by payer category as they become available.

Table 30. Total Annual Health Expenditures per Capita, by Payer, Maryland, 2012-2016

Measures	Population	2012	2013	2014	2015	2016
All-payer per capita total expenditure	Maryland ($)					
	National ($)					
Medicare per beneficiary total expenditure	Maryland ($)	11,122	11,142	11,079	11,337	11,320
	MD change from 2013 (%)			-0.56%	1.75%	1.60%
	National ($)	9,565	9,540	9,640	9,832	9,917
	National change from 2013 (%)			1.05%	3.06%	3.95%
Medicaid Non-Dual per capita total expenditure	Maryland		5,741	5,996	6,498	
	MD change from 2013 (%)			4.43%	13.18%	
Private payer per beneficiary total expenditure	Maryland ($)			3,240	3,424	
	MD change from 2014 (%)				5.69%	
Medicare/Medicaid dual eligibles per beneficiary total expenditure (Medicaid expenditures only)	Maryland		16,375	15,890	15,630	
	MD change from 2013 (%)			-2.96%	-4.55%	

*Hospitals undercharged their global budget revenues in the second half of CY 2016. Please see Appendix A for further details on the impact to Medicare data.

**Private Payer per beneficiary total expenditures were previously reported for 2013. Due to updates in the measure definition, these data are being re-run, and will be reported once again in the upcoming Annual Monitoring Report.

*** The increase in non-dual Medicaid expenditures per capita in 2015 may be at least partially due to the resumption of Medicaid eligibility redeterminations in spring 2015. Healthier Medicaid enrollees experienced comparatively longer lapses in coverage, causing the per capita cost to rise.

4.0 Conclusions

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 2011-2016 (including Numerators and Denominators Used to Estimate Measures, as appropriate)

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

Goal 2								
Measures	Population		2011	2012	2013	2014	2015	2016
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%
	National		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%
	National		85%	85%	85%	85%	85%	85%

Goal 3								
Measures	Population		2011	2012	2013	2014	2015*	2016
Percentage of short-stay residents who improved in their ability to move around on their own. [QM-471]	Maryland						65.19%	65.48%
	National						63.55%	64.45%
Percentage of short-stay residents who got antipsychotic medication for the first time. [QM-434]	Maryland						2.19%	1.95%
	National						2.18%	2.06%
Percentage of long-stay residents experiencing one or more falls with major injury. [QM-410]	Maryland						2.90%	2.84%
	National						3.33%	3.34%
Percentage of long-stay residents with a urinary tract infection. [QM-407]	Maryland						4.48%	3.97%
	National						4.85%	4.18%
Percentage of long-stay high-risk residents with pressure ulcers. [QM-403]	Maryland						6.64%	7.10%
	National						5.79%	5.67%
Percentage of long-stay residents who got an antianxiety or hypnotic medication. [QM-452]	Maryland						18.44%	18.56%
	National						23.55%	23.32%
Percentage of long-stay residents who needed and got a flu shot for the current flu season. [QM-411]	Maryland						95.24%	95.34%
	National						94.46%	94.62%
Percentage of long-stay residents who needed and got a vaccine to prevent pneumonia. [QM-415]	Maryland						92.10%	93.36%
	National						93.30%	93.71%
Percentage of long-stay residents who got an antipsychotic medication. [QM-419]	Maryland						14.02%	13.71%
	National						17.42%	16.29%
*2015 data represent Q2-Q4 of 2015. Q1 data are unavailable.								

Goal 4								
Measures	Population		2011	2012	2013	2014	2015	2016
Patient's rating of provider: percent with top box scores	Maryland (South)		79%	82%	82%	83%	85%	N/A
	Northeast		77%	80%	81%	82%	82%	83%
	Midwest		79%	80%	83%	83%	83%	82%
	West		76%	77%	79%	80%	83%	82%
	National		78%	80%	82%	82%	83%	82%

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

Goal 6 - Not Available

Goal 7								
Measures	Population		2011	2012	2013	2014	2015	2016
Rate of Physician Follow-up after discharge	Maryland Medicare	Discharges with Visits within 14 Days			106,706	101,083	102,152	102,855
		Eligible Discharges			158,527	155,253	154,364	151,416
		Percent with Follow-up After Discharge			67%	65%	66%	68%
	National 5% Medicare Sample of the CCW	Discharges with Visits within 14 Days			293,868	277,792	275,267	279,364
		Eligible Discharges			446,312	429,188	424,421	419,360
		Percent with Follow-up After Discharge			66%	65%	65%	67%
Discharges with Principal Provider Notified, Any Provider	Maryland	Discharges with Notification			62,583	231,001	301,468	344,115
		Total Discharges			609,853	647,229	629,672	621,055
		Rate of Notification			10.26%	35.69%	47.88%	55.41%
Discharges with Principal Provider Notified, Ambulatory Care Provider	Maryland	Discharges with Notification			41,536	97,115	181,249	248,877
		Total Discharges			609,853	647,229	629,672	621,055
		Rate of Notification			6.81%	15.00%	28.78%	40.07%

