Health Services Cost Review Commission
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hscrc.maryland.gov

548th MEETING OF THE HEALTH SERVICES COST REVIEW COMMISSION
February 14, 2018

EXECUTIVE SESSION
11:30 a.m.
(The Commission will begin in public session at 11:30 a.m. for the purpose of, upon motion and approval, adjourning into closed session. The open session will resume at 1:00 p.m.)

1. **Discussion on Planning for Model Progression – Authority General Provisions Article, §3-103 and §3-104**

2. **Update on Contract and Modeling of the All-payer Model vis-a-vis the All-Payer Model Contract – Administration of Model Moving into Phase II - Authority General Provisions Article, §3-103 and §3-104**

3. **Personnel Matters – Authority General Provisions Article, §3-305 (b) (1)**

PUBLIC SESSION
1:00 p.m.

1. **Review of the Minutes from the Executive Session on January 8, 2018 and the Public Meeting and Executive Session on January 10, 2018**
2. **New Model Monitoring**
3. **Docket Status – Cases Closed**
   2419A – University of Maryland Medical System 2420A – Johns Hopkins Health System
4. **Docket Status – Cases Open**
   2421R – Baltimore Washington Medical Center 2422A – University of Maryland Medical Center
   2423A – Johns Hopkins Health System 2424A - Johns Hopkins Health System
   2425A – Johns Hopkins Health System 2426A - Johns Hopkins Health System
   2427A – Johns Hopkins Health System 2428A – Johns Hopkins Health System
5. **Final Recommendation for Updates to the Maryland Hospital Acquired Conditions Policy for RY 2020**
6. **Draft Recommendation for Updates to the Readmissions Reduction Incentive Program for RY 2020**
7. **Policy Update Report and Discussion**
   a. **Critical Actions and Planning**
   b. **Stakeholder Innovation Planning**

c. **Emergency Department Action Plans**

d. **Rate Update Discussion**

e. **Baseline Policy Analysis for Drugs**

8. **Legislative Update**

9. **Hearing and Meeting Schedule**

Cases Closed

The closed cases from last month are listed in the agenda

H.S.C.R.C's CURRENT LEGAL DOCKET STATUS (OPEN)

AS OF JANUARY 31, 2018

A: PENDING LEGAL ACTION : NONE
B: AWAITING FURTHER COMMISSION ACTION: NONE
C: CURRENT CASES:

Docket Number	Hospital Name	Date Docketed	Decision Required by:	Rate Order Must be Issued by:	Purpose	Analyst's Initials	File Status
2421R	Baltimore Washington Medical Center	1/11/2018	2/10/2018	4/21/2018	DEF/MSG	CK	OPEN
2422A	University of Maryland Medical System	1/12/2018	N/A	N/A	ARM	DNP	OPEN
2423A	Johns Hopkins Health System	1/23/2018	N/A	N/A	ARM	DNP	OPEN
2424A	Johns Hopkins Health System	1/23/2018	N/A	N/A	ARM	DNP	OPEN
2425A	Johns Hopkins Health System	1/23/2018	N/A	N/A	ARM	DNP	OPEN
2426A	Johns Hopkins Health System	1/23/2018	N/A	N/A	ARM	DNP	OPEN
2427A	Johns Hopkins Health System	1/25/2018	N/A	N/A	ARM	DNP	OPEN
2428A	Johns Hopkins Health System	1/31/2018	N/A	N/A	ARM	DNP	OPEN

PROCEEDINGS REQUIRING COMMISSION ACTION - NOT ON OPEN DOCKET

NONE

IN RE: THE APPLICATION FOR	*****	**BEFORE THE MARYLAND HEALTH**	
ALTERNATIVE METHOD OF RATE	*****	**SERVICES COST REVIEW**	
DETERMINATION	*****	**COMMISSION**	
JOHNS HOPKINS HEALTH	*****	**DOCKET:**	**2018**
SYSTEM	*****	**FOLIO:**	**2233**
BALTIMORE, MARYLAND	*****	**PROCEEDING:**	**2423A**

Staff Recommendation

February 14, 2018

I. INTRODUCTION

Johns Hopkins Health System (the "System") filed an application with the HSCRC on January 23, 2018 on behalf of Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center (the "Hospitals") for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System requests approval from the HSCRC to continue to participate in a global rate arrangement for solid organ and bone marrow transplant services with MultiPlan, Inc. for a period of one year beginning March 1, 2018.

II. OVERVIEW OF APPLICATION

The contract will continue to be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will continue to manage all financial transactions related to the global price contract including payments to the Hospitals and bear all risk relating to regulated services associated with the contract.

III. FEE DEVELOPMENT

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving solid organ and bone marrow transplant services at the Hospitals. The remainder of the global rate is comprised of physician service costs. Additional per diem payments were calculated for cases that exceed a specific length of stay outlier threshold.

IV. IDENTIFICATION AND ASSESSMENT OF RISK

The Hospitals will continue to submit bills to JHHC for all contracted and covered services. JHHC will continue to be responsible for billing the payer, collecting payments, disbursing payments to the Hospitals at their full HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear the risk of potential losses.

V. STAFF EVALUATION

Although there has been no activity under this arrangement, staff believes that the

Hospitals can achieve a favorable experience under this arrangement.

VI. STAFF RECOMMENDATION

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and bone marrow transplant services, for a one year period commencing March 1, 2018. The Hospitals will need to file a renewal application for review to be considered for continued participation. Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

IN RE: THE APPLICATION FOR	*****	**BEFORE THE MARYLAND HEALTH**	
ALTERNATIVE METHOD OF RATE	*****	**SERVICES COST REVIEW**	
DETERMINATION	*****	**COMMISSION**	
JOHNS HOPKINS HEALTH	*****	**DOCKET:**	**2018**
SYSTEM	*****	**FOLIO:**	**2234**
BALTIMORE, MARYLAND	*****	**PROCEEDING:**	**2424A**

Staff Recommendation

February10, 2018

I. INTRODUCTION

Johns Hopkins Health System ("System") filed an application with the HSCRC on January 23, 2018 on behalf of Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center (the " Hospitals") for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System requests approval from the HSCRC to continue to participate in a global rate arrangement for solid organ and bone marrow transplants services with INTERLINK Health Services, Inc. The System requests approval for a period of one year beginning March 1, 2018.

II. OVERVIEW OF APPLICATION

The contract will continue to be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the Hospitals and bear all risk relating to regulated services associated with the contract.

III. FEE DEVELOPMENT

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving the procedures for which global rates are to be paid. The remainder of the global rate is comprised of physician service costs. Additional per diem payments were calculated for cases that exceed a specific length of stay outlier threshold.

IV. IDENTIFICATION AND ASSESSMENT OF RISK

The Hospitals will continue to submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer and collecting payments, disbursing payments to the Hospitals at their full HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear the risk of potential losses.

V. STAFF EVALUATION

Although there has been no activity under this arrangement in the last year, staff believes that the Hospitals can achieve a favorable experience under this arrangement.

VI. STAFF RECOMMENDATION

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and bone marrow transplant services, for a one year period commencing March 1, 2018. The Hospitals will need to file a renewal application for review to be considered for continued participation, with approval contingent upon a favorable evaluation of performance. Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

IN RE: THE APPLICATION FOR	*****	**BEFORE THE MARYLAND HEALTH**	
ALTERNATIVE METHOD OF RATE	*****	**SERVICES COST REVIEW**	
DETERMINATION	*****	**COMMISSION**	
JOHNS HOPKINS HEALTH	*****	**DOCKET:**	**2018**
SYSTEM	*****	**FOLIO:**	**2235**
BALTIMORE, MARYLAND	*****	**PROCEEDING:**	**2425A**

Staff Recommendation

February 14, 2018

I. INTRODUCTION

Johns Hopkins Health System ("System") filed a renewal application with the HSCRC on January 23, 2018 on behalf of its member hospitals, Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the "Hospitals") requesting approval from the HSCRC for continued participation in a global rate arrangement for solid organ and bone marrow transplants with Preferred Health Care LLC. The Hospitals request that the Commission approve the arrangement for one year beginning March 1, 2018.

II. OVERVIEW OF APPLICATION

The contract will continue to be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the Hospitals and bear all risk relating to regulated services associated with the contract.

III. FEE DEVELOPMENT

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving the procedures for which global rates are to be paid. The remainder of the global rate is comprised of physician service costs. Additional per diem payments were calculated for cases that exceed a specific length of stay outlier threshold.

IV. IDENTIFICATION AND ASSESSMENT OF RISK

The Hospitals will continue to submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer, collecting payments, disbursing payments to the Hospitals at their full HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC

maintains that it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear the risk of potential losses.

V. STAFF EVALUATION

Although there was no activity under this arrangement in the last year, staff believes that the Hospitals can achieve favorable experience under this arrangement.

VI. STAFF RECOMMENDATION

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and bone marrow transplant services, for a one year period commencing March 1, 2018. The Hospitals will need to file a renewal application for review to be considered for continued participation.

Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document will formalize the understanding between the Commission and the Hospitals, and will include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

IN RE: THE APPLICATION FOR	*	**BEFORE THE MARYLAND HEALTH**	
ALTERNATIVE METHOD OF RATE	*	**SERVICES COST REVIEW**	
DETERMINATION	*	**COMMISSION**	
JOHNS HOPKINS HEALTHCARE, LLC	*	**DOCKET:**	**2018**
	*	**FOLIO:**	**2236**
BALTIMORE, MARYLAND	*	**PROCEEDING:**	**2426A**

Staff Recommendation

February 14, 2018

I. INTRODUCTION

Johns Hopkins Health System ("System") filed an application with the HSCRC on January 23, 2018 on behalf of Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center (the Hospitals) for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System requests approval from the HSCRC to continue to participate in a global rate arrangement for solid organ and bone marrow transplants services with 6 Degrees Health, Inc. The System requests approval for a period of one year beginning March 1, 2018.

II. OVERVIEW OF APPLICATION

The contract will continue to be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the Hospitals and bear all risk relating to regulated services associated with the contract.

III. FEE DEVELOPMENT

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving the procedures for which global rates are to be paid. The remainder of the global rate is comprised of physician service costs. Additional per diem payments were calculated for cases that exceed a specific length of stay outlier threshold.

IV. IDENTIFICATION AND ASSESSMENT OF RISK

The Hospitals will continue to submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer and collecting payments, disbursing payments to the Hospitals at their full HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear the risk of potential losses.

V. STAFF EVALUATION

Although there has been no activity under this arrangement, staff believes that the

Hospitals can achieve a favorable experience under this arrangement.

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VI. STAFF RECOMMENDATION

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and bone marrow transplant services, for a one year period commencing March 1, 2018. The Hospitals will need to file a renewal application for review to be considered for continued participation. Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

IN RE: THE APPLICATION FOR	*****	**BEFORE THE MARYLAND HEALTH**	
ALTERNATIVE METHOD OF RATE	*****	**SERVICES COST REVIEW**	
DETERMINATION	*****	**COMMISSION**	
JOHNS HOPKINS HEALTH	*****	**DOCKET:**	**2018**
SYSTEM	*****	**FOLIO:**	**2237**
BALTIMORE, MARYLAND	*****	**PROCEEDING:**	**2427A**

Staff Recommendation

February 14, 2018

I. INTRODUCTION

Johns Hopkins Health System ("System") filed an application with the HSCRC on January 25, 2018 on behalf of its member hospitals, Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the "Hospitals") and on behalf of Johns Hopkins HealthCare, LLC (JHHC) and Johns Hopkins Employer Health Programs, Inc. for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System and JHHC request approval from the HSCRC to participate in a global rate arrangement for bariatric surgery, bladder cancer surgery, anal and rectal cancer surgery, cardiovascular services, joint replacement surgery, pancreatic cancer surgery, spine surgery, and thyroid and parathyroid surgery with BridgeHealth Medical, Inc. for a period of one year beginning March 1, 2018.

II. OVERVIEW OF APPLICATION

The contract will be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the System hospitals and bear all risk relating to regulated services associated with the contract.

III. FEE DEVELOPMENT

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving the procedures for which global rates are to be paid. The remainder of the global rate is comprised of physician service costs.

IV. IDENTIFICATION AND ASSESSMENT OF RISK

The Hospitals will submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer, collecting payments, disbursing payments to the Hospitals at their full HSCRC approved rates, and reimbursing the physicians. The System contends that the

arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear risk of potential losses.

V. STAFF EVALUATION

After reviewing the Hospital experience data, staff believes that the Hospitals can achieve a favorable experience under this arrangement.

VI. STAFF RECOMMENDATION

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for bariatric surgery, bladder cancer surgery, anal and rectal cancer surgery, cardiovascular services, joint replacement surgery, pancreatic cancer surgery, spine surgery, and thyroid and parathyroid surgery for a one year period commencing March 1, 2018. The Hospitals will need to file a renewal application for review to be considered for continued participation.

Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

IN RE: THE APPLICATION FOR	*	**BEFORE THE MARYLAND HEALTH**	
ALTERNATIVE METHOD OF RATE	*	**SERVICES COST REVIEW**	
DETERMINATION	*	**COMMISSION**	
JOHNS HOPKINS HEALTH	*	**DOCKET:**	**2018**
SYSTEM	*	**FOLIO:**	**2238**
BALTIMORE, MARYLAND	*	**PROCEEDING:**	**2428A**

Staff Recommendation

February 14, 2018

I. INTRODUCTION

Johns Hopkins Health System ("System") filed an application with the HSCRC on January 31, 2018 on behalf of its member hospitals, Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the "Hospitals") and on behalf of Johns Hopkins HealthCare, LLC (JHHC) and Johns Hopkins Employer Health Programs, Inc. for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System and JHHC request approval from the HSCRC to participate in a global rate arrangement for bariatric surgery, bladder surgery, anal rectal surgery, cardiovascular services, joint replacement surgery, pancreas surgery, spine surgery, parathyroid surgery, solid organ and bone marrow transplants, and Executive Health services with Accarent Health for a period of one year beginning March 1, 2018.

II. OVERVIEW OF APPLICATION

The contract will be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the System hospitals and bear all risk relating to regulated services associated with the contract.

III. FEE DEVELOPMENT

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving the procedures for which global rates are to be paid. The remainder of the global rate is comprised of physician service costs.

IV. IDENTIFICATION AND ASSESSMENT OF RISK

The Hospitals will submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer, collecting payments, disbursing payments to the Hospitals at

their full HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear risk of potential losses.

V. STAFF EVALUATION

After reviewing the Hospital experience data, staff believes that the Hospitals can achieve a favorable experience under this arrangement.

VI. STAFF RECOMMENDATION

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for bariatric surgery, bladder surgery, anal rectal surgery, cardiovascular services, joint replacement surgery, pancreas surgery, spine surgery, parathyroid surgery, solid organ and bone marrow transplants, and Executive Health services for a one year period commencing March 1, 2018. The Hospitals will need to file a renewal application for review to be considered for continued participation.

Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

Final Recommendation for the Maryland Hospital-Acquired Conditions Program for Rate Year 2020

February 14, 2018

Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland 21215
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This document contains the final staff recommendations for updating the Maryland Hospital-Acquired Conditions Program for Rate Year 2020, ready for Commission action.

Table of Contents

This is a final recommendation for the RY 2020 Maryland Hospital-Acquired Conditions (MHAC) policy.

Final Recommendations for RY 2020 MHAC Program

1. Continue to use established features of the MHAC program in its final year of operation:
    a. 3M Potentially Preventable Complications (PPCs) to measure complications;
    b. Observed/expected ratios to calculate hospital performance scores, assigning 0-10 points based on statewide threshold and benchmark standards;
    c. Better of improvement and attainment total scores for assessing hospital performance under the program;
    d. A linear preset scale based on the full mathematical score distribution (0-100%) with a hold harmless zone (45-55%);
    e. Combine PPCs that experience a small number of observed cases into an aggregated complication measure (i.e., a combination PPC);
2. Set the maximum penalty at 2% and the maximum reward at 1% of hospital inpatient revenue;
3. Raise the minimum number of discharges required for pay-for-performance evaluation in each Diagnosis Related Group and Severity of Illness category from 2 discharges to 30 discharges (NEW!);
4. Exclude low frequency Diagnosis Related Group and Severity of Illness pairings from pay-for-performance (NEW!); and
5. Establish a complications subgroup to the Performance Measurement Work Group that will consider measurement selection and methodological concerns, which will include appropriate risk adjustment, scoring, and scaling, and reasonable performance targets.

List of Abbreviations

APR-DRG	All Patients Refined Diagnosis Related Groups
CMS	Centers for Medicare & Medicaid Services
CY	Calendar Year
DRG	Diagnosis-Related Group
FFY	Federal Fiscal Year
FY	State Fiscal Year
HAC	Hospital-Acquired Condition
HSCRC	Health Services Cost Review Commission
ICD	International Statistical Classification of Diseases and Related Health Problems
MHAC	Maryland Hospital-Acquired Condition
NHSN	National Healthcare Safety Network
NQF	National Quality Forum
PMWG	Performance Measurement Work Group
POA	Present on Admission
PPC	Potentially Preventable Complication
PSI	Patient Safety Indicator
QBR	Quality-Based Reimbursement
RY	Rate Year
SIR	Standardized Infection Ratio
SOI	Severity of Illness
TCOC	Total Cost of Care
VBP	Value-Based Purchasing
YTD	Year to Date

List of Key Methodology definitions

Potentially preventable complications (PPCs): 3M originally developed 65 PPC measures, which are defined as harmful events that develop after the patient is admitted to the hospital and may result from processes of care and treatment rather than from the natural progression of the underlying illness. PPCs, like national claims-based hospital-acquired condition measures, rely on **present-on-admission codes** to identify these post-admission complications.

At-risk discharge: Discharge that is eligible for a PPC based on the measure specifications

Diagnosis-Related Group (DRG): A system to classify hospital cases into categories that are similar clinically and in expected resource use. DRGs are based on a patient's primary diagnosis and the presence of other conditions.

All Patients Refined Diagnosis Related Groups (APR-DRG): Specific type of DRG assigned using 3M software that groups all diagnosis and procedure codes into one of 328 All-Patient Refined-Diagnosis Related Groups.

Severity of Illness (SOI): 4-level classification of minor, moderate, major, and extreme that can be used with APR-DRGs to assess the acuity of a discharge.

APR-DRG SOI: Combination of Diagnosis Related Groups with Severity of Illness levels, such that each admission can be classified into an APR-DRG SOI "cell" along with other admissions that have the same Diagnosis Related Group and Severity of Illness level.

Case-Mix Adjustment: Statewide rate for each PPC (i.e., normative value or "norm") is calculated for each diagnosis and severity level. These **statewide norms** are applied to each hospital's case-mix to determine the expected number of PPCs, a process known as **indirect standardization**.

Observed/Expected Ratio: PPC rates are calculated by dividing the observed number of PPCs by the expected number of PPCs. Expected PPCs are determined through case-mix adjustment.

Diagnostic Group-PPC Pairings: Complications are measured at the diagnosis and Severity of Illness level, of which there are approximately 1,200 combinations before one accounts for clinical logic and PPC variation.

Zero norms: Instances where no PPCs are expected because none were observed in the base period at the Diagnosis Related Group and Severity of Illness level.

Introduction

The Maryland Health Services Cost Review Commission's (HSCRC's or Commission's) quality-based measurement and payment initiatives are important policy tools for providing strong incentives for hospitals to improve their quality performance over time. Under the current All-Payer Model Agreement (the Agreement) between Maryland and the Centers for Medicare & Medicaid Services (CMS) there are overarching quality performance requirements for reductions in readmissions and hospital acquired conditions as well as ongoing program and performance requirements for all of HSCRC's quality and value-based programs.

As long as Maryland makes incremental progress towards the Agreement goals, the State receives automatic exemptions from the CMS Hospital Acquired Conditions Reduction Program and Hospital Readmission Reduction program, while the exemption from the CMS Medicare Value-Based Purchasing program is requested annually. Furthermore, because Maryland sets all-payer rates and has all acute hospitals under all-payer global budgets, Maryland is further exempt from the Federal Deficit Reduction Act Hospital-Acquired Condition program, which eliminates additional fee-for-service payments associated with select hospital-acquired conditions. These exemptions from national quality programs are important, because the State of Maryland's all-payer global budget system benefits from having autonomous, quality-based measurement and payment initiatives that set consistent quality incentives across all-payers.

This report provides staff's final recommendations for updates to Maryland's Hospital Acquired Conditions (MHAC) program for Rate Year 2020 (RY 2020), which is one of three core quality programs that the HSCRC administers. The MHAC program, which was first implemented in state fiscal year 2011 (FY 2011), places 2% of revenue at-risk by scoring a hospital's performance based on a broad set of Potentially Preventable Complication (PPC) measures developed by 3M Health Information Systems. One of the requirements under the current Agreement, effective January 2014, is for Maryland to reduce the incidence of PPCs for all-payers by 30 percent by 2018. This goal was achieved within the first two years of the Agreement - the cumulative reduction as of June 2017 is 47.05%. However, it should be noted that this progress must be sustained through the five-year term of the Agreement in order to satisfy the State's contractual obligation.

For RY 2020, which encompasses the performance results from the final year of the Agreement (CY 2018), staff is recommending minimal changes to the MHAC policy, with the notable exception of focusing the pay-for-performance incentives on the subset of patients for whom most complications occur.[1]

The staff's recommendation focuses on the areas of inpatient care in which the majority of PPCs occur (>80%). This recommended change addresses issues with cells with a norm of zero, i.e. where no PPCs are expected because none were observed in the base period, as this phenomenon potentially penalizes hospitals for random variation as opposed to poor performance. Staff also recommends aggregating a few PPCs with small numbers of observed cases for measurement (i.e., creating a new Combination PPC) and raising the minimum number of discharges required

[1] Appendix I details the base and performance periods and includes a description of the proposed RY 2020 methodology for score calculations.

in each diagnosis and Severity of Illness category from 2 to 30, to further address the cells with a norm of zero issue. [2]

The reason staff is recommending minimal revisions to the MHAC program as well as the other existing quality programs is so that it can focus on future policy development to establish quality strategies and performance goals under the Total Cost of Care (TCOC) Model ("TCOC Model"), which will be effective beginning in CY 2019. Staff will work with key stakeholders to develop new approaches for reducing hospital-acquired conditions in Maryland for RY 2021 and beyond that support the goals of the TCOC Model. Specifically, new approaches will evaluate Maryland hospital performance relative to the nation, while at the same time affording the State the opportunity to be aggressive and progressive in its program(s). To accomplish this redesign, which will necessitate the discontinuation of the MHAC program in its current form, staff will convene a subgroup of the Performance Measurement Work Group that will consider 1) measurement selection, which will include evaluating movement to CMS hospital-acquired condition measures, as well as retaining various PPC measures or adopting other complication measures that cover important all-payer clinical areas that may not be addressed by the CMS hospital-acquired condition programs; and 2) methodological concerns, which will include appropriate risk adjustment, scoring, and scaling, and reasonable performance targets.

Background

Overview of the Federal Hospital-Acquired Condition Programs

Medicare's system for the payment of inpatient hospital services is called the inpatient prospective payment system. Under this system, patients are assigned to a payment category called a Diagnosis Related Group (DRG), which are based on a patient's primary diagnosis and the presence of other conditions. An average cost is calculated for each Diagnosis Related Group relative to the average cost for all Medicare hospital stays, and these relative costs (or Diagnosis Related Group weights) are used to calculate Medicare's payment to the hospital; patients with more co-morbidities or complications generally are categorized into higher-paying Diagnosis Related Groups.[3] Historically, Medicare payments under this system were based solely on the Diagnosis Related Group weights and the volume of services. However, beginning in Federal Fiscal Year 2009 (FFY 2009), with the advent of the Federal Deficit Reduction Act Hospital-Acquired Condition Program, patients were no longer assigned to higher-paying Diagnosis Related Groups if certain conditions were *not* present on the patient's admission, or, in other words, if the condition was acquired in the hospital and could have reasonably been prevented through the application of evidence-based guidelines.

CMS expanded the use of hospital-acquired conditions in payment adjustments in FFY 2015 with a new program, entitled the Hospital-Acquired Condition Reduction Program, under authority of the Affordable Care Act. That program focused on a narrower list of complications

[2] The Final RY 2020 MHAC policy uses the term "Diagnosis Related Group" or "diagnosis group" to refer to the All Patients Refined Diagnosis-Related Group (APR-DRG).
[3] Appendix I details the base and performance periods and includes a description of the proposed RY 2020 methodology for score calculations.

and penalizes hospitals in the bottom quartile of performance. Of note, the measures used for the Hospital-Acquired Condition Reduction Program are the same measures under the CMS Value Based Purchasing and the Maryland Quality Based Reimbursement (QBR) Programs with the exception of Patient Safety Indicator (PSI) 90, as detailed in Figure 1 below.

Figure 1. CMS Hospital-Acquired Condition Reduction Program (HACRP) FFY 2018 Measures

HACRP Domain 1 – Recalibrated Patient Safety Indicator (PSI) measure:
Recalibrated PSI 90 Composite
HACRP Domain 2 – National Healthcare Safety Network (NHSN) Healthcare-Associated Infection (HAI) measures:*
Central Line-Associated Bloodstream Infection (CLABSI)
Catheter-Associated Urinary Tract Infection (CAUTI)
Surgical Site Infection (SSI) – colon and hysterectomy
Methicillin-resistant Staphylococcus aureus (MRSA) Bacteremia
Clostridium Difficile Infection (CDI)

* All Measures included in the Maryland QBR Program

While there is overlap between Maryland's complications programs and the Federal programs, most notably the Hospital-Acquired Condition Reduction Program, Maryland has its own complications programs and does not directly participate in these Federal programs because of the State's unique all-payer hospital model and its global budget system. The Maryland Hospital Acquired Conditions program (MHAC) is the State's quality program solely dedicated to evaluating hospital complications that allows Maryland to be exempt from the national Hospital-Acquired Condition Reduction Program, and the State's entire capitated hospital system makes it incompatible with the national Federal Deficit Reduction Act Hospital-Acquired Condition program, which reduces payments in a fee-for-service model. Nevertheless, in Maryland's efforts to further improve its performance relative to the nation, per industry recommendations and Commissioners' directives, staff will work with stakeholders to further evaluate various aspects of the existing Federal complications programs when redesigning complications measures for RY 2021 and beyond.[4]

Maryland Hospital Acquired Condition Program (MHAC) Overview

The MHAC program, which was first implemented for RY 2011, is based on a classification system developed by 3M Health Information Systems (3M), using what are called potentially preventable complications (PPCs). 3M originally developed 65 PPC measures, which are defined as harmful events that develop after the patient is admitted to the hospital and may result from processes of care and treatment rather than from the natural progression of the underlying illness. For example, an adverse drug reaction or an infection at the site of a surgery are referred to as hospital-acquired complications that are counted as PPCs and included in the MHAC program.[5]

[4] For more information on the Federal HAC Programs and Measures, please see Appendix II.
[5] Cassidy, A. (2015, August 6). Health Policy Brief: Medicare's Hospital-Acquired Condition Reduction Program. *Health Affairs*. Retrieved from http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=142.

These complications can lead to 1) poor patient outcomes, including longer hospital stays, permanent harm, and death; and 2) increased costs.[6]

PPCs, like national claims-based hospital-acquired condition measures, rely on present-on-admission codes to identify these post-admission complications. Reliance on present on admission codes has made all hospital-acquired complications programs susceptible to criticism, because improvement can be achieved through better documentation and coding as opposed to real clinical improvement. However, it should be noted that the HSCRC has employed targeted and randomized audits to ensure the integrity of the data in each year of the program.

MHAC Methodology

The initial methodology for the MHAC program estimated the percentage of inpatient revenue associated with excess numbers of PPCs, and penalized hospitals that had higher estimated PPC costs than the statewide average and provided revenue neutral rewards to hospitals with lower PPC costs than the statewide average.

Beginning in RY 2016, the MHAC methodology was fundamentally changed to evaluate hospital performance based on case-mix-adjusted PPC rates rather than excess PPC costs. These case-mix adjusted rates are calculated by estimating the expected number of PPCs at each hospital. The expected number of PPCs at a hospital is calculated through indirect standardization, in which a statewide rate for each PPC (i.e., normative value or "norm") is calculated for each diagnosis and severity level. The diagnosis and severity levels are determined by 3M software that groups all diagnosis and procedure codes into one of 328 All-Patient Refined-Diagnosis Related Groups and one of four Severity of Illness levels for each discharge.[7] Because there are 45 PPC/PPC combinations proposed for RY2020, this means there are over 56,000 cells to be assessed. As discussed in more detail in the next section, the number of All-Patient Refined-Diagnosis Related Group and Severity of Illness categories used for the indirect standardization is quite granular and thus the majority of the cells have a normative value of zero.

Figure 2 provides an overview of how PPC rates are measured on a calendar year basis, converted to scores, and then these scores are used in the hospitals' rate calculations (i.e., revenue adjustments). First, PPCs are grouped and weighted into tiers according to their level of priority and then scored (0-10 points) based on the better of improvement or attainment using the same scoring methodology that is used for CMS Value-Based Purchasing and Maryland QBR. To determine payment rewards and penalties, the revised methodology uses a preset linear point scale that is set prospectively rather than relatively ranking of hospitals after the performance period.

Since RY 2016, the MHAC program has been updated annually to adjust which PPCs are included in the payment program, and to what extent, and to modify revenue adjustment scales, but the fundamental scoring methodology has generally remained the same. That is,

[6] Ibid.
[7] 328 is the number of APR-DRGs under version 35. This number typically changes slightly each year. Version 35 was implemented in October 2017.

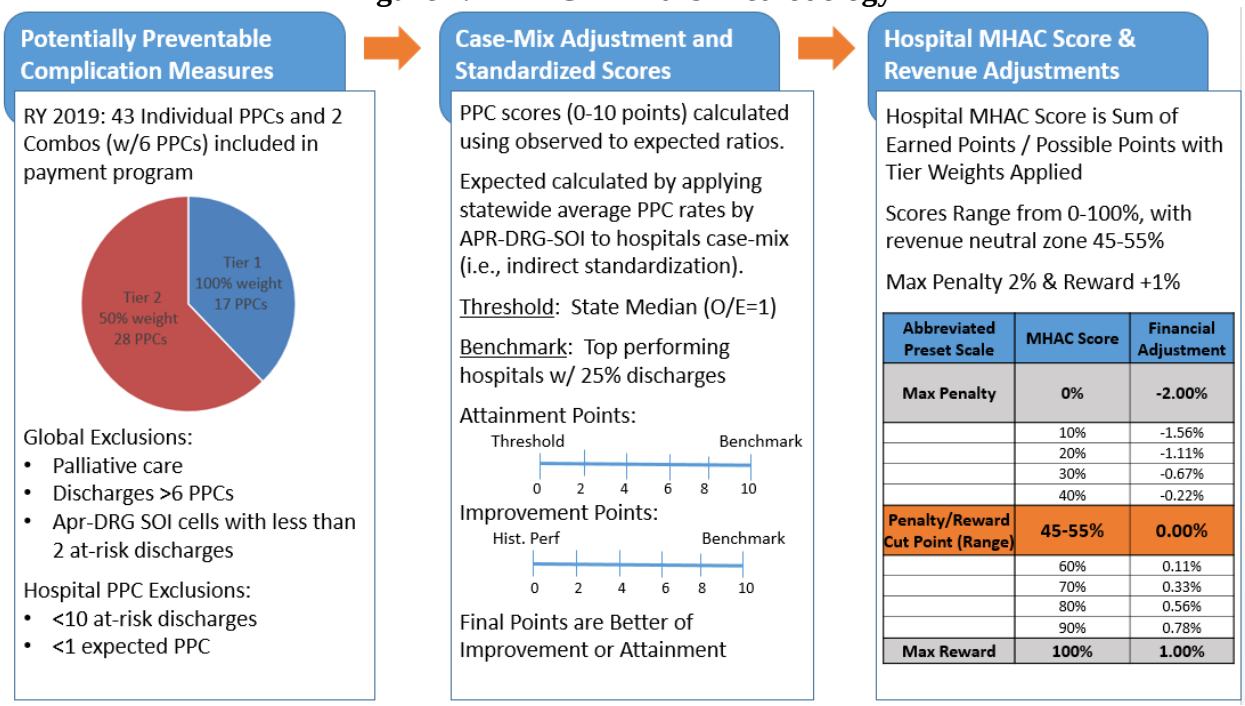
performance (attainment and improvement) is assessed using observed to expected ratios, and these ratios are then converted into points (0-10 per PPC) by comparing hospital ratios relative to historical and statewide performance standards.[8]

Examples of changes to PPC measurement over time include reducing the number of PPC tiers (from 3 to 2), creating some combination PPCs for low volume PPCs that are clinically important, moving some PPCs with low volume or validity/reliability concerns to monitoring-only status, and changing which PPCs are included in Tier 1 (high-priority PPCs).

In terms of the revenue adjustment scale, there have been two major changes, both of which were approved by the commission for RY 2019. The first change removed the two-scale approach, whereby achievement of a minimum statewide reduction goal determined the scale (i.e., hospitals could not receive a reward unless the State overall achieved a prescribed annual reduction in PPC rates, known as contingent scaling). Removing the contingent scale is consistent with recent Commissioner recommendations to not base a hospital's pay-for-performance incentive on how other hospitals or the State performs. The second change involved how the preset scale was determined. Originally the preset scale was determined by calculating attainment only scores for Maryland hospitals—with the lowest and highest score being where the maximum penalty and reward were set and the statewide average being the penalty/reward cut point. Use of the statewide scores to set the scale provided hospital with significant rewards and thus as with QBR the staff recommended moving towards the use of a full mathematical scale. Thus starting in RY 2019 the commission approved using the full range of scores (0% to 100%) with a hold harmless zone between 45% and 55%. Figure 2 below demonstrates the current scoring and scaling methodologies, reflective of all changes made through RY 2019.

[8] Beginning in RY 2018, the benchmark was shifted from the weighted mean of the observed/expected ratios for the top quartile to the weighted mean for top performing hospitals that account for a minimum 25% of statewide discharges. This change was done to ensure that small hospitals were not defining the benchmark. Otherwise, the methodology has remained relatively unchanged since the advent of the All-Payer Model.

Figure 2. MHAC RY 2019 Methodology



RY 2020 Measurement Concerns

In vetting options with stakeholders for the RY 2020 updates, staff has heard concerns from members of the Performance Measurement Work Group suggesting that the MHAC program methodology is penalizing random variation in PPC occurrence, as opposed to poor performance. Specifically, there is an ever-increasing number of cells with low or zero expected PPCs, which means there are infrequent and potentially random PPCs that determine a hospital's expected level of complications. This is problematic because the expected PPCs are the standards by which hospital performance is measured under the MHAC program.

