maryland
health services
cost review commission

Draft Recommendation for the Maryland Hospital Acquired Conditions Program for Rate Year 2028

December 10, 2025

This document contains staff draft recommendations for the RY 2028 Maryland Hospital Acquired Conditions Program. Comments are due by Thursday, December 18, 2025 and may be submitted to hscrc.quality@maryland.gov.

maryland
health services
cost review commission

Table of Contents

List of Abbreviations

AHRQ	Agency for Health Care Research and Quality
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
HAI	Hospital Associated Infection
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

maryland
health services
cost review commission

Key Methodology Concepts and 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.

Draft Recommendations

This document puts forth the RY 2028 Maryland Hospital Acquired Conditions (MHAC) draft policy recommendations for consideration. This policy discusses the AHEAD transition and potential options for incremental alignment of MHAC with the CMS Hospital Acquired Complications Reduction Program.

The draft recommendations for the RY 2028 Maryland Hospital Acquired Conditions (MHAC) program are as follows:

1. Use Potentially Preventable Complication (PPC) composite and all-payer AHRQ Patient Safety Indicator 90 to assess hospital acquired complications.
2. Assess PPC performance using more than one year of data for small hospitals (i.e., less than 21,500 at-risk discharges and/or 22 expected PPCs).
3. Assess hospital performance based on statewide attainment standards.
4. Set revenue at-risk at a maximum penalty at 2 percent and maximum reward at 2 percent using the average Maryland hospital score as the cut point for start of rewards.
5. Going forward, consider other candidate measures/measure sets that may be important for assessing hospital avoidable, harmful complications and appropriate for use in the program under a non-Medicare FFS quality program.

Introduction

Maryland hospitals have been and are currently funded under a population-based revenue system with a fixed annual revenue cap set by the Maryland Health Services Cost Review Commission (HSCRC or Commission) under agreements with the Centers for Medicare & Medicaid Services (CMS) for the state to operate the All-Payer Model (CY 2014-CY 2018), the current Total Cost of Care (TCOC) Model (2019-2026) and the upcoming AHEAD model (CY 2026-CY 2035). Under the new AHEAD Model the state will transition in CY 2028 (Performance Year 3) to CMS establishing hospital global budgets for Medicare FFS and to the HSCRC establishing hospital global budgets for all other payers (i.e., non-Medicare FFS). Under the Medicare FFS hospital global budgets, hospitals will be held accountable for quality under the CMS quality programs and through additional AHEAD incentives, while the state may maintain quality programs for all other payers. HSCRC staff is collaborating with CMMI, hospitals, the Maryland Hospital Association (MHA),state leaders, other state health agencies, and the broad array of stakeholders on the Performance Measurement Workgroup to develop a transition plan that increases the alignment between

the state's performance based payment programs and the CMS national programs over the initial years of the AHEAD model.

Under global budget systems, hospitals are incentivized to shift services to the most appropriate care setting and simultaneously have revenue at risk under Maryland's unique, all-payer, pay-for-performance quality programs; this allows hospitals to keep any savings they earn via better patient experiences, reduced hospital-acquired infections, or other improvements in care. Maryland systematically revises its quality and value-based payment programs to better achieve the state's overarching goals: more efficient, higher quality care, and improved population health. It is important under global budgets to ensure that any incentives to constrain hospital expenditures do not result in declining quality of care. Thus, the Commission's quality programs to date have rewarded quality improvements and achievements that reinforce the incentives of the global budget system, while guarding against unintended consequences and penalizing poor performance.

The Maryland Hospital Acquired Conditions (MHAC) program is one of several quality pay-for-performance initiatives that provide incentives for hospitals to improve and maintain high-quality patient care and value over time. The program currently holds 2 percent of hospital revenue at-risk for in-hospital complications that may occur during a hospital stay as a result of treatment rather than the underlying progression of disease. The MHAC program uses the Solventum Potentially Preventable Complication (PPC) measures of in-hospital complications such as sepsis, respiratory failure, pulmonary embolisms, and surgical-site infections.

Transitioning to the AHEAD Model

The AHEAD Model, which will begin in January 2026, includes a two year transition period where the state will maintain its all-payer rate setting system. The new CMS hospital global budgets will begin in CY 2028 and at that time the hospitals will be transitioned to the CMS quality programs for Medicare FFS and the state will administer quality programs for other payers. For RY 2028, which will assess CY 2026 performance, staff is working to assess all of the quality programs to determine opportunities for better alignment with the CMS programs. The initial focus of the state's transition work has been on aligning the Quality Based Reimbursement (QBR) program with the Hospital Value-Based Purchasing (HVBP) program; this effort also has implications for early steps to align the MHAC program with the CMS Hospital Acquired Conditions Reduction Program (HACRP) program. In-hospital complications are assessed in both the QBR and MHAC programs, as well as their CMS counterparts. Thus, changes to these policies and an

evaluation of hospital complication measures should be considered in tandem. Appendix A provides a high-level overview on quality assessments in the AHEAD Model, including a visual timeline for transitioning to the CMS quality programs in FFY 2029 or FFY 2030, with the earlier year transition contingent upon system implementation readiness.