Goal 8								
Measures	Population		2011	2012	2013	2014	2015	2016
Medicare-participating physicians per 1,000 Medicare Enrollees	Maryland	Medicare Participating Physicians or Providers					22,933	23,572
		Medicare Beneficiaries					856,794	870,167
		Participating physicians or providers per 1,000 beneficiaries					26.77	27.09
Medicaid-participating physicians per 1,000 Medicaid Enrollee	Maryland	Medicaid Participating Physicians			37,086	40,199	42,830	44,233
		Medicaid Beneficiaries			1,066,815	1,181,231	1,310,720	1,279,149
		Participating physicians per 1,000 beneficiaries			34.76	34.03	32.68	34.58

Goal 9								
Measures	Population		2011	2012	2013	2014	2015	2016*
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	1091
	By Practice	Level 1		19	0	7	5	5

Goal 9								
Measures	Population		2011	2012	2013	2014	2015	2016*
		Level 2		18	28	26	32	35
		Level 3		45	45	95	147	167
		Total		82	73	128	184	207
Participation of providers in accountable care organizations	Maryland ACOs					21	21	26
	Maryland Provider Organizations					482	506	672
	National ACOs					406	393	433
	National Providers					15,782	15,392	14,817
Participation of providers in alternative rate setting methodologies	Maryland		31	38	32	36	35	35
	National							
2016 data on participation of providers in ARMs include a categorization of the different ARMs in the report narrative.								

Goal 10								
Measures	Population		2011	2012	2013	2014	2015	2016
Heart attack care - primary PCI received within 90 minutes of hospital arrival [AMI-8a]*	Maryland		91%	91%	94%	94%	94%	
	National		94%	95%	96%	96%	95%	
Heart failure care - LVF assessment [HF-2]*	Maryland		99%	99%	99%	100%	98%	
	National		99%	99%	99%	99%	96%	
Pneumonia Care - Initial antibiotic selection for CAP in immunocompetent - patient (both ICU and non-ICU) [PN-6]*	Maryland		96%	96%	97%	97%	94%	
	National		95%	95%	96%	96%	92%	
Surgical Care Improvement (SCIP) - Cardiac surgery patients taking a beta-	Maryland		95%	97%	98%	98%	97%	
	National		96%	97%	98	98%	97%	

Goal 10								
Measures	Population		2011	2012	2013	2014	2015	2016
blocker before hospital admission who received a beta-blocker within 24 hours before surgery through the time in the recovery room. [SCIP-CARD-2]*								
Surgical care improvement (SCIP) - infection prevention-urinary catheter removed [SCIP-INF-9]*	Maryland		94%	96%	98%	99%	99%	
	National		94%	96%	98%	98%	98%	
Surgical care improvement (SCIP) - infection prevention- Patients having a surgery who received medicine to prevent infection (an antibiotic) within one hour before the skin was surgically cut [SCIP-INF-1]*	Maryland		97%	98%	96%	99%	99%	
	National		98%	99%	99%	99%	98%	
Surgical care improvement (SCIP) - infection prevention- Patients having a surgery who received appropriate medicine (antibiotic) which is shown to be effective for the type of surgery performed [SCIP-INF-2]*	Maryland		98%	98%	99%	98%	99%	
	National		98%	99%	99%	99%	98%	
Surgical care improvement (SCIP) - infection prevention- Patients having a surgery who received appropriate medicine (antibiotic) that prevents infection and the antibiotic was stopped within 24	Maryland		97%	98%	98%	98%	98%	
	National		97%	98%	98%	98%	98%	

Goal 10								
Measures	Population		2011	2012	2013	2014	2015	2016
hours after the surgery ended [SCIP-INF-3]*								
Surgical care improvement (SCIP)-venous thromboembolism (VTE) - Patients having surgery who received the appropriate treatment to prevent blood clots which is shown to be effective for the type of surgery performed; Note: treatment may be medication, stockings, or mechanical devices for excursing the legs [SCIP-VTE-2]*	Maryland		97%	99%	98%	100%	100%	
	National		98%	98%	99%	100%	99%	
Children's Asthma Care (CAC) - home management plan of care (HMPC) document given to patient/caregiver [CAC-3]*	Maryland				97%	98%	97%	
	National		84%	87%	90%	91%	88%	
Blood Clot Prevention - patients who got treatment to prevent blood clots on the day or day after hospital admission or surgery [VTE-1]	Maryland				93%	96%	97%	
	National				88%	92%	94%	
Blood Clot Prevention - patients who got treatment to prevent blood clots on the day or day after being admitted to the intensive care unit (ICU) [VTE-2]	Maryland				95%	97%	97%	
	National				94%	96%	97%	
Blood Clot Prevention - patients who developed a blood clot while in the hospital who did not get	Maryland				5%	3%	1%	1%
	National				8%	6%	2%	2%