There are two principal reasons cited for the ever increasing number of cells with low or zero expected PPCs. First, the program rebases every year, i.e. assesses observed complications using a more recent baseline, which is only one year of evaluation that has multiple years of improvement built into it, in order to estimate expected complications in the upcoming performance year. Second, the program employs a very granular indirect standardization, i.e. complications are measured at the diagnosis and Severity of Illness level, of which there are approximately 1,200 combinations before one accounts for clinical logic and PPC variation. With so many different pairings, if a PPC occurs in one diagnosis and Severity of Illness level, for instance Severity of Illness 1, and then occurs the following year in Severity of Illness 2, which had no expected PPCs, the hospital may be penalized despite the fact that there was not necessarily an increase in its overall complication rate.

Some members of the Performance Measurement Work Group have suggested that the processes by which the Commission estimates complications will result in the MHAC program penalizing in its seventh year very low frequency events that clinical interventions could not prevent.

Moreover, it has been suggested that these penalties would behave mathematically like "never events" due to their expected value of zero. This means that these events would garner large penalties for the occurrence of just one PPC similar to true "never events" that the methodology has always severely penalized because of their gravity. The concern is that, as a result, clinical attention may be diverted from clinical subgroups with higher frequency complications that could be prevented.

Given these concerns and given that Commissioners have communicated that the State should move away from the MHAC program in the TCOC Model, staff must balance the level of effort required to update the MHAC Program for the last performance year (CY 2018) with the imperative to overhaul the MHAC Program to increase its national focus, as well as its simplicity, fairness, and transparency for RY 2021 and beyond. In the Assessment section below, staff presents the immediate issues of concern more fully, along with analyses and options to address the cells with a norm of zero issue.

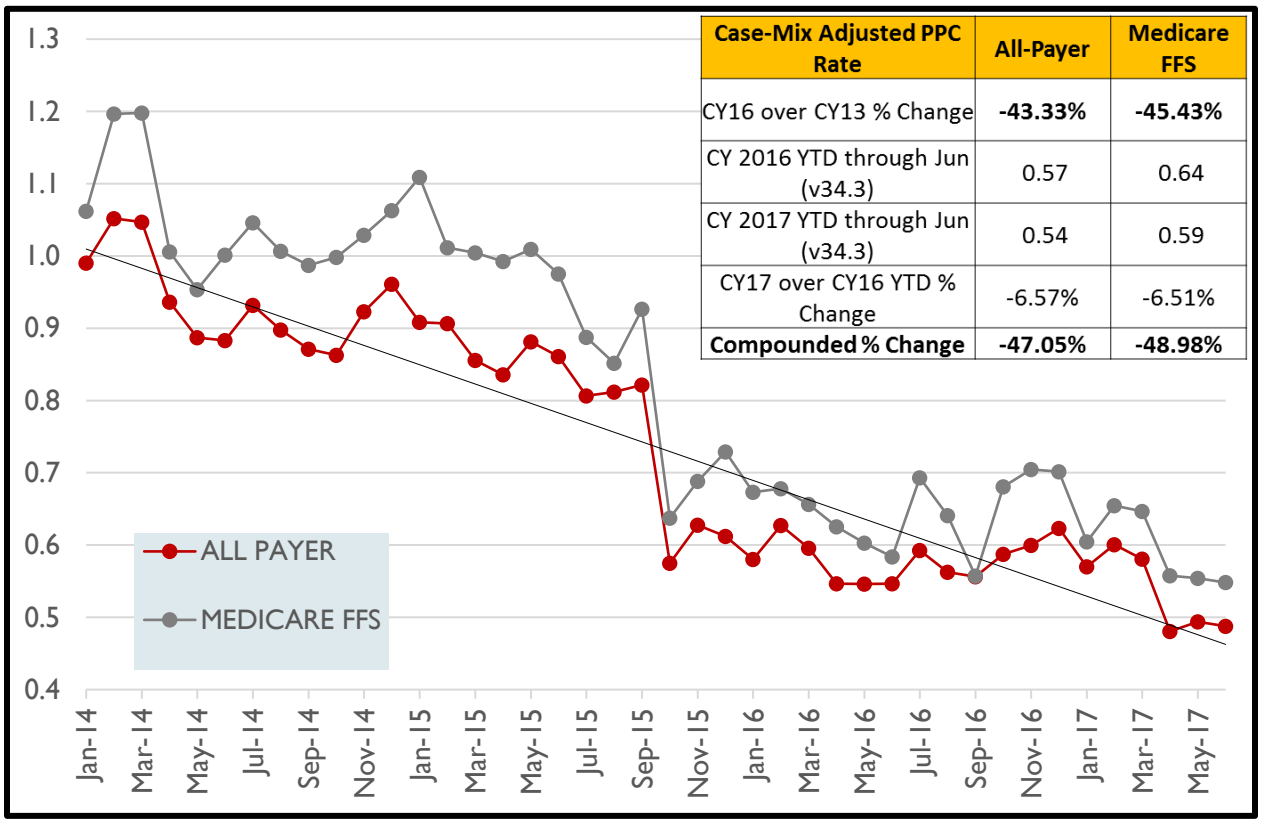
Assessment

In this section, staff analyzes statewide PPC trends, RY 2020 PPC measurement and methodology considerations given the reliability of expected PPC rates due to cells with a norm of zero, and modelling on proposed measurement and methodology changes.

Statewide PPC performance trends

As noted previously, the State has made dramatic progress in reducing PPCs under the MHAC Program and has continued this improvement under the All-Payer Model, reaching its 30% reduction target under the Agreement in the second year. Most recently, available performance trends reveal a cumulative All-Payer case-mix adjusted PPC rate reduction of 47% (compared to the base period of CY 2013) as illustrated in Figure 3 below.

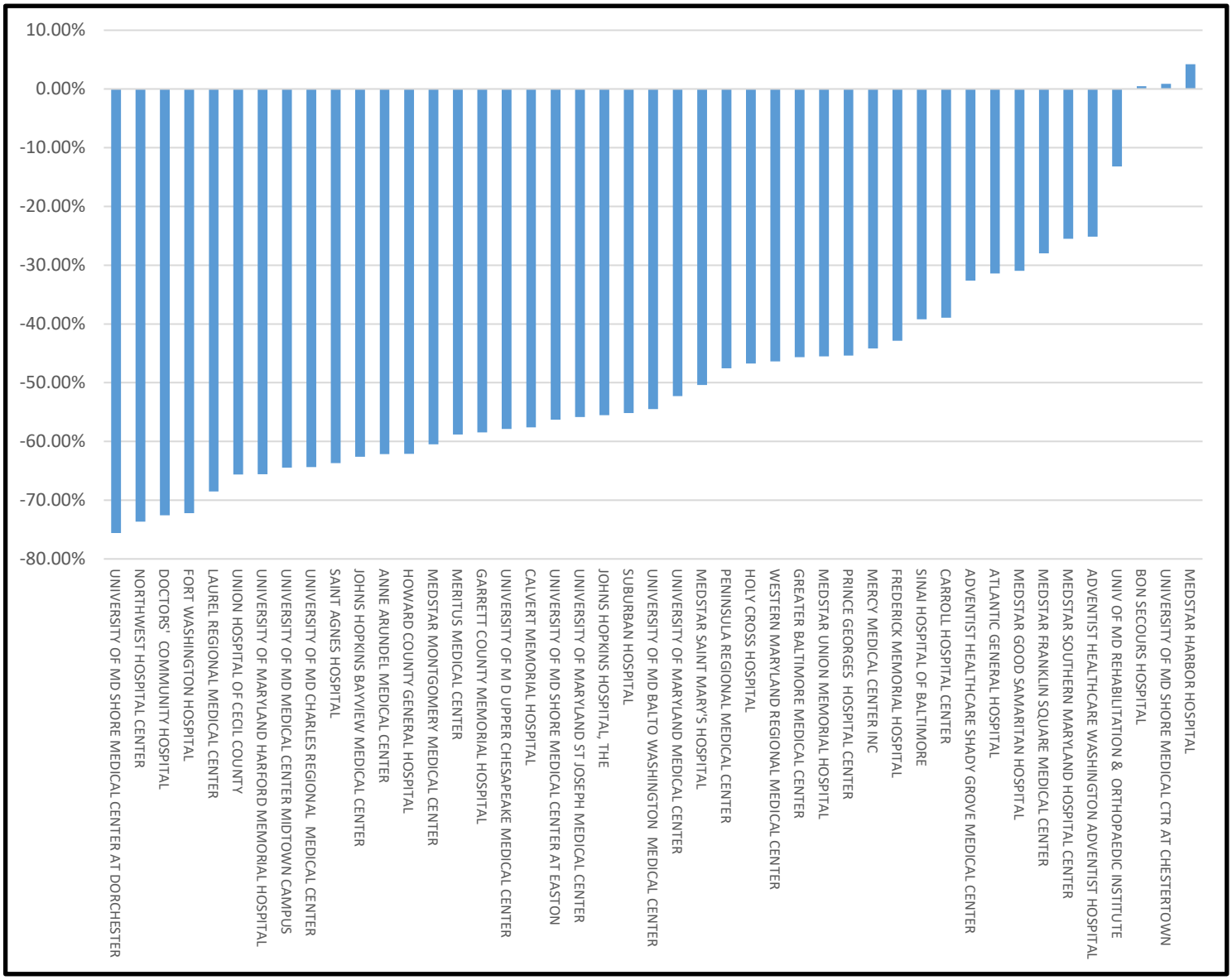
Figure 3. Case Mix Adjusted Cumulative PPC Rates as of June 2017



Case-Mix Adjusted PPC Rate	All-Payer	Medicare FFS
CY16 over CY13 % Change	**-43.33%**	**-45.43%**
CY 2016 YTD through Jun (v34.3)	0.57	0.64
CY 2017 YTD through Jun (v34.3)	0.54	0.59
CY17 over CY16 YTD % Change	-6.57%	-6.51%
Compounded % Change	**-47.05%**	**-48.98%**

Staff has also analyzed the individual performance of the 48 hospitals in the MHAC program and found that the cumulative PPC reduction through June 2017 was on average -51.88% when you exclude hospitals with unavailable data (e.g., Holy Cross Germantown, which was not operational in CY 2013) and when you exclude the three hospitals that actually saw cumulative *growth* in their PPC rates. Figure 4 shows a breakdown of individual hospitals' cumulative PPC performance.

Figure 4. Case Mix Adjusted Cumulative PPC Rate as of June 2017 by Hospital*



***Excludes McCready, Levindale, and Holy Cross Germantown hospitals because all three either had omitted data from CY13 to CY16 or CY16 to June of CY17.**

Hospital Coding Audits

Because the HSCRC is concerned that improvements in the rates of PPCs may be linked to coding practices, the Commission has conducted targeted and randomized audits of hospital coding practices, including present on admission coding, that are among the key data elements to assign PPCs under the MHAC Program.

For the audit conducted during FY 2017 (for discharges in FY 2016), HSCRC's independent contractor selected and reviewed 230 inpatient cases per hospital, targeting cases that may have

been prone to coding irregularities.[9] For the auditing work conducted through FY 2017, as illustrated in Figure 5, the average overall present on admission accuracy rate was 97.4%, which is above the 95% threshold established by HSCRC and well above the industry standard as recommended by the American Health Information Management Association (95% threshold is recommended as a measure of individual codes and not cases).[10] All hospitals audited during this timeframe were better than the threshold. In addition, the accuracy rate has improved steadily since FY 2014. Diagnosis and procedure coding accuracy is also evaluated, with results also above the 95% threshold on average, as well as for each hospital audited.

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Figure 5. Maryland Hospital Coding Audit Results as of FY 2017 (% of Cases)

FY Audited	Diagnoses Accuracy	Procedures Accuracy	Total Accuracy Rate	Present on Admission Accuracy
2013	93.9%	97.3%	94.4%	91.0%
2014	95.9%	98.5%	96.4%	90.2%
2015	96.6%	99.5%	97.1%	96.3%
2016	98.0%	99.5%	98.2%	97.4%

While improved documentation and coding may be contributing to improvements in PPC rates, given the audit results staff believes that the improvements in PPC rates are not being driven primarily by inappropriate coding. Furthermore, while hospitals acknowledge valid improvements in documentation and coding, they also point to specific care improvements as the cause of PPC rate reductions. Appendix III provides a list of system-based care improvement activities that have been implemented by hospitals in concert with providers to prevent events through learning and process improvement. HSCRC will continue to monitor coding and billing practices to ensure that Maryland hospitals are compliant with national standards.

RY 2020 PPC Measurement and Methodology Considerations

This section discusses proposed changes to RY 2020 measurement and methodology, both of which will aim to address the issue of cells with a norm of zero that is thought to subject hospitals to penalties for random variation as opposed to poor performance.

PPC Measure Modifications

For RY 2020, staff is recommending minimal changes to the current methodology. Staff proposes to continue use of the PPCs for measuring complications in order to ensure the State meets the requirement under the Agreement to reduce PPC incidence by 30% by the end of CY 2018. Based on clinical review and modeling, staff supports making some minor changes to the

[9] In general, ten hospitals per year are audited, resulting in each hospital in Maryland undergoing an audit about every four years.

[10] http://campus.ahima.org/audio/2008/RB072408.pdf, 13-15, 33

PPC measures under the program by combining a few of the PPCs for payment program measurement, detailed in Figure 6.

Figure 6. PPC Combos in MHAC Program

Combination	PPC Number	PPC Name
Combo 1	25	Renal Failure with Dialysis
Combo 1	26	Diabetic Ketoacidosis & Coma
Combo 1	63	Post-Operative Respiratory Failure with Tracheostomy
Combo 1	64	Other In-Hospital Adverse Events
Combo 2	17	Major Gastrointestinal Complications without Transfusion or Significant Bleeding
Combo 2	18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding
NEW **Combo 3**	34	Moderate Infectious
NEW **Combo 3**	54	Infections due to Central Venous Catheters
NEW **Combo 3**	66	Catheter Associated Urinary Tract Infection

Cells with a Norm of Zero Issue and Clinical Quality Improvement

Staff has also considered Performance Measurement Work Group concerns brought forth by University of Maryland Medical System and Johns Hopkins Health System (UMMS/JHHS) regarding the high percentage of Diagnosis Related Group and Severity of Illness cells in the FY 2017 base period with a normative value of zero. Because expected levels of PPCs are determined by statewide levels of observed PPCs, a large volume of cells with a value of zero means that many more PPCs behave mathematically like "never events" - events where the occurrence of just one PPC are penalized severely because they are typically reserved for grave and highly irregular complications, such as post-operative foreign bodies. This "cells with a norm of zero" issue has become a greater concern as PPC rates have decreased over time; in RY 2015 the percentage of cells with a zero norm was 79.84% and in RY 2020 the percentage is 88.24%.

Proposed Modifications to MHAC Methodology

There are several ways that the MHAC program could be modified to address cells with a norm of zero. The main entities that proposed modifications were 3M, the PMWG, and staff. All are examined in some detail below.

To address the cells with a norm of zero issue, 3M proposed extending the base period over which PPCs are observed and raising the minimum number of discharges at-risk from 2 to 30 discharges per Diagnosis Related Group and Severity of Illness cell. While staff believes that extending the minimum number of discharges at-risk from 2 to 30 discharges has merit and should be incorporated into the RY 2020 policy, initial analysis indicated that these two modifications together only reduced the number of cells with a norm of zero from 88% to 82%. Therefore, staff believes that these proposed modifications will not sufficiently address the issue that the MHAC program is spreading clinical focus too dispersedly and thus targeted clinical improvement is lost. Furthermore, extending the base period may artificially benefit hospitals, because an expected rate based on the latest 12 months of data would be lower compared to an expected rate based on 21 months of data, given the significant improvement that has occurred over time.

The Performance Measurement Work Group, more specifically the members of the Work Group from UMMS/JHHS, proposed focusing the payment program on the Diagnosis Related Group and PPC combinations (heretofore known as the Diagnosis Related Group-PPC pairings) in which the majority (at least 80%) of the complications occur, to address the issue of cells with a norm of zero. This approach is similar to the approach used by the Commission to measure mortality, which focuses on the Diagnosis Related Groups in which 80 percent of mortalities occur during the base period. This approach does not remove all cells with a norm of zero, but in combination with raising at-risk discharges from 2 to 30 it does result in a reduction in the number of Diagnosis Related Group and Severity of Illness cells having a norm of zero to 70%, which is a 21% reduction from the current methodology. It should also be noted that this approach would not alter the normative value of zero for the five serious reportable events ("never events"), which would still be applicable to all clinically relevant Diagnosis Related Groups.

Focusing on the subset of patients by assessing the Diagnosis Related Group-PPC pairings in which the majority of PPCs occur has the advantage of aligning the payment program with one of the key guiding principles of the MHAC program that was established in RY 2016:

- The MHAC program should prioritize PPCs that have high volume, high cost, opportunity for improvement, and are areas of national focus.

This principle is achieved by aligning the program with clinical quality improvement interventions that target patients where the vast majority of complications occur, as this represents the greatest opportunity for improvement. Under the current program, hospitals ostensibly already would be expected to focus on the types of patients where majority of complications occur, but their MHAC scores can be significantly impacted by single events that occur in other types of patients. Stakeholders have stated that this is frustrating to hospitals and their providers because they believe these to be random events that are difficult to prevent with system-based learning. The focus of the payment program incentives on patients most at-risk is important for engaging providers and staff in the clinical interventions that can have the most benefits to patients.

Based on staff assessment, the UMMS/JHHS proposal may be a reasonable solution for addressing the issue of cells with a norm of zero without fundamentally changing the methodology for the final year of the current MHAC program. However, there are several concerns with this proposal, most notably the removal of some potentially important Diagnosis Related Groups from consideration in the MHAC program. For example, under the existing methodology, Spinal Disorders and Injuries (All Patients Refined Diagnosis Related Group 40) and Abdominal Pain (All Patients Refined Diagnosis Related Group 251) both have 3 observed PPCs and 5,675 and 40,770 at risk discharges, respectively, but will not be evaluated under the proposed methodology, as they do not make the 80% cutoff.[11]

Limiting the number of Diagnosis Related Groups to be evaluated is a serious concern. Staff analysis indicates that in the RY 2020 base period (RY 2017) there are 271 Diagnosis Related Groups with 8,688 PPCs eligible for evaluation statewide under the current methodology, i.e. no changes plus the minor modification of increasing the at risk discharges minimum from 2 to 30. Under the proposed methodology there are only 178 Diagnosis Related Groups with 7,429 PPCs, a 34% reduction in Diagnosis Related Groups and 15% reduction in PPCs. However, while a 34% reduction in Diagnosis Related Groups is significant, it should be noted that these Diagnosis Related Groups only constituted 6.2% of at-risk discharges and 1.6% of all PPCs in the current methodology. In effect, the 80% cutoff is not eliminating Diagnosis Related Groups where a material number of PPCs occurred.

Another concern with the methodology proposed by UMMS/JHHS is the effect it has on the absolute number and the number of types of PPCs to be evaluated. However, as noted earlier, the reduction in PPCs in total is 14.5% and no PPCs are wholly eliminated, suggesting that the extensive complication coverage offered by all-payer PPCs is not substantially affected by the UMMS/JHHS proposal.

Other proposals staff considered but are not recommending in this final policy are to adjust the scale from a linear scale to a quadratic or exponential scale or to move away from indirect standardization for case-mix adjustment and employ statistical techniques, such as Bayesian smoothing to address low occurrence events that are more heavily influenced by measurement error than data sets with large cell sizes. While both are worthy of consideration in RY 2021 they either did not address the core methodological concerns raised by staff and the Performance Measurement Work Group or they were too significant a methodological change for RY 2020 at this juncture.

Non-linear scaling would reduce the revenue adjustments near the middle of the scale and increase the adjustments for hospitals performing at the high or low ends of the scale. The staff could consider this approach for the final MHAC policy based on Commissioner input; however, at present staff is advocating to maintain the linear scale, and to modify the payment program to concentrate only on the Diagnosis Related Group-PPC pairings where the majority of PPCs occur. The staff recommends to maintain the linear scale and adjust what the methodology measures, i.e. the Diagnosis Related Groups where 80% of PPCs occur, because this will address

[11] For a complete list of APR-DRGs and associated PPCs that will be included in the existing methodology and under the proposed Performance Measurement Work Group methodology, see Appendix IV.

the methodological concerns. Moving to non-linear scaling would merely mitigate the revenue impact of the policy, while not addressing the core methodological concerns.

The other proposal from the Performance Measurement Work Group is to move away from indirect standardization for case-mix adjustment and employ statistical techniques to calculate expected or predicted PPC rates, such as Bayesian smoothing, which better addresses low occurrence events by incorporating the results of prior probability tests, i.e. the accuracy of prior expected PPC rates, to better predict future expected PPC rates. This type of statistical technique is similar to Agency for Healthcare Quality and Research Patient Safety Indicator risk-adjustment and would better ensure that small time period windows, such as one year of observation, with very granular approaches to identifying and projecting PPC occurrence are less susceptible to penalizing or rewarding random variation, as opposed to poor clinical performance. Staff did not move forward with this recommendation because while these types of complex statistical techniques may be warranted, they do pose additional considerations for small hospitals where Bayesian smoothing may estimate observed events where none actually occur (this has and continues to be a concern with the Agency for Healthcare Research and Quality Patient Safety Indicator risk-adjustment methodology). More importantly though, staff believes that this approach would be too significant a methodological change for RY 2020 at this juncture. Staff, however, will certainly consider Bayesian modelling for RY 2021 and beyond if PPCs are still used in some fashion.

The next section presents modeling to assess the impact of focusing the payment program on the Diagnosis Related Group-PPC pairings where the majority (at least 80%) of the complications occur.

RY 2020 MHAC Preliminary Modeling

To address concerns raised, staff has developed two models that are listed below.[12]

- **Model 1**: Raise minimum number of at-risk discharges per Diagnosis Related Group and Severity of Illness cell from 2 to 30.

- **Model 2:** Raise minimum number of at-risk discharges per Diagnosis Related Group and Severity of Illness cell from 2 to 30 **and** restrict to the Diagnosis Related Group-PPC pairings to those in which at least 80% of PPCs occurred in the base year, to reduce number of cells with a norm of zero.

In evaluating the UMMS/JHHS proposal (Model 2) versus the existing methodology (Model 1), staff and Performance Measurement Work Group stakeholders brought up several questions that

[12] These models use the RY 2020 base period (FY 2017) grouped under an early release of Version 35 (this will be updated with the latest release of version 35 when the data is available) for evaluating the impact of the Model 2 proposed change on the PPCs that would be included in the RY 2020 program. For examining impacts of Model 2 on **hospitals scores and revenue adjustments**, staff used the RY 2019 base period (October 2015 – September 2016) and the YTD performance period (January 2017 – September 2017), grouped under Version 34. Hospital scores and revenue adjustments are modeled under the older version of the rate year logic and with more complete data so that both attainment and improvement are assessed in determining a hospital's modeled scores and revenue adjustment.

staff has been working to address. The first question was regarding consistency over time (i.e. do the PPCs occur in the performance period in the same Diagnosis Related Group and Severity of Illness cells as they did in prior years). This is important because staff wants to avoid a cut point that produces a random representation of the most prolific Diagnosis Related Group-PPC pairings. Using the RY 2019 base period (October 2015 to September 2016), modeling from UMMS/JHHS indicates that 87% of the observed PPCs occur among the Diagnosis Related Group-PPC pairings that would be selected for the RY 2020 base (July 2016 to June 2017) using UMMS/JHHS proposed methodology, suggesting that PPC occurrence is concentrated and consistent.

Another question raised was regarding the number of hospitals that had each PPC included in the payment program under the different methodologies. As a reminder, the number of PPCs included for each hospital has always varied because of the hospital exclusion logic, i.e. each hospital must have at least 10 at-risk cases and 1 expected PPC for all non-serious reportable event PPCs. Comparing Model 1 and Model 2 using the RY 2020 base period (Appendix V), there were 36 hospitals on average with each PPC in the payment program in Model 1, and 33 hospitals on average with each PPC in Model 2.[13] The consistent number of hospitals graded on each PPC in both models suggests that Model 2 limits the issues with cells with zero norms without significantly reducing the broad array of complication types covered in the MHAC program.[14] Overall, Model 2 retains 85.5% of the observed PPCs from Model 1, including 90% of tier 1 PPCs, which are weighted more heavily in the MHAC program because they pose a greater danger to patients, and 100% of serious reportable events ("never events"), which are omitted from the cutoff methodology entirely because of their expected infrequency and gravity.[15]

Other factors that staff has evaluated for Model 1 and Model 2 include:

- The impact on benchmarks
- PPC counts by hospital
- Hospital Scores, and
- Associated revenue adjustments.

In terms of impacts on the benchmarks for the RY 2020 base period, two thirds of the Observed/Expected ratio benchmarks are lower under Model 2 and thus hospital performance must be better in order to receive full attainment points. See Appendix VI for the benchmarks under each model.

[13] Appendix V contains analysis by PPC of: A) the number of hospitals with each PPC in payment program; B) the number of at-risk discharges; and C) the number of observed PPCs under each Model. Appendix V also includes the Tier for each PPC.

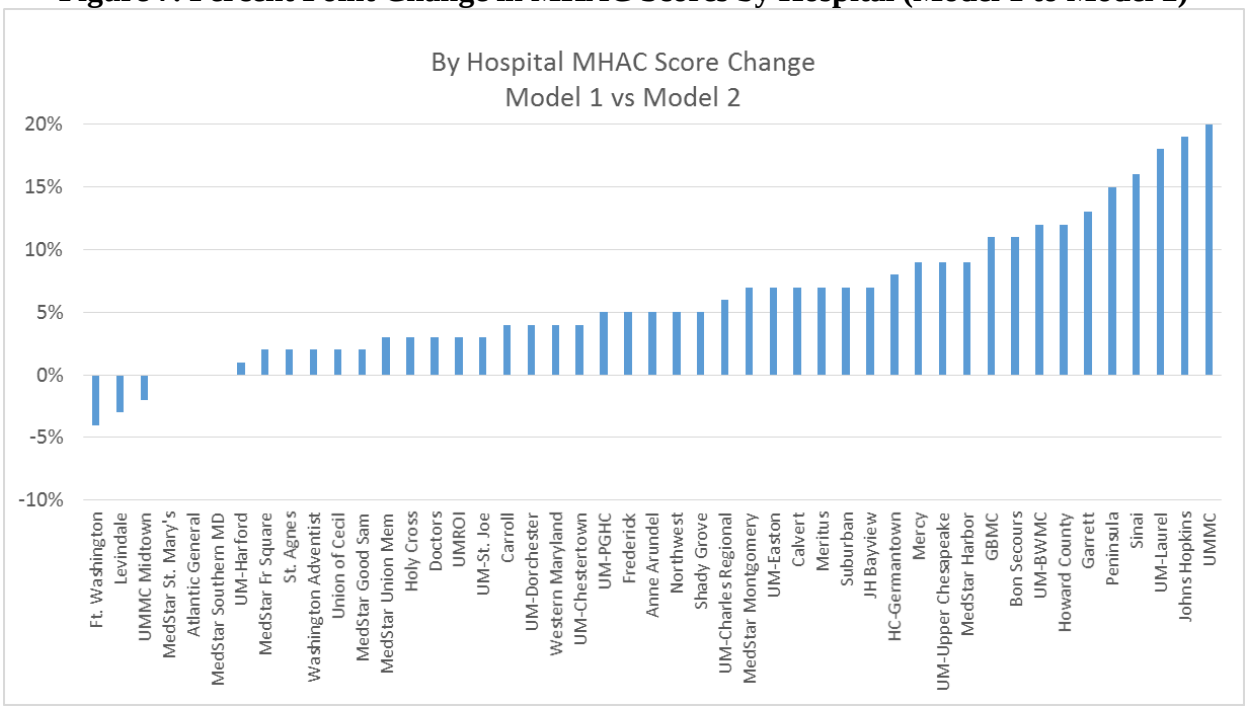
[14] Of note, three infection-related PPCs (PPC 34 - Moderate Infectious, PPC 54 - Infections due to Central Venous Catheters, and PPC 66 - Catheter-related Urinary Tract Infection) were initially dropped from all hospitals under Model 2. To prevent these important PPCs from being dropped completely, staff created an infection-related combination PPC that included these three PPCs.

[15] There are no proposed changes to the tiered PPCs from RY 2019 except that the infection PPC combination is in Tier 2.

Appendix VII contains the number of PPCs included in payment program for each hospital, as well as the at-risk, observed, and expected PPC counts in the RY 2020 base period. In total there is a maximum of 45 PPCs and PPC combinations included in the payment program (42 individual PPCs and 3 combination PPCs), with the median number of PPCs included in the payment program for all hospitals being 41 PPCs (91% of PPCs) under Model 1 and 34 (76%) under Model 2. Despite this reduction in number of PPCs, 85.5% of PPCs observed in Model 1 are still included under Model 2.

Appendix VIII shows the hospital scores and revenue adjustments by-hospital under each model using RY 2019 base and year-to-date (September) performance periods. Staff modeled the scores and revenue adjustments using the RY 2019 base and year-to-date performance periods so that both attainment and improvement could be evaluated. For Model 1 and Model 2, the median scores across all hospitals were 58% and 63% respectively. The higher scores under Model 2 would be expected since the expected PPC rates would generally be higher when you focus on the patients where majority of complications occur. Specifically, under Model 2 there were 40 hospitals that had a score increase when compared with their score in Model 1. Figure 7 shows the score change by hospital with the maximum increase in terms of simple difference being 20% and the maximum decrease being 3%.

Figure 7. Percent Point Change in MHAC Scores by Hospital (Model 1 to Model 2)



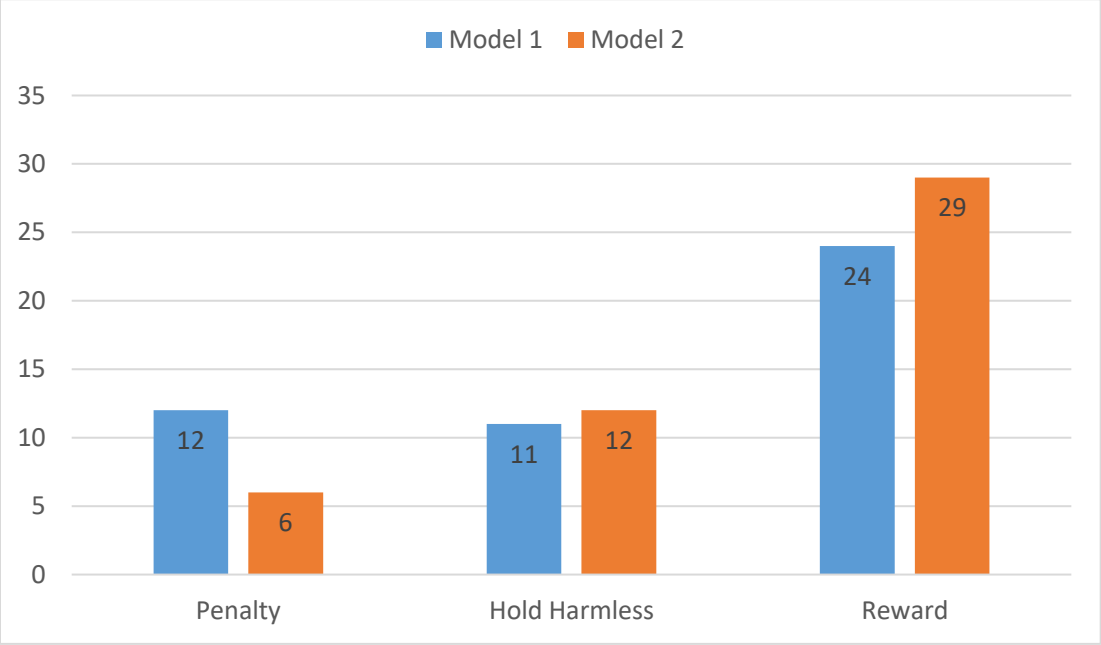
In terms of revenue adjustments, Figure 8 contains the statewide rewards and penalties using the better of attainment and improvement scores (i.e., using RY 2019 base and year-to-date performance periods). These revenue adjustments are using the RY 2019 approved scale from 0-100% with a hold harmless zone between 45% and 55%. Figure 9 shows the number of hospitals in the penalty, reward, or hold harmless zone for each Model. This shows that while the dollar value of the revenue adjustment change is large (delta of $17.8 million), under Model 2 there is

only a shift of 6 hospitals moving from a penalty to the hold harmless zone and 5 hospitals moving from the hold harmless zone to a reward. The large difference in revenue adjustments is due to both Johns Hopkins and University of Maryland, which combined make up 46% of the $17.8 million dollar difference. Finally, staff notes that the Model 2 distribution yields 38% of hospitals receiving a penalty or no reward and 62% of hospitals receiving a reward.

Figure 8. Statewide Revenue Adjustments by Model

Model Number	Model Description	Statewide Penalties	Statewide Rewards	Net Revenue Adjustments
1	>30 At-Risk Discharges	-13.5 M	6.1 M	-7.3 M
2	>30 + 80% Diagnosis Related Group-PPC Pairings	-3.7 M	14.1 M	+10.5 M

Figure 9. Count of Hospitals in the Penalty, Reward, or Hold Harmless Zone by Model



Based on its assessment, staff concurs with the work group's concern that over time there may be issues regarding the MHAC methodology penalizing hospitals for random variation as opposed to poor performance. Again, staff believes this is due to the granular indirect standardization in the methodology, and the annual rebasing, which builds new performance standards off of already achieved improvement. These issues relating to cells with zero norms should continue

to be evaluated as part of the future model considerations (see below). In the meantime, staff also believes the proposed approach of targeting Diagnosis Related Group-PPC pairings in which at least 80% of PPCs occur does not compromise the program's integrity and will not risk achievement of the 30% PPC reduction requirement under the CMS agreement.[16] This is because the modeling shows that majority of complications are retained and it does not arbitrarily limit Diagnosis Related Group-PPC pairings because PPCs occur consistently in these cells. Moreover, the observed to expected ratios are lower under Model 2, thereby requiring greater hospital performance, and more severe PPCs (tier 1 and never events) are not meaningfully diminished. Furthermore, the idea of aligning the payment programs focus with the targets of clinical quality improvement initiatives is compelling and may serve to better engage providers in quality improvement. As such, staff will recommend to adopt the proposed cutoff methodology outlined under Model 2.