This draft policy recommends options on early steps to align the MHAC program with HACRP in advance of the transition to the new AHEAD global budget system for Medicare FFS. The Assessment section of this draft MHAC policy includes an evaluation of performance on payment PPCs, as well as performance on the Agency for Healthcare Research and Quality's Patient Safety Index (AHRQ PSI) measures and the National Healthcare Surveillance Network Hospital Acquired Infections that are used in the CMS HACRP. For the RY 2028 MHAC policy, staff proposes to maintain the RY 2027 PPC composite measure and consider adding the all-payer AHRQ PSI composite. Currently, the all-payer AHRQ PSI measure is included in the QBR policy for Maryland and the Medicare PSI measure is included in the CMS HACRP program. Thus, to better align the Maryland programs with the CMS programs, staff recommends moving the AHRQ PSI composite into the MHAC program but maintaining its all-payer focus for CY 2026. The recommendation to maintain PPCs, which have been used in Maryland since the start of the APM in 2014, is based on their all-payer focus and broader assessment of complications than the PSIs or NHSN HAIs. However, staff recognizes that long term, additional work needs to be done to assess the appropriateness of continuing to use the PPCs given they are not used by CMS.

Thus, during CY 2026, staff proposes to engage stakeholders to assess opportunities for further alignment with CMS and to develop a complications program for State payers (i.e., non-Medicare FFS). Specifically, alignment entails consideration of measures, measurement domains and weighting, performance standards, performance periods, and revenue adjustment methodology. In a detailed or targeted sense, alignment can mean an exact replication of the CMS quality programs; in a broader sense, alignment can mean harmonizing with national hospital quality program priorities and intentions.

In addition to the Quality program Guiding Principles established at the beginning of the APM, the following criteria are proposed for deciding what measures to include in the policy and the weights:

1. Alignment with CMS quality programs
2. Maintenance of all-payer accountability and incentives for quality
3. Reduction of retrospective measure evaluations to the extent possible

4. Attention to areas of poor performance and/or priority area for State, hospitals, payers, or other stakeholders

Staff will continue to vet details of this transition across all of the RY 2028 quality policies with the Performance Measurement Workgroup (PMWG), the standing advisory group that meets monthly to discuss Quality policies.

Background

Overview of the MHAC Policy and Comparison with CMS Hospital Acquired Conditions Reduction Program

Because of the state's unique all-payer hospital model and its global budget system, Maryland does not participate in the federal pay-for-performance programs. Instead, the state administers the Maryland Hospital Acquired Conditions (MHAC) program, which relies on quality indicators validated for use with an all-payer inpatient population. The MHAC program was first implemented for Rate Year 2011. Measures used are based on a classification system developed by 3M Health Information Systems (3M), now Solventum. To identify potentially preventable complications (PPCs), the system uses the present-on-admission (POA) variable for eligible secondary diagnosis codes available in claims data to identify conditions not POA. The PPC system originally comprised specifications for 65 PPCs,[1] 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, the program holds hospitals accountable for venous thrombosis and sepsis that occur during inpatient stays. These complications can lead to 1) poor patient outcomes, including longer hospital stays, permanent harm, and death; and 2) increased costs.

The MHAC program is designed to provide incentives to improve patient care by adjusting hospital budgets based on PPC performance. The program currently evaluates performance on a composite of 16 clinically significant PPCs. As discussed further below, the PPCs not included in the payment program are

[1] In RY 2020, 45 out of 65 PPCs or PPC combinations were included in the program as 3M had discontinued some PPCs and others were deemed not suitable for a pay-for-performance program. The re-designed RY 2021 policy reduced the PPCs assessed to a focused list of 15 PPCs that were clinically actionable and had higher rates and greater variation across hospitals, and/or were clinically significant. In RY 2025, the policy was updated to include PPC 47 Encephalopathy, so there are now 16 payment PPCs.

monitored for changes and possible adoption back into the program. The program provides both rewards and penalties, holding up to 2 percent of hospital inpatient revenue at risk and based on performance.

Figure 1 below provides a comparison of the MHAC and HACRP programs. The CMS HACRP was established by the Affordable Care Act (ACA) of 2010 and implemented in FFY 2015. While the MHAC program and its national analog are similar in that they both evaluate hospital acquired conditions, there are some key differences, e.g., MHAC provides the potential for rewards so that all hospitals have an incentive to improve performance.