Goal 10								
Measures	Population		2011	2012	2013	2014	2015	2016
treatment that could have prevented it [VTE-6]								
Blood Clot Treatment - patients with blood clots who got the recommended treatment, i.e., using two different blood thinner medicines at the same time [VTE-3]	Maryland				96%	97%	96%	
	National				94%	95%	94%	
Blood Clot Treatment - patients with blood clots who were treated with an intravenous blood thinner, and then were checked to determine if the blood thinner was putting them patient at an increased risk of clotting [VTE-4]*	Maryland				99%	100%	100%	
	National				98%	99%	99%	
Blood Clot Treatment - patients with blood clots who were discharged on a blood thinner medicine and received written instructions about that medicine [VTE-5]	Maryland				89%	95%	99%	96%
	National				82%	89%	92%	93%
Ischemic stroke patients who got medicine to break up a blood clot within 3 hours after symptoms started [STK-4]	Maryland					64%	79%	92%
	National				66%	80%	86%	88%
Average (median) time patients spent in the emergency department, before they were admitted to the hospital as an inpatient [ED-1b]	Maryland				357	356	367	375
	National				274	275	280	280
	Maryland				143	133	140	144

Goal 10								
Measures	Population		2011	2012	2013	2014	2015	2016
Average (median) time patients spent in the emergency department, after the doctor decided to admit them as an inpatient before leaving the emergency department for their inpatient room [ED-2b]	National				98	96	99	100

Goal 11								
Measures	Population		2011	2012	2013	2014	2015	2016
Average (median) number of minutes before outpatients with chest pain or possible heart attack got an ECG [OP-05]	Maryland					9	10	10
	National					7	7	7
Average (median) time patients spent in the emergency department before leaving from the visit [OP-18b]	Maryland					192	203	218
	National					140	141	138
Percentage of patients who came to the emergency department with stroke symptoms who received brain scan results within 45 minutes of arrival[OP-23]	Maryland					62%	69%	75%
	National					65%	68%	71%
Percentage of patients receiving appropriate recommendation for follow-up screening colonoscopy [OP-29]	Maryland						85%	90%
	National						74%	81%
	Maryland						87%	91%

Goal 11								
Measures	Population		2011	2012	2013	2014	2015	2016
Percentage of patients with history of polyps receiving follow-up colonoscopy in the appropriate timeframe [OP-30]	National						80%	87%

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
Potentially Preventable Complications Rate per 1,000 discharges (all 65 PPCs)	Maryland All-Payer	Total Number of Observed PPCs			24,807	18,300	16,140	14,317
		Number at-risk Discharges			23,066,215	22,023,030	21,221,831	20,703,277
		PPCs per 1,000 at-risk Discharges			1.08	0.83	0.76	0.69
Potentially Preventable Complications Rate per 1,000 discharges (all 65 PPCs)	Maryland Medicare FFS	Total Number of Observed PPCs			12,016	8,561	7,790	6,505
		Number at-risk Discharges			8,755,714	8,468,548	8,274,128	7,975,683
		PPCs per 1,000 at-risk Discharges			1.37	1.01	0.94	0.82

Goal 12								
Measures	Population		2011	2012	2013	2014	2015	2016
Potentially Preventable Complications Rate per 1,000 discharges (all 65 PPCs)	Maryland Medicaid	Total Number of Observed PPCs			3,497	3,085	2,681	2,527
		Number at-risk Discharges			4,170,854	4,897,741	4,790,226	4,692,467
		PPCs per 1,000 at-risk Discharges			0.84	0.63	0.56	0.54
Casemix-Adjusted PPC Rate	Maryland All-Payer				1.24	0.94	0.82	0.70
	Maryland Medicare FFS				1.44	1.05	0.94	0.78
	Maryland Medicaid				1.09	0.83	0.72	0.63