Future Model Considerations

For the Total Cost of Care (TCOC) Model, which will begin in January 2019, proposed contract terms do not define specific quality performance targets. The HSCRC, in consultation with staff and industry, has begun laying the framework for establishing specific quality performance targets under the TCOC Model. Specifically, performance targets must be aggressive and progressive, must align with other HSCRC programs, must be comparable to Federal programs, and must consider rankings relative to the nation. Beyond guiding principles, nothing definitive has yet been established.

For the RY 2020 quality recommendations, staff considered recent Commission discussions regarding the overall strategy for the quality programs under the new TCOC Model – most notably, meeting contractually obligated quality goals while making as few changes as possible to the final year of the current model in light of the additional work required to develop new targets and to better align measures with total cost of care.

Specific to the Maryland Hospital Acquired Conditions (MHAC) program for RY 2021 and beyond, the HSCRC has procured a contractor to support and convene a complications subgroup to the Performance Measurement Work Group. The contractor will first assist staff with identifying available complications measures that should be considered (e.g., PPC measures; National Healthcare Safety Network measures; other Agency for Healthcare Research and Quality or National Quality Forum approved hospital-acquired complications measures). The contractor, alongside the HSCRC, will particularly focus on measures that are of national import and that could be barometers for Maryland's performance relative to the nation.

With this list of potential measures, the subgroup will then need to consider measure validity, as well as relevant risk adjustment, and any out-standing clinical concerns. The subgroup will make recommendations regarding the option to move to the Federal hospital-acquired condition measures, as suggested by some stakeholders, and will consider retaining various PPC measures

[16] For purposes of the Waiver Test, Maryland will continue to be assessed based on the Specifications outlined in Appendix 6 of the All-Payer Model Agreement – that is to say, irrespective of any changes made to the MHAC pay-for performance program, the complication rate that Maryland reports to CMS will remain unchanged.

or other measures that are not addressed by the hospital-acquired condition program but could be important for a comprehensive program. The revised approach will also need to address methodological concerns, such as those related to cells with a norm of zero, as well as various Commissioners' recommendations to increase simplicity, fairness, and transparency.

Figure 10 below outlines a tentative work plan for the subgroup (subject to revision, pending review from Contractor):

Figure 10. Tentative Work Plan for Complications Sub-group

Timeline and Work Plan	Purpose of Meetings
January 2018	• Call for nominations for membership • Selection of sub-group members • Finalize and distribute meeting schedule • Finalize work plan
Sub-group - 1st Meeting February 2018	• Discuss scope of subgroup • Review of deliverables and timeline • Identification of priorities and principles
Sub-group – 2nd Meeting March 2018	• Review draft measures inventory, existing state and national measures (including risk adjustment methodologies) • Review data sources
Sub-group – 3rd Meeting April 2018	• Review updated draft measures inventory • Begin review of analysis of existing measures and associated risk adjustment
Sub-group meetings continue monthly through September 2018 and may include additional input from non-member stakeholders, at which point, the sub-group will present its findings and recommendations to the broader Performance Measurement Work Group.	
The Performance Measurement Work Group will consider the recommendations of the sub-group as it assists the HSCRC staff to build the Draft and Final Hospital-Acquired Complications Program for RY 2021 in late fall 2018.	

Stakeholder Comments and Responses

HSCRC Commissioners as well as the hospital industry, payers, and consumer stakeholders have given written and verbal comments to HSCRC staff regarding the MHAC program. Some comments are targeted specifically at the RY 2020 MHAC recommendation while others are intended to be more broadly applicable to HSCRC-administered quality programs both in the short term and as they evolve under the new TCOC model. Staff summarizes the comments and responses below.

Concerns about the credibility of the large improvements in MHAC levels of the last four years

In their white paper submitted jointly to the Commission on November 15, 2017, Commissioners John Colmers and Jack Keane note that improvements in PPC rates were achieved and add that changes in clinical coding practices rather than care improvements may be the source of some portion of the improvements. The white paper recommends that staff review the MHACs and retain those that identify preventable conditions reliably in revised quality programs.

The white paper also recommends that greater emphasis be placed on patient safety measures and a limited set of other quality measures that are reliable and benchmarked against national standards.

Staff Response:

- ***Staff notes that there was significant improvement in PPC rates prior to implementation of the GBR model, as illustrated in figure 11 below.***

Figure 11. PPC Reduction Trends FY 10 to FY 13

Potentially Preventable Complication (PPC) Rates in Maryland- State FY2010-FY2013										
	PPC RATES					Annual Change				
	FY10	FY11	FY12	FY13		FY11	FY12	FY13	Compound Annual Growth Rate (CAGR)	Total FY10-FY13 Change
TOTAL NUMBER OF COMPLICATIONS	53,494	48,416	42,118	34,200		-9.5%	-13.0%	-18.8%	**-13.9%**	-36.1%
UNADJUSTED COMPLICATION RATE PER 1,000 AT RISK CASES	1.92	1.82	1.65	1.41		-5.2%	-9.3%	-14.5%	**-9.8%**	-26.6%
RISK ADJUSTED COMPLICATION RATE PER 1,000 AT RISK CASES	1.92	1.77	1.58	1.3		-7.8%	-10.7%	-17.7%	**-12.2%**	-32.3%

Based on PPC Grouper version 30.

- ***As it has done in the past, staff is planning to conduct targeted auditing activities of coding practices during 2018; staff will update the Commission on the findings of these audits when they are available.***
- ***For the purposes of determining whether certain PPCs should be retained after RY 2020, staff will work to engaging a contractor in order to assess the degree to which specific PPC improvements are associated with improvements in other outcomes.***
- ***As discussed above, staff is convening the complications subgroup to the Performance Measurement Work Group tasked with evaluating and making recommendations on complication measures under re-designed quality programs.***

Methodologies are complex, not well-understood by hospital CEOs, CFOs, and Commissioners

Directly linked to the complexity issue, the November 15 white paper recommends use of attainment only scores rather than the "better of" an improvement or attainment score, and the use of continuous scales when assigning rewards and penalties rather than scales with "hold-harmless zones" where scores within that zone are neither rewarded nor penalized.

Staff Response:

In response to the recommendation regarding use of continuous scales without hold harmless zones, staff notes that the hold harmless zone is used to provide "average" performance levels with the same financial result. For example, without a hold harmless zone, a hospital with a score of 49% would be penalized and a hospital with a score of 51% would receive a reward. Staff notes that under the CMS Hospital Acquired Condition Reduction Program, which all other hospitals outside of Maryland operate under, continuous scaling of rewards and penalties is not used, but instead hospitals are relatively ranked with the worst 25% of performers receiving a 1% penalty. Regardless of the CMS approach, staff recommends revisiting this issue as HSCRC addresses comprehensive updates to the Maryland Hospital-Acquired Condition program during the upcoming year.

With regard to using the better of attainment or improvement measure scores, staff notes that movement to an attainment only quality program will necessitate additional evaluation of risk adjustment,, especially if additional factors outside of case-mix acuity are considered (e.g. geography, patient characteristics, social determinants). Thus, staff will need to analyze options for using attainment only scores and for continuous scaling and present these results to the Commission during CY 2018 as we develop the recommendations for RY 2021.

Under the modeling of Model 2, there is a substantial $17M shift in revenue adjustment

A Performance Measurement Work Group payer representative commented that the program bar may be too low for Model 2 with the significant decrease in penalties from $13.5M to $3.7M, and an increase in rewards from $6.1M to $14.1M. Hospital industry representatives responded to this concern that the magnitude of penalties under Model 1 is not in line with performance of low PPC rates. A consumer representative noted that it is a positive dilemma to have as it is resulting from better performance under the program. Maryland Hospital Association and other hospital representatives on the Performance Measurement Work Group support changing the method that the Commission uses to estimate complications to Model 2 so that it does not result in the MHAC program penalizing very low frequency events that clinical interventions could not prevent, but rather rewards better performance.

Staff Response:

As discussed above under the "RY 2020 Measurement Concerns" section, the program has rebased every year, building into the base multiple years of improvement to estimate expected complications in the upcoming performance year, and has used a

very granular indirect standardization at the Diagnosis Related Group-Severity of Illness-PPC level; the result is that hospitals may be penalized despite the fact that there was not an increase in its overall complication rate. Staff believes the methodology adjustments are appropriate.

Recommendations for Updating the MHAC Program for RY 2020

Based on the issues outlined and the results from its assessment, staff makes the following recommendations:

1. Continue to use established features of the MHAC program in its final year of operation:
    a. 3M Potentially Preventable Complications (PPCs) to measure complications;
    b. Observed/Expected ratios to calculate hospital performance scores, assigning 0-10 points based on statewide threshold and benchmark standards;
    c. Better of improvement and attainment total scores for assessing hospital performance under the program;
    d. A linear preset scale based on the full mathematical score distribution (0-100%) with a hold harmless zone (45-55%);
    e. Combine PPCs that experience a small number of observed cases into an aggregated complication measure (i.e., a combination PPC);
2. Set the maximum penalty at 2% and the maximum reward at 1% of hospital inpatient revenue;
3. Raise the minimum number of discharges required for pay-for-performance evaluation in each Diagnosis Related Group Severity of Illness category from 2 discharges to 30 discharges (NEW!);
4. Exclude low frequency Diagnosis Related Group-PPC pairings from pay-for-performance (NEW!); and
5. Establish a complications subgroup to the Performance Measurement Work Group that will consider measurement selection and methodological concerns, which will include appropriate risk adjustment, scoring, and scaling, and reasonable performance targets.

Appendix I: MHAC Program Details: Base and Performance Periods, PPC Measurement Definition and Points Calculation

Base and Performance Periods Timeline

Rate Year	FY16-Q3	FY16-Q4	FY17-Q1	FY17-Q2	FY17-Q3	FY17-Q4	FY18-Q1	FY18-Q2	FY18-Q3	FY18-Q4	FY19-Q1	FY19-Q2	FY19-Q3	FY19-Q4	FY20-Q1	FY20-Q2	FY20-Q3	FY20-Q4
Calendar Year	CY16-Q1	CY16-Q2	CY16-Q3	CY16-Q4	CY17-Q1	CY17-Q2	CY17-Q3	CY17-Q4	CY18-Q1	CY18-Q2	CY18-Q3	CY18-Q4	CY19-Q1	CY19-Q2	CY19-Q3	CY19-Q4	CY20-Q1	CY20-Q2
Quality Programs that Impact Rate Year 2020																		
MHAC:			MHAC Base Period (Proposed)												Rate Year Impacted by MHAC Results			
									MHAC Performance Period: Better of Attainment or Improvement (Proposed)									

Performance Metric

The methodology for the MHAC program measures hospital performance using the Observed (O) /Expected (E) ratio for each PPC. Expected number of PPCs are calculated using the base year statewide PPC rates by APR-DRG SOI (All Patient Refined Diagnosis Related Group, Severity of Illness Level). (See below for calculation details). Note: Throughout RY2020 Final MHAC policy, the term Diagnosis Related Group is used to refer to APR-DRG.

Observed and Expected PPC Values

The MHAC scores are calculated using the ratio of $Observed : Expected$ PPC values.

Given a hospital's unique mix of patients, as defined by APR-DRG category and Severity of Illness (SOI) level, the HSCRC calculates the hospital's expected PPC value, which is the number of PPCs the hospital would have experienced if its PPC rate were identical to that experienced by a normative set of hospitals.

The expected number of PPCs is calculated using a technique called indirect standardization. For illustrative purposes, assume that every hospital discharge is considered "at-risk" for a PPC, meaning that all discharges would meet the criteria for inclusion in the MHAC program. All discharges will either have no PPCs, or will have one or more PPCs. In this example, each discharge either has at least one PPC, or does not have a PPC. The unadjusted PPC rate is the percent of discharges that have at least one PPC.

The rates of PPCs in the normative database are calculated for each APR-DRG category and SOI level by dividing the observed number of PPCs by the total number of admissions. The PPC norm for a single APR-DRG SOI level is calculated as follows:

Let:

N = norm
P = Number of discharges with one or more PPCs
D = Number of "at-risk" discharges
i = An APR-DRG category and SOI level

$$N_i = \frac{P_i}{D_i}$$

In the example, each normative value is presented as PPCs per discharge to facilitate the calculations in the example. Most reports will display this number as a rate per one thousand discharges.

Once the normative expected values have been calculated, they can be applied to each hospital. In this example, the normative expected values are computed for one APR-DRG category and its four SOI levels.

Consider the following example for an individual APR-DRG category.

Table 1 Expected Value Computation Example for one APR-DRG

A Severity of illness Level	B At-risk Discharges	C Observed Discharges with PPCs	D PPCs per discharge (unadjusted PPC Rate)	E Normative PPCs per discharge	F Expected # of PPCs	G Observed: Expected Ratio
			= (C / B)	(Calculated from Normative Population)	= (B x E)	= (C / E) rounded to 4 decimal places
1	200	10	.05	.07	14.0	0.7143
2	150	15	.10	.10	15.0	1.0000
3	100	10	.10	.15	15.0	0.6667
4	50	10	.20	.25	12.5	0.8000
Total	500	45	.09		56.5	0.7965

For the APR-DRG category, the number of discharges with PPCs is 45, which is the sum of discharges with PPCs (column C). The overall rate of PPCs per discharge in column D, 0.09, is calculated by dividing the total number of discharges with PPCs (sum of column C) by the total number of discharges at risk for PPCs (sum of column B), i.e., 0.09 = 45/500. From the normative population, the proportion of discharges with PPCs for each SOI level for that APR-DRG category is displayed in column E. The expected number of PPCs for each SOI level

shown in column F is calculated by multiplying the number of at-risk discharges (column B) by the normative PPCs per discharge rate (column E). The total number of PPCs expected for this APR DRG category is the expected number of PPCs for the SOI levels.

In this example, the expected number of PPCs for the APR DRG category is 56.5, which is then compared to the observed number of discharges with PPCs (45). Thus, the hospital had 11.5 fewer observed discharges with PPCs than were expected for 500 at-risk discharges in this APR DRG category. This difference can be expressed as a percentage difference as well.

All APR-DRG categories and their SOI levels are included in the computation of the observed and expected rates, except when the APR-DRG SOI level has one or fewer at-risk discharge statewide (see column G).

PPC Exclusions

If all 65 PPCs for each APR-DRG SOI category were included, there would be more than 78,000 APR-DRG SOI PPC cells under which a statewide normative value would theoretically be calculated. There are four general criteria under which PPCs are excluded from consideration under the current MHAC program: Categorical Exclusions, Clinical Exclusions, Monitoring-Only PPCs, and (Proposed) PPCs not included in the APR-DRG-PPC pairings where 80% of PPCs occur. These exclusions ensure that the PPCs in the MHAC program are clinically valid, statistically reliable, and that efforts to reduce complications in Maryland are focused to ensure success.

Categorical Exclusions

Consistent with prior MHAC policies, the number of at-risk discharges is determined prior to the calculation of the normative values (hospitals with <10 at-risk discharges are excluded for a particular PPC) and the normative values are then re-calculated after removing PPCs with <1 complication expected. The following exclusions will also be applied:

For each hospital, discharges will be removed if:

- An APR-DRG SOI cell has less than 30 total cases (Proposed increase from 2 to 30 for RY 2020)
- Discharge has a diagnosis of palliative care (this exclusion will be removed in the future once POA status is available for palliative care in base period)
- Discharge has more than 6 PPCs (i.e., catastrophic cases that are probably not preventable)

For each hospital, PPCs will be removed if:

- The number of cases at-risk is less than 10
- The expected number of PPCs is less than 1.

PPC exclusion criteria is only applied to the base period and not the performance period. This is done so that scores can be reliably calculated during the performance period from a pre-determined set of PPCs.

Clinical Exclusions

Throughout the life of the MHAC program, 3M has continued to evaluate the clinical validity of the Potentially Preventable Complications. As certain PPCs have been deemed clinically invalid, 3M has removed from the grouper or recommended we remove pending further development. To date, the removed PPCs are:

- 12 – Cardiac Arrhythmia
- 22 – Urinary Tract Infection
- 24 – Renal Failure without Dialysis
- 57 – OB Lacerations & Other Trauma Without Instrumentation
- 58 – OB Lacerations & Other Trauma With Instrumentation

Monitoring-Only PPCs

PPCs with lower reliability are in monitoring-only status and will not be scored for payment program purposes. Monitoring-only status is determined through an extensive stakeholder process involving 3M, MHA, the HSCRC, and the Performance Measurement Work Group. Two PPCs (36 and 66) are in monitoring-only status under the RY 2019 methodology due to no hospital meeting the minimum threshold for their inclusion. At this time, the PPCs in monitoring-only status are:

- 2 – Extreme CNS Complications
- 15 – Peripheral Vascular Complications (except Venous Thrombosis)
- 20 – Other Gastrointestinal Complications without Transfusion or Significant Bleeding
- 29 – Poisonings except from Anesthesia
- 33 – Cellulitis
- *36 – Acute Mental Health Changes
- **39 – Reopening Surgical Site
- 55 – Obstetric Hemorrhage Without Transfusion
- 56 – Obstetric Hemorrhage With Transfusion
- 62 – Delivery with Complications
- ***66 – Catheter-related Urinary Tract Infection

* PPC 36 is in monitoring-only status due to no hospital meeting the minimum threshold for its inclusion.

** PPC 39 is suspended due to clinical concerns in RY 2019 policy. These clinical concerns have been addressed by 3M in version 35 of the PPC grouper, and it will be re-added to the RY 2020 policy.

*** PPC 66 is in monitoring-only status due to no hospital meeting the minimum threshold for its inclusion. In RY 2020, staff is proposing that it be included in a combination PPC with PPCs 34, 54, and 66.

80% APR-DRG PPC Inclusion (Proposed)

Under the Proposed Model 2 (outlined in further detail within the policy), APR-DRG-PPC pairings will be included in the MHAC payment policy if they are pairings under which 80% of the PPCs occur. As an abbreviated example, take the figure below:

	APR-DRG	PPC	Sorted by Observed Counts (highest to lowest)	% of Total Observed PPCs	Cumulative Percent
	A	**B**	**D**	**E**	**F**
1	720	14	45	23%	23%
2	181	39	36	18%	41%
3	540	59	25	13%	53%
4	194	14	22	11%	64%
5	720	21	21	11%	75%
6	230	42	11	6%	80%
7	230	9	11	6%	86%
8	540	60	9	5%	90%
9	560	59	9	5%	95%
10	166	8	6	3%	98%
11	190	52	3	2%	99%
12	201	6	2	1%	100%
		ALL APR-DRG-PPC Pairings	**200**		

This figure presents 12 rows of APR-DRG-PPC pairings. In reality, there are many more potential pairings, given the granularity of the MHAC program methodology, but for this example, assume there are just 12. To focus improvement upon APR-DRG-PPC pairings under which 80% of PPCs occur:

1. Calculate Observed PPC counts by APR-DRG-PPC pairing in the Base Period (Presented in Column D).
2. Sort Observed PPC counts from highest to lowest, and sum the total Observed PPCs. (the sum of Observed PPCs in Column D in this example is 200).

3. For each APR-DRG-PPC pairing, divide the Observed PPC count / the Total Observed PPCs to calculate a % of Total Observed PPCs (Column E).
    a. As an example, 45 Observed PPCs / 200 Total Observed PPCs = 23%.
4. Sum the percentages in Column E to calculate a cumulative percent (Column F)
5. Using the cumulative percentages in Column F, locate the pairing where **at least** 80% of PPCs occur. In this example, this is row 6, APR-DRG-PPC pairing 230-42. However, in Row 6, 11 PPCs occurred. The methodology will include all APR-DRG-PPC pairings where 11 PPCs occurred, meaning that Row 7 (230-9) will **also** be included (even though that increases the 80% included PPCs to 86%). Effectively, this step further ensures that only APR-DRG-PPC pairings with very low occurrence are excluded from the MHAC program.
    a. Rows 1-7 are shaded to indicate that these PPCs will be included in the MHAC program.

Combination PPCs

Some PPCs have low occurrence, and may be statistically unreliable. However, given their clinical importance, staff and stakeholders believe that they should remain in the policy. These PPCs are included (in Tier 2) as Combination PPCs. The RY 2020 (proposed) Combination PPCs are:

- PPC 67 (25, 26, 63, 64)
- PPC 68 (17, 18)
- PPC 71 – Proposed – (34, 54, 66)

Previous combination PPCs 69 (55, 56) and 70 (57, 58) are no longer included in the MHAC program, as PPCs 55-56 are in Monitoring Only, and PPCs 57-58 have been discontinued.

Benchmarks and Thresholds

For each PPC, a threshold and benchmark value is calculated using the base period data. For each PPC, the threshold value is statewide average of 1. The benchmark is the weighted mean of the O:E ratio for top performing hospitals that account for at least 25% of all discharges. This benchmark calculation is done to avoid the phenomenon of small hospitals driving the benchmark calculation.

One category of PPCs is calculated differently from these benchmark and threshold calculations. There are five PPCs which are considered **serious reportable events**, a designation meaning that they should never occur. For these serious reportable events, the threshold and benchmark are both 0, meaning that hospitals will either receive 10 points per PPC if they do not occur, or 0 points per PPC if they do. The serious reportable event PPCs for the base and performance period are the following:

- PPC 30 – Poisonings due to Anesthesia
- PPC 31 – Decubitus Ulcer
- PPC 32 – Transfusion Incompatibility Reaction
- PPC 45 – Post-procedure Foreign Bodies

- PPC 46 – Post-Operative Substance Reaction and Non-OR Procedure for Foreign Body

Attainment and Improvement Points

For each hospital, PPC performance is evaluated based on the higher of "Attainment Points" achieved in the performance period, or "Improvement Points" earned by comparing a hospital's PPC performance period results to the base period.

Attainment Points (possible points 0-10)

If the PPC ratio for the performance period is greater than the threshold, the hospital scores zero points for that PPC for attainment.

If the PPC ratio for the performance period is less than or equal to the benchmark, the hospital scores a full 10 points for that PPC for attainment.

If the PPC ratio is between the threshold and benchmark, the hospital scores partial points for attainment. The formula to calculate the Attainment points is as follows:

- Attainment Points = [9 * ((Hospital's performance period score - Threshold)/ (Benchmark –Threshold))] + 0.5

Improvement Points (possible points 0-9)

If the PPC ratio for the performance period is greater than the base period, the hospital scores zero points for that PPC for improvement.

If the PPC ratio for the performance period is less than or equal to the Benchmark, the hospital scores 9 points for that PPC for improvement. However, in this case an attainment score of 10 will be higher than the improvement score, and the attainment score will therefore be used to calculate the final score.

If the PPC ratio is between historical performance and Benchmark, the hospital scores partial points for improvement. The formula to calculate the Improvement points is as follows:

- Improvement Points = [10 * ((Hospital performance period score -Hospital baseline period score)/(Benchmark - Hospital baseline period score))] - 0.5

Calculation of Hospital Overall MHAC Score

To calculate the final score for each hospital, the final points (better of attainment or improvement) for each PPC in tier 1 are added up and divided by the total possible tier 1 points to calculate a percent score tier 1. This calculation is repeated for tier 2. The PPCs are grouped in tiers so that PPCs that are high-cost and high-volume have opportunity to improve, and that national priority PPCs can be weighted more heavily. The total possible points for each PPC is 10, and hospitals may have different total possible points depending upon which PPCs, if any, are excluded for that hospital (see exclusion criteria in Section II above). A list of excluded PPCs by hospital will be provided with the monthly and quarterly PPC results.

The final score is then calculated using the following formula:

Final Score = ((Score Tier 1 * 1) / (Denominator Tier 1 * 1)) +

((Score Tier 2 * 0.5) / (Denominator Tier 2 * 0.5))

Rounding

For the purposes of calculating scores, the benchmarks and O: E ratios are rounded to 4 decimal places. The attainment and improvement points are rounded to the nearest whole number. The tier percentages and final score for each hospital is rounded to 2 decimal places.

Financial Impact of MHAC Performance (Scaling)

In RY 2019, the Commission moved to a single scale, setting the maximum penalty at 2%, and the maximum reward at 1% of hospital inpatient revenue.

The Commission also approved the staff recommendation to use the full range of scores to set the payment scale, rather than basing the scale on the statewide distribution of scores. Thus, the maximum penalty of 2% is for a score of 0%; and the max reward of 1% is for a score of 100%. A hold harmless zone is maintained in RY 2019, between 45% and 55%.

The staff proposes that the Commission maintain the RY 2019 scale in RY 2020 with no changes.

Appendix II. CMS Hospital-Acquired Conditions Programs

Deficit Reduction Act Hospital-Acquired Conditions Program (DRA HAC)

The Deficit Reduction Act Hospital-Acquired Conditions Program, which was established by the Deficit Reduction Act of 2005, requires the HHS Secretary to identify conditions that are: (a) high cost or high volume or both, (b) result in the assignment of a case to a Diagnosis Related Group that has a higher payment when present as a secondary diagnosis, and (c) could reasonably have been prevented through the application of evidence-based guidelines. CMS initially included 10 categories of conditions that were selected for the Hospital Acquired Condition payment provision (see current list of 14 Hospital Acquired Conditions (HACs). Payment implications began in FFY 2009 for these Hospital Acquired Conditions. For discharges occurring on or after October 1, 2008 hospitals no longer receive additional Medicare payment for cases in which one of the selected conditions occurred but was not present on admission. That is, the case would be paid as though the condition were not present.

CMS Deficit Reduction Act HAC Measures

HAC 01: Foreign Object Retained After Surgery
HAC 02: Air Embolism
HAC 03: Blood Incompatibility
HAC 04: Stage III & Stage IV Pressure Ulcers
HAC 05: Falls and Trauma
HAC 06: Catheter-Associated Urinary Tract Infection
HAC 07: Vascular Catheter-Associated Infection
HAC 08: Surgical Site Infection - Mediastinitis After Coronary Artery Bypass Graft
HAC 09: Manifestations of Poor Glycemic Control
HAC 10: Deep Vein Thrombosis/Pulmonary Embolism with Total Knee Replacement or Hip Replacement
HAC 11: Surgical Site Infection – Bariatric Surgery
HAC 12: Surgical Site Infection – Certain Orthopedic Procedure of Spine, Shoulder, and Elbow
HAC 13: Surgical Site Infection Following Cardiac Device Procedures
HAC 14: Iatrogenic Pneumothorax w/Venous Catheterization

Hospital-Acquired Reduction Program (HACRP)

The Hospital-Acquired Reduction Program (HACRP) initiated by the Affordable Care Act was effective FFY 2015. The Hospital-Acquired Reduction Program requires the Secretary of the Department of Health and Human Services to adjust payments to applicable hospitals that rank in the worst-performing 25 percent of risk-adjusted Hospital-Acquired Reduction Program quality measures, which have limited overlap with Deficit Reduction Act Hospital-Acquired Conditions Program measures. Hospital-Acquired Reduction Program includes both hospital acquired conditions (HACs) and healthcare-associated infections (HAIs).

CMS Hospital-Acquired Reduction Program Measures:

HAI 01: Central Line-Associated Bloodstream Infection (CLABSI)
HAI 02: Catheter-Associated Urinary Tract Infection (CAUTI)
HAI 03: Surgical Site Infection (SSI) – Hysterectomy
HAC 04: Surgical Site Infection (SSI) – Colon
HAI 05: Methicillin-resistant Staphylococcus Aureus (MRSA) Bacteremia
HAC 06: Clostridium Difficile Infection (CDI)

Background information regarding the Hospital-Acquired Reduction Program measures, scoring methodology, review and corrections process, and hospital specific reports can be found on the QualityNet webpage: https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228774189166.

Performance on CDC National Healthcare Safety Network Measures Used for Medicare Hospital-Acquired Reduction Program

As illustrated in Figure 1, Domain 2 of the CMS Hospital-Acquired Reduction Program includes measures that are also included in the **Safety** domain of the CMS Value Based Purchasing and Maryland QBR programs. In an effort to understand how Maryland compares to the nation given our current unique complication programs and given that Commissioners have instructed the HSCRC to modify its complication program(s) to focus on measures of national import, staff has reviewed Maryland's statewide performance compared to both the national median established under the Value-Based Purchasing program for FFY 2020, and compared to the Standardized Infection Ratio (SIR) of 1 in CY 2015, the latter of which is the national observed to expected ratio for various hospital acquired infections.

As illustrated in Figure 1 below, Maryland performs consistent with the national Standardized Infection Ratio on 4 of the 6 measures, and above the Standardized Infection Ratio on 2 of the measures - scores less than the Standardized Infection Ratio of 1 indicate lower rates of infection relative to the national baseline. Maryland performs worse, however, compared to the national Value-Based Purchasing threshold (median) values for all 6 measures – scores higher than the National Value-Based Purchasing threshold values indicate worse performance than the median.

Figure 1. NHSN HAI Measures; Maryland Compared to VBP National Median and Baseline SIR Calendar 2016

Measure	Maryland Performance Score CY 16	National SIR (Rebased CY 2015)	National VBP Threshold (Median) CY 16
SSI-Colon	1.032	1	0.781
SSI-Hysterectomy	1.02	1	0.722
MRSA	1.154	1	0.815
C.Diff.	0.998	1	0.852
CAUTI	1.034	1	0.828
CLABSI	1.125	1	0.784

It is apparent from this performance and from national rankings that utilize these measurements (CMS Star Ratings) that Maryland still has a lot of room for improvement in hospital-acquired conditions despite nearly seven years of the MHAC program and nearly five years of the QBR program, which incorporates these measures into its Safety Domain.

CMS Hospital-Acquired Condition Reduction Program Fiscal Year 2018 Fact Sheet

Hospital-Acquired Condition Reduction Program Fiscal Year 2018 Fact Sheet

Overview

Section 3008 of the Patient Protection and Affordable Care Act (ACA) established the Hospital-Acquired Condition (HAC) Reduction Program to encourage eligible hospitals to reduce HACs.

Beginning in Fiscal Year (FY) 2015 (i.e., discharges beginning on October 1, 2014), the HAC Reduction Program requires the Secretary of the Department of Health and Human Services (HHS) to adjust payments to hospitals that rank in the worst-performing quartile of all subsection (d) non-Maryland hospitals with respect to risk-adjusted HAC quality measures. Hospitals with a Total HAC Score greater than the 75th percentile of all Total HAC Scores (i.e., the worst-performing quartile) will be subject to a 1 percent payment reduction.

FY 2018 Results

The cutoff for the 75th percentile of Total HAC Scores is 0.3687. The 75th percentile cutoff was 6.5700 in FY 2017. Hospitals cannot directly compare Total HAC Scores or the 75th percentile cutoff between FY 2018 and previous program years because these results are on different scales due to the Winsorized z-score method, which CMS adopted in FY 2018. Please refer to the Scoring Methodology section below for more information.

Public Reporting

CMS will report the following FY 2018 HAC Reduction Program information for each hospital on *Hospital Compare* in December 2017:

- Recalibrated PSI 90 Composite measure score
- Central Line-Associated Bloodstream Infection (CLABSI), Catheter-Associated Urinary Tract Infection (CAUTI), Surgical Site Infection (SSI), Methicillin-resistant Staphylococcus aureus (MRSA) bacteremia, and Clostridium difficile Infection (CDI) measure scores
- Domain 1 and Domain 2 scores
- Total HAC Score
- Payment Reduction Indicator

[1] The recalibrated PSIs used in CMS hospital quality reporting programs focus on the Medicare Fee-for-Service (FFS) population. CMS refers to PSIs as "recalibrated" to differentiate from the all-payer population for AHRQ.

Measure Selection and Calculation

In the FY 2014 Inpatient Prospective Payment System (IPPS)/Long-Term Care Hospital Prospective Payment System (LTCH PPS) Final Rule, CMS adopted the PSI 90 Composite and CDC CLABSI, CAUTI, SSI (Abdominal Hysterectomy and Colon Procedures), MRSA bacteremia, and CDI measures. In the FY 2017 Inpatient Prospective Payment System (IPPS)/Long-Term Care Hospital Prospective Payment System (LTCH PPS) Final Rule, CMS adopted the modified Recalibrated PSI 90 Composite for the FY 2018 HAC Reduction Program.

Recalibrated PSI 90 Composite

The Recalibrated PSI 90 Composite includes the following ten PSIs:

- PSI 03 – Pressure Ulcer Rate
- PSI 06 – Iatrogenic Pneumothorax Rate
- PSI 08 – In-Hospital Fall with Hip Fracture Rate
- PSI 09 – Perioperative Hemorrhage or Hematoma Rate
- PSI 10 – Postoperative Acute Kidney Injury Requiring Dialysis Rate
- PSI 11 – Postoperative Respiratory Failure Rate
- PSI 12 – Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate
- PSI 13 – Postoperative Sepsis Rate
- PSI 14 – Postoperative Wound Dehiscence Rate
- PSI 15 – Unrecognized Abdominopelvic Accidental Puncture/Laceration Rate

The recalibrated version 6.0.2 of the software is modified so that software parameters (i.e., risk-adjustment coefficients, signal variance, and component weights in the Recalibrated PSI 90 Composite) derive from data from July 2013 through June 2015 Medicare Fee-for-Service (FFS) claims. Recalibration does not affect the individual PSI measure specifications, or which PSIs CMS includes in the composite. The Recalibrated PSI 90 Composite is a weighted average of the risk- and reliability-adjusted versions (i.e., smoothed versions) of the recalibrated PSIs.

Hospitals' absolute and relative performance on the modified Recalibrated PSI 90 Composite will likely differ from their performance on previous versions of the Recalibrated PSI 90 Composite. In FY 2018, CMS bases hospitals' Recalibrated PSI 90 Composite performance on 15 months of data rather than 24 months. More hospitals' will have PSI 90 Composite results close to the mean. The extent to which results are smoothed to the mean during reliability adjustment increases as case size decreases.

CDC NHSN Healthcare-Associated Infection Measures

The CDC calculates standardized infection ratios (SIRs) for the CLABSI, CAUTI, SSI, MRSA bacteremia, and CDI measures. SIRs compare observed-to-predicted numbers of healthcare-associated infections (HAIs).

The CLABSI, CAUTI, SSI, MRSA bacteremia, and CDI measures are risk-adjusted at the hospital level and patient care unit level. CDC used chart-abstracted and laboratory surveillance data from NHSN for infections occurring from January 1, 2015 through December 31, 2016.

Hospitals' Domain 2 measure results will differ between FY 2018 and previous program years due to rebaselining and the expansion of the CLABSI and CAUTI measures to include ward

data.