Goal 13								
Measures	Population		2011	2012	2013	2014	2015	2016
Admission rate from home health agencies to acute inpatient hospital	Maryland			17%	17%	16.4%	16.0%	16.3%
	National			17%	16%	15.9%	16.2%	16.4%
Unplanned urgent visits to the ED for patients receiving home health	Maryland			11%	11%	11.7%	12.4%	12.3%
	National			12%	12%	12.2%	12.5%	12.7%

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

Goal 15								
Measures	Population		2011	2012	2013	2014	2015	2016
30-day All-Hospital, All-Cause readmission (Case-mix Adjusted)	Maryland	Readmissions						
		Eligible Discharges						
		Readmission Rate		12.49%	12.93%	12.43%	12.02%	11.54%
Readmissions per 1,000 Maryland residents	Maryland	Readmissions		74,518	69,640	64,701	61,474	58,643
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Readmission Rate		12.65	11.74	10.84	10.25	9.75
Heart failure readmission rate	Maryland	Readmissions		4,333	3,949	3,926	3,977	3,313
		Eligible Discharges		17,544	17,084	17,314	17,968	15,922
		Readmission Rate		24.70%	23.12%	22.68%	22.13%	20.81%
Acute myocardial infarction readmission rate	Maryland	Readmissions		1,059	1,003	959	999	949
		Eligible Discharges		7,890	7,689	7,954	8,312	7,778
		Readmission Rate		13.42%	13.04%	12.06%	12.02%	12.20%
Pneumonia readmission rate	Maryland	Readmissions		2,323	2,096	2,004	1,777	1,649
		Eligible Discharges		15,194	14,589	14,004	13,443	12,710
		Readmission Rate		15.29%	14.37%	14.31%	13.22%	12.97%
Chronic obstructive pulmonary disease readmission rate	Maryland	Readmissions		3,486	3,265	2,957	2,690	2,169
		Eligible Discharges		16,122	15,731	14,552	13,681	11,467
		Readmission Rate		21.62%	20.76%	20.32%	19.66%	18.92%

Goal 15								
Measures	Population		2011	2012	2013	2014	2015	2016
Hip/total knee arthroplasty readmission rate	Maryland	Readmissions		664	608	576	547	572
		Eligible Discharges		15,601	15,986	17,040	17,775	18,602
		Readmission Rate		4.25%	3.80%	3.38%	3.08%	3.07%

Goal 16								
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	78.8	
	White		79	79.1	79.1	79	78.7	
	Black		75.3	75.5	75.5	75.6	75.1	
* These data are preliminary, until such time as the Maryland Vital Statistics Administration publishes its 2016 final report.								

Goal 17								
Measure	Population		2011	2012	2013	2014	2015	2016
PQI Acute Composite Rate	Maryland	Number of acute ACSC discharges		23,101	23,223	21,642	22,577	24,233
		Population age 18 and over		4,429,728	4,532,085	4,604,251	4,649,690	4,667,719
		Composite PQI Rate		521.50	512.41	470.04	473.19	519.16

Goal 17								
Measure	Population		2011	2012	2013	2014	2015	2016
PQI Chronic Composite Rate	Maryland	Number of chronic ACSC discharges		46,325	46,361	44,466	41,471	39,076
				4,429,728	4,532,085	4,604,251	4,649,690	4,667,719
				1045.78	1022.95	965.76	942.15	837.15
PQI Overall Composite Rate	Maryland	Number of overal ACSC discharges		69,425	69,582	66,105	64,048	63,307
		Population age 18 and over		4,429,728	4,532,085	4,604,251	4,649,690	4,667,719
		Composite PQI Rate		1,567.25	1,535.32	1,435.74	1,415.34	1,356.27

Goal 18								
Measures	Population		2011	2012	2013	2014	2015	2016
Percent of adults who are current smokers	Maryland		19.10%	16.20%	16.40%	14.60%	15.10%	13.69%
	National		21.20%	19.60%	19.00%	18.10%	17.50%	17.10%
Percent of HS youth using any kind of tobacco product	Maryland		17.90%		16.90%		16.40%	
	National		23.40%		22.40%		18.50%	

Goal 19								
Measures	Population		2011	2012	2013	2014	2015	2016
Annual seasonal influenza vaccination rate	Maryland		47.4%	53.1%	48.9%	52.1%	42.9%	53.5%
	National		41.8%	45.0%	46.2%	47.1%	40.3%	46.8%
Percent of children with recommended vaccinations	Maryland		73.8%	67.1%	75.8%	74.4%	76.8%	74.4%
	National		68.5%	68.4%	70.4%	71.6%	72.2%	70.7%
New HIV infection rate among adults and adolescents rate per 100,000 population	Maryland		30.6	30.8	36.7	23.3	26.7	
	National		15.8	15.3	15	13.8	14.7	

Goal 20								
Measures	Population		2011	2012	2013	2014	2015	2016
Diabetes-related ED visit rate per 1,000 population	Maryland	Number of ED visits		12,683	12,723	13,651	13,973	14,410
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Visit Rate per 1,000		2.15	2.15	2.29	2.33	2.40
Hypertension-related ED visit rate per 1,000 population	Maryland	Number of ED visits		16,156	16,544	17,123	18,089	19,423
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Visit Rate per 1,000		2.74	2.79	2.87	3.02	3.23
Percent of High School youth considered obese[1]	Maryland		12.00%		11.00%		11.50%	
	National		13.00%		13.70%		13.90%	
Percent of adults at a healthy weight	Maryland		33.90%	34.20%	34.10%	33.60%	32.80%	33.74%
	National		34.50%	34.20%	33.40%	33.40%	32.70%	32.90%

Goal 21								
Measures	Population		2011	2012	2013	2014	2015	2016
Asthma-related ED visit rate per 1,000 population	Maryland	Number of ED visits		44,046	40,802	40,599	41,367	47,059
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Visit Rate per 1,000		7.48	6.88	6.80	6.90	7.82

Goal 22								
Measures	Population		2011	2012	2013	2014	2015	2016
Mental Health-related ED visit rate per 1,000 population	Maryland	Number of ED visits		218,421	209,068	218,939	242,500	241,605
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Visit Rate per 1,000		37.09	35.25	36.69	40.45	40.16
Substance Use-related ED visit rate per 1,000 population	Maryland	Number of ED visits		89,974	95,385	104,896	117,361	127,744
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Visit Rate per 1,000		15.28	16.08	17.58	19.58	21.23

Goal 23								
Measures	Population		2011	2012	2013	2014	2015	2016*
Fall-related death rate per 100,000 population	Maryland	Fall-related Deaths		534	534	563	620	694
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Rate per 100,000	8.8	9.1	9	9.4	10.3	11.5
	National	Fall-related Deaths	27,483	28,753	30,208	31,959	33,381	
		Population	311,591,917	313,914,040	316,128,839	318,857,056	321,418,820	
		Rate per 100,000	8.8	9.2	9.6	10.0	10.4	
* These data are preliminary, until such time as the Maryland Vital Statistics Administration publishes its 2016 final report.								

Goal 24								
Measures	Population		2011	2012	2013	2014	2015	2016
Mammography Follow-up Rates [OP-9]	Maryland					10		9.4
	National					8.9	8.9	8.8

Goal 24								
Measures	Population		2011	2012	2013	2014	2015	2016
Abdomen CT Use of Contrast Materials [OP-10]	Maryland					4.3		5.8
	National					9.4	8.4	7.8
Thorax CT Use of Contrast Materials [OP-11]	Maryland					1		0.8
	National					2.4	2.1	1.8
Outpatients who got cardiac imaging stress tests before low-risk outpatient surgery [OP-13]	Maryland					5.8		5.4
	National					5	4.8	4.8
Outpatients with brain CT scans who got a sinus CT scan at the same time [OP-14]	Maryland					4.5		2.6
	National					2.8	2.9	1.6

Goal 25								
Measures	Population		2011	2012	2013	2014	2015	2016*
All-payer Maryland Hospital per capita total charges for MD residents	Maryland	Total Hospital Charges ($)		13,802,757,694	14,126,722,640	14,425,743,837	14,832,091,464	14,931,711,496[1]
		Population		5,889,651	5,931,129	5,967,295	5,994,983	6,016,447
		Per capita charges ($)		2,344	2,382	2,417	2,474	2,482
Medicare Part A Maryland hospital per capita total charges per Beneficiary	Maryland	Total Inpatient Charges ($)		3,540,917,788	3,641,083,879	3,657,721,047	3,738,655,187	3,704,110,365[2]
		Part A Beneficiaries		763,357	792,589	818,030	843,204	857,336
		Part A Per capita charges ($)		4,639	4,594	4,471	4,434	4,320
Medicare Part B Maryland hospital per capita total charges per Beneficiary	Maryland	Total Outpatient Charges ($)		1,551,059,646	1,679,405,573	1,783,754,452	1,938,206,962	1,979,663,202[3]
		Part B Beneficiaries		680,364	691,255	713,229	734,983	743,868