Scoring Methodology

CMS finalized the adoption of the Winsorized z-score methodology in the FY 2017 IPPS/LTCH PPS Final Rule. The Winsorized z-score methodology replaced the decile-based scoring methodology CMS used in FY 2015, 2016, and 2017. To calculate measure scores, the previous decile-based scoring method categorized each hospital into ten groups, assigning a score from 1 to 10 for each Domain 1 and Domain 2 measure. The Winsorized z-score methodology is a continuous scoring method that relies on the actual measure value. It ranks hospitals on a continuous spectrum from best performing to worst performing. The Winsorized z-score method improves precision and leads to fewer ties in Total HAC Scores across hospitals, better distinguishing hospital performance.

Hospitals cannot directly compare measure scores, domain scores, and Total HAC Scores between FY 2018 and previous program years. These results are on different scales. Under the decile-based scoring approach, a hospital's measure score represented the decile of a hospital's measure result. Measure scores, domain scores, and Total HAC Scores ranged between 1 and 10. Under the Winsorized z-score method, a hospital's measure score indicates the difference between the measure result and the mean score in standard deviations. Winsorized z-scores for measures tend to range between -3 and 3. The domain scores and Total HAC Score tend to fall within that range as well.

The Winsorized z-score method affects the calculation of the measures scores, but does not affect how CMS determines domain scores, Total HAC Scores, and the worst-performing quartile.

Winsorized z-Score Calculation

For each measure, CMS calculates Winsorized measure results for each hospital based on raw measure results and the 5th and 95th percentile result for all eligible hospitals. If a hospital's measure result falls between the minimum and 5th percentile, CMS sets the hospital's measure result equal to the 5th percentile. If a hospital's measure result falls between the 95th percentile and maximum, CMS sets the hospital's measure results equal to the 95th percentile. Winsorization does not affect hospitals with a measure result between the 5th percentile and 95th percentile. These hospitals' Winsorized measure results equal the hospital's raw measure result.

For each measure, CMS subtracts the mean Winsorized measure result for all eligible hospitals from a hospital's Winsorized measure result, and divides by the standard deviation of Winsorized measure results for all eligible hospitals.

Winsorized z-score formula for "Hospital i" is:

$$\frac{X_i - \bar{X}}{SD(x)}$$

- X_i is hospital i's Winsorized measure result.
- X (bar) is the mean Winsorized measure result calculated across all subsection (d) hospitals.
- SD (x) is the standard deviation of Winsorized measure results calculated across Maryland and subsection (d) hospitals.

CMS grants exceptions for new hospitals, hospitals that submit an approved HAI exception form (SSI, MRSA, and CDI), or outliers (CDI only).

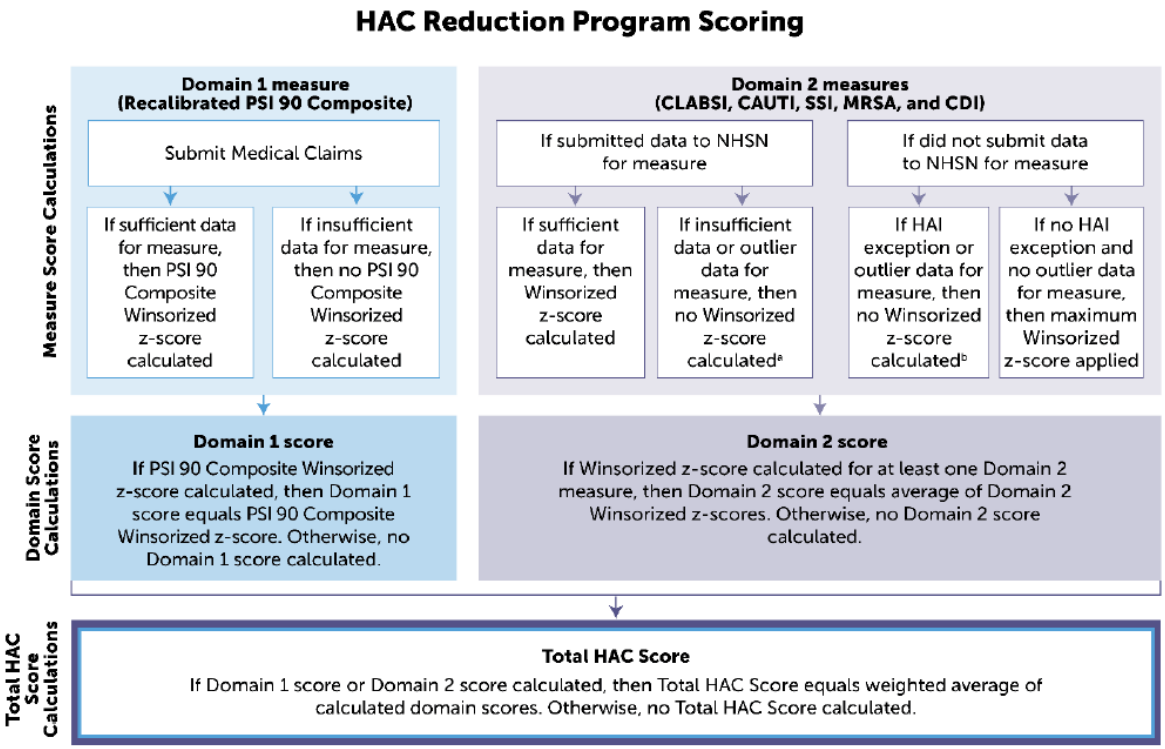
Negative domain scores indicate better performance, reflecting measure values above the national mean. Positive domain scores indicate worse performance, reflecting measure values below the national mean.

The domain weights for FY 2018 are the same as FY 2017. CMS applies a weight of 15 percent for Domain 1 and 85 percent for Domain 2 to determine the Total HAC Score for hospitals that receive a Domain 1 score and a Domain 2 score. If a hospital has only one domain score, then CMS applies a weight of 100 percent to the domain for which the hospital has a score. Hospitals with a Total HAC Score above the 75th percentile of the Total HAC Score distribution will receive a payment reduction.

Please see the FY 2018 HAC Reduction Program Hospital-Specific Report User Guide, located at https://qualitynet.org (Hospitals-Inpatient>HAC Reduction Program>Hospital-Specific-Reports). For more information on the scoring methodology CMS used for the FY 2018 HAC Reduction Program, reference the Winsorized z-scores infographic at: www.qualitynet.org: >Hospitals-Inpatient>Hospital-Acquired Condition (HAC) Reduction Program>Resources

Figure 1 presents a visual overview of the scoring methodology.

Figure 1 – Overview of Scoring Methodology



a: The CDC will not calculate an SIR for CDI if the community-onset prevalence rates are within outlier bounds (i.e., above 2.6).
b: CMS will not calculate a measure score if the hospital received an HAI exception. Hospitals may receive an exception for CLABSI, CAUTI, and SSI by submitting an HAI Exception Form.

Contacts and Additional Resources

For more information, please reference the following resources:

- Please send questions about CMS's calculations, issues accessing the HSR, and discharge-level data to: QualityNet Help Desk at qnetsupport@hcqis.org or (866) 288-8912.
- HAC Reduction Program Methodology and General Information
  - *QualityNet* HAC Reduction Program page: www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228774189166
  - Submit a question to the HAC Reduction Program Question and Answer Tool: https://cms-ip.custhelp.com/app/homehacrp/p/842
- Scores
  - Hospital Compare HAC Reduction Program page: www.medicare.gov/hospitalcompare/HAC-reduction-program.html
  - CMS HAC Reduction Program page: http://cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/HAC-Reduction-Program.html

- PSI 90
  - *QualityNet* AHRQ Resources page: http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228695355425
  - AHRQ Quality Indicator Support: www.qualityindicators.ahrq.gov/ or email QIsupport@ahrq.hhs.gov.
- CLABSI, CAUTI, SSI, MRSA bacteremia, and CDI
  - *QualityNet* Healthcare-Associated Infections page: www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1228760487021
  - CDC NHSN 2015 Rebaseline page: https://www.cdc.gov/nhsn/2015rebaseline/index.html
  - NHSN support: nhsn@cdc.gov

Appendix III. Maryland Hospital Care Improvements Examples

As of October 10, 2017

1. Development of a Colorectal Bundle for reduction in surgical site infection (SSI) complications.
    a. Also working on a bundle to reduce respiratory complications post-surgery
2. Development of a System CAUTI Bundle
3. Development and implementation of an Oral Care Program for reduction of Pneumonia
4. Development and implementation of an Healthcare-Associated Infection (HAI) Reduction Bundle – includes horizontal strategies including: hand hygiene, CHG bathing house-wide, improved environmental cleaning, antimicrobial stewardship, minimize invasive devices, compliance with established care bundles (e.g. CLABSI and CAUTI)
5. Development of Elective Joint Practice Guidelines:
    a. Guidelines for morbidly obese and diabetic patients
    b. Development of a revised rehabilitation pathway
    c. Standardize practice for pain management – resulting in reduced length of stay (LOS)
6. System-wide implementation of the Nursing Early Warning Scoring System to recognize early patient deterioration
7. Interventional Cardiology
    a. Development of a patient hydration protocol to reduce AKI
    b. Standardize reduced contrast dosing to reduce AKI
8. Cardiac Surgery: protocol development to reduce prolonged ventilation
9. Sepsis reductions:
    a. Implementation of “Code Sepsis” for early identification and treatment of sepsis
    b. Collaboration with Antimicrobial Stewardship Program for development of antibiotic protocols related to cause of sepsis
10. Developed system palliative care clinical improvement Work Group to improve early intervention and referrals to hospice. System increased discharges to hospice three fold.
11. Antimicrobial Stewardship: integration of improved diagnostic tests to improve and expedite diagnosis, enabling personalized treatment
12. Development of Nursing PPC report to improve nursing care related to complications (e.g. pressure ulcers).
13. Expanded use of Incentive Spirometry
14. Reinforcing basics of nursing such as bathing
15. New VTE risk assessment standardization
16. New method of assessment of blood loss in obstetrical department
17. Incorporation of an Aspiration Risk Assessment for all inpatients
    a. Patients at high risk made NPO until swallow study completed
18. New fall prevention protocols
19. Reinforcement of specimen collection techniques
20. Sepsis Bundle

21. C-Difficile bundles, Daily rounding / Specimen collection protocols
22. Documentation templates and risk assessments for anesthesia
23. IV insertion / maintenance education
24. Evaluation of type of anesthesia for total joint patients
25. Evaluation of tourniquet time for total joint patients

Appendix IV. List of APR-DRGs and Associated PPCs in Current Methodology and Proposed 80% Cutoff Methodology*

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
1	271	0	271	0	-	0
2	114	0	114	0	-	0
4	76	0	76	0	-	0
5	1,483	24	797	22	(686)	-2
6	30	0	30	0	-	0
7	164	0	164	0	-	0
8	98	0	98	0	-	0
9	282	1	282	1	-	0
10	-	0	-	0	-	0
20	347	0	347	0	-	0
21	53,470	109	26,852	99	(26,618)	-10
22	12,127	7	2,035	4	(10,092)	-3
23	14,043	14	2,896	8	(11,147)	-6
24	68,660	95	28,760	90	(39,900)	-5
26	12,380	17	2,713	9	(9,667)	-8
40	6,373	3	698	0	(5,675)	-3
41	-	0	-	0	-	0
42	41,552	47	16,059	41	(25,493)	-6
43	20,387	6	2,274	0	(18,113)	-6
44	29,972	26	10,123	23	(19,849)	-3
45	236,119	104	124,289	97	(111,830)	-7
46	6,001	0	640	0	(5,361)	0
47	54,728	5	6,848	2	(47,880)	-3
48	48,346	16	8,411	8	(39,935)	-8
49	6,490	7	1,092	2	(5,398)	-5
50	10,291	9	1,526	3	(8,765)	-6
51	5,309	0	643	0	(4,666)	0
52	43,831	31	12,756	22	(31,075)	-9
53	118,380	41	33,780	25	(84,600)	-16
54	35,133	1	3,338	0	(31,795)	-1
55	-	0	-	0	-	0
56	-	0	-	0	-	0
57	6,330	4	825	3	(5,505)	-1
58	78,470	45	30,746	38	(47,724)	-7
59	-	0	-	0	-	0
73	1,851	1	358	0	(1,493)	-1
82	14,302	1	1,380	0	(12,922)	-1
89	11,507	38	3,482	27	(8,025)	-11
91	3,790	24	1,122	15	(2,668)	-9
92	12,484	8	1,937	5	(10,547)	-3
95	298	0	94	0	(204)	0
97	322	0	193	0	(129)	0
98	13,659	16	2,021	6	(11,638)	-10
110	146	0	146	0	-	0
111	22,503	0	2,170	0	(20,333)	0

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
113	47,385	10	6,380	2	(41,005)	-8
114	4,544	1	534	0	(4,010)	-1
115	26,727	7	3,923	4	(22,804)	-3
120	27,101	95	12,302	82	(14,799)	-13
121	45,157	92	20,528	83	(24,629)	-9
130	11,458	64	5,935	61	(5,523)	-3
131	6,435	4	1,030	3	(5,405)	-1
132	295	0	131	0	(164)	0
133	182,805	112	111,373	98	(71,432)	-14
134	93,002	33	29,436	25	(63,566)	-8
135	84	0	84	0	-	0
136	10,925	9	1,934	5	(8,991)	-4
137	66,998	65	32,809	58	(34,189)	-7
138	6,188	1	1,642	0	(4,546)	-1
139	253,843	71	108,856	67	(144,987)	-4
140	353,583	71	128,655	62	(224,928)	-9
141	70,657	10	11,077	4	(59,580)	-6
142	16,818	12	3,344	7	(13,474)	-5
143	45,102	16	8,533	8	(36,569)	-8
144	13,845	4	1,890	2	(11,955)	-2
145	34,579	5	3,955	2	(30,624)	-3
160	25,523	136	14,700	125	(10,823)	-11
161	659	0	411	0	(248)	0
162	1,758	7	540	3	(1,218)	-4
163	28,629	137	14,496	128	(14,133)	-9
165	27,384	130	13,059	113	(14,325)	-17
166	64,735	205	34,195	192	(30,540)	-13
167	8,764	30	2,638	19	(6,126)	-11
169	16,747	111	7,897	91	(8,850)	-20
170	163	0	163	0	-	0
171	41,973	50	11,806	40	(30,167)	-10
174	124,291	139	55,781	123	(68,510)	-16
175	77,286	138	43,505	122	(33,781)	-16
176	14,709	17	3,347	13	(11,362)	-4
177	1,361	1	353	0	(1,008)	-1
180	13,019	18	3,095	12	(9,924)	-6
181	86,195	320	66,671	308	(19,524)	-12
182	44,967	107	23,109	95	(21,858)	-12
190	129,383	95	57,808	78	(71,575)	-17
191	28,642	11	4,001	8	(24,641)	-3
192	86,994	55	25,218	38	(61,776)	-17
193	2,479	3	488	0	(1,991)	-3
194	447,785	220	311,479	212	(136,306)	-8
196	-	0	-	0	-	0
197	75,984	29	22,827	21	(53,157)	-8
198	54,871	5	7,555	2	(47,316)	-3
199	64,496	14	12,604	8	(51,892)	-6
200	6,875	2	852	0	(6,023)	-2
201	220,854	70	74,998	57	(145,856)	-13
203	36,270	2	3,667	0	(32,603)	-2
204	75,174	5	8,033	2	(67,141)	-3

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
205	3,400	0	448	0	(2,952)	0
206	19,106	10	3,590	7	(15,516)	-3
207	41,869	20	8,636	10	(33,233)	-10
220	38,552	144	22,187	130	(16,365)	-14
222	6,024	12	1,158	4	(4,866)	-8
223	18,001	50	5,653	40	(12,348)	-10
224	18,445	35	6,583	27	(11,862)	-8
226	5,496	1	717	0	(4,779)	-1
227	51,752	90	20,413	79	(31,339)	-11
228	13,370	17	2,644	12	(10,726)	-5
229	17,802	25	4,772	19	(13,030)	-6
230	73,704	394	52,684	370	(21,020)	-24
231	121,208	287	89,404	271	(31,804)	-16
232	182	0	182	0	-	0
233	21,080	9	3,805	7	(17,275)	-2
234	26,290	2	3,889	2	(22,401)	0
240	5,327	0	621	0	(4,706)	0
241	107,906	51	41,483	36	(66,423)	-15
242	12,184	5	1,772	2	(10,412)	-3
243	24,913	8	3,942	4	(20,971)	-4
244	110,323	30	35,757	20	(74,566)	-10
245	45,386	3	4,616	0	(40,770)	-3
246	13,637	9	1,433	0	(12,204)	-9
247	108,859	43	37,552	35	(71,307)	-8
248	69,753	16	15,161	8	(54,592)	-8
249	110,287	23	20,245	9	(90,042)	-14
251	29,208	3	2,901	0	(26,307)	-3
252	29,087	19	6,390	10	(22,697)	-9
253	80,503	36	20,740	22	(59,763)	-14
254	125,956	52	51,978	38	(73,978)	-14
260	18,518	82	10,143	71	(8,375)	-11
261	1,789	3	384	3	(1,405)	0
263	134,028	144	72,938	132	(61,090)	-12
264	673	0	431	0	(242)	0
279	24,923	17	5,489	12	(19,434)	-5
280	32,119	22	7,359	17	(24,760)	-5
281	6,383	2	633	0	(5,750)	-2
282	142,962	81	70,242	75	(72,720)	-6
283	24,511	15	3,625	4	(20,886)	-11
284	56,060	33	18,519	24	(37,541)	-9
301	298,262	129	132,194	111	(166,068)	-18
302	535,527	217	353,282	205	(182,245)	-12
303	16,957	43	6,441	36	(10,516)	-7
304	208,035	176	120,768	163	(87,267)	-13
305	39,224	103	20,667	93	(18,557)	-10
308	4,444	1	3,620	0	(824)	-1
309	20,044	22	5,575	16	(14,469)	-6
310	38,780	23	9,065	13	(29,715)	-10
312	6,418	8	1,173	5	(5,245)	-3
313	98,738	65	40,858	54	(57,880)	-11
314	53,774	38	17,823	32	(35,951)	-6

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
315	64,710	46	23,286	37	(41,424)	-9
316	9,433	3	1,117	0	(8,316)	-3
317	25,373	18	4,872	7	(20,501)	-11
320	38,864	19	6,860	8	(32,004)	-11
321	113,413	80	50,615	69	(62,798)	-11
322	27,360	7	3,817	2	(23,543)	-5
340	85	1	85	1	-	0
341	21	0	21	0	-	0
342	39,311	15	6,655	7	(32,656)	-8
343	211	0	211	0	-	0
344	35,903	19	7,459	10	(28,444)	-9
346	21,543	20	5,426	13	(16,117)	-7
347	82,863	32	27,964	23	(54,899)	-9
349	16,520	4	1,790	1	(14,730)	-3
351	100,424	26	29,383	19	(71,041)	-7
361	20,691	13	3,580	6	(17,111)	-7
362	16,884	21	3,249	15	(13,635)	-6
363	16,017	21	3,142	14	(12,875)	-7
364	46,031	30	12,369	21	(33,662)	-9
380	32,416	9	4,294	2	(28,122)	-7
381	1,762	0	357	0	(1,405)	0
382	93	0	93	0	-	0
383	229,640	39	79,326	28	(150,314)	-11
384	23,587	6	2,925	4	(20,662)	-2
385	19,779	2	2,002	0	(17,777)	-2
401	3,197	5	414	0	(2,783)	-5
403	138,425	51	41,385	41	(97,040)	-10
404	6,264	8	1,184	4	(5,080)	-4
405	2,965	10	688	4	(2,277)	-6
420	175,023	44	66,205	34	(108,818)	-10
421	16,921	8	1,999	0	(14,922)	-8
422	50,268	12	7,968	5	(42,300)	-7
423	3,313	0	447	0	(2,866)	0
424	10,509	4	1,132	0	(9,377)	-4
425	51,453	20	13,603	15	(37,850)	-5
426	58,596	24	18,029	17	(40,567)	-7
427	8,786	2	910	0	(7,876)	-2
440	369	0	369	0	-	0
441	7,915	18	1,931	11	(5,984)	-7
442	27,753	57	10,651	48	(17,102)	-9
443	31,387	31	10,178	26	(21,209)	-5
444	5,356	13	956	5	(4,400)	-8
445	4,412	6	704	0	(3,708)	-6
446	17,972	15	3,439	9	(14,533)	-6
447	1,682	11	529	7	(1,153)	-4
461	984	2	246	0	(738)	-2
462	2,507	2	384	0	(2,123)	-2
463	232,338	64	105,005	57	(127,333)	-7
465	28,913	8	3,919	2	(24,994)	-6
466	54,184	32	19,383	22	(34,801)	-10
468	30,830	11	3,994	3	(26,836)	-8

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
469	203,548	135	109,919	119	(93,629)	-16
470	38,810	20	10,968	14	(27,842)	-6
480	42,101	12	8,573	9	(33,528)	-3
482	10,076	11	1,160	0	(8,916)	-11
483	4,651	12	932	10	(3,719)	-2
484	16,258	7	2,670	4	(13,588)	-3
500	35	0	35	0	-	0
501	20,168	4	2,119	0	(18,049)	-4
510	683	0	370	0	(313)	0
511	1,411	5	988	4	(423)	-1
512	9,331	13	1,911	9	(7,420)	-4
513	50,549	47	15,160	35	(35,389)	-12
514	3,396	2	414	0	(2,982)	-2
517	1,030	1	304	0	(726)	-1
518	5,733	8	939	4	(4,794)	-4
519	72,779	61	21,120	49	(51,659)	-12
530	177	0	177	0	-	0
531	14,414	3	1,438	0	(12,976)	-3
532	9,787	1	952	0	(8,835)	-1
540	929,187	282	443,030	248	(486,157)	-34
541	27,807	13	4,039	9	(23,768)	-4
542	38,509	12	5,543	6	(32,966)	-6
544	6,860	2	814	0	(6,046)	-2
545	1,765	0	333	0	(1,432)	0
546	3,577	4	483	0	(3,094)	-4
560	1,479,126	68	317,415	60	(1,161,711)	-8
561	27,374	1	2,573	0	(24,801)	-1
563	10,135	0	911	0	(9,224)	0
564	1,676	0	248	0	(1,428)	0
565	63	0	63	0	-	0
566	61,808	4	5,894	0	(55,914)	-4
580	-	0	-	0	-	0
581	-	0	-	0	-	0
583	12	0	12	0	-	0
588	118	0	118	0	-	0
589	-	0	-	0	-	0
591	214	0	154	0	(60)	0
593	464	0	308	0	(156)	0
602	465	0	311	0	(154)	0
603	56	0	56	0	-	0
607	541	0	376	0	(165)	0
608	160	0	119	0	(41)	0
609	99	0	99	0	-	0
611	250	0	209	0	(41)	0
612	774	0	527	0	(247)	0
613	60	0	60	0	-	0
614	1,277	0	844	0	(433)	0
621	346	0	226	0	(120)	0
622	767	0	509	0	(258)	0
623	69	0	69	0	-	0
625	933	0	619	0	(314)	0

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
626	-	0	-	0	-	0
630	116	0	116	0	-	0
631	146	0	146	0	-	0
633	1,955	0	1,131	0	(824)	0
634	2,120	0	1,319	0	(801)	0
636	860	0	570	0	(290)	0
639	4,247	0	2,605	0	(1,642)	0
640	-	0	-	0	-	0
650	268	0	268	0	-	0
651	2,272	1	432	0	(1,840)	-1
660	13,589	7	2,101	2	(11,488)	-5
661	18,530	6	3,085	5	(15,445)	-1
662	59,301	25	15,319	18	(43,982)	-7
663	79,805	18	13,927	9	(65,878)	-9
680	5,957	15	1,482	9	(4,475)	-6
681	1,189	0	587	0	(602)	0
690	-	0	-	0	-	0
691	2,531	1	355	0	(2,176)	-1
692	17	0	17	0	-	0
694	5,412	1	687	0	(4,725)	-1
695	-	0	-	0	-	0
696	10,332	0	1,027	0	(9,305)	0
710	66,389	217	57,912	205	(8,477)	-12
711	31,968	47	13,141	40	(18,827)	-7
720	434,465	313	359,625	303	(74,840)	-10
721	65,556	17	11,357	8	(54,199)	-9
722	14,818	1	1,617	0	(13,201)	-1
723	15,531	5	2,098	2	(13,433)	-3
724	16,794	13	4,228	10	(12,566)	-3
740	1,790	0	314	0	(1,476)	0
750	215,720	22	52,794	14	(162,926)	-8
751	287,258	29	60,794	15	(226,464)	-14
752	2,666	0	346	0	(2,320)	0
753	267,236	23	59,489	13	(207,747)	-10
754	92,920	5	10,603	0	(82,317)	-5
755	25,646	1	2,756	0	(22,890)	-1
756	23,919	1	2,628	0	(21,291)	-1
757	31,000	49	12,396	42	(18,604)	-7
758	4,605	0	944	0	(3,661)	0
759	1,777	1	324	0	(1,453)	-1
760	3,191	1	483	0	(2,708)	-1
770	-	0	-	0	-	0
772	20,376	1	2,103	0	(18,273)	-1
773	74,467	6	6,858	1	(67,609)	-5
774	8,327	2	877	0	(7,450)	-2
775	137,011	36	49,190	32	(87,821)	-4
776	7,470	1	862	0	(6,608)	-1
792	9,878	31	3,547	22	(6,331)	-9
793	17,756	14	3,904	9	(13,852)	-5
794	1,532	0	358	0	(1,174)	0
810	11,699	6	1,209	0	(10,490)	-6

	Model 1 >30 At-Risk Discharges		Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC		Difference	
APR-DRG	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide	At-Risk Discharges	# Observed Statewide
811	14,733	1	1,578	0	(13,155)	-1
812	63,785	26	12,849	14	(50,936)	-12
813	24,075	9	3,657	6	(20,418)	-3
815	3,377	1	430	0	(2,947)	-1
816	32,704	19	5,753	8	(26,951)	-11
817	22,540	4	2,424	0	(20,116)	-4
841	20	0	20	0	-	0
842	116	0	116	0	-	0
843	-	0	-	0	-	0
844	3,817	0	449	0	(3,368)	0
850	24,237	28	4,928	13	(19,309)	-15
860	174,080	130	114,864	109	(59,216)	-21
861	62,105	16	12,213	11	(49,892)	-5
862	13,983	17	2,485	13	(11,498)	-4
863	174	0	143	0	(31)	0
890	-	0	-	0	-	0
892	-	0	-	0	-	0
893	-	0	-	0	-	0
894	-	0	-	0	-	0
910	115	0	115	0	-	0
911	353	0	353	0	-	0
912	834	0	834	0	-	0
930	-	0	-	0	-	0
950	45,315	190	30,204	175	(15,111)	-15
951	51,124	97	26,522	88	(24,602)	-9
952	22,331	24	5,163	15	(17,168)	-9
955	3	0	3	0	-	0
956	244	0	244	0	-	0
STATEWIDE Totals	14,944,561	9,152	5,580,557	7,549	(9,364,004)	(1,603)

*DRG Analysis presented by Berkeley Research Group. HSCRC has validated that total number across both models match staff modeling. Total PPC counts do not match Appendix V and total PPCs in program, as hospital specific exclusions have not yet been implemented, i.e. the PPC counts are reduced slightly more once hospital specific exclusion is applied. HSCRC staff will confirm this analysis in final recommendation.

Appendix V. Number of Hospitals, At-Risk Discharges, and Observed PPCs by PPC (RY 2020 base period)

PPC #	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges				Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC				Difference			PPC Tier
		# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# Hosp.	# At-Risk	# Observed	
1	Stroke & Intracranial Hemorrhage	43	91.5%	423,226	335	42	89.4%	180,343	295	-1	(242,883)	-40	2
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	46	97.9%	350,493	653	46	97.9%	203,584	614	0	(146,909)	-39	1
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	45	95.7%	348,000	428	44	93.6%	158,618	377	-1	(189,382)	-51	1
5	Pneumonia & Other Lung Infections	47	100.0%	188,802	418	46	97.9%	123,959	376	-1	(64,843)	-42	1
6	Aspiration Pneumonia	43	91.5%	350,328	249	41	87.2%	157,935	215	-2	(192,393)	-34	1
7	Pulmonary Embolism	40	85.1%	402,665	204	38	80.9%	93,085	160	-2	(309,580)	-44	1
8	Other Pulmonary Complications	39	83.0%	278,288	282	38	80.9%	143,860	240	-1	(134,428)	-42	2
9	Shock	46	97.9%	417,932	512	44	93.6%	228,712	481	-2	(189,220)	-31	1
10	Congestive Heart Failure	35	74.5%	340,661	101	32	68.1%	98,734	71	-3	(241,927)	-30	2
11	Acute Myocardial Infarction	43	91.5%	416,549	303	43	91.5%	177,806	251	0	(238,743)	-52	2
13	Other Cardiac Complications	28	59.6%	339,884	66	21	44.7%	65,817	42	-7	(274,067)	-24	2

PPC #	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges				Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC				Difference			PPC Tier
		# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# Hosp.	# At-Risk	# Observed	
14	Ventricular Fibrillation/Cardiac Arrest	47	100.0%	367,688	656	47	100.0%	206,102	619	0	(161,586)	-37	1
16	Venous Thrombosis	42	89.4%	407,493	178	38	80.9%	122,404	135	-4	(285,089)	-43	1
19	Major Liver Complications	25	53.2%	333,090	55	12	25.5%	19,158	21	-13	(313,932)	-34	2
21	Clostridium Difficile Colitis	47	100.0%	65,009	368	47	100.0%	42,328	334	0	(22,681)	-34	2
23	GU Complications Except UTI	27	57.4%	353,248	55	15	31.9%	38,745	22	-12	(314,503)	-33	2
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	41	87.2%	315,949	267	40	85.1%	110,128	237	-1	(205,821)	-30	1
28	In-Hospital Trauma and Fractures	28	59.6%	363,054	49	11	23.4%	17,350	13	-17	(345,704)	-36	2
30	Poisonings due to Anesthesia*	47	100.0%	452,543	0	47	100.0%	452,543	0	0	-	0	2
31	Decubitus Ulcer*	47	100.0%	126,359	41	47	100.0%	126,359	41	0	-	0	2
32	Transfusion Incompatibility Reaction*	47	100.0%	469,683	0	47	100.0%	469,683	0	0	-	0	2
35	Septicemia & Severe Infections	47	100.0%	145,479	422	46	97.9%	97,079	382	-1	(48,400)	-40	1
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	33	70.2%	62,406	156	32	68.1%	16,700	139	-1	(45,706)	-17	1
38	Post-Operative Wound Infection & Deep Wound	4	8.5%	34,663	9	4	8.5%	2,607	8	0	(32,056)	-1	1

PPC #	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges				Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC				Difference			PPC Tier
		# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# Hosp.	# At-Risk	# Observed	
	Disruption with Procedure												
39	Reopening Surgical Site	30	63.8%	108,051	170	30	63.8%	38,289	161	0	(69,762)	-9	2
40	Post-Op Hemorrhage & Hematoma w/o Hemorrhage Control Procedure or I&D Proc	42	89.4%	152,519	576	42	89.4%	117,808	554	0	(34,711)	-22	1
41	Post-Op Hemorrhage & Hematoma w/Hemorrhage Control Procedure or I&D Proc	26	55.3%	112,810	86	21	44.7%	43,976	57	-5	(68,834)	-29	1
42	Accidental Puncture/Laceration During Invasive Procedure	37	78.7%	432,009	242	36	76.6%	78,290	205	-1	(353,719)	-37	1
44	Other Surgical Complication - Mod	16	34.0%	81,027	25	9	19.1%	7,881	11	-7	(73,146)	-14	2
45	Post-procedure Foreign Bodies*	47	100.0%	151,145	12	47	100.0%	151,145	12	0	-	0	2
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body*	47	100.0%	446,991	0	47	100.0%	446,991	0	0	-	0	2
47	Encephalopathy	28	59.6%	250,214	73	23	48.9%	37,958	47	-5	(212,256)	-26	2

PPC #	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges				Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC				Difference			PPC Tier
		# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# Hosp.	# At-Risk	# Observed	
48	Other Complications of Medical Care	30	63.8%	379,947	83	24	51.1%	46,384	46	-6	(333,563)	-37	2
49	Iatrogenic Pneumothorax	31	66.0%	376,207	69	29	61.7%	46,712	50	-2	(329,495)	-19	1
50	Mechanical Complication of Device, Implant & Graft	40	85.1%	417,641	229	40	85.1%	109,769	184	0	(307,872)	-45	2
51	Gastrointestinal Ostomy Complications	34	72.3%	392,701	85	31	66.0%	66,824	59	-3	(325,877)	-26	2
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	43	91.5%	426,713	309	42	89.4%	163,962	261	-1	(262,751)	-48	2
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	31	66.0%	385,174	68	12	25.5%	28,797	14	-19	(356,377)	-54	2
59	Medical & Anesthesia Obstetric Complications	29	61.7%	63,991	105	29	61.7%	63,991	105	0	-	0	2
60	Major Puerperal Infection and Other Major Obstetric Complications	20	42.6%	55,491	58	20	42.6%	55,491	58	0	-	0	2

PPC #	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges				Model 2 >30 At-Risk Discharges + 80% APR-DRG-PPC				Difference			PPC Tier
		# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# of Hosp.	% of Hosp.	At-Risk Discharges	# Obs. Statewide	# Hosp.	# At-Risk	# Observed	
61	Other Complications of Obstetrical Surgical & Perineal Wounds	18	38.3%	52,937	42	18	38.3%	51,630	42	0	(1,307)	0	2
65	Urinary Tract Infection without Catheter	28	59.6%	318,278	51	6	12.8%	8,132	9	-22	(310,146)	-42	2
67	Combined PPC 1 (PPC 25, 26, 63, 64) General Combo	44	93.6%	443,372	253	42	89.4%	228,144	206	-2	(215,228)	-47	2
68	Combined PPC 2 (PPC 17, 18) GI Combo	44	93.6%	415,509	274	44	93.6%	223,833	240	0	(191,676)	-34	2
71	Combined PPC 3 (PPC 34, 54,66) Infection Combo	31	66.0%	403,806	71	20	42.6%	35,799	35	-11	(368,007)	-36	2
	STATEWIDE Totals			13,220,025	8,688			5,405,445	7,429			-1259	
	STATEWIDE Average	36	77.2%			33	70.0%			-1			
	Percent of PPCs Retained in Model 2								85.5%				

***Serious Reportable Events**

Appendix VI. PPC Benchmarks (RY 2020 Base Period)

PPC NUMBER	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges	Model 2 >30 + 80% APR-DRG-PPC	Simple Differences Model 1 vs Model 2	
		Benchmark	Benchmark	Benchmark	Tier
1	Stroke & Intracranial Hemorrhage	0.4595	0.4132	-0.0463	2
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	0.5813	0.5469	-0.0344	1
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	0.5599	0.5624	0.0025	1
5	Pneumonia & Other Lung Infections	0.654	0.626	-0.028	1
6	Aspiration Pneumonia	0.3916	0.4239	0.0323	1
7	Pulmonary Embolism	0.3226	0.1432	-0.1794	1
8	Other Pulmonary Complications	0.3844	0.2257	-0.1587	2
9	Shock	0.4151	0.4132	-0.0019	1
10	Congestive Heart Failure	0.1922	0.177	-0.0152	2
11	Acute Myocardial Infarction	0.3905	0.2903	-0.1002	2
13	Other Cardiac Complications	0.0617	0.1521	0.0904	2
14	Ventricular Fibrillation/Cardiac Arrest	0.5726	0.5538	-0.0188	1
16	Venous Thrombosis	0.1862	0.1774	-0.0088	1
19	Major Liver Complications	0.0677	0	-0.0677	2
21	Clostridium Difficile Colitis	0.4459	0.4306	-0.0153	2
23	GU Complications Except UTI	0.2014	0	-0.2014	2
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	0.2722	0.2648	-0.0074	1
28	In-Hospital Trauma and Fractures	0.2232	0	-0.2232	2
30	Poisonings due to Anesthesia	0	0	0	2
31	Decubitus Ulcer	0	0	0	2
32	Transfusion Incompatibility Reaction	0	0	0	2
35	Septicemia & Severe Infections	0.4565	0.4459	-0.0106	1

PPC NUMBER	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges	Model 2 >30 + 80% APR-DRG-PPC	Simple Differences Model 1 vs Model 2	
		Benchmark	Benchmark	Benchmark	Tier
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	0.3179	0.2915	-0.0264	1
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	0.3548	0	-0.3548	1
39	Reopening Surgical Site	0.4059	0.2616	-0.1443	2
40	Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Proc	0.5583	0.5512	-0.0071	1
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Proc	0.2917	0.154	-0.1377	1
42	Accidental Puncture/Laceration During Invasive Procedure	0.302	0.3851	0.0831	1
44	Other Surgical Complication - Mod	0.349	0	-0.349	2
45	Post-procedure Foreign Bodies	0	0	0	2
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body	0	0	0	2
47	Encephalopathy	0.156	0.0937	-0.0623	2
48	Other Complications of Medical Care	0.2061	0.0902	-0.1159	2
49	Iatrogenic Pneumothorax	0.1275	0.0757	-0.0518	1
50	Mechanical Complication of Device, Implant & Graft	0.4661	0.3827	-0.0834	2
51	Gastrointestinal Ostomy Complications	0.3174	0.2301	-0.0873	2
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	0.4157	0.4181	0.0024	2
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	0.0575	0	-0.0575	2
59	Medical & Anesthesia Obstetric Complications	0.2625	0.2625	0	2
60	Major Puerperal Infection and Other Major Obstetric Complications	0.1321	0.1321	0	2
61	Other Complications of Obstetrical Surgical & Perineal Wounds	0.1592	0.1592	0	2
65	Urinary Tract Infection without Catheter	0	0	0	2
67	Combined PPC 1 (PPC 25, 26, 63, 64)	0.0842	0.0658	-0.0184	2

PPC NUMBER	PPC DESCRIPTION	Model 1 >30 At-Risk Discharges	Model 2 >30 + 80% APR-DRG-PPC	Simple Differences Model 1 vs Model 2	
		Benchmark	Benchmark	Benchmark	Tier
68	Combined PPC 2 (PPC 17, 18)	0.2423	0.226	-0.0163	2
69	Combined PPC 3 (PPC 34, 54,66) Infection Combo	0.1701	0.1235	-0.0466	2

Appendix VII. PPCs by Hospital (RY 2020 Base Period)

CMS ID	HOSPITAL NAME	Model 1 No Changes					Model 2 80% APR-DRG-PPC					Percent Differences Model 1 vs Model 2		
		# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	AT-RISK BASE PERIOD	OBS. Base Pd.	O/E Ratio
210001	Meritus	43	407,534	238	214.10	1.11	39	162,081	196	182.00	1.08	-60.23%	-17.65%	-2.70%
210002	UMMC	45	534,838	652	687.36	0.95	43	208,534	562	594.00	0.95	-61.01%	-13.80%	0.00%
210003	UM-PGHC	41	262,505	129	146.96	0.88	32	90,402	112	118.92	0.94	-65.56%	-13.18%	6.82%
210004	Holy Cross	44	720,384	268	336.76	0.80	42	282,784	228	292.59	0.78	-60.75%	-14.93%	-2.50%
210005	Frederick	43	430,602	235	236.50	0.99	39	168,630	201	198.98	1.01	-60.84%	-14.47%	2.02%
210006	UM-Harford	21	60,472	27	35.89	0.75	20	30,798	27	30.58	0.88	-49.07%	0.00%	17.33%
210008	Mercy	43	383,043	222	232.16	0.96	37	162,077	189	198.15	0.95	-57.69%	-14.86%	-1.04%
210009	Johns Hopkins	45	931,895	980	911.69	1.07	45	345,415	811	771.45	1.05	-62.93%	-17.24%	-1.87%
210010	UM-Dorchester	13	21,305	7	11.70	0.60	11	12,207	5	8.39	0.60	-42.70%	-28.57%	0.00%
210011	St. Agnes	44	409,484	163	254.53	0.64	42	166,639	142	218.23	0.65	-59.31%	-12.88%	1.56%
210012	Sinai	44	455,939	432	365.83	1.18	42	196,008	377	321.56	1.17	-57.01%	-12.73%	-0.85%
210013	Bon Secours	19	47,287	51	32.20	1.58	18	24,928	42	27.17	1.55	-47.28%	-17.65%	-1.90%
210015	MedStar Fr Square	44	563,017	324	315.04	1.03	43	223,558	285	272.99	1.04	-60.29%	-12.04%	0.97%

CMS ID	HOSPITAL NAME	Model 1 No Changes					Model 2 80% APR-DRG-PPC					Percent Differences Model 1 vs Model 2		
		# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	AT-RISK BASE PERIOD	OBS. Base Pd.	O/E Ratio
210016	Washington Adventist	43	285,597	215	186.62	1.15	39	107,087	194	163.31	1.19	-62.50%	-9.77%	3.48%
210017	Garrett	11	11,914	5	8.01	0.62	9	8,664	4	5.56	0.72	-27.28%	-20.00%	16.13%
210018	MedStar Montgomery	31	135,397	59	76.71	0.77	30	65,062	48	65.81	0.73	-51.95%	-18.64%	-5.19%
210019	Peninsula	44	447,929	335	337.34	0.99	43	193,052	293	300.57	0.97	-56.90%	-12.54%	-2.02%
210022	Suburban	40	341,630	235	229.81	1.02	35	147,137	195	194.41	1.00	-56.93%	-17.02%	-1.96%
210023	Anne Arundel	45	737,567	313	378.73	0.83	42	297,430	251	324.06	0.77	-59.67%	-19.81%	-7.23%
210024	MedStar Union Mem	41	306,458	285	277.70	1.03	36	133,196	243	241.80	1.00	-56.54%	-14.74%	-2.91%
210027	Western Maryland	41	290,122	204	183.20	1.11	36	115,366	163	156.38	1.04	-60.24%	-20.10%	-6.31%
210028	MedStar St. Mary's	29	133,444	50	72.46	0.69	28	65,679	45	63.80	0.71	-50.78%	-10.00%	2.90%
210029	JH Bayview	43	520,336	290	318.84	0.91	41	191,072	240	268.79	0.89	-63.28%	-17.24%	-2.20%
210030	UM-Chestertown	12	11,419	11	9.91	1.11	11	9,091	8	8.37	0.96	-20.39%	-27.27%	-13.51%
210032	Union of Cecil	27	91,039	65	55.85	1.16	26	44,482	59	48.95	1.21	-51.14%	-9.23%	4.31%
210033	Carroll	39	241,876	166	128.85	1.29	31	92,492	140	105.07	1.33	-61.76%	-15.66%	3.10%
210034	MedStar Harbor	31	136,275	89	80.25	1.11	30	70,066	74	70.14	1.05	-48.58%	-16.85%	-5.41%

CMS ID	HOSPITAL NAME	Model 1 No Changes					Model 2 80% APR-DRG-PPC					Percent Differences Model 1 vs Model 2		
		# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	AT-RISK BASE PERIOD	OBS. Base Pd.	O/E Ratio
210035	UM-Charles Regional	33	138,420	59	79.14	0.75	29	61,515	47	64.68	0.73	-55.56%	-20.34%	-2.67%
210037	UM-Easton	30	145,344	99	81.45	1.22	28	73,837	85	69.42	1.22	-49.20%	-14.14%	0.00%
210038	UMMC Midtown	27	78,759	54	66.67	0.81	26	35,932	50	58.46	0.86	-54.38%	-7.41%	6.17%
210039	Calvert	25	79,266	35	42.60	0.82	22	39,434	31	34.99	0.89	-50.25%	-11.43%	8.54%
210040	Northwest	37	269,837	96	124.33	0.77	29	98,722	82	98.52	0.83	-63.41%	-14.58%	7.79%
210043	UM-BWMC	42	429,757	296	299.30	0.99	41	174,472	262	257.28	1.02	-59.40%	-11.49%	3.03%
210044	GBMC	44	472,241	283	233.11	1.21	37	180,205	238	194.66	1.22	-61.84%	-15.90%	0.83%
210048	Howard County	43	452,022	208	192.40	1.08	40	172,598	173	161.11	1.07	-61.82%	-16.83%	-0.93%
210049	UM-Upper Chesapeake	43	289,973	159	186.81	0.85	36	113,771	124	155.88	0.80	-60.76%	-22.01%	-5.88%
210051	Doctors	40	248,769	149	184.76	0.81	34	99,628	129	151.10	0.85	-59.95%	-13.42%	4.94%
210055	UM-Laurel	26	64,358	58	45.03	1.29	24	31,946	51	38.64	1.32	-50.36%	-12.07%	2.33%
210056	MedStar Good Sam	41	240,814	158	172.70	0.91	34	106,918	138	145.74	0.95	-55.60%	-12.66%	4.40%
210057	Shady Grove	43	458,572	233	223.66	1.04	40	184,776	198	191.67	1.03	-59.71%	-15.02%	-0.96%
210058	UMROI	23	47,786	60	53.92	1.11	23	44,548	59	52.61	1.12	-6.78%	-1.67%	0.90%

CMS ID	HOSPITAL NAME	Model 1 No Changes					Model 2 80% APR-DRG-PPC					Percent Differences Model 1 vs Model 2		
		# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	# PPCs	At-Risk	OBS. Base Pd.	EXP. Base Pd.	O/E Ratio	AT-RISK BASE PERIOD	OBS. Base Pd.	O/E Ratio
210060	Ft. Washington	18	24,232	16	19.48	0.82	15	14,545	13	14.59	0.89	-39.98%	-18.75%	8.54%
210061	Atlantic General	25	47,780	28	39.47	0.71	22	26,028	27	32.07	0.84	-45.53%	-3.57%	18.31%
210062	MedStar Southern MD	41	281,292	217	136.34	1.59	31	97,036	194	109.87	1.77	-65.50%	-10.60%	11.32%
210063	UM-St. Joe	44	432,558	299	298.58	1.00	40	183,182	276	263.20	1.05	-57.65%	-7.69%	5.00%
210064	Levindale	15	15,702	83	32.25	2.57	14	11,674	79	30.75	2.57	-25.65%	-4.82%	0.00%
210065	HC-Germantown	27	83,235	48	48.03	1.00	25	40,741	39	40.44	0.96	-51.05%	-18.75%	-4.00%
	STATEWIDE Totals		**13,220,025**	**8,688**	**8,685.08**	**1.00**		**5,405,445**	**7,429**	**7,417.72**	**1.00**	**-59.11%**	**-14.49%**	**0.00%**
	STATEWIDE Median	**41**					**34**							

Appendix VIII. Hospital MHAC Scores and Revenue Adjustments (RY 2019 Base and YTD September Performance)

CMS ID	HOSPITAL NAME		Model 1 No Changes			Model 2 80% APR-DRG-PPC			Simple Differences Model 1 vs Model 2	
		RY17 Permanent Inpatient Revenue	FINAL Weighted SCORE	% Adjustment	Revenue Adjustment	FINAL Weighted SCORE	% Adjustment	Revenue Adjustment	FINAL Weighted SCORE	Revenue Adjustment
210062	MedStar Southern MD	$163,339,853	27%	-0.80%	-$1,306,719	27%	-0.80%	-$1,306,719	0%	$0
210064	Levindale	$54,805,171	32%	-0.58%	-$316,652	29%	-0.71%	-$389,726	-3%	-$73,074
210024	MedStar Union Mem	$231,121,787	34%	-0.49%	-$1,129,929	37%	-0.36%	-$821,766	3%	$308,162
210033	Carroll	$116,510,378	34%	-0.49%	-$569,606	38%	-0.31%	-$362,477	4%	$207,130
210027	Western Maryland	$171,858,929	35%	-0.44%	-$763,817	39%	-0.27%	-$458,290	4%	$305,527
210048	Howard County	$176,085,796	29%	-0.71%	-$1,252,166	41%	-0.18%	-$313,041	12%	$939,124
210001	Meritus	$185,173,878	39%	-0.27%	-$493,797	46%	0.00%	$0	7%	$493,797
210002	UMMC	$874,727,573	34%	-0.49%	-$4,276,446	54%	0.00%	$0	20%	$4,276,446
210005	Frederick	$178,853,951	47%	0.00%	$0	52%	0.00%	$0	5%	$0
210012	Sinai	$397,073,246	32%	-0.58%	-$2,294,201	48%	0.00%	$0	16%	$2,294,201
210013	Bon Secours	$62,008,295	43%	-0.09%	-$55,118	54%	0.00%	$0	11%	$55,118
210015	MedStar Fr Square	$287,510,180	45%	0.00%	$0	47%	0.00%	$0	2%	$0
210022	Suburban	$189,851,798	41%	-0.18%	-$337,514	48%	0.00%	$0	7%	$337,514
210029	JH Bayview	$348,529,477	48%	0.00%	$0	55%	0.00%	$0	7%	$0
210030	UM-Chestertown	$18,989,104	50%	0.00%	$0	54%	0.00%	$0	4%	$0
210044	GBMC	$216,554,825	38%	-0.31%	-$673,726	49%	0.00%	$0	11%	$673,726
210057	Shady Grove	$219,319,153	50%	0.00%	$0	55%	0.00%	$0	5%	$0
210058	UMROI	$67,555,816	52%	0.00%	$0	55%	0.00%	$0	3%	$0
210034	MedStar Harbor	$107,761,881	47%	0.00%	$0	56%	0.02%	$23,947	9%	$23,947

CMS ID	HOSPITAL NAME		Model 1 No Changes			Model 2 80% APR-DRG-PPC			Simple Differences Model 1 vs Model 2	
		RY17 Permanent Inpatient Revenue	FINAL Weighted SCORE	% Adjustment	Revenue Adjustment	FINAL Weighted SCORE	% Adjustment	Revenue Adjustment	FINAL Weighted SCORE	Revenue Adjustment
210063	UM-St. Joe	$234,995,507	53%	0.00%	$0	56%	0.02%	$52,221	3%	$52,221
210004	Holy Cross	$339,593,506	59%	0.09%	$301,861	62%	0.16%	$528,257	3%	$226,396
210008	Mercy	$216,281,427	54%	0.00%	$0	63%	0.18%	$384,500	9%	$384,500
210032	Union of Cecil	$68,179,037	61%	0.13%	$90,905	63%	0.18%	$121,207	2%	$30,302
210051	Doctors	$132,931,890	61%	0.13%	$177,243	64%	0.20%	$265,864	3%	$88,621
210019	Peninsula	$235,729,906	51%	0.00%	$0	66%	0.24%	$576,229	15%	$576,229
210040	Northwest	$125,696,184	61%	0.13%	$167,595	66%	0.24%	$307,257	5%	$139,662
210011	St. Agnes	$233,151,492	65%	0.22%	$518,114	67%	0.27%	$621,737	2%	$103,623
210056	MedStar Good Sam	$158,579,215	65%	0.22%	$352,398	67%	0.27%	$422,878	2%	$70,480
210009	Johns Hopkins	$1,357,164,899	49%	0.00%	$0	68%	0.29%	$3,920,699	19%	$3,920,699
210016	Washington Adventist	$150,097,509	66%	0.24%	$366,905	68%	0.29%	$433,615	2%	$66,710
210038	UMMC Midtown	$114,950,934	70%	0.33%	$383,170	68%	0.29%	$332,080	-2%	-$51,089
210018	MedStar Montgomery	$79,298,762	62%	0.16%	$123,354	69%	0.31%	$246,707	7%	$123,354
210039	Calvert	$63,319,998	62%	0.16%	$98,498	69%	0.31%	$196,996	7%	$98,498
210043	UM-BWMC	$227,399,457	58%	0.07%	$151,600	70%	0.33%	$757,998	12%	$606,399
210028	MedStar St. Mary's	$77,346,008	71%	0.36%	$275,008	71%	0.36%	$275,008	0%	$0
210049	UM-Upper Chesapeake	$133,152,736	62%	0.16%	$207,126	71%	0.36%	$473,432	9%	$266,305
210065	HC-Germantown	$62,086,212	63%	0.18%	$110,375	71%	0.36%	$220,751	8%	$110,375
210003	UM-PGHC	$215,010,869	67%	0.27%	$573,362	72%	0.38%	$812,263	5%	$238,901
210060	Ft. Washington	$19,371,986	76%	0.47%	$90,403	72%	0.38%	$73,183	-4%	-$17,220
210061	Atlantic General	$38,966,012	72%	0.38%	$147,205	72%	0.38%	$147,205	0%	$0
210035	UM-Charles Regional	$68,387,041	68%	0.29%	$197,563	74%	0.42%	$288,745	6%	$91,183

CMS ID	HOSPITAL NAME		Model 1 No Changes			Model 2 80% APR-DRG-PPC			Simple Differences Model 1 vs Model 2	
		RY17 Permanent Inpatient Revenue	FINAL Weighted SCORE	% Adjustment	Revenue Adjustment	FINAL Weighted SCORE	% Adjustment	Revenue Adjustment	FINAL Weighted SCORE	Revenue Adjustment
210037	UM-Easton	$100,000,562	67%	0.27%	$266,668	74%	0.42%	$422,225	7%	$155,556
210006	UM-Harford	$46,975,749	76%	0.47%	$219,220	77%	0.49%	$229,659	1%	$10,439
210017	Garrett	$21,836,267	64%	0.20%	$43,673	77%	0.49%	$106,755	13%	$63,083
210023	Anne Arundel	$296,168,973	72%	0.38%	$1,118,861	77%	0.49%	$1,447,937	5%	$329,077
210055	UM-Laurel	$59,724,224	59%	0.09%	$53,088	77%	0.49%	$291,985	18%	$238,897
210010	UM-Dorchester	$24,256,573	74%	0.42%	$102,417	78%	0.51%	$123,978	4%	$21,561
	Statewide Median		**58%**			**64%**				

State Total		**-$7,333,081**	**State Total**		**$10,453,300**
Penalty		**-$13,469,692**	Penalty		**-$3,652,019**
% Inpatient			% Inpatient		
Reward		**$6,136,611**	Reward		**$14,105,319**
% Inpatient			% Inpatient		

Maryland
Hospital Association

January 24, 2018

Alyson Schuster, Ph.D.
Associate Director, Performance Measurement
Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland 21215

Dear Alyson:

On behalf of the Maryland Hospital Association's 64 member hospitals and health systems, we appreciate the opportunity to comment on the Health Services Cost Review Commission's *Draft Recommendation for the Maryland Hospital-Acquired Conditions Program for Rate Year 2020*.

We agree with staff's recommendation to leave unchanged many features of the policy as the current version has been constructed to help the state meet the requirements of the final year of the All-Payer Model. We appreciate the thoughtful consideration of the recommended modifications to address concerns raised by the hospital field about very low-volume occurrences improperly affecting performance standards and causing volatility in hospitals' scores. As the hospital field has continued to reduce the actual number of complications, risk-adjusting at a DRG-SOI level, which contains more than 1,200 combinations, results in a very small percentage of those 1,200-plus cells having sufficient volume to show stable values. We agree with HSCRC staff's assessment that this potentially penalizes hospitals for random variation as opposed to poor performance and support the recommendations to address the problem.

We look forward to continuing to work with the commission on modifications to the complications policy for performance year 2019 (fiscal year 2021). Should you have any questions, please call me at 410-540-5087.

Sincerely,

Traci La Valle

Traci La Valle, Vice President

cc: Nelson J. Sabatini, Chairman
Joseph Antos, Ph.D., Vice Chairman
Victoria W. Bayless
George H. Bone, M.D.
John M. Colmers
Adam Kane
Jack C. Keane
Donna Kinzer, Executive Director
Dianne Feeney, Associate Director, Quality Initiatives
Allan Pack, Director, Population-Based Methodologies

Draft Recommendation for the Readmissions Reduction Incentive Program for Rate Year 2020

February 14, 2018

Health Services Cost Review Commission

4160 Patterson Avenue
Baltimore, Maryland 21215
(410) 764-2605
FAX: (410) 358-6217

This document contains the draft staff recommendations for updating the Maryland Hospital Readmissions Reduction Incentive Program (RRIP) for RY 2020. Please submit comments on this draft to the Commission by Friday, March 2, 2018, via email to hscrc.quality@maryland.gov.

Table of Contents

LIST OF ABBREVIATIONS

ACA	Affordable Care Act
APR-DRG	All-patient refined diagnosis-related group
ARR	Admission-Readmission Revenue Program
CMS	Centers for Medicare & Medicaid Services
CMMI	Center for Medicare and Medicaid Innovation
CRISP	Chesapeake Regional Information System for Our Patients
CY	Calendar year
FFS	Fee-for-service
FFY	Federal fiscal year
HRRP	Hospital Readmissions Reduction Program
HSCRC	Health Services Cost Review Commission
ICD-10	International Classification of Disease, 10th Edition
RRIP	Readmissions Reduction Incentive Program
RY	Rate year
SOI	Severity of illness
YTD	Year-to-date

KEY METHODOLOGY CONCEPTS AND DEFINITIONS

Diagnosis-Related Group (DRG): A system to classify hospital cases into categories that are similar in clinical characteristics and in expected resource use. DRGs are based on a patient's primary diagnosis and the presence of other conditions.

All Patients Refined Diagnosis Related Groups (APR-DRG): Specific type of DRG assigned using 3M software that groups all diagnosis and procedure codes into one of 328 All-Patient Refined-Diagnosis Related Groups.

Severity of Illness (SOI): 4-level classification of minor, moderate, major, and extreme that can be used with APR-DRGs to assess the acuity of a discharge.

APR-DRG SOI: Combination of diagnosis-related groups with severity of illness levels, such that each admission can be classified into an APR-DRG SOI "cell" along with other admissions that have the same diagnosis-related group and severity of illness level.

Observed/Expected Ratio: Readmission rates are calculated by dividing the observed number of readmissions by the expected number of readmissions. Expected readmissions are determined through case-mix adjustment.

Case-Mix Adjustment: Statewide rate for readmissions (i.e., normative value or "norm") is calculated for each diagnosis and severity level. These **statewide norms** are applied to each hospital's case-mix to determine the expected number of readmissions, a process known as **indirect standardization**.

RECOMMENDATIONS

This is a draft recommendation for the Maryland Rate Year (RY) 2020 Readmission Reduction Incentive Program (RRIP) policy. At this time, the staff requests that Commissioners consider the following draft recommendations:

1. The RRIP policy provides incentives to reduce readmissions on an all-payer basis.
2. Hospital performance is measured as the better of attainment or improvement.
3. Due to ICD-10 transition, a compounded improvement target is used that combines Calendar Year (CY) 2013 to Calendar Year (CY) 2016 improvement (under ICD-9) and CY2016 to CY 2018 improvement (under ICD-10); the combined improvement target will be set at 14.34% percent for CY 2016 to CY 2018.
4. The attainment benchmark is set at the 25th percentile of hospital performance in CY 2017, with an improvement factor (currently 2% from previous calendar year); the preliminary attainment target is 10.70 percent for CY 2018.
5. Hospitals are eligible for a maximum reward of 1 percent, or a maximum penalty of 2 percent, based on the better of their attainment or improvement scores.

Staff will review the improvement target and attainment benchmark in April/May against finalized CY 2017 data in order to bring back to the Commission revised performance targets if data trends warrant the revision. This may necessitate an additional vote from Commissioners.

INTRODUCTION

The Maryland Health Services Cost Review Commission's (HSCRC's or Commission's) quality-based measurement and payment initiatives are important policy tools for providing strong incentives for hospitals to improve their quality performance over time. Under the current All-Payer Model Agreement (the Agreement) between Maryland and the Centers for Medicare & Medicaid Services (CMS), which began in January 2014, there are overarching quality performance requirements for reductions in readmissions and hospital acquired conditions as well as other ongoing program and performance requirements across HSCRC's quality and value-based programs.

As long as Maryland makes incremental progress towards the Agreement goals, the State receives automatic exemptions from the CMS Hospital Readmission Reduction program as well as the Hospital Acquired Conditions Reduction Program, while the exemption from the CMS Medicare Value-Based Purchasing program is requested annually. These exemptions from national quality programs are important, because the State of Maryland's all-payer global budget system benefits from having autonomous, quality-based measurement and payment initiatives that set consistent quality incentives across all-payers.

This report provides staff draft recommendations for updates to Maryland's Readmission Reduction Incentive Program (RRIP) for Rate Year 2020 (RY 2020), which is one of three core quality programs that the HSCRC administers for all payers. The RRIP program holds 2% of hospital revenue at-risk by assessing performance on 30-day all-cause all-payer readmission rates across all acute care hospitals in Maryland. The current all-payer model Agreement necessitates that Maryland hospitals reduce Medicare readmissions to at or below the national Medicare readmission rate by the end of Calendar Year (CY) 2018. Based on a 12-month rolling rate as of August 2017, Maryland's Medicare readmission rate of 15.29% is slightly below the national Medicare rate of 15.33%. However, it should be noted that this progress must continue to keep up with Medicare reductions through the end of CY 2018 in order to satisfy the State's contractual obligation.

For RY 2020, which reflects the performance results from the final year of the Agreement (CY 2018), staff is recommending minimal changes to the RRIP policy and the other existing quality programs in order to focus on future policy development. Future policy development includes establishing quality strategies and performance goals that are "aggressive and progressive" under the Total Cost of Care Model ("TCOC Model"). Staff will work with key stakeholders to develop all-payer readmission targets for RY 2021 and beyond that support the specific requirements and overall goals of the TCOC Model. Specifically, new targets will evaluate Maryland hospital performance relative to external benchmarks for Medicaid and commercial payer readmission rates to the extent they are available, in addition to Medicare. Staff will also consider options for modifying the readmission measure, such as the addition of specialty hospitals or observation stays. Furthermore, staff will work to develop and assess the feasibility of integrating social risk factors into the assessment of readmission rates under a modified RRIP policy based only on attainment.

BACKGROUND

Medicare Hospital Readmissions Reduction Program

The United States healthcare system currently has an unacceptably high rate of preventable hospital readmissions, which are defined as an admission to a hospital within a specified time period after a discharge from the same or another hospital.[1] Excessive readmissions generate considerable unnecessary costs and represent substandard quality of care for patients. A number of studies show that hospitals can engage in several activities to lower their rate of readmissions, such as clarifying patient discharge instructions, coordinating with post-acute care providers and patients' primary care physicians, and reducing medical complications during patients' initial hospital stays.[2] Efforts have been underway nationally to address excessive readmissions and their deleterious effects.

Under authority of the Affordable Care Act, the Centers for Medicare & Medicaid Services (CMS) established its Medicare Hospital Readmissions Reduction Program in federal fiscal year 2013. Under this program, CMS uses three years of data to calculate the average risk-adjusted, 30-day hospital readmission rates for patients with certain conditions. For federal fiscal year 2018, this includes patients with heart attack, heart failure, pneumonia, chronic obstructive pulmonary disease, elective hip or knee replacement, and coronary artery bypass graft surgery. If a hospital's risk-adjusted readmission rate for such patients exceeds that average, CMS penalizes it in the following year by using an adjustment factor that is applied to Medicare reimbursements for care for patients admitted for any reason; the penalty is in proportion to the hospital's excess rate of readmissions. Penalties under the Medicare Hospital Readmissions Reduction Program were first imposed in federal fiscal year 2013, during which the maximum penalty was 1 percent of the hospital's base inpatient claims, and the maximum penalty has increased to 3 percent for federal fiscal year 2015 and beyond.

As required by the 21st Century Cures Act, CMS has modified the Medicare Hospital Readmissions Reduction Program starting in federal fiscal year 2019 to assess penalties based on a hospital's performance relative to other hospitals with a similar proportion of dually-eligible (Medicare and Medicaid) patients. Hospitals will be stratified into five peer groups based on their dual-eligible proportion, which is defined as the proportion of hospital stays for patients

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[1] Jencks, S. F. et al., "Hospitalizations among Patients in the Medicare Fee-for-Service Program," *New England Journal of Medicine* Vol. 360, No. 14: 1418-1428, 2009.; Epstein, A. M. et al., "The Relationship between Hospital Admission Rates and Rehospitalizations," *New England Journal of Medicine* Vol. 365, No. 24: 2287-2295, 2011.

[2] Ahmad, F. S. et al., "Identifying Hospital Organizational Strategies to Reduce Readmissions," *American Journal of Medical Quality* Vol. 28, No. 4: 278-285, 2013.; Silow-Carroll, S. et al., "Reducing Hospital Readmissions: Lessons from Top-Performing Hospitals," *Commonwealth Fund Synthesis Report*, New York: Commonwealth Fund, 2011.; Jack, B. W. et al., "A Reengineered Hospital Discharge Program to Decrease Hospitalization: A Randomized Trial," *Annals of Internal Medicine* Vol. 50, No. 3: 178-187, 2009.; and Kanaan, S. B., "Homeward Bound: Nine Patient-Centered Programs Cut Readmissions," Oakland, CA: California HealthCare Foundation, 2009.

with dual eligibility for Medicare and full-benefit Medicaid. Hospital performance will be compared to the median of the hospital's peer group. The Cures Act also requires that estimated total penalties under the new methodology must equal estimated total penalties under the original methodology.

Beginning in CY 2018, CMS has also begun voluntary reporting of the Hybrid Hospital-Wide Readmission measure for hospitals in order to test collection of core clinical data elements and laboratory test results that stakeholders believe would enhance the administrative coding data that is utilized currently in the risk model variables.[3]

Overview of the Maryland RRIP Policy

The All-Payer Model Agreement with CMS replaced the requirements of the Affordable Care Act by establishing two sets of requirements. One set of requirements established performance targets for readmissions and complications in order to maintain Maryland exemptions from these programs, while the second set of requirements ensured that the amount of potential and actual revenue adjustments in Maryland's quality-based programs was at or above the CMS levels in aggregate but on an all-payer basis. Maryland has historically performed poorly compared to the nation on readmissions, ranked 50th among all states in a study examining Medicare data from 2003-2004.[4] Under the Agreement, Maryland's Medicare fee-for-service statewide hospital readmission rate must be equal to or below the national Medicare readmission rate by the end of Calendar Year (CY) 2018, and demonstrate annual progress toward this goal (also known as the "Waiver Test").

In order to meet the new Model requirements, the Commission approved a new readmissions program in April 2014—the RRIP—to further bolster the incentives to reduce unnecessary readmissions. The RRIP replaced a previous Commission policy, the Admission Readmission Revenue policy, which had been in place since RY 2012.[5] As recommended by the Performance Measurement Work Group, the RRIP is more comprehensive than the Medicare Hospital Readmission Program, as it includes all patients and payers, but it otherwise aligns – albeit with some minor differences – with the CMS readmission measure, and reasonably supports the goal of meeting or out-performing the national Medicare readmission rate.

The most notable difference between the Maryland model and the Federal model is that Maryland does not stratify hospitals into peer groups, which CMS does based on the proportion of stays for patients who are fully dually-eligible for Medicare and Medicaid. Staff does not plan on stratifying by Maryland-specific peer groups at this time. In addition, adopting the national

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[3] For more information on Medicare Hospital Readmissions Reduction Program, see https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html.

[4] Jencks, S. F. et al., "Hospitalizations among Patients in the Medicare Fee-for-Service Program," *New England Journal of Medicine* Vol. 360, No. 14: 1418-1428, 2009.

[5] http://hscrc.maryland.gov/Pages/archived-quality-initiatives1.aspx

stratification determination for Maryland hospitals is not currently possible as this data is calculated retrospectively and will not be available until the start of federal fiscal year 2019. Staff will evaluate the CMS stratification approach and its applicability to Maryland as the data becomes available.

RRIP Methodology

Under the RRIP, the methodology evaluates all-payer, all-cause inpatient readmissions using the CRISP unique patient identifier to track patients across Maryland hospitals. The readmission measure excludes certain types of discharges from consideration, due to data issues and clinical concerns, in order to increase the fairness of this all-payer measure, e.g. planned readmissions. Readmission rates are adjusted for case-mix using all-patient refined diagnosis-related group (APR-DRG) severity of illness (SOI), and the policy determines a hospital's score and revenue adjustment by the better of improvement or attainment, with scaled rewards of up to 1% of inpatient revenue and scaled penalties of up to 2%.[6] Figure 1 illustrates the readmission performance metric specifications.

Figure 1. Rate Year 2020 RRIP Measure

RRIP Performance Metric

Measure: All-Payer, 30-day, all-cause readmissions using CRISP unique identifier to track patients across acute hospitals in Maryland

Case-Mix Adjustment: Indirect standardization by diagnosis and severity of illness levels to calculate hospital expected readmissions given the patient mix and acuity

Discharges Ineligible for Readmission: transfers, deaths, oncology, rehab, newborns, APR-DRG SOI cells <2 discharges statewide, missing or ungroupable data

Unplanned Readmissions Only: Planned admissions (based on CMS logic) are not counted as readmissions (but are eligible for an unplanned readmission)

Improvement: Change in readmission rate CY13-CY16 compounded with CY16-CY18 (due to ICD-10 transition)

Attainment: All-payer readmission rate is adjusted to account for out of state readmissions using Medicare ratio of in-state vs. out-of-state readmissions

The improvement target compares the performance year to CY 2013, as opposed to a new updated base period; this ensures that hospitals that made early investments to reduce readmissions receive credit for these early improvements. The attainment target is calculated by taking hospitals' all-payer case-mix adjusted readmission rates and adjusting them for out of

[6] See Appendix I for details of the indirect standardization method used to calculate a hospital's expected readmission rate.

state readmissions using Medicare data, with the attainment target then defined as the 25th percentile of hospital performance plus an additional reduction (currently 2% from previous CY) in order to set a more aggressive attainment target over time. Figure 2 shows the improvement and attainment targets for each rate year.