Goal 25								
Measures	Population		2011	2012	2013	2014	2015	2016*
		Part B Per capita charges ($)		2,280	2,430	2,501	2,637	2,661
Medicare Maryland hospital per capita total charges for MD Medicare Beneficiaries	Maryland	Total Hospital Per capita charges ($)		6,918	7,023	6,972	7,071	6,982
Medicaid Maryland hospital per capita total charges per Beneficiary	Maryland	Total Charges ($)		2,492,754,659	2,595,383,354	3,158,238,247	3,250,755,718	3,276,651,898
		Total Enrollees		1,041,607	1,089,640	1,280,831	1,290,779	1,320,793
		Per capita charges ($)		2,398	2,382	2,466	2,518	2,481
Medicare/Medicaid dual eligible Maryland hospital per capita total charges per Beneficiary	Maryland	Total Charges ($)		923,593,002	965,716,900	1,002,794,990	1,068,165,772	1,216,611,443
		Total Enrollees		117,523	123,192	129,850	133,589	138,971
		Per capita charges ($)		7,859	7,839	7,723	7,996	8,754
Private Payer (using OACT estimate)	Maryland	Total Charges ($)		4,845,961,093	4,844,846,429	4,778,552,465	4,850,521,494	4,833,942,280
		Total Enrollees		3,954,000	3,961,000	3,983,000		
		Per capita charges ($)		1,226	1,223	1,200		
Private Payer (SHADAC)	Maryland	Total Charges ($)		4,845,961,093	4,844,846,429	4,778,552,465	4,850,521,494	4,833,942,280
		Total Enrollees		3,756,699	3,762,456	3,775,719	3,841,538	3,847,557
		Per capita charges ($)		1,290	1,288	1,266	1,263	1,256

***All-Payer and Medicare numbers are updated below to reflect the undercharge from the first half of CY 2016.**

[1]This number does not reflect the adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. When adjusting for Maryland hospitals' undercharge of their Global Budget Revenue July-December targets by approximately $79 million, the impact is a total adjusted all-payer Maryland hospital total charges for Maryland residents of approximately $15.01 billion.

[2]This number does not reflect the adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. When applying an undercharge factor of 1.02 percent to Maryland hospital charges for Maryland Part A beneficiaries for each month from July 2016 to December 2016, the impact is approximately $18.6 million, or total adjusted Maryland Medicare inpatient charges of $3.72 billion.

Goal 25								
Measures	Population		2011	2012	2013	2014	2015	2016*

[3]This number does not reflect the adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. When applying an undercharge factor of 1.02 percent to Maryland hospital charges for Maryland Part B beneficiaries for each month from July 2016 to December 2016, the impact is approximately $10.1 million, or total adjusted Maryland Medicare outpatient charges of $1.99 billion.

Goal 25a								
Measures	Population		2011	2012	2013	2014	2015	2016
All-payer Maryland specialty hospital total charges per capita for MD residents	Maryland	Total Charges ($)			266,816,278	273,983,175	295,140,611	311,993,719
		Population			5,931,129	5,967,295	5,994,983	6,016,447
		Per capita charges ($)			44.99	45.91	49.23	51.86
Medicare Maryland specialty hospital total charges per beneficiary for MD Medicare Beneficiaries	Maryland	Total Inpatient Charges ($)			80,304,955	80,934,506	87,112,629	85,383,229
		Part A Beneficiaries			792,589	818,030	843,204	857,336
		Inpatient Per capita charges ($)			101	99	103	100
		Total Outpatient Charges ($)			972,099	2,634,466	5,355,240	5,640,910
		Part B Beneficiaries			691,255	713,229	734,983	743,868
		Outpatient Per capita charges ($)			1.41	3.69	7.29	7.58
Medicare Maryland hospital per capita total charges for MD Medicare Beneficiaries	Maryland	Total Hospital Per capita charges ($)			102.73	102.63	110.60	107.17
Medicaid Maryland specialty hospital total charges per beneficiary for MD Medicaid Beneficiaries	Maryland	Total Charges ($)			93,034,066	97,094,364	82,299,596	118,053,889
		Total Enrollees			1,089,640	1,280,831	1,290,779	1,320,793
		Per capita charges ($)			85.38	75.81	63.76	89.38