Figure 2. RRIP Program Targets and Revenue at-Risk, Rate Years 2016-2020

Rate Year	Base Period	Perform-ance Period	Improvement Target (cumulative from CY 2013)	Attainment Target	Revenue at Risk: Reward	Revenue at Risk: Penalty
RY 2016	CY 2013	CY 2014	6.76%	N/A	0.50%	N/A
RY 2017	CY 2013	CY 2015	9.30%	12.09%	1.0%	2.0%
RY 2018	CY 2013	CY 2016	9.50%	11.85%	1.0%	2.0%
RY 2019*	CY 2013	CY 2017	14.50%[7]	10.83%	1.0%	2.0%
RY 2020 (proposed)	CY 2013	CY 2018	14.34%	10.70%	1.0%	2.0%

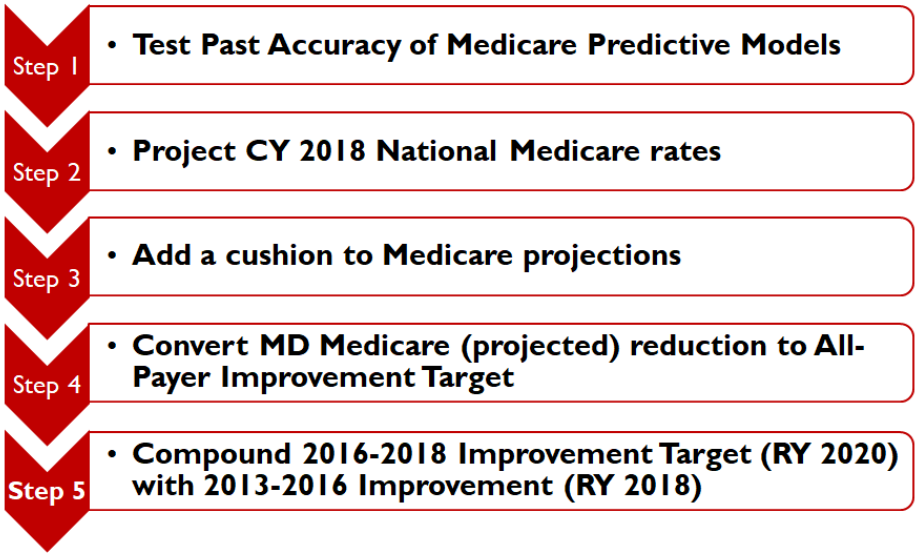
*Due to the ICD-10 transition and changes to the APR-DRG grouper, the cumulative improvement rate was calculated by adding the RY 2018 improvement (CY 2013 to CY 2016 improvement under APR-DRG grouper versions 32 and 33) to the RY 2019 one-year CY 2016 to CY 2017 improvement (both under APR-DRG grouper version 34). Under the RY 2019 policy, RY 2018 improvement was simply added to RY 2019 improvement to yield a 14.5% improvement target. However, given that the ICD-9 and ICD-10 grouper version data are expressed as percentages, these two improvement time frames should have been compounded together, which would have yielded a 14.10% improvement target.

[7] Had the RY 2019 Improvement Target been compounded, it would have yielded an improvement target of 14.10%. The RY 2020 (proposed) Improvement Target of 14.34% represents a small increase on the Improvement Target.

Methodology for Determining Improvement Target

Developing an appropriate improvement target is a multi-step process to ensure that the State responsibly incorporates projections of the national Medicare readmissions rate with the latest federal data to determine the Maryland All-Payer Case-mix Adjusted Readmissions Rate. A simple flowchart of the necessary steps is included below in Figure 3.

Figure 3. Steps to Determine Improvement Target



In Step 1, staff worked with contractor, Mathematica Policy Research, to review past accuracy of seven forecasting models. Additional information on this analysis may be found in the assessment section below.

In Step 2, Mathematica Policy Research and staff projected the CY 2018 national Medicare readmission rate using trends based on data through August 2017. Given that the RY 2020 improvement target must yield the improvement to enable Maryland to achieve the Waiver Test by the end of CY 2018, or else trigger a corrective action from CMS, staff will closely monitor updated data through end of CY 2017, and **may revise the improvement target mid-year.** This would require Commissioners approving an amendment to the proposed policy, as the data will become available following the March Commission meeting, when presumably the RRIP policy will be formally approved.

In Step 3, given that predictions are fundamentally uncertain, staff has included a cushion to make the improvement target more aggressive in case the predictions are inaccurate, and to ensure that Maryland continues to improve beyond the initial goal of the national median.

In Step 4, staff compared improvement trends in unadjusted, Medicare readmission rates to case-mix adjusted, All-Payer readmission rates. Case-mix adjusted rates are required as the performance metric for the payment program in order to take into account the different types of patients seen at different hospitals and their varying acuity levels. This step is fundamentally

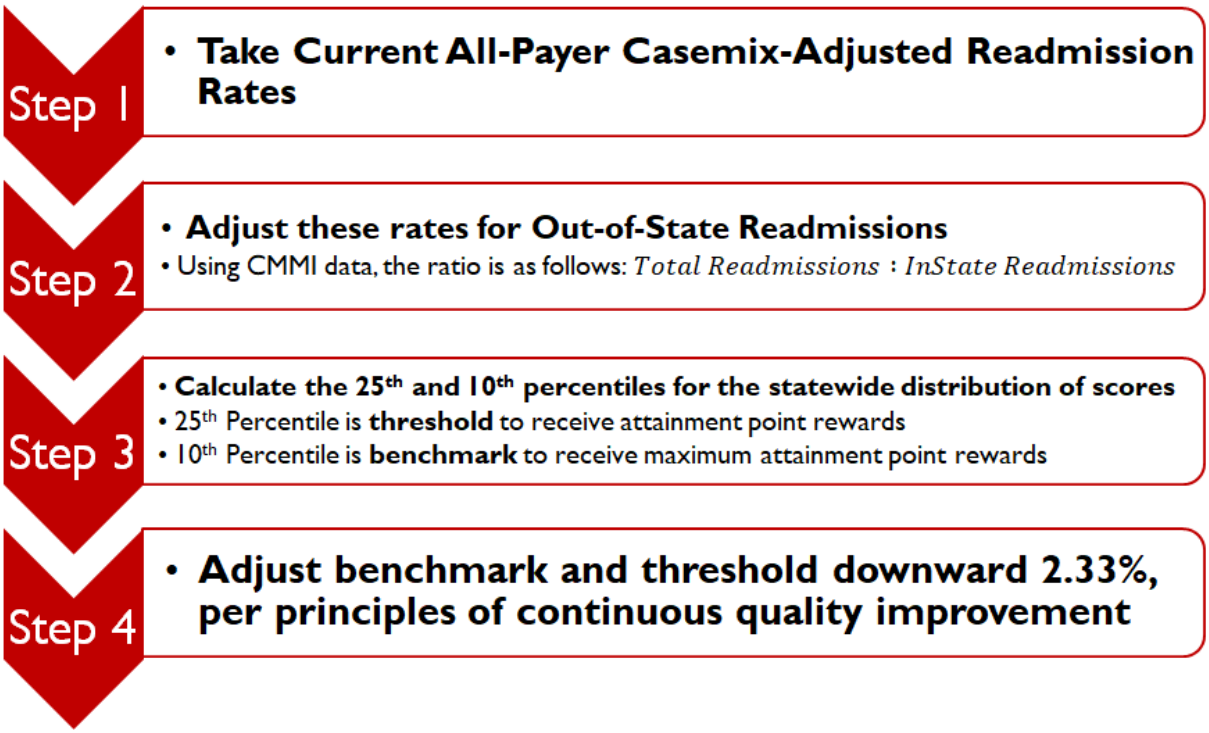
necessary, and would be even if the program was only assessing Medicare readmissions, as Medicare-only readmission rates would still need to be case-mix adjusted. Further discussion of this step is provided in the Assessment section.

Finally, in Step 5, staff has to compound the improvement target for CY 2016 to CY 2018 with the previously experienced RY 2018 improvement (CY 2013 to CY 2016). Step 5 is necessary because the RY 2018 and RY 2020 measures are based on fundamentally different datasets expressed in terms of percentages due to the conversion to ICD-10 in FFY 2016. The HSCRC has made it a policy to not penalize hospitals that made early investments to improve their readmission rates from CY 2013 to CY 2016, so the earlier data must be included. It should be noted that, for the RY 2019 policy, the two time periods pre- and post-ICD conversion were simply added and not compounded - staff has addressed this error in the proposed RY 2020 RRIP methodology.

Methodology for Determining Attainment Target

Beginning in RY 2017, HSCRC began including an attainment target, whereby hospitals with low case-mix adjusted readmission rates are rewarded for maintaining low readmission rates. A simple flowchart of the necessary steps to determine the attainment target is included below in Figure 4.

Figure 4. Steps to Determine Attainment Target



In Step 1, staff examine the current All-Payer, Case-mix Adjusted Readmission Rates (these data are current through October with preliminary data). These rates are then further adjusted to

account for readmissions to out-of-state hospitals (Step 2), which is done by adjusting case-mix adjusted rates by the ratio of Medicare readmissions that were outside-of-Maryland in the most recent four full quarters of data (currently September 2016-August 2017). From these adjusted trends, a threshold (25th percentile) and benchmark (10th percentile) are calculated, providing a range by which hospitals with low readmission rates can be assessed, should their attainment score be higher than their calculated improvement score. Finally, both the benchmark and threshold are adjusted downward by 2% from those prior CY numbers, reflecting the State's desire that all Maryland hospitals continue to improve over the next year. However, the modeling is currently using an adjustment of 2.33%,[8] given that this year's policy is projecting 14 months of performance as opposed to 12 months and hospitals may have improvements in the final two months of calendar year 2017 that are not reflected in the current data.

Scoring and Scaling Methodology

HSCRC will calculate a by-hospital revenue adjustment based on the difference between a hospital's score and the improvement and the attainment targets and benchmarks. Hospitals will receive the more favorable revenue adjustment (the better of their improvement or attainment adjustments). These rewards and penalties are linearly scaled between -2% and 1% using the improvement target and attainment threshold as the cut point. An illustration of the abbreviated scales is provided below in the tables in Figure 5.

Figure 5. RRIP Improvement and Attainment Revenue Adjustment Scales

Improvement Scale

All Payer Readmission Rate Change CY13-CY18	RRIP % Inpatient Revenue Payment Adjustment
A	B
Improving Readmission Rate	1.0%
-24.84%	1.00%
-19.59%	0.50%
-14.34% (Target)	0.00%
-9.09%	-0.50%
-3.84%	-1.00%
1.41%	-1.50%
6.66%	-2.0%
Worsening Readmission Rate	-2.0%

Attainment Scale

All Payer Readmission Rate CY18	RRIP % Inpatient Revenue Payment Adjustment
A	B
Lower Absolute Readmission Rate	**1.0%**
10.15% (Benchmark)	1.0%
10.43%	0.5%
10.7% (Threshold)	**0.0%**
10.98%	-0.5%
11.25%	-1.0%
11.52%	-1.5%
11.80%	-2.0%
Higher Absolute Readmission Rate	**-2.0%**

[8] (2% divided by 12 months) X 2 months.

ASSESSMENT

Under the Maryland All-Payer Model Agreement, the State is required to reduce the Maryland Medicare Fee-For-Service readmission rate to at or below the national average by the end of CY 2018. Reducing readmissions is a difficult task that requires significant effort, investment, and coordination. To track progress on this Waiver Test, HSCRC staff prepares updates to the latest readmission data for each Commission. Based on the latest 12 months of data through August 2017, the Maryland Readmission Rate is 15.29%, while the National Readmission Rate is 15.33%. This is very welcome news; however, it does not mean that Maryland has "met" the Waiver Test, given that Maryland must continue to discern where the national readmission rate will be in December 2018 and must match any additional national improvement.

To refine the improvement and attainment targets for RY 2020, the HSCRC has solicited input from the Performance Measurement Work Group, and staff has worked with contractors to model the readmission rate improvement needed to achieve the All-Payer Model Waiver Test. This draft recommendation is based on the most recent Center for Medicare and Medicaid Innovation readmission data (through August 2017) and HSCRC case-mix data (preliminary through October 2017), both of which will be updated for the final policy.[9]

Maryland's Performance to Date

Maryland Waiver Test Performance

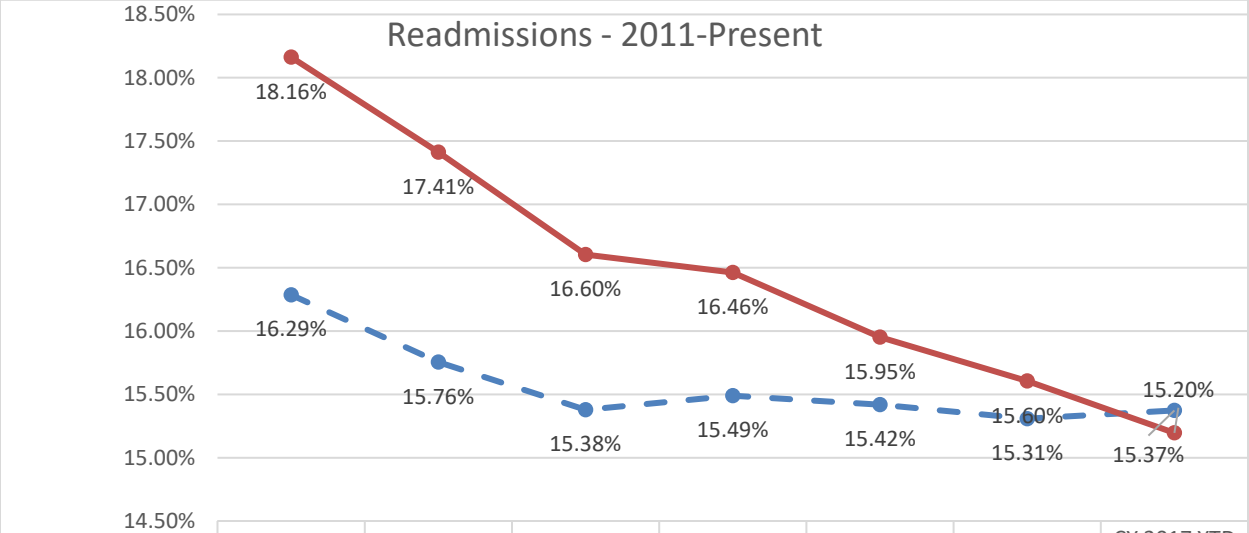
In the RY 2019 RRIP policy, calculations indicated that the gap between the national and the Maryland Medicare readmission rates for fee-for-service enrollees should be at or below 0.15 percentage points by the end of CY 2017 so that Maryland could close the remaining gap in the final year of the Waiver Test (CY 2018). The preliminary data for CY 2017, either year-to-date or with a rolling 12 month rate through August, indicate that Maryland's Medicare readmission rate is currently below the National rate. As shown in Figure 6, the 2017 year-to-date Maryland readmission rate of 15.20% is significantly lower than the national rate of 15.37%; however, on a 12 month rolling basis, the Maryland readmission rate of 15.29% is only slightly below the national rate of 15.33%. On a rolling 12 month period basis, Maryland has improved more than the nation for CY 2017 compared to CY2016 (Maryland: 0.43 percentage point reduction, National: 0.02 percentage point reduction).

The progress Maryland has made in reducing readmissions in CY 2017 is very promising in terms of meeting the 2018 Waiver Test; however, the RY 2020 policy must set a higher improvement target to: a) account for national readmission reductions during CY 2018, and b) to ensure the Maryland program incentivizes continuous quality improvement beyond the initial

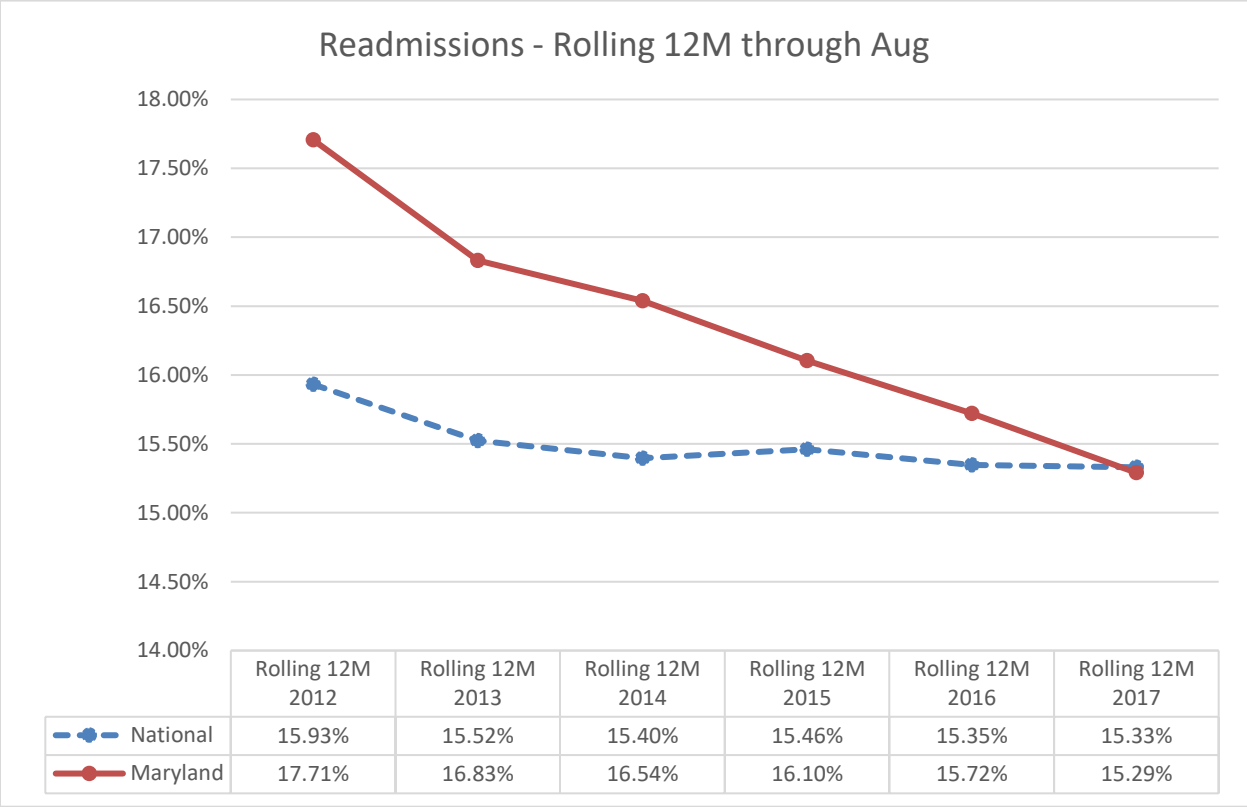
[9] The Final RRIP policy will also update the CMMI data with updated data to account for re-stated beneficiary data.

Waiver Test goal. This principle of continuous quality improvement is similarly included in the MHAC program, where the state continued to set additional improvement goals even after the 30% reduction was achieved.

Figure 6. Medicare FFS Readmissions, National and Maryland, 2011 – Present



	CY2011	CY2012	CY2013	CY2014	CY 2015	CY 2016	CY 2017 YTD Aug
National	16.29%	15.76%	15.38%	15.49%	15.42%	15.31%	15.37%
Maryland	18.16%	17.41%	16.60%	16.46%	15.95%	15.60%	15.20%



	Rolling 12M 2012	Rolling 12M 2013	Rolling 12M 2014	Rolling 12M 2015	Rolling 12M 2016	Rolling 12M 2017
National	15.93%	15.52%	15.40%	15.46%	15.35%	15.33%
Maryland	17.71%	16.83%	16.54%	16.10%	15.72%	15.29%

Of note, the HSCRC has received refreshed data from CMMI with re-stated beneficiaries. Between the draft and the final, HSCRC staff hopes to review the re-stated Medicare Waiver Test data and analyze its impact, if any.

All-Payer Performance

While the CMS readmission Waiver Test is based on the unadjusted readmission rate for Medicare patients, the RRIP incentivizes performance improvement on the All-Payer, case-mix adjusted readmission rate. Based on CY 2017 year-to-date data through October, the State has achieved a compounded reduction in the All-Payer, case-mix adjusted readmission rate of 12.55% since CY 2013, and 22 hospitals are on track to achieve the RY 2019 modified cumulative improvement target of 14.5 percent. Since the incentive program also includes an attainment target, an additional four hospitals are on track to achieve the attainment goal of a readmission rate lower than 10.83 percent. Appendix III provides current hospital-level year-to-date improvement and attainment rates for CY 2017. In the final RRIP policy, staff will provide data on all-payer performance with observation stays counting as readmissions, to analyze to what extent reductions in readmission rates are due to increases in the use of observation status, per stakeholder commentary.

All-Payer versus Medicare Readmission Program

As in the past, some Commissioners and other stakeholders have suggested that the RRIP shift to a Medicare-only program because currently there are not definitive benchmarks for non-Medicare readmission rates. However, HSCRC staff has expressed concerns that the intention of the Maryland model is to improve care on an all-payer basis, and that having a Medicare-only readmission program would run contrary to the model's overarching goals. Staff maintains that the all-payer nature of the pay-for-performance programs is one of the Model's defining features, and believes that maintaining an All-Payer RRIP is an important benefit from the perspective of consumers and other stakeholders. Based on initial Performance Measurement Work Group input, staff believes that hospitals continue to support that the RRIP be maintained on an All-Payer basis, and notes that other payers (notably Medicaid) are very interested in the continuation of an All-Payer RRIP policy. HSCRC staff will continue to work to obtain non-Medicare data and benchmarks.

Improvement Target Calculation Methodology RY 2020

In order to calculate the RY 2020 improvement target for Maryland, the Commission must forecast the national readmission rate for CY 2018. HSCRC staff and its contractor Mathematica Policy Research modeled seven different projections (Figure 7) for the CY 2018 national readmission rate. Mathematica Policy Research and staff also conducted an analysis of the accuracy of these predictive models, comparing their predictive output for various calendar years for which actual experienced data is available (Step 1). Analysis of the accuracy of the various predictive models did not clearly suggest any individual predictive method as being superior to the others; therefore, staff has averaged the forecasts derived from the seven different methods to determine the CY 2018 national Medicare readmission rate of 15.24% - see figure below (Step 2).[10]

[10] 15.24% is -0.85% lower than the current CY 2017 year-to-date trend, or -0.59% lower than the most recent rolling 12 months national rate.

Figure 7. Improvement Target Model Projections

Model Abbreviation	Model Name	Model Description	CY 2018 Projection
AAC	Average Annual Change	Averages the annual change of 2016 over 2015, 2015 over 2014, 2014 over 2013	**15.27%**
MRAC	Most Recent Annual Change	2017 YTD (thru Aug) over 2016 YTD (thru Aug)	**15.27%**
12MMA	12 Month Moving Average	Moving average predictive method, using most recent 12M of data and moving trend forward	**15.31%**
24MMA	24 Month Moving Average	Moving average predictive method, using most recent 24M of data and moving trend forward	**15.32%**
PROC	PROC Forecast	Combination of deterministic time trend model (long-term) and autoregressive model (short-term)	**15.01%**
ARIMA	Auto-Regressive Integrated Moving Average	Parametric statistical model characterizing the time series data, which better incorporates seasonality and multiple evaluation criteria	**15.21%**
STL	Seasonal and Trend decomposition using Loess	Divides time series data into three components - seasonal, trend cycle, and remainder, to yield projection value	**15.27%**
Average		Average of Seven Models	**15.24%**

Next, staff modeled the relationship between the Maryland Medicare Readmission Rate for CY 2016 (15.60%) and the projected national Medicare readmission rate for CY 2018 (15.24%). In

order to reduce the Maryland Medicare rate from 15.60% to 15.24%, the Maryland Medicare FFS rate must be reduced 2.32% in CY 2018 compared to CY 2016.[11]

Given that this is the last year of a moving Waiver Test, staff has included a cushion to this improvement target, in case the projection is inaccurate and too lenient. The cushion under this model is set at 0.1% and 0.2% (Step 3), as shown in figure 8 below.

Figure 8. Improvement Target Cushion

	National Actual Trend	National Actual Trend with -0.1% Cushion	National Actual Trend with -0.2% Cushion
CY 2016 Maryland Medicare Readmission Rate*	15.60%	15.60%	15.60%
CY 2018 Projected National Readmission Rate	15.24%	15.14%	15.04%
CY 2018 Reduction Required in MD Medicare FFS Rate from CY 2016	-2.32%	-2.96%	-3.60%

* Current CY 2016 Maryland Medicare Readmission Rate is stated under the old version of the beneficiary calculation algorithm. This rate will be re-stated under the Final RY 2020 RRIP Policy.

Staff then converted the unadjusted, Medicare FFS improvement target to a Case-mix Adjusted, All-Payer improvement target (Step 4) to ensure fairness across Maryland hospitals with differing case-mix acuity. To convert to an all-payer improvement target, staff and Mathematica Policy Research have evaluated the ratio relationship between the unadjusted Medicare FFS readmission rates and the Casemix-Adjusted All-Payer readmission rates. As shown in Figure 9 below, this ratio relationship appears to be stable over time. The Case-mix Adjusted All-Payer Readmission Rate has been approximately 75% of the unadjusted Medicare FFS readmission rate over the past several years. Therefore, staff has removed the multiple "conversion factors" used in the RY 2019 policy, and has instead converted the improvement target to an All-Payer target using the average of these ratios, which is 74.8%.

[11] Calculations may be vary due to rounding; components in the calculation of the improvement target are not rounded until the final step.

Figure 9. Unadjusted Medicare FFS to Case-mix Adjusted All-Payer Improvement Target Conversion

	CMMI (Unadjusted) MD Medicare FFS Readmissions Rate	HSCRC Case mix Adjusted All Payer Readmissions Rate	All Payer to Medicare Ratio of Readmissions Rates
CY 12 Rolling 12M thru Aug	17.71%	12.49%	70.5%
CY 13 Rolling 12M thru Aug	16.83%	12.67%	75.3%
CY 14 Rolling 12M thru Aug	16.54%	12.66%	76.6%
CY 15 Rolling 12M thru Aug	16.10%	12.14%	75.4%
CY 16 Rolling 12M thru Aug	15.72%	11.81%	75.1%
CY 17 Rolling 12M thru Aug	15.29%	11.61%	76.0%
		Average of Ratios	**74.8%**

When converting the necessary Medicare Readmission Rate Improvement to the necessary Case-mix Adjusted All-Payer Readmission Rate Improvement, the improvement from figure 8 above will then be modified to reflect the 74.8% ratio, per figure 10 below.

Figure 10. Translating Converted Improvement Target to Improvement Percent

	National Actual Trend	National Actual Trend with -0.1% Cushion	National Actual Trend with -0.2% Cushion
CY 2016 Maryland Medicare Readmission Rate*	15.60%	15.60%	15.60%
CY 2018 Projected National Readmission Rate	15.24%	15.14%	15.04%
CY 2018 Reduction Required in MD Medicare FFS Rate from CY 2016	-2.32%	-2.96%	-3.60%
Conversion Factor: Fixed ratio of All-Payer to FFS rate (Constant)	74.8%	74.8%	74.8%
Casemix-Adjusted, All-Payer Readmission Rate Improvement	**-2.75%**	**-3.38%**	**-4.02%**

* Current CY 2016 Maryland Medicare Readmission Rate is stated under the old version of the beneficiary calculation algorithm. This rate will be re-stated under the Final RY 2020 RRIP Policy.

For purposes of the draft policy, the staff is recommending to use the orange-highlighted target, a -4.02% improvement over CY 2016. For context, the FINAL RY 2019 RRIP policy required a -3.75% improvement target over CY 2016. The incremental increase in the improvement target reflects the success that Maryland has achieved in CY 2017. Should updated modeling for the final policy suggest a lower improvement target for CY 2018 than currently proposed, staff will propose expanding the cushion to ensure that Maryland is protected from any unforeseen improvements in national readmission rates. Expansion of the cushion in step 3 will further align

the RRIP policy with the policy of continuous quality improvement and aggressive program targets.

Finally, RY 2018 improvement must be compounded with RY 2020 (CY 2016 to CY 2018) improvement. Under the RY 2019 policy, these two improvement rates were simply added together; however, given that these are fundamentally discrete data that are expressed as percentage changes, compounding would yield a more accurate indication of the change over time (Step 5). For a detailed explanation of compounding, please see Appendix I.

Compounding the rates of improvement over time yields a RY 2020 improvement target of 14.34%, which is only slightly higher than the RY 2019 compounded target (14.10%). This modest improvement goal is attributed to: a) the fact that the State has reduced its Medicare readmission rate to below the nation, and b) the national improvement in readmissions slowed down in CY 2017, according to the most recent rolling 12 months of data. It should be noted that 24 hospitals already have achieved a compounded improvement greater than the RY 2020 proposed target of 14.34%.

Attainment Target Calculation Methodology

Beginning in RY 2017, HSCRC has also included an attainment target, whereby hospitals with low case mix adjusted readmission rates are rewarded for maintaining low readmission rates. To update the attainment target, staff examines the current All-Payer, Case-mix Adjusted Readmission Rates (these data are current through October with preliminary data). These rates are then further adjusted to account for readmissions to out-of-state hospitals (Step 2; additional information provided in Appendix V). From these adjusted trends, a threshold (25th percentile) and benchmark (10th percentile) are calculated, providing potential rewards to hospitals with low readmission rates (Step 3), as illustrated in Figure 11.

Finally, both the benchmark and threshold are adjusted downward by 2% from those prior CY numbers, reflecting the State's desire that all Maryland hospitals continue to improve over the next year. However, the modeling is currently using an adjustment of 2.33%,[12] given that hospitals should continue to improve throughout the final two months of CY 2017, as well as throughout 2018.

[12] (2% divided by 12 months) X 2 months

Figure 11. Attainment Target Threshold and Benchmark with Cushion

	CY17 Jan-Oct	With Cushion%*
CYTD17 Top 10%	10.40%	**10.15%**
CYTD17 Top 25%	10.96%	**10.70%**

*2.33% cushion based on 2% cushion adjusted for 14 months

Prospective Scaling for RY 2020 Policy

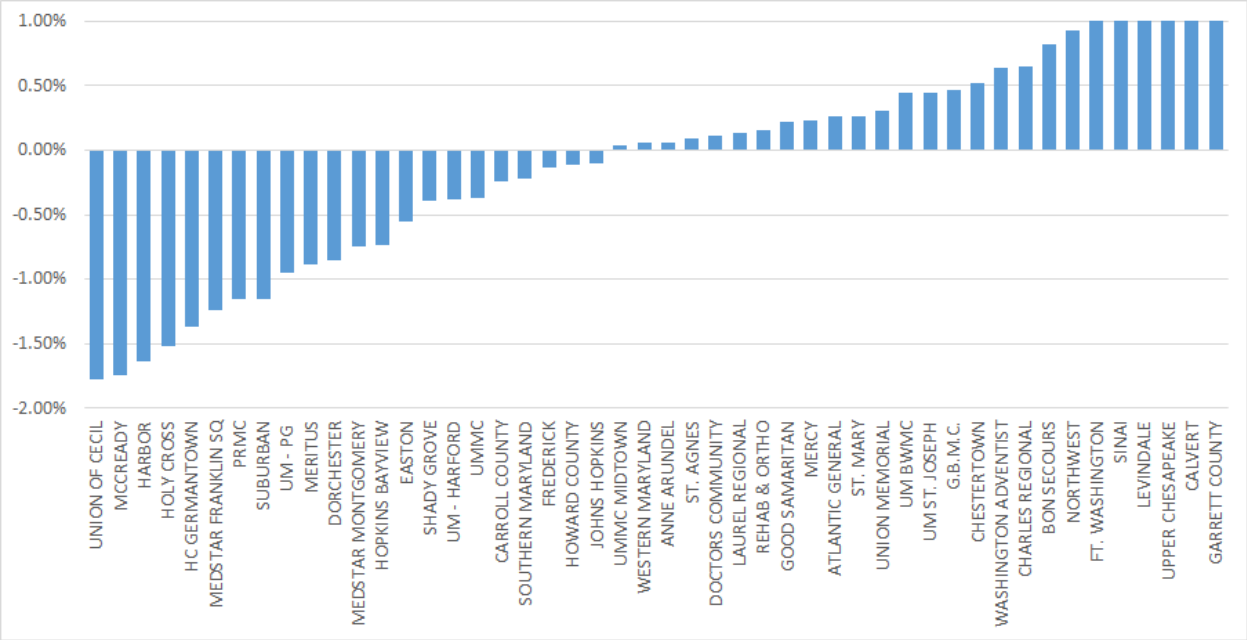
To determine by-hospital revenue adjustments, HSCRC creates a scoring scale based on prospectively determined targets (and attendant maximum and minimum rewards and penalties). This in keeping with three core principles of Maryland Quality programs: 1) Hospitals should know in advance of the performance period what they need to do to garner a positive revenue adjustment; 2) hospitals should not be evaluated relative to other hospitals because that potentially diminishes the incentive for improvement for various hospitals that may have inherent advantages, e.g., a patient population with higher socioeconomic status; and 3) hospitals should not be evaluated relative to other hospitals because the HSCRC wants to foster collaboration and shared best practices among hospitals that a relative ranking system would discourage.

Using assessed points and a linear scale, HSCRC assigns which scores are associated with the maximum reward and maximum penalties for improvement and attainment separately. Hospitals with a score at or above the maximum reward receive the maximum reward (1.0%), hospitals with a score at the target score receive no adjustment, and hospitals with a score at or below the maximum penalty score receive the maximum penalty (-2.0%). Hospitals with scores in the ranges between those points receive a scaled adjustment that is determined by the distance between a hospital's score and the targets and benchmarks. Hospitals will receive the more favorable revenue adjustment (the better of their improvement or attainment adjustments).

Staff has modeled revenue adjustments using RY 2019 year-to-date data through October 2017 and the proposed RY 2020 improvement and attainment scales (see Appendix IV). For this analysis, RY 2019 data was compounded to calculate the hospital improvement rate. Based on these analyses, 22 hospitals would be penalized for a total of $31.8 million, and 26 hospitals

would be rewarded for a total of $15.9 million. The majority of hospitals (37 out of 48) would receive their positive or negative revenue adjustment based on improvement and not attainment. If attainment only scores were used without additional risk-adjustment there would be $134 million in penalties and $4.5 million in rewards despite the fact that in four years Maryland has closed the gap between itself and the nation for Medicare readmission rates. Thus, this result highlights the need for greater scrutiny of risk-adjustment methods prior to migrating to an attainment only score. Overall, the revenue modeling for RY 2020 using RY 2019 year-to-date results should result in higher penalties than what would be expected if hospitals continue to improve throughout CY 2018. Figure 12 presents the revenue adjustment percentages by hospital based on this modeling.

Figure 12. Modeled Revenue Adjustments by Hospital



FUTURE OF MODEL

For the Total Cost of Care (TCOC) Model, which will begin in January 2019, proposed contract terms do not define specific quality performance targets. The HSCRC, in consultation with staff and industry, has begun laying the framework for establishing specific quality performance targets under the TCOC Model. Specifically, performance targets must be aggressive and progressive, must align with other HSCRC programs, must be comparable to federal programs, and must consider rankings relative to the nation. Beyond guiding principles, nothing definitive has yet been established.

For the RY 2020 quality recommendations, staff considered recent Commission discussions as well as the white paper of November 15, 2017 co-authored by Commissioners John Colmers and Jack Keane regarding the overall strategy for the quality programs under the new TCOC Model. Staff notes the need to meet contractually obligated quality goals while making as few changes

as possible to the final year of the current model in light of the additional work required to develop new targets and to better align measures with total cost of care. As highlighted in the white paper, in addition to reducing Medicare readmissions compared to the nation, future considerations for updating the RRIP program for RY 2021 and beyond must include evaluating Maryland's performance compared to external benchmarks for non-Medicare patients. Analyses of modifying the denominator of included patients must also be considered, such as including patients receiving observation services, or those readmitted within longer timeframes than 30 days, or those receiving care in psychiatric and specialty facilities. Staff must also consider methodologies for adjusting readmission rates and the resulting payment adjustments for patient socioeconomic status and other social risk factors, critical to implementing "attainment only" measurement. As readmissions and overall admissions continue to decline, staff must also work with stakeholders to consider options for better population- and community-focused measurement, such as per capita admissions.

RECOMMENDATIONS

This is a draft recommendation for the Maryland Rate Year (RY) 2020 Readmission Reduction Incentive Program (RRIP) policy. At this time, the staff requests that Commissioners consider the following draft recommendations:

1. The RRIP policy provides incentives to reduce readmissions on an all-payer basis.
2. Hospital performance is measured as the better of attainment or improvement.
3. Due to ICD-10 transition, a compounded improvement target is used that combines Calendar Year (CY) 2013 to Calendar Year (CY) 2016 improvement (under ICD-9) and CY2016 to CY 2018 improvement (under ICD-10); the combined improvement target will be set at 14.34% percent for CY 2016 to CY 2018.
4. The attainment benchmark is set at the 25th percentile of hospital performance in CY 2017, with an improvement factor (currently 2% from previous calendar year); the preliminary attainment target is 10.70 percent for CY 2018.
5. Hospitals are eligible for a maximum reward of 1 percent, or a maximum penalty of 2 percent, based on the better of their attainment or improvement scores.

Staff will review the improvement target and attainment benchmark in April/May against finalized CY 2017 data in order to bring back to the Commission revised performance targets if data trends warrant the revision. This may necessitate an additional vote from Commissioners.

APPENDIX I. HSCRC CURRENT READMISSIONS MEASURE SPECIFICATIONS

Performance Metric

The methodology for the Readmissions Reduction Incentive Program (RRIP) measures performance using the 30-day all-payer all hospital (both intra- and inter-hospital) readmission rate with adjustments for patient severity (based upon discharge all-patient refined diagnosis-related group severity of illness [APR-DRG SOI]) and with the exclusion of planned admissions.[13]

This measure is similar to the readmission rate that will be calculated under the All-Payer Model, with some exceptions. The most notable exceptions are that the HSCRC measure includes psychiatric patients and excludes oncology admissions. In comparing Maryland's Medicare readmission rate to the national readmission rate, the Centers for Medicare & Medicaid Services (CMS) will calculate an unadjusted readmission rate for Medicare beneficiaries. Since the Health Services Cost Review Commission (HSCRC) measure is for hospital-specific payment purposes, adjustments had to be made to the metric that accounted for planned admissions and severity of illness. See below for details on the readmission calculation for the RRIP program.

Inclusions and Exclusions in Readmission Measurement

- Planned readmissions are excluded from the numerator based upon the CMS Planned Readmission Algorithm V. 4.0. The HSCRC has also counts all vaginal and C-section deliveries and rehabilitation as planned using the APR-DRGs, rather than principal diagnosis (APR-DRGs 540, 541, 542, 560, 860). Planned admissions are counted in the denominator because they could have an unplanned readmission.
- Discharges for the newborn APR-DRG are removed.
- Oncology cases are removed prior to running the readmission logic (APR-DRGs 41, 110, 136, 240, 281, 343, 382, 442, 461, 500, 511, 512, 530, 680, 681, 690, 691, 692, 693, 694, 695, and 696).
- Rehabilitation cases as identified by APR-DRG 860 (which are coded under ICD-10 based on type of daily service) are marked as planned admissions and made ineligible for readmission after the readmission logic is run.
- Admissions with ungroupable APR-DRGs (955, 956) are not eligible for a readmission, but can be a readmission for a previous admission.
- Hospitalizations within 30 days of a hospital discharge for a patient who dies during the second admission are counted as readmissions, however, the readmission is removed from the denominator because there cannot be a subsequent readmission.
- Admissions that result in transfers, defined as cases where the discharge date of the admission is on the same as or the next day after the admission date of the subsequent admission, are removed from the denominator counts. Thus, only one admission is

[13] Defined under [CMS Planned Admission Logic version 4 – updated October 2017.]

counted in the denominator, and that is the admission to the receiving transfer hospital. It is this discharge date that is used to calculate the 30-day readmission window.

- Discharges from rehabilitation hospitals (provider IDs Chesapeake Rehab 213028, Adventist Rehab 213029, and Bowie Health 210333) are not included when assessing readmissions.
- Holy Cross Germantown 210065 and Levindale 210064 are included in the program.
- Starting in January 2016, HSCRC is receiving information about discharges from chronic beds within acute care hospitals in the same data submissions as acute care discharges. These discharges were excluded from RRIP for RY 2018.
- In addition, the following data cleaning edits are applied:
    - Cases with null or missing Chesapeake Regional Information System for our Patients (CRISP) unique patient identifiers (EIDs) are removed.
    - Duplicates are removed.
    - Negative interval days are removed.
    - HSCRC staff is revising case-mix data edits to prevent submission of duplicates and negative intervals, which are very rare. In addition, CRISP EID matching benchmarks are closely monitored. Currently, hospitals are required to make sure 99.5 percent of inpatient discharges have a CRISP EID.

Details on the Calculation of Case-Mix Adjusted Readmission Rate

Data Source:

To calculate readmission rates for RRIP, inpatient abstract/case-mix data with CRISP EIDs (so that patients can be tracked across hospitals) are used for the measurement period, plus an additional 30 days. To calculate the case-mix adjusted readmission rate for CY 2016 base period and CY 2018 performance period, data from January 1 through December 31, plus 30 days in January of the next year are used.

***SOFTWARE*:** APR-DRG Version 35 (ICD-10) for CY 2016-CY 2018.

Calculation:

$$\text{Risk-Adjusted Readmission Rate} = \frac{\text{(Observed Readmissions)}}{\text{(Expected Readmissions)}} * \text{Statewide Readmission Rate}$$

***Numerator*:** Number of observed hospital-specific unplanned readmissions.

***Denominator*:** Number of expected hospital-specific unplanned readmissions based upon discharge APR-DRG and severity of illness. See below for how to calculate expected readmissions adjusted for APR-DRG SOI.

Risk Adjustment Calculation:

- Calculate the Statewide Readmission Rate without Planned Readmissions.
    - Statewide Readmission Rate = Total number of readmissions with exclusions removed / Total number of hospital discharges with exclusions removed.
- For each hospital, calculate the number of observed, unplanned readmissions.
- For each hospital, calculate the number of expected unplanned readmissions based upon discharge APR-DRG SOI (see below for description). For each hospital, cases are removed if the discharge APR-DRG and SOI cells have less than two total cases in the base period data (CY 2016).
- Calculate the ratio of observed (O) readmissions over expected (E) readmissions. A ratio >1 means that there were more observed readmissions than expected, based upon a hospital's case-mix. A ratio <1 means that there were fewer observed readmissions than expected based upon a hospital's case-mix.
- Multiply the O/E ratio by the statewide rate to get risk-adjusted readmission rate by hospital.

Expected Values*:*

The expected value of readmissions is the number of readmissions a hospital would have experienced had its rate of readmissions been identical to that experienced by a reference or normative set of hospitals, given its mix of patients as defined by discharge APR-DRG category and SOI level. Currently, HSCRC is using state average rates as the benchmark.

The technique by which the expected number of readmissions is calculated is called indirect standardization. For illustrative purposes, assume that every discharge can meet the criteria for having a readmission, a condition called being "at-risk" for a readmission. All discharges will either have zero readmissions or will have one readmission. The readmission rate is the proportion or percentage of admissions that have a readmission.

The rates of readmissions in the normative database are calculated for each APR-DRG category and its SOI levels by dividing the observed number of readmissions by the total number of discharges. The readmission norm for a single APR-DRG SOI level is calculated as follows:

Let:

N = norm
P = Number of discharges with a readmission

D = Number of discharges that can potentially have a readmission
i = An APR DRG category and a single SOI level

$$N_i = \frac{P_i}{D_i}$$

For this example, the expected rate is displayed as readmissions per discharge to facilitate the calculations in the example. Most reports will display the expected rate as a rate per one thousand.

Once a set of norms has been calculated, the norms can be applied to each hospital. In this example, the computation presents expected readmission rates for an individual APR-DRG category and its SOI levels. This computation could be expanded to include multiple APR-DRG categories or any other subset of data, by simply expanding the summations.

Consider the following example for an individual APR DRG category.

Expected Value Computation Example

1 Severity of Illness Level	2 Discharges at Risk for Readmission	3 Discharges with Readmission	4 Readmissions per Discharge	5 Normative Readmissions per Discharge	6 Expected # of Readmissions
1	200	10	.05	.07	14.0
2	150	15	.10	.10	15.0
3	100	10	.10	.15	15.0
4	50	10	.20	.25	12.5
Total	**500**	**45**	**.09**		**56.5**

For the APR-DRG category, the number of discharges with a readmission is 45, which is the sum of discharges with readmissions (column 3). The overall rate of readmissions per discharge, 0.09, is calculated by dividing the total number of discharges with a readmission (sum of column 3) by the total number of discharges at risk for readmission (sum of column 2), i.e., 45/500 = 0.09. From the normative population, the proportion of discharges with readmissions for each SOI level for that APR-DRG category is displayed in column 5. The expected number of readmissions for each SOI level (column 6) is calculated by multiplying the number of discharges at risk for a readmission (column 2) by the normative readmissions per discharge rate (column 5) The total number of readmissions expected for this APR-DRG category is the sum of the expected numbers of readmissions for the 4 SOI levels.

In this example, the expected number of readmissions for this APR-DRG category is 56.5, compared to the actual number of discharges with readmissions of 45. Thus, the hospital had

11.5 fewer actual discharges with readmissions than were expected for this APR-DRG category. This difference can also be expressed as a percentage (79.65% of expected readmissions).

APR-DRGs by SOI categories are excluded from the computation of the actual and expected rates when there are only zero or one at risk admission statewide for the associated APR-DRG by SOI category.

A Brief Note on Compounding Improvement

For RY 2020, the rate of improvement used in RY 2018 (CY 2013-CY2016) must be **compounded** with the rate of improvement from CY 2016 to CY2018, as the datasets are fundamentally discrete and are expressed in terms of percentages.

- Formula for Compounded Improvement:

$$(\mathbf{1} + \boldsymbol{a}) * (\mathbf{1} + \boldsymbol{b}) - \mathbf{1}$$

Where a = the percentage improvement during period 1 and b = the percentage improvement during period 2.

For example, suppose Hospital A improves its readmission rate by 50% (written as -.5) under RY 2018 logic (the change between CY 2013 and CY 2016), and improves an additional 50% under between CY 2016 and CY 2018:

$$(1 + -.5) * (1 + -.5) - 1$$

$$(-.5) * (-.5) - 1$$

$$.25 - 1$$

$$-.75$$

In this example, Hospital A has achieved a 75% reduction in Readmissions, rather than a 100% reduction, as a 50% improvement upon the original 50% improvement is a compounded 75% improvement.

Had the **RY 2019** improvement target (-3.75%) been compounded with statewide RY 2018 improvement (-10.75%), the RY 2019 improvement target would have been ~ -14.10%

$$(\mathbf{1} - \mathbf{.1075}) * (\mathbf{1} - \mathbf{.0375}) - \mathbf{1}$$

$$\mathbf{\sim 14.10\%}$$

The **RY 2020 Modeled Improvement Target** (-4.02%) compounded with experienced RY 2018 Improvement (-10.75%) yields a compounded **RY 2020 Improvement Target** of 14.34%.

$$(\mathbf{1-.1075}) * (\mathbf{1-.0402}) - \mathbf{1}$$

$$\sim \mathbf{14.34}\%$$

APPENDIX II. CMS MEDICARE READMISSION TEST MODIFICATIONS - VERSIONS 5 AND 6

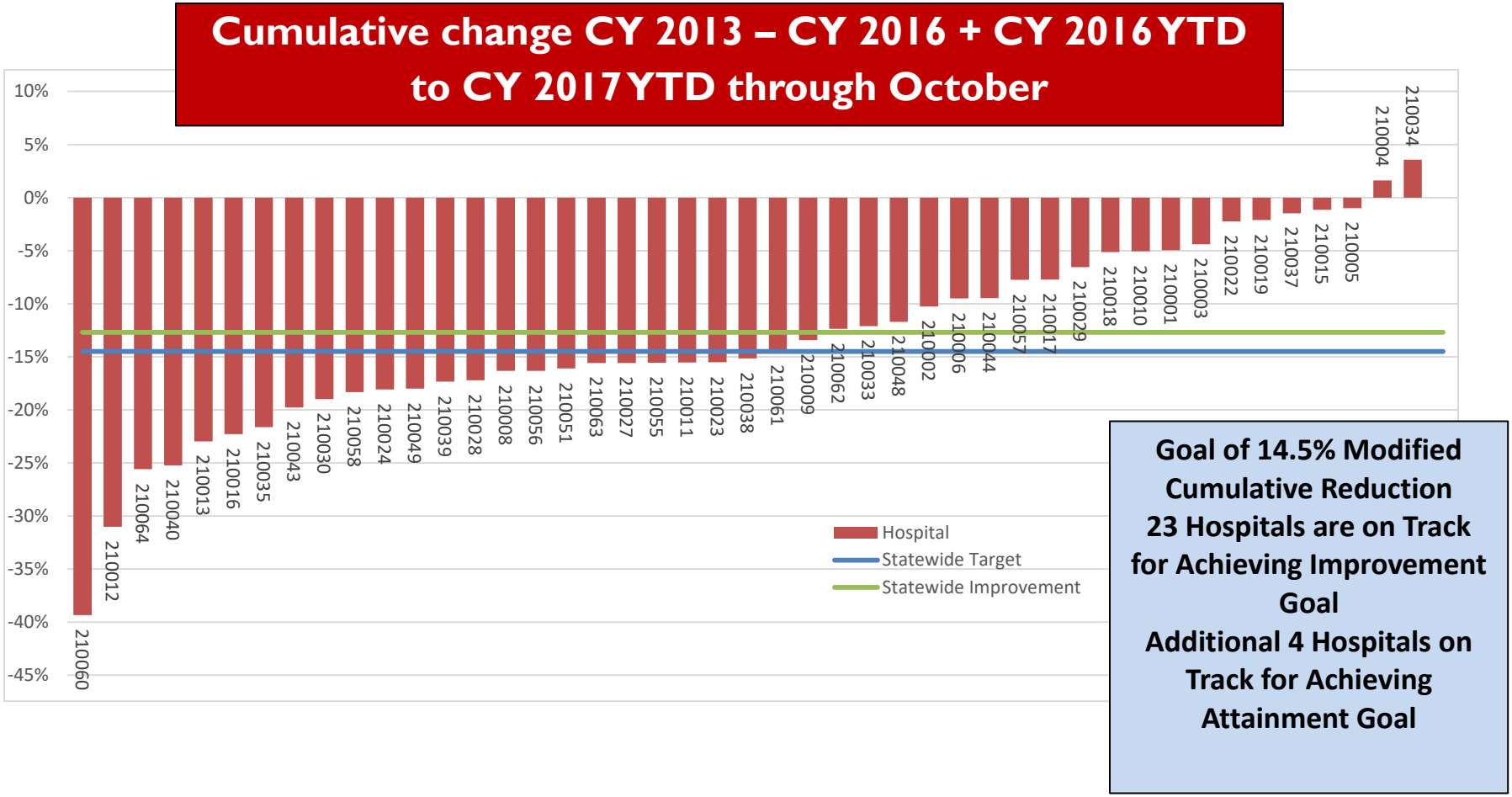
As presented last year, currently the HSCRC and CMS are evaluating the Waiver Test performance under the current Readmission definition (version 6).

In the RY 2018 policy, HSCRC included an itemized list of changes in version 5 of the CMS Medicare Readmission Test. These changes are listed below as a reminder. Beginning in CY 2016, the rehabilitation discharges are identified using Universal Billing (UB) codes to account for definition changes under ICD-10.

Below are the specification changes made to allow an accurate comparison of Maryland's Medicare readmission rates with those of the nation.

- Requiring a 30-day enrollment period in fee-for-service (FFS) Medicare after hospitalization to fully capture all readmissions.
- Removing planned readmissions using the CMS planned admission logic for consistency with the CMS readmission measures.
- Excluding specially-licensed rehabilitation and psychiatric beds from Maryland rates due to inability to include these beds in national estimates because of data limitations. In contrast, the HSCRC includes psychiatric and rehabilitation readmissions in the all-payer readmission measure used for payment policy.
    - Version 6 of the CMS measure changed to using UB codes to identify rehabilitation discharges due to ICD-10.
- Refining the transfer logic to be consistent with other CMS readmission measures.
- Changing the underlying data source to ensure clean data and inclusion of all appropriate Medicare FFS claims (e.g., adjusting the method for calculating claims dates and including claims for patients with negative payment amounts).

APPENDIX III. BY-HOSPITAL READMISSION CHANGES



Case-mix Adjusted, All-Payer Readmission Rates – RY 2019 YTD through October by-Hospital

Hospitals		CY2016 Base Period (YTD, Jan-Oct 2016)	CY2017 Performance Period (YTD, Jan-Oct 2017)								
A	B	C = Obs/Exp * 11.78%	D	E	F = E/D	G	H = E/G	I = E/G * 11.78%	J = I/C - 1	K	L = J + K
HOSPITAL ID	HOSPITAL NAME	Case-Mix Adjusted Readmission Rate	Total # of IP Disch.	Total # of Readmits	Percent Readmits	Total # of Expected Readmits	Readmit Ratio	Case-Mix Adjusted Readmit Rate	Change in Case-mix Adjusted Rate from CY2016	RY 2018 % Change	CY17 Modified Cumulative Improvement Readmission Rate
210001	Meritus	11.41%	11,599	1,418	12.23%	1,443	0.983	11.58%	1.49%	- 6.44%	- 4.95%
210002	UMMC	12.91%	19,166	2,918	15.22%	2,619	1.114	13.13%	1.70%	- 11.95%	- 10.25%
210003	UM-PGHC	10.92%	8,606	1,014	11.78%	1,140	0.889	10.47%	- 4.12%	- 0.28%	- 4.40%
210004	Holy Cross	11.71%	20,466	1,714	8.37%	1,736	0.987	11.63%	- 0.68%	2.30%	1.62%
210005	Frederick	9.53%	12,533	1,322	10.55%	1,502	0.880	10.37%	8.81%	- 9.81%	- 1.00%
210006	UM-Harford	12.49%	3,321	445	13.40%	493	0.902	10.63%	- 14.89%	5.38%	- 9.51%
210008	Mercy	12.49%	10,459	922	8.82%	851	1.083	12.76%	2.16%	- 18.48%	- 16.32%
210009	Johns Hopkins	13.21%	33,321	4,932	14.80%	4,431	1.113	13.11%	- 0.76%	- 12.66%	- 13.42%
210010	UM-Dorchester	12.60%	1,798	249	13.85%	257	0.970	11.42%	- 9.37%	4.31%	- 5.06%
210011	St. Agnes	11.98%	11,694	1,417	12.12%	1,424	0.995	11.72%	- 2.17%	- 13.36%	- 15.53%
210012	Sinai	12.34%	11,399	1,298	11.39%	1,447	0.897	10.57%	- 14.34%	- 16.68%	- 31.02%
210013	Bon Secours	15.41%	2,911	621	21.33%	476	1.305	15.38%	- 0.19%	- 22.77%	- 22.96%
210015	MedStar Fr Square	12.59%	16,548	2,278	13.77%	2,066	1.103	12.99%	3.18%	- 4.33%	- 1.15%
210016	Washington Adventist	10.60%	8,016	757	9.44%	950	0.797	9.38%	- 11.51%	- 10.77%	- 22.28%
210017	Garrett	5.92%	1,610	96	5.96%	174	0.550	6.48%	9.46%	- 17.19%	- 7.73%
210018	MedStar Montgomery	10.78%	5,633	719	12.76%	720	0.999	11.76%	9.09%	- 14.22%	- 5.13%
210019	Peninsula	10.51%	13,437	1,497	11.14%	1,627	0.920	10.84%	3.14%	- 5.26%	- 2.12%

Hospitals		CY2016 Base Period (YTD, Jan-Oct 2016)	CY2017 Performance Period (YTD, Jan-Oct 2017)								
A	B	C = Obs/Exp * 11.78%	D	E	F = E/D	G	H = E/G	I = E/G * 11.78%	J = I/C - 1	K	L = J + K
HOSPITAL ID	HOSPITAL NAME	Case-Mix Adjusted Readmission Rate	Total # of IP Disch.	Total # of Readmits	Percent Readmits	Total # of Expected Readmits	Readmit Ratio	Case-Mix Adjusted Readmit Rate	Change in Case-mix Adjusted Rate from CY2016	RY 2018 % Change	CY17 Modified Cumulative Improvement Readmission Rate
210022	Suburban	11.20%	10,824	1,226	11.33%	1,293	0.948	11.17%	- 0.27%	- 1.97%	- 2.24%
210023	Anne Arundel	11.29%	20,543	1,701	8.28%	1,889	0.901	10.61%	- 6.02%	- 9.50%	- 15.52%
210024	MedStar Union Mem	12.79%	8,525	1,090	12.79%	1,041	1.047	12.34%	- 3.52%	- 14.56%	- 18.08%
210027	Western Maryland	11.49%	8,322	1,013	12.17%	1,103	0.918	10.82%	- 5.83%	- 9.75%	- 15.58%
210028	MedStar St. Mary's	10.99%	5,669	589	10.39%	637	0.925	10.90%	- 0.82%	- 16.39%	- 17.21%
210029	JH Bayview	14.29%	15,113	2,371	15.69%	1,941	1.222	14.39%	0.70%	- 7.25%	- 6.55%
210030	UM-Chestertown	14.14%	1,224	154	12.58%	166	0.928	10.93%	- 22.70%	3.71%	- 18.99%
210032	Union of Cecil	10.51%	4,197	480	11.44%	538	0.892	10.51%	0.00%	4.29%	4.29%
210033	Carroll	11.51%	7,578	893	11.78%	947	0.943	11.11%	- 3.48%	- 8.62%	- 12.10%
210034	MedStar Harbor	11.91%	5,694	789	13.86%	707	1.116	13.14%	10.33%	- 6.76%	3.57%
210035	UM-Charles Regional	9.88%	5,257	546	10.39%	668	0.817	9.62%	- 2.63%	- 19.00%	- 21.63%
210037	UM-Easton	10.95%	5,233	507	9.69%	567	0.894	10.53%	- 3.84%	2.37%	- 1.47%
210038	UMMC Midtown	15.42%	3,618	708	19.57%	563	1.257	14.81%	- 3.96%	- 11.20%	- 15.16%
210039	Calvert	9.21%	4,260	387	9.08%	534	0.725	8.54%	- 7.27%	- 10.08%	- 17.35%
210040	Northwest	12.55%	7,907	1,150	14.54%	1,149	1.001	11.79%	- 6.06%	- 19.18%	- 25.24%
210043	UM-BWMC	12.77%	12,330	1,704	13.82%	1,680	1.014	11.95%	- 6.42%	- 13.35%	- 19.77%
210044	GBMC	10.59%	13,014	1,038	7.98%	1,192	0.870	10.25%	- 3.21%	- 6.26%	- 9.47%
210045	McCready	11.70%	181	23	12.71%	23	0.990	11.66%	- 0.34%	7.04%	6.70%

Hospitals		CY2016 Base Period (YTD, Jan-Oct 2016)	CY2017 Performance Period (YTD, Jan-Oct 2017)								
A	B	C = Obs/Exp * 11.78%	D	E	F = E/D	G	H = E/G	I = E/G * 11.78%	J = I/C - 1	K	L = J + K
HOSPITAL ID	HOSPITAL NAME	Case-Mix Adjusted Readmission Rate	Total # of IP Disch.	Total # of Readmits	Percent Readmits	Total # of Expected Readmits	Readmit Ratio	Case-Mix Adjusted Readmit Rate	Change in Case-mix Adjusted Rate from CY2016	RY 2018 % Change	CY17 Modified Cumulative Improvement Readmission Rate
210048	Howard County	11.36%	12,654	1,262	9.97%	1,404	0.899	10.59%	- 6.78%	- 4.92%	- 11.70%
210049	UM-Upper Chesapeake	11.06%	8,064	797	9.88%	966	0.825	9.72%	- 12.12%	- 5.87%	- 17.99%
210051	Doctors	11.78%	7,138	989	13.86%	1,048	0.943	11.11%	- 5.69%	- 10.41%	- 16.10%
210055	UM-Laurel	11.82%	2,272	348	15.32%	344	1.012	11.93%	0.93%	- 16.49%	- 15.56%
210056	MedStar Good Sam	12.14%	5,906	970	16.42%	925	1.048	12.35%	1.73%	- 18.05%	- 16.32%
210057	Shady Grove	10.11%	12,946	1,083	8.37%	1,238	0.875	10.31%	1.98%	- 9.73%	- 7.75%
210058	UMROI	10.66%	480	30	6.25%	36	0.835	9.84%	- 7.69%	- 10.65%	- 18.34%
210060	Ft. Washington	9.81%	1,699	181	10.65%	247	0.734	8.64%	- 11.93%	- 27.41%	- 39.34%
210061	Atlantic General	8.90%	2,464	282	11.44%	337	0.836	9.84%	10.56%	- 25.02%	- 14.46%
210062	MedStar Southern MD	11.20%	7,999	949	11.86%	1,048	0.906	10.67%	- 4.73%	- 7.63%	- 12.36%
210063	UM-St. Joe	10.95%	11,750	1,041	8.86%	1,183	0.880	10.37%	- 5.30%	- 10.29%	- 15.59%
210064	Levindale	11.40%	869	125	14.38%	125	0.999	11.77%	3.25%	- 28.84%	- 25.59%
210065	HC-Germantown	10.67%	3,711	437	11.78%	426	1.027	12.09%	13.31%		13.31%
	STATEWIDE	**11.81%**	**409,958**	**48,480**	**11.83%**	**49,321**	**0.983**	**11.58%**	**- 1.95%**	**- 10.75%**	**- 12.70%**

APPENDIX IV. RY 2020 IMPROVEMENT AND ATTAINMENT SCALING – MODELED RESULTS

The following figure presents the proposed RY 2020 model scaling, using preliminary CYTD 2017 readmission rate results. Column A shows the hospital's RY 2017 permanent inpatient revenue. Column B shows the percent change in in-state actual case-mix adjusted readmission rates between CY 2016 and CY 2013 (RY 2018 % Change). Columns C and D show the actual case-mix adjusted readmission rates for in-state readmission for CYTD 2016 and CYTD 2017 respectively. Column E shows the actual case-mix adjusted rate with out-of-state adjustment for CYTD 2017. Column F presents the percent change in case-mix adjusted in-state readmission rate for CYTD 2017. Column G compounds the improvement readmission rates for RY2018 and RY19 to calculate the hospital's CYTD17 modified cumulative improvement readmission rate. Columns H through I present the scaling results using the proposed RY 2020 cumulative improvement methodology, and columns J through K present the scaling results using the proposed RY 2020 attainment methodology. Columns L and M shows the revenue adjustment that is the better of attainment or improvement. (RY 2017 Permanent Global Budgets and Readmission Rates, used to calculate the revenue adjustments, may be updated in the final recommendation). The modeled results for RY 2020 using CYTD 2017 actual data show an overall negative adjustment. This result is expected, since the proposed policy requires an improvement beyond the actual CY 2017 results.

RY 2020 Readmission Reduction Incentive Program									Improvement		Attainment		Final Adjustment	
HOSP ID	HOSPITAL NAME	RY 17 Permanent Inpatient Revenue	RY2018 % Change	RY19 (CYTD16) BASE Case Mix Adj. Readmit Rate	CYTD17 Case Mix Adj. Readmit rate	CYTD17 Case mix Adj. rate Adj of out of state	CYTD17 % Change in instate Case mix adj. Rate	CYTD17 Modified Cumulative Improve Readmit Rate (compounded)	Target	RY20 Scaling %	Target	RY20 Scaling %	RY20 Better of Attain/ Improve	RY20 Scaling %
		A	B	C	D	E	F = D/C-1	G = (1+F)*(1+B)-1	H	I	J	K	L	M = L/A
210001	MERITUS	$185,173,878	-6.44%	11.41%	11.58%	12.11%	1.49%	-5.05%	-14.34%	-0.89%	10.70%	-2.00%	-$1,648,048	-0.89%
210002	UMMC	$874,727,573	-11.95%	12.91%	13.13%	13.63%	1.70%	-10.45%	-14.34%	-0.37%	10.70%	-2.00%	-$3,236,492	-0.37%
210003	UM - PG	$215,010,869	-0.28%	10.92%	10.47%	13.24%	-4.12%	-4.39%	-14.34%	-0.95%	10.70%	-2.00%	-$2,042,603	-0.95%
210004	HOLY CROSS	$339,593,506	2.30%	11.71%	11.63%	12.90%	-0.68%	1.60%	-14.34%	-1.52%	10.70%	-2.00%	-$5,161,821	-1.52%
210005	FREDERICK	$178,853,951	-9.81%	9.53%	10.37%	10.77%	8.81%	-1.86%	-14.34%	-1.19%	10.70%	-0.13%	-$232,510	-0.13%
210006	HARFORD	$46,975,749	5.38%	12.49%	10.63%	11.16%	-14.89%	-10.31%	-14.34%	-0.38%	10.70%	-0.83%	-$178,508	-0.38%
210008	MERCY	$216,281,427	-18.48%	12.49%	12.76%	12.98%	2.16%	-16.72%	-14.34%	0.23%	10.70%	-2.00%	$497,447	0.23%
210009	JOHNS HOPKINS	$1,357,164,899	-12.66%	13.21%	13.11%	14.19%	-0.76%	-13.32%	-14.34%	-0.10%	10.70%	-2.00%	-$1,357,165	-0.10%
210010	DORCHESTER	$24,256,573	4.31%	12.60%	11.42%	11.94%	-9.37%	-5.46%	-14.34%	-0.85%	10.70%	-2.00%	-$206,181	-0.85%