Goal 26								
Measures	Population		2011	2012	2013	2014	2015	2016*
All-payer per capita total expenditure	Maryland	Expenditures ($)						
		Population						
		Per capita expenditures ($)						
Medicare per capita total expenditure	National	Total Part A Expenditures ($)			178,838,635,359	178,178,351,596	180,373,125,394	182,814,719,396
		Part A Beneficiaries			36,435,042	36,595,134	36,808,487	37,408,582
		Part A Per capita expenditures ($)			4,908	4,869	4,900	4,887
		Total Part B Expenditures ($)			152,511,071,263	157,348,954,987	163,143,031,967	168,597,171,080
		Part B Beneficiaries			32,927,792	32,978,847	33,080,477	33,520,460
		Part B Per capita expenditures ($)			4,632	4,771	4,932	5,030
		Total Per capita expenditures ($)		9,565	9,540	9,640	9,832	9,917
	Maryland	Total Part A Expenditures ($)		4,332,789,590	4,419,176,140	4,453,864,493	4,647,893,548	4,626,026,641[4]
		Part A Beneficiaries		763,357	792,589	818,030	843,204	857,336
		Part A Per capita expenditures ($)		5,676	5,576	5,445	5,512	5,396
		Total Part B Expenditures ($)		3,705,308,739	3,847,620,277	4,018,654,324	4,281,147,173	4,407,130,097[5]
		Part B Beneficiaries		680,364	691,255	713,229	734,983	743,868
		Part B Per capita expenditures ($)		5,446	5,566	5,634	5,825	5,925
		Total Per capita expenditures ($)		11,122	11,142	11,079	11,337	11,320
	Maryland	Expenditures ($)			5,519,676,129	6,863,599,380	7,484,119,338	

Goal 26								
Measures	Population		2011	2012	2013	2014	2015	2016*
Medicaid Non-Dual per capita total expenditure[6]		Yearly Average Total Member Months			961,377	1,144,765	1,151,687	
		Per capita expenditures ($)			5,741	5,996	6,498	
Private Payer per capita total expenditure	Maryland	Expenditures ($)				7,753,726,521	8,053,135,329	
		Yearly Average Total Member Months				2,393,048	2,351,713	
		Per capita expenditures ($)				3,240	3,424	
Medicare/Medicaid dual eligibles per capita total expenditure (Medicaid expenditures only)[7]	Maryland	Expenditures ($)			2,055,772,516	2,118,602,765	2,151,976,525	
		Yearly Average Total Member Months			125,544	133,330	137,684	
		Per capita expenditures ($)			16,375	15,890	15,630	

***Maryland Medicare numbers are updated below to reflect the undercharge from the first half of CY 2016.**

[4]This number does not reflect the adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. When applying an undercharge factor of 1.02 percent to Maryland hospital expenditures for Maryland Part A beneficiaries for each month from July 2016 to December 2016, the impact is approximately $17.3 million, or total adjusted Maryland Medicare Part A expenditures of $4.64 billion.

[5]This number does not reflect the adjustment to account for undercharging that occurred in Maryland hospitals from July to December 2016. When applying an undercharge factor of 1.02 percent to Maryland hospital expenditures for Maryland Part B beneficiaries for each month from July 2016 to December 2016, the impact is approximately $7.7 million, or total adjusted Maryland Medicare Part B expenditures of $4.41 billion.

*** Additional Notes on the Medicaid data and Medicare/Medicaid dual eligibles data**

[6]Please interpret these numbers with caution. This category includes a number of special Medicaid coverage groups, including very high cost users in the Rare and Expensive Case Management Program, as well as limited benefit coverage groups, such as individuals who are only eligible for family planning services. It also includes MCO-eligible participants during their MCO selection time period

[7]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 8. Sustain High Physician Participation in Public Programs

Medicare-Participating Physicians per 1,000 Medicare Enrollees

Calculation: Medicare Participating Physicians per Medicare Enrollee =

Number of providers / Number of enrollees (obtained by Total Beneficiary Count from GDIT/CMS) * 1,000

NOTE: As mentioned, 2015-2016 Medicare beneficiaries per 1,000 is calculated from NPI list of Maryland *providers*, received in e-mail 12/9/2016 and 11/13/2017, over list of Medicare Part A and B beneficiaries as of December 2015 and December 2016. As such, 2015-2016 rate of Medicare-Participating *providers* should not be compared to 2014 rate of participating *physicians*.

Medicaid-Participating Physicians per 1,000 Medicare Enrollees

Calculation: Medicaid Participating Physicians per Medicaid Enrollee =

Number of physicians / Number of enrollees (obtained from Hilltop for non-Dual-Eligible Medicaid Population) * 1,000

Medicaid beneficiaries in 2013 also include beneficiaries of the MD Primary Adult Care (PAC) Program. Beginning in 2014, "former PAC recipients were transitioned from a partial benefit package to the full benefit Medicaid package under the ACA expansion." Source: CMS Annual Report July 1, 2015 – June 30, 2016 1115 HealthChoice Quarterly Report, https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Waivers/1115/downloads/md/Health-Choice/md-healthchoice-qtrly-rpt-apr-jun-2016.pdf, pg. 1. **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

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 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 . 2016 data are considered preliminary until the 2016 report is published at the hyperlink above.

National data for 2014 and 2015 are sourced from
http://www.cdc.gov/nchs/data/databriefs/db267.pdf, pg 1. Included separate sources because national

rate retroactively improved for 2014. 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 18. Improve Cancer Control

Source: As mentioned, BRFSS and YRBS data are from Prevention and Health Promotion Administration, Maryland Department of Health.

This year, the national data were refreshed to ensure consistent reporting across all years. The national numbers each year represent the median of US states and DC, as identified by the "UW" code in the BRFSS summary data available through the BRFSS online portal.

Goal 19. Improve Prevention of Infectious Diseases

Influenza Vaccination

Numerator: National Immunization Survey (NIS) and BRFSS respondents who reported that they received an influenza vaccination in the past 12 months.

Denominator: NIS and BRFSS respondents.

Source: Data are from the Centers for Disease Control Flu-Vax Database for persons 6 months and older for the 2016-2017 influenza season. Data are available at: https://www.cdc.gov/flu/fluvaxview/reportshtml/reporti1617/reportii/index.html.

Childhood Vaccinations

Numerator: Number of children aged 19–35 months old who received four doses DTP/DT/DTaP vaccine (diphtheria, tetanus toxoids, and pertussis vaccine; diphtheria and tetanus toxoids vaccine; and diphtheria, tetanus toxoids, and acellular pertussis vaccine), three doses of poliovirus vaccine, one dose of any measles-containing vaccine, three doses of HepB, one dose of varicella vaccine, and four doses of pneumococcal conjugate vaccine (PCV). Haemophilus influenzae type b vaccine is excluded.

Denominator: Number of children.

Source: Centers for Disease Control National Immunization Survey (NIS) available through ChildVaxView Database. 2016 data found here: https://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/index.html

New HIV Infection

Numerator: Number of reported HIV diagnoses among persons age 13 and older during a calendar year (including those reported up to one full year after).

Denominator: Number of persons age 13 and over (population).

Source: CDC HIV Surveillance Reports, 2015 data found here: https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2015-vol-27.pdf.

This citation pertains to 2015 data availability. At the time of this writing, the 2016 HIV Surveillance report has not been released.

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.

ICD-9 codes were mapped to ICD-10 codes by the Maryland Department of Health (MDH), Medicaid, Office of Health Services. Please be advised that new ICD-10 codes were added last year and may be added yearly. The ICD-10 codes are subject to change upon further review and stakeholder input. Data and information released from DHMH are provided on an "AS IS" basis, without warranty of any kind, including without limitation the warranties of merchantability, fitness for a particular purpose and non-infringement. Availability of these data and information does not constitute scientific publication. Data and/or information may contain errors or be incomplete.

Percent of High School Youth Considered Obese

Source: As mentioned, YRBS data are from Prevention and Health Promotion Administration, Maryland Department of Mental Hygiene. The department is currently renovating their website, so data were obtained via e-mail from Georgette Lavetsky on September 23, 2016. HSCRC anticipates that the data will become publicly available in 2017. A note regarding YRBS national data: the national percentage is based on a separate, nationally representative survey. It is not based on results from individual state and territorial surveys.

Percentage of Adults at a Healthy Weight

Source: As mentioned, BRFSS data are from Prevention and Health Promotion Administration, Maryland Department of Health and the BRFSS online portal available at https://www.cdc.gov/brfss/brfssprevalence/index.html

This year, the national and state data were refreshed to use the definition of healthy weight as BMI between 18 and 24. Previous years of data also included underweight in reporting. The national numbers each year represent the median of US states and DC, as identified by the "UW" code in the BRFSS summary data available through the BRFSS online portal.

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.

ICD-9 codes were mapped to ICD-10 codes by the Maryland Department of Health and Mental Hygiene (DHMH), Medicaid, Office of Health Services. Please be advised that new ICD-10 codes were added last

year and may be added yearly. The ICD-10 codes are subject to change upon further review and stakeholder input. Data and information released from MDH are provided on an "AS IS" basis, without warranty of any kind, including without limitation the warranties of merchantability, fitness for a particular purpose and non-infringement. Availability of this data and information does not constitute scientific publication. Data and/or information may contain errors or be incomplete.

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

Goal 24: Reduce Overuse of Diagnostic Testing/Imaging

Citation for statement regarding increased Medicare Part B expenditures for diagnostic imaging may be found at: "Medicare Part B Imaging Services: Rapid Spending Growth and Shift to Physician Offices Indicate Need for CMS to Consider Additional Management Practices", http://www.gao.gov/new.items/d08452.pdf , page 5.

Medicare Part B expenditures for diagnostic imaging have doubled between the reporting years of 2000–2006, reaching $14 billion

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.

Table of Tables

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