RY 2020 Readmission Reduction Incentive Program									Improvement		Attainment		Final Adjustment	
HOSP ID	HOSPITAL NAME	RY 17 Permanent Inpatient Revenue	RY2018 % Change	RY19 (CYTD16) BASE Case Mix Adj. Readmit Rate	CYTD17 Case Mix Adj. Readmit rate	CYTD17 Case mix Adj. rate Adj of out of state	CYTD17 % Change in instate Case mix adj. Rate	CYTD17 Modified Cumulative Improve Readmit Rate (compounded)	Target	RY20 Scaling %	Target	RY20 Scaling %	RY20 Better of Attain/ Improve	RY20 Scaling %
		A	B	C	D	E	F = D/C-1	G = (1+F)*(1+B)-1	H	I	J	K	L	M = L/A
210011	ST. AGNES	$233,151,492	-13.36%	11.98%	11.72%	11.89%	-2.17%	-15.24%	-14.34%	0.09%	10.70%	-2.00%	$209,836	0.09%
210012	SINAI	$397,073,246	-16.68%	12.34%	10.57%	10.72%	-14.34%	-28.63%	-14.34%	1.00%	10.70%	-0.03%	$3,970,732	1.00%
210013	BON SECOURS	$62,008,295	-22.77%	15.41%	15.38%	15.51%	-0.19%	-22.92%	-14.34%	0.82%	10.70%	-2.00%	$508,468	0.82%
210015	MEDSTAR FRANKLIN	$287,510,180	-4.33%	12.59%	12.99%	13.09%	3.18%	-1.29%	-14.34%	-1.24%	10.70%	-2.00%	-$3,565,126	-1.24%
210016	WASH ADVENTIST	$150,097,509	-10.77%	10.60%	9.38%	10.65%	-11.51%	-21.04%	-14.34%	0.64%	10.70%	0.10%	$960,624	0.64%
210017	GARRETT	$21,836,267	-17.19%	5.92%	6.48%	9.44%	9.46%	-9.36%	-14.34%	-0.47%	10.70%	1.00%	$218,363	1.00%
210018	MONTGOMERY	$79,298,762	-14.22%	10.78%	11.76%	12.56%	9.09%	-6.42%	-14.34%	-0.75%	10.70%	-2.00%	-$594,741	-0.75%
210019	PRMC	$235,729,906	-5.26%	10.51%	10.84%	11.61%	3.14%	-2.29%	-14.34%	-1.15%	10.70%	-1.65%	-$2,710,894	-1.15%
210022	SUBURBAN	$189,851,798	-1.97%	11.20%	11.17%	12.60%	-0.27%	-2.23%	-14.34%	-1.15%	10.70%	-2.00%	-$2,183,296	-1.15%
210023	AAMC	$296,168,973	-9.50%	11.29%	10.61%	10.98%	-6.02%	-14.95%	-14.34%	0.06%	10.70%	-0.52%	$177,701	0.06%
210024	UNION MEMORIAL	$231,121,787	-14.56%	12.79%	12.34%	12.49%	-3.52%	-17.57%	-14.34%	0.31%	10.70%	-2.00%	$716,478	0.31%
210027	WESTERN MARYLAND	$171,858,929	-9.75%	11.49%	10.82%	11.89%	-5.83%	-15.01%	-14.34%	0.06%	10.70%	-2.00%	$103,115	0.06%
210028	ST. MARY	$77,346,008	-16.39%	10.99%	10.90%	13.54%	-0.82%	-17.08%	-14.34%	0.26%	10.70%	-2.00%	$201,100	0.26%
210029	HOPKINS BAYVIEW	$348,529,477	-7.25%	14.29%	14.39%	14.78%	0.70%	-6.60%	-14.34%	-0.74%	10.70%	-2.00%	-$2,579,118	-0.74%
210030	CHESTERTOWN	$18,989,104	3.71%	14.14%	10.93%	11.88%	-22.70%	-19.83%	-14.34%	0.52%	10.70%	-2.00%	$98,743	0.52%
210032	UNION OF CECIL	$68,179,037	4.29%	10.51%	10.51%	12.69%	0.00%	4.29%	-14.34%	-1.77%	10.70%	-2.00%	-$1,206,769	-1.77%
210033	CARROLL	$116,510,378	-8.62%	11.51%	11.11%	11.40%	-3.48%	-11.80%	-14.34%	-0.24%	10.70%	-1.27%	-$279,625	-0.24%
210034	HARBOR	$107,761,881	-6.76%	11.91%	13.14%	13.26%	10.33%	2.87%	-14.34%	-1.64%	10.70%	-2.00%	-$1,767,295	-1.64%
210035	CHARLES REGIONAL	$68,387,041	-19.00%	9.88%	9.62%	11.30%	-2.63%	-21.13%	-14.34%	0.65%	10.70%	-1.09%	$444,516	0.65%
210037	EASTON	$100,000,562	2.37%	10.95%	10.53%	11.00%	-3.84%	-1.56%	-14.34%	-1.22%	10.70%	-0.55%	-$550,003	-0.55%
210038	UMMC MIDTOWN	$114,950,934	-11.20%	15.42%	14.81%	14.96%	-3.96%	-14.72%	-14.34%	0.04%	10.70%	-2.00%	$45,980	0.04%
210039	CALVERT	$63,319,998	-10.08%	9.21%	8.54%	9.97%	-7.27%	-16.62%	-14.34%	0.22%	10.70%	1.00%	$633,200	1.00%

RY 2020 Readmission Reduction Incentive Program									Improvement		Attainment		Final Adjustment	
HOSP ID	HOSPITAL NAME	RY 17 Permanent Inpatient Revenue	RY2018 % Change	RY19 (CYTD16) BASE Case Mix Adj. Readmit Rate	CYTD17 Case Mix Adj. Readmit rate	CYTD17 Case mix Adj. rate Adj of out of state	CYTD17 % Change in instate Case mix adj. Rate	CYTD17 Modified Cumulative Improve Readmit Rate (compounded)	Target	RY20 Scaling %	Target	RY20 Scaling %	RY20 Better of Attain/ Improve	RY20 Scaling %
		A	B	C	D	E	F = D/C-1	G = (1+F)*(1+B)-1	H	I	J	K	L	M = L/A
210040	NORTHWEST	$125,696,184	-19.18%	12.55%	11.79%	12.00%	-6.06%	-24.08%	-14.34%	0.93%	10.70%	-2.00%	$1,168,975	0.93%
210043	UM BWMC	$227,399,457	-13.35%	12.77%	11.95%	12.15%	-6.42%	-18.91%	-14.34%	0.44%	10.70%	-2.00%	$1,000,558	0.44%
210044	G.B.M.C.	$216,554,825	-6.26%	10.59%	10.25%	10.44%	-3.21%	-9.27%	-14.34%	-0.48%	10.70%	0.47%	$1,017,808	0.47%
210045	MCCREADY	$2,930,574	7.04%	11.70%	11.66%	11.66%	-0.34%	6.68%	-14.34%	-2.00%	10.70%	-1.74%	-$50,992	-1.74%
210048	HOWARD COUNTY	$176,085,796	-4.92%	11.36%	10.59%	10.76%	-6.78%	-11.37%	-14.34%	-0.28%	10.70%	-0.11%	-$193,694	-0.11%
210049	UMUCH	$133,152,736	-5.87%	11.06%	9.72%	9.85%	-12.12%	-17.28%	-14.34%	0.28%	10.70%	1.00%	$1,331,527	1.00%
210051	DOCTORS	$132,931,890	-10.41%	11.78%	11.11%	12.26%	-5.69%	-15.51%	-14.34%	0.11%	10.70%	-2.00%	$146,225	0.11%
210055	LAUREL	$59,724,224	-16.49%	11.82%	11.93%	12.36%	0.93%	-15.71%	-14.34%	0.13%	10.70%	-2.00%	$77,641	0.13%
210056	GOOD SAMARITAN	$158,579,215	-18.05%	12.14%	12.35%	12.43%	1.73%	-16.63%	-14.34%	0.22%	10.70%	-2.00%	$348,874	0.22%
210057	SHADY GROVE	$219,319,153	-9.73%	10.11%	10.31%	10.92%	1.98%	-7.94%	-14.34%	-0.61%	10.70%	-0.39%	-$855,345	-0.39%
210058	UMROI	$67,555,816	-10.65%	10.66%	9.84%	9.84%	-7.69%	-17.52%	-14.34%	0.30%	10.70%	1.00%	$108,089	0.16%
210060	FT. WASH	$19,371,986	-27.41%	9.81%	8.64%	11.41%	-11.93%	-36.07%	-14.34%	1.00%	10.70%	-1.29%	$193,720	1.00%
210061	ATLANTIC GENERAL	$38,966,012	-25.02%	8.90%	9.84%	10.95%	10.56%	-17.10%	-14.34%	0.26%	10.70%	-0.45%	$101,312	0.26%
210062	SOUTHERN MD	$163,339,853	-7.63%	11.20%	10.67%	13.26%	-4.73%	-12.00%	-14.34%	-0.22%	10.70%	-2.00%	-$359,348	-0.22%
210063	ST. JOSEPH	$234,995,507	-10.29%	10.95%	10.37%	10.45%	-5.30%	-15.04%	-14.34%	0.07%	10.70%	0.45%	$1,057,480	0.45%
210064	LEVINDALE	$54,805,171	-28.84%	11.40%	11.77%	12.28%	3.25%	-26.53%	-14.34%	1.00%	10.70%	-2.00%	$548,052	1.00%
210065	HC GERMAN	$62,086,212		10.67%	12.09%	12.88%	13.31%		-3.59%	-1.37%	10.70%	-2.00%	-$850,581	-1.37%
STATEWIDE		**$8,971,214,597**	**-10.75%**	**11.81%**	**11.58%**		**-1.95%**						**-$15,923,590**	

UMROI is adjusted to 16% of total RY 17 Permanent Inpatient Revenue
Some percentages have been rounded for display. Final scaling values are rounded to two decimal places.
Holy Cross Germantown has an adjusted improvement target

State Total	-$15,923,590
Penalty	**-$31,810,154**
% Inpatient	**-0.35%**
Reward	**$15,886,564**
% Inpatient	**0.18%**

APPENDIX V. OUT-OF-STATE MEDICARE READMISSION RATIOS

Out-of-state readmission ratios displayed below are for July 2016 - June 2017. Staff anticipates that they will update these ratios again with the next data refresh from CMMI.

Out-of-State Readmission Ratios for RRIP Attainment

Based on CMMI Data 2016Q3-2017Q2

Hospital Name	Medicare FFS Readmission Rate	In-State Medicare FFS Readmission Rate	Out-of-State (OOS) Ratio	Case-Mix Adjusted Readmission Rate	Case-Mix Adjusted Rate with OOS Adjustment
210001 - MERITUS	18.15%	17.28%	1.05	11.58%	12.16%
210002 - UNIVERSITY OF MARYLAND	18.70%	18.04%	1.04	13.13%	13.61%
210003 - PRINCE GEORGE	18.17%	14.50%	1.25	10.47%	13.11%
210004 - HOLY CROSS	15.59%	14.11%	1.11	11.63%	12.85%
210005 - FREDERICK MEMORIAL	13.00%	12.46%	1.04	10.37%	10.82%
210006 - HARFORD	17.65%	16.88%	1.05	10.63%	11.12%
210008 - MERCY	12.21%	11.98%	1.02	12.76%	13.01%
210009 - JOHNS HOPKINS	18.87%	17.49%	1.08	13.11%	14.14%
210010 - DORCHESTER			1.04	11.42%	11.86%
210011 - ST. AGNES	15.41%	15.22%	1.01	11.72%	11.87%
210012 - SINAI	14.40%	14.23%	1.01	10.57%	10.69%
210013 - BON SECOURS	20.30%	20.30%	1.00	15.38%	15.38%
210015 - FRANKLIN SQUARE	18.46%	18.30%	1.01	12.99%	13.10%
210016 - WASHINGTON ADVENTIST	14.29%	12.67%	1.13	9.38%	10.57%
210017 - GARRETT COUNTY	9.94%	6.86%	1.45	6.48%	9.38%
210018 - MONTGOMERY GENERAL	14.56%	13.80%	1.06	11.76%	12.41%

Hospital Name	Medicare FFS Readmission Rate	In-State Medicare FFS Readmission Rate	Out-of-State (OOS) Ratio	Case-Mix Adjusted Readmission Rate	Case-Mix Adjusted Rate with OOS Adjustment
210019 - PENINSULA REGIONAL	14.98%	14.09%	1.06	10.84%	11.52%
210022 - SUBURBAN	12.60%	11.35%	1.11	11.17%	12.41%
210023 - ANNE ARUNDEL	12.28%	11.84%	1.04	10.61%	11.01%
210024 - UNION MEMORIAL	12.50%	12.32%	1.01	12.34%	12.51%
210027 - WESTERN MARYLAND HEALTH SYSTEM	14.40%	13.13%	1.10	10.82%	11.87%
210028 - ST. MARY	14.27%	11.69%	1.22	10.90%	13.31%
210029 - HOPKINS BAYVIEW MED CTR	21.25%	20.67%	1.03	14.39%	14.79%
210030 - CHESTERTOWN	15.33%	14.05%	1.09	10.93%	11.93%
210032 - UNION HOSPITAL OF CECIL COUNT	16.51%	13.70%	1.21	10.51%	12.67%
210033 - CARROLL COUNTY	14.36%	13.96%	1.03	11.11%	11.43%
210034 - HARBOR	16.43%	16.28%	1.01	13.14%	13.26%
210035 - CHARLES REGIONAL	15.02%	12.97%	1.16	9.62%	11.14%
210037 - EASTON	13.84%	13.32%	1.04	10.53%	10.94%
210038 - UMMC MIDTOWN	23.75%	23.58%	1.01	14.81%	14.92%
210039 - CALVERT	12.57%	10.92%	1.15	8.54%	9.83%
210040 - NORTHWEST	15.00%	14.73%	1.02	11.79%	12.01%
210043 - UMBWMC	15.69%	15.40%	1.02	11.95%	12.17%
210044 - G.B.M.C.	12.44%	12.22%	1.02	10.25%	10.43%
210045 - MCCREADY	14.72%	14.72%	1.00	11.66%	11.66%
210048 - HOWARD COUNTY	15.44%	15.12%	1.02	10.59%	10.81%
210049 - UPPER CHESAPEAKE HEALTH	12.90%	12.70%	1.02	9.72%	9.87%
210051 - DOCTORS COMMUNITY	16.61%	14.95%	1.11	11.11%	12.35%
210055 - LAUREL REGIONAL	21.56%	20.53%	1.05	11.93%	12.53%

Hospital Name	Medicare FFS Readmission Rate	In-State Medicare FFS Readmission Rate	Out-of-State (OOS) Ratio	Case-Mix Adjusted Readmission Rate	Case-Mix Adjusted Rate with OOS Adjustment
210056 - GOOD SAMARITAN	16.81%	16.73%	1.00	12.35%	12.41%
210057 - SHADY GROVE	13.20%	12.46%	1.06	10.31%	10.92%
210058 - REHAB & ORTHO	3.66%	3.66%	1.00	9.84%	9.84%
210060 - FT. WASHINGTON	15.17%	11.61%	1.31	8.64%	11.29%
210061 - ATLANTIC GENERAL	11.54%	10.24%	1.13	9.84%	11.09%
210062 - SOUTHERN MARYLAND	19.26%	15.27%	1.26	10.67%	13.46%
210063 - UM ST. JOSEPH	10.54%	10.44%	1.01	10.37%	10.47%
210064 - LEVINDALE	16.56%	15.95%	1.04	11.77%	12.22%
210065 - HOLY CROSS GERMANTOWN	14.66%	13.60%	1.08	12.09%	13.03%

Health Services Cost Review Commission (HSCRC) Action Plan

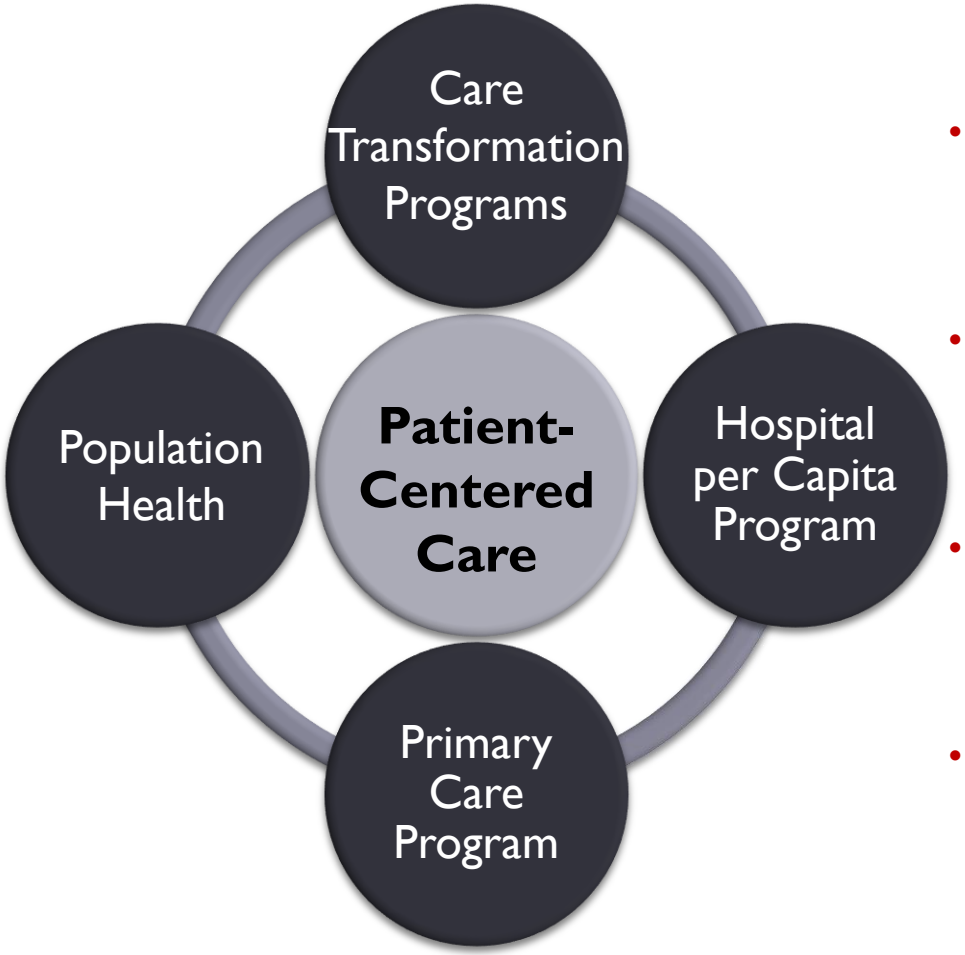
For Success of the Total Cost of Care Model

January 2018

Maryland's Total Cost of Care Model

- The new Maryland Model was developed to further improve health and healthcare quality, and to slow the growth of per capita healthcare spending, using State flexibility to promote private sector efforts.
- Maryland's proposed Total Cost of Care Model promotes provider-led innovations to enable more efficient and effective healthcare delivery.
- Maryland has met or exceeded all cost saving and quality improvement goals required by the current All-Payer Model contract. The current Model has achieved more than $500 million in cumulative hospital savings for the Medicare program for CY 2014 through CY 2016.
- In addition to offering Medicare increased savings, Maryland's proposed Model will increase person-centered care statewide and improve chronic disease management.

Overview of Total Cost of Care Model Components



- Limits growth in total cost of care per capita for Medicare.
- Continues and enhances hospital program that limits growth per capita for all payers.
- Expands care transformation programs to enable private sector-led programs supported by State flexibility.
- Initiates the Maryland Primary Care Program to enhance chronic care and health management.
- Harnesses public and private sector efforts to address population health issues, including opioid use, diabetes, and other chronic conditions.

Context

- HSCRC Commissioners' planning sessions have produced this Action Plan for success of the TCOC Model.
- This Action Plan will guide the Commission's activities as it balances its goal of meeting the ongoing responsibilities of regulating hospitals with the unfolding, new responsibilities for implementation of the TCOC Model.
- HSCRC continues to engage stakeholders for advice on provider-led ideas, priorities, and implementation – the Commission has listened, learned, and incorporated promising approaches to implement the TCOC Model into this Action Plan.

Framework for Commissioner Planning Sessions, Sept. – Dec. 2017

Meeting 1: What do we need to do?

- Review objectives and commitments of the TCOC Model
- Conduct analysis of strengths/enabling factors and significant challenges
- Discuss Guiding Principles
- Identify Critical Actions for success, using Guiding Principles

Meeting 2: How do we get it done?

- Prioritize Critical Actions for HSCRC and for others
- Funding resources for HSCRC
- Develop a timeline and milestones for the Critical Actions

Meeting 3: Action Plan

- Finalize Critical Action priorities, proposed timeline and milestones

Meeting 4: Execution

- Implementation
- Communication
- Decision-making and accountability

Summary of Strengths and Enabling Factors of the Maryland Model and HSCRC

Enablers	Challenges
• All-Payer system that is beneficial to all stakeholders • Broad statutory authority • Clear vision of transformation; in-depth comprehensive Progression Plan • Flexible ability to create and deploy care transformation programs that benefit many Marylanders • Innovative model that attracts high-quality talent across the State • Broad statutory authority • Broad stakeholder participation • State government and legislative participation • Strong, committed HSCRC staff	• Reforming GBR methodologies to be less complex, as well as sound and fair • Scaling of provider-led transformation • Uneven delivery system participation • Implementation, coordination and accountability challenges • Securing adequate financial support • Obtaining timely data across payers • Right-sizing provider capacity • Strengthening behavioral health • Increasing access to care in rural areas • Modernizing procurement methods • Hiring, retaining adequate staff

Guiding Principles in Developing the Critical Actions Roadmap

- Set targets and allow flexibility in meeting them
- Implementation led by private sector
- Not top down
- Ensure person-centered care and consumer engagement
- All voices are heard
- Retain the all-payer approach
- Coordinate accountability
- Foster alignment of incentives
- Modernize regulatory oversight

Critical Actions Roadmap for TCOC Model Execution

	Years 0-1 2018-19	Years 2-3 2020-21	Years 4-5+ 2022-23
Total Cost of Care Model Contract	• Execute Contract with CMS • Implement policies	• Initiate Medicaid alignment • Further develop policies	• Prepare for Model continuation
Policies and Incentives	• Enhance methodologies and tools	• Develop incentives to further reduce avoidable and unnecessary utilization	• Continue refinement of policies, methodologies and communication tools
Model Programs	• Launch and operate MDPCP and Care Redesign Programs	• Innovate models that are Provider-led and engage stakeholders	
Data Enhancement	• Create accessible, timely All-Payer TCOC data	• Redesign data systems and warehouses	• Use capability to analyze all payer TCOC data for performance improvement
Administrative Challenges	• Ensure adequate Resources • Modernize systems	• Create leadership bench strength	

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February 6, 2018

Nelson J. Sabatini
Chairman, Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, MD 21215

Dear Chairman Sabatini:

On behalf of Anne Arundel Medical Center (AAMC), thank you for the opportunity to comment on the policy changes proposed by Commissioner Colmers and Commissioner Keane. While we fully support the aims and objectives of the demonstration model, we agree that after four years, it is appropriate to reevaluate the current methodologies in order to ensure the viability of Maryland's healthcare system. We commend Commissioner Colmers and Commissioner Keane for undertaking this important and arduous task. As the Commission continues to evaluate the proposed changes, we ask that you consider our policy recommendations detailed below:

Market Shift Adjustment (MSA) and Demographic Adjustment (DA)/Volumes

We fully support the proposed change to establish a 50% variable cost factor (VCF) for non-PAU volume changes. This revision is in line with the Commission's goal of simplifying the complex policies currently in place. Several hospitals have experienced non-PAU volume increases that are justified by market share and demographic changes. However, the DA does not appropriately allocate resources to hospitals with population-driven demographic changes, particularly in urban and suburban areas. The MSA has also failed to adjust for real market changes, and the healthcare dollars have not appropriately followed the patient. The system was never designed to allow hospitals with declining volumes to retain 100% of their revenue savings forever. The MSA methodology intended to have revenues follow the patient at 50% variability; yet, because it does not capture market changes among hospitals, many hospitals have seen a VCF well below 50% for appropriate market shift increases.

To ignore justified volume changes undermines some of the most efficient hospitals in the state. The MSA has inadvertently created a wide variation in effective prices among hospitals since GBR's inception, from -16.23% price decreases to 39.10% price increases,

against a statewide average of 10.15%. The financial results are not sustainable and discourage continued population health investments for those organizations experiencing appropriate growth and the related price decreases.

We are keenly aware of Maryland's All-Payer Model requirements and understand the responsibility hospitals have in meeting the targets. However, we need adequate financial support to continue down this care transformation path. We agree with others that this change cannot be delayed while a new PAU definition is created. Hospitals need a more immediate fix to the underfunding and unpredictability of the current policy. We recommend the current policy's unintended consequences be corrected in time for the calendar year 2017 market change measurement period.

Others have argued that a 50% VCF would incentivize hospitals to increase volumes. We strongly disagree with this claim. It simply does not make good business sense for a hospital to increase volumes only to capture a 50% VCF. To do so would be a short-lived strategy in any industry. Furthermore, the quality-based policies serve as appropriate checks on increasing volumes, including PAU volumes. Volume growth should be assessed in conjunction with the rising or falling PAU levels to differentiate between appropriate and inappropriate utilization.

We agree that every Maryland hospital should have the necessary funds to invest in population health, but the funds must be accompanied with an accountability structure. The current structures are weak in confirming that global budget revenue dollars are being used to fund population health initiatives. We must have some level of accountability for hospitals keeping the system's dollars to ensure that those dollars are being reinvested to improve community health.

We applaud the Commission's support of care transformation programs and system transformation grants that incentivize population health investments and that have controls in place to guarantee dollars are being spent on community resources. We look forward to continuing to work with the Commission on developing and launching these programs.

Rate Realignment

We support rate realignment, if conducted in a manner that does not jeopardize our ability to meet the All-Payer Model requirements. To achieve this, **we propose the Commission pursue a Medicare differential increase with CMS**. As others have stated, the commercial payers have been the beneficiaries of cost savings from Maryland's

system, while hospital rates have been constrained. An adjustment to the Medicare differential is the most appropriate way to realign rates while protecting Maryland's Medicare savings.

Potentially Avoidable Utilization (PAU)

We do not support individual hospitals creating their own PAU definitions and policies. The HSCRC Staff does not have adequate time or resources to evaluate and monitor a variety of PAU programs across the state. Approving multiple PAU programs permits substantial inequities among hospitals. To achieve our All-Payer Model goals and enhance patient care, each hospital should be held to the same PAU standard.

We agree with other stakeholders that the current PAU definition is too narrow and should be expanded in a way that prioritizes clinical appropriateness over financial drivers. For example, just because a procedure *can* be done in the outpatient setting does not mean it is always clinically appropriate to do so. Patient safety and quality must continue to be our primary drivers. **The HSCRC should convene a workgroup of stakeholders, including clinicians, to develop a more comprehensive PAU definition.**

Quality Programs

The payment adjustments for all quality programs should include both improvement and attainment scores. The care transformation occurring in Maryland will not happen quickly or easily, and it is important to recognize the improvements we make along the way; however, we must continue to set our standards high and reward the top performers. Hospitals with comparatively higher attainment scores should always receive a higher reward, or lesser penalty, than hospitals with lower attainment scores.

Readmission Reduction Incentive Program (RRIP)

We do not support the recommendation to focus exclusively on Medicare patients for the RRIP. As a demonstration model, Maryland is charged with finding a better, more efficient way to deliver healthcare. We are responsible for setting a higher standard- one in which positive care changes are for the benefit of all patients, regardless of payer type. Therefore, **the RRIP should continue to be inclusive of all payers types**.

Complications Policy

For the sake of simplicity and standardization, **we support moving to the national Hospital Acquired Conditions Reduction Program's measurement criteria and goals;** however, similar to readmissions, the complications policy

should include all payers to ensure equitable patient care and to meet the goals of the All-Payer Model. Further analysis must be conducted to understand Maryland's performance relative to the nation. If we find Maryland's performance is severely lacking, we recommend establishing a reasonable glide path to improvement.

Medicare Performance Adjustment (MPA)

Despite our concerns about the current MPA methodology, we understand the need to proceed with the MPA, as designed, for the first performance year. However, **we strongly urge the Commission to modify the MPA for performance year two** by adopting the recommendations outlined in our October letter to Commissioners:

1) Recognize both improvement and attainment so that high performing hospitals are not unjustly penalized for achieving significant total cost of care (TCOC) savings prior to the MPA being established
2) Address near-term increases in TCOC due to appropriate and planned utilization meant to prevent avoidable utilization later
3) Create a tiered assignment method that uses Accountable Care Organization contracts and other contractual arrangements that physician practices have in place with hospitals

Thank you again for the opportunity to provide our initial comments. We look forward to providing additional comments after review of the HSCRC Staff's analyses. Please let us know if we can be of assistance to you.

Sincerely,

Maulik Joshi, DrPH
Executive Vice President of Integrated Care Delivery &
Chief Operating Officer

Bob Reilly
Chief Financial Officer

Cc: Victoria Bayless, President & Chief Executive Officer, AAMC
Mitch Schwartz, MD, Chief Medical Officer, AAMC
Donna Kinzer, Executive Director, HSCRC

OFFICE OF THE PRESIDENT & CEO

Mercy
HEALTH SERVICES

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January 29, 2018

Ms. Donna Kinzer
Executive Director
Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland 21215

RE: Commissioners Colmers and Keane White Paper

Dear Donna:

Mercy appreciates the opportunity to provide comment on the recent white paper recommendations developed by Commissioners Colmers and Keane. While the paper covered many methodologies in detail, Mercy's comments are limited to those viewed to be most significant.

- **Variable Cost**—The paper makes several good points including inconsistent results and weakness in the volume measure (ECMADs). However, a return to a flat 50% variable cost factor is not the solution. The most significant deviation in results is generated by the Oncology market shift calculation. The high cost of oncolitics needs to be addressed in a more equitable manner than the current method. In addition, the HSCRC should continue to develop an efficiency measure to better understand the impact of volumes on a hospital's cost competitiveness.

- **Potentially Avoidable Utilization –** The definition is too narrow. However, requiring individual hospitals to apply for specific adjustments is overly burdensome for the hospitals and HSCRC staff, and it would produce inequities across hospitals. The HSCRC should review the current definition and consider expanding it, especially in some of the medical services.

- **Readmissions** — The readmission policy should focus on Medicare, consistent with the waiver metric. An attainment only methodology is a reasonable objective but can only be implemented after the variation in patient severity is adequately addressed.

- **Realignment** — Using the update factor to correct for any increase in Medicare due to rate realignment only benefits the commercial payers. Instead, the HSCRC should consider using the differential to offset any increase in Medicare charges created from aligning rates with cost.

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In addition to the comments provided above, the HSCRC (has historically and) should continue to address individual hospital concerns over policy results and/or equity issues on a case by case basis. Thank you for the opportunity to provide comment. Please contact me directly if you would like to discuss in greater detail. I can be reached at tmullen@mdmercy.com or 410-332-9202.

Sincerely,

Thomas R. Mullen
President and CEO

Maryland
Hospital Association

February 7, 2018

Nelson J. Sabatini
Chairman, Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, MD 21215

Dear Chairman Sabatini:

On behalf of the Maryland Hospital Association's (MHA) 64 member hospitals and health systems, we appreciate the opportunity to comment on the proposed policy changes offered for consideration by Commissioners John Colmers and Jack Keane at the November 2017 public commission meeting.

Background

In September, you asked Commissioners Colmers and Keane to review HSCRC policies and rate-setting methodologies, following the submission of letters supporting the future Enhanced Total Cost of Care Model that also identified the need to address concerns with several HSCRC policies and methodologies. We agree with your view that, as we are about to move forward on the progression of our All-Payer Model, now is a good time to ensure that our current rate-setting methodologies are "reasonable, understandable, predictable, and effective."

MHA's Executive Committee and governing councils have considered these proposals over the past two months. The purpose of this letter is to share with the commission the hospital field's response to a number of the ideas raised by Colmers and Keane, as well as to identify one recommendation for which we believe additional field consideration is needed before providing a final response.

MHA Positions

- **Rate realignment –** Hospitals support rate realignment, but oppose the use of across-the-board adjustments in the update factor to address any resulting impact on Medicare spending per beneficiary that may endanger the ability to meet the terms agreed to with the Centers for Medicare & Medicaid Services (CMS). We instead recommend that the commission request from CMS an increase in the Medicare/Medicaid differential to address this issue. If CMS does not approve such an increase, HSCRC should not realign rates.

- **Readmissions policy changes –** We do not support the proposal to adopt a Medicare-only readmissions reduction incentive program. Over the course of Maryland's

demonstration, clinicians have emphasized the need to continue to focus on reducing readmissions for all patients consistent with our all-payer program. In fact, we believe that CMS has exempted Maryland's program from the national quality-based payment programs specifically because ours is an all-payer program, and it should continue to be so. We also oppose the proposal to adopt an attainment-only readmissions reduction program; improvement incentives should remain a part of this and all other HSCRC quality-based payment programs. While there is no current benchmark to determine whether Maryland's all-payer readmissions rates compare favorably to other states, data indicate that our rates have historically followed similar trends, and this relationship could be used to proxy appropriate all-payer benchmarks. Additionally, we recommend that HSCRC explore the use of similar groups of non-Maryland hospitals to compare to Maryland's hospitals and guide readmissions benchmarking. Using an appropriate comparison group of hospitals would also address concerns about the impact of social and demographic differences in populations. A number of other options could also be explored.

- **Redesign the complications policy –** We agree with the need to redesign the complications policy, including the measures used in the policy. MHA currently has work underway that should allow us to propose a new policy that could be put in place before the start of performance year 2019 (rate year 2021). The field has agreed on the goals and elements of a redesigned complications policy, identified a set of complications to consider, and has begun to model the options. Our timeline calls for modeling and refinement of options over the spring and early summer. We expect our governing councils to approve an option by late summer or early fall that can be recommended to the HSCRC staff by fall, in time for the HSCRC's vetting and public comment process. Implementing a new policy any sooner would be considered retroactive, since performance years are measured by the calendar year. This timeline allows for testing of measures and benchmarking before implementing a payment policy, without making a retroactive change.

- **Medicare Performance Adjustment (MPA) –** We support the implementation of the calendar year 2018 MPA as adopted (and as proposed by Colmers/Keane), and will continue to work with the commission to improve the policy for calendar year 2019.

- **Scaling used in commission policies –** We would support the proposed concept of the use of continuous scaling, including the potential to relax rewards and penalties or create "hold-harmless zones" in the mid-range. For these scaling systems to be "reasonable, understandable, predictable, and effective," they must be set prior to the start of each performance year, so hospitals will know in advance the value of their investments in quality improvement activities.

- **Potentially Avoidable Utilization (PAU)** – Colmers/Keane propose allowing hospitals to recommend to HSCRC hospital-specific programs for reducing avoidable and

unnecessary care. We are concerned about whether HSCRC has the necessary staff resources to review and monitor multiple programs and, in any case, we believe any revised and expanded definition of PAU used in HSCRC all-payer payment programs must employ a uniform, statewide definition of PAU. Additionally, any new measures included in an expanded definition of PAU should be tested and monitored for one year prior to being incorporated into the payment policies, to identify any unintended measurement issues. Furthermore, we believe it is unrealistic to expect this review process to be completed and in place by July 1, 2018. We are committed to working with HSCRC, clinicians, and other stakeholders on the current set of measures to define PAU, as well as other measures that could be included in this policy.

- **Replacing market shift/demographic adjustments with a range of volume adjustments for non-PAU volume changes** – MHA's Executive Committee and policy councils have spent significant time processing this recommendation. While there are strong differences of opinion about how to understand and address market shift and demographic adjustments, MHA believes that establishing a consensus approach to this matter is critical to the success of the next phase of the waiver. We look forward to working urgently with HSCRC staff to address this critical issue.

We trust that you will find this initial response from MHA to be constructive in the continuing dialogue among commissioners about potential modifications to current policies. As always, if you have any questions about the positions raised above, contact me.

Sincerely,

Michael B. Robbins

Michael B. Robbins, Senior Vice President

cc: Joseph Antos, Ph.D., Vice Chairman
Victoria W. Bayless
John M. Colmers
James N. Elliott, M.D.
Adam Kane
Jack Keane
Donna Kinzer, Executive Director

Legislative Update

The Legislative Update will be presented at the Commission Meeting

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TO: **Commissioners**

FROM: **HSCRC Staff**

DATE: **February 14, 2018**

RE: **Hearing and Meeting Schedule**

March 14, 2018	To be determined - 4160 Patterson Avenue HSCRC/MHCC Conference Room
April 11, 2018	To be determined - 4160 Patterson Avenue HSCRC/MHCC Conference Room

Please note that Commissioner's binders will be available in the Commission's office at 11:15 a.m.

The Agenda for the Executive and Public Sessions will be available for your review on the Thursday before the Commission meeting on the Commission's website at http://hscrc.maryland.gov/Pages/commission-meetings.aspx.

Post-meeting documents will be available on the Commission's website following the Commission meeting.