Figure 1. RY 2027 Maryland MHAC Program vs. FFY 2027 CMS HACRP Program

	Maryland MHAC Program	CMS HACRP Program[2]
Rewards/ Penalties	Provides rewards/penalties to hospitals based on performance of hospital-acquired conditions.	Reduces payments to hospitals based on their performance on measures of hospital-acquired conditions.
Revenue at Risk	Up to 2 percent of inpatient revenue for rewards or penalties based on preset scale	1 percent of Medicare hospital revenue for worst performing quartile of hospitals after performance period
Measures	16 Clinically significant PPCs	5 CDC NHSN HAI measures 1 AHRQ PSI 90 composite measure (Medicare)
Scoring Calculation	PPC composite score is calculated as the sum of the hospital's observed PPCs times the Solventum Cost Weight for each payment PPC measure divided by the sum of the hospital's expected PPCs times the Solventum Cost Weight for each payment PPC measure. $PPC\ Composite_j = \frac{(\sum_{i=1}^{16} ObservedPPC_{ij} * SolventumCostWeight_i)}{(\sum_{i=1}^{16} ExpectedPPC_{ij} * SolventumCostWeight_i)}$ Performance standard: Convert the PPC composite to a scaled score by comparing results to the threshold and benchmark that is set at average of 20th and 80th percentiles from the base period.	• Measure results- Standardized Infection Ratio (SIR) for each of 5 CDC NHSN HAI measure = Observed/Predicted CMS PSI 90 composite = weighted average of 10 component PSI measures. • Transform to scores- Winsorize results: Limit the distribution of measure results at the 5th and 95th percentiles to reduce outliers. Calculate each measure score as the z-score of winsorized results. $z = \frac{(x - \mu)}{\sigma}$ X=hospital score μ=national mean σ = std dev Total HAC score = Sum of z-scores for each measure the hospital is eligible. Hospitals need only one qualifying measure to be included. Each measure is equally weighted.

[2] For additional technical details, please see https://qualitynet.cms.gov/inpatient/hac. Last accessed 11/24/2025.

	Maryland MHAC Program	CMS HACRP Program[2]
Base and Performance Periods	Base: July, 2022-June 2024 Performance: CY 2025* *CYs 2024 and 2025 for small hospitals	PSI 90 performance is July 1, 2023, to June 30, 2025. CDC NHSN HAI measures' performance is January 1, 2024, to December 31, 2025

While some of the PSIs in the AHRQ measure evaluate the same complications as the Solventum PPCs, there is a key difference in patient scope: PSIs are limited to surgical cases, similar PPCs also assess these complications for medical patients who meet the measure specification inclusion criteria. Appendix B provides data showing the variability in overlap in the patient populations and complication occurrences between the PSIs and PPCs. For example, it shows that for Iatrogenic Pneumothorax (PSI 6 and PPC 49) complication, 67 percent of the eligible discharges and 26 percent of assigned complications are included in both measures, but an additional 17 percent of discharges and 35 percent of pneumothorax cases are identified by the PSI measure only and 16 percent of eligible discharges and 39 percent of cases are identified by the PPC measure only. In addition, while PSI 13 focuses on post-operative sepsis, PPC 35 focuses on any sepsis and also other severe infections; only 6 percent of discharges are eligible and 11 percent of the sepsis cases are identified by both measures.

Exemption from Federal Hospital-Acquired Condition Programs

In order to maintain an all-payer quality program for in-hospital complications, the state must submit an annual report to CMS demonstrating that Maryland's MHAC program targets and results continue to be aggressive and progressive, i.e., that Maryland's performance meets or surpasses that of the nation. Specifically, the state must ensure that the improvements in complication rates observed under the All-Payer Model through 2018 are maintained throughout the TCOC model. An exemption request has been submitted to CMS for FFY 2026. CMS has granted Maryland exemptions from the federal pay-for-performance programs (including the HAC Reduction Program) each year through FFY 2025; if updated information regarding the RY 2026 exemption request is received, it will be included in the final policy. Staff will continue to need to submit an exemption request during the initial transition years under AHEAD and plan to include a discussion of alignment of complications measures for CMMI input.

MHAC Scoring Methodology

In an effort to improve the comprehensiveness and fairness of the MHAC program, the methodology for calculating hospital scores and applying revenue adjustments was modified in RY 2027. Specifically, the

HSCRC staff worked with Mathematica to develop a composite PPC measure that weights both the observed PPC count and the expected PPC count by the Solventum cost weights and then sums across the PPCs to get a weighted observed to expected ratio. This weighted O/E ratio is then compared to a threshold and benchmark to calculate the MHAC score (i.e., if better than the benchmark MHAC score is 100 percent, if worse than the threshold then the MHAC score is 0 percent, and those performing between the threshold and benchmark receive a relative score). This differs from RY 2021 through RY 2026 where the O/E ratio for each PPC was compared to a threshold and benchmark to calculate points, applying the Solventum cost weights to the points, and then adding up across the PPCs.[3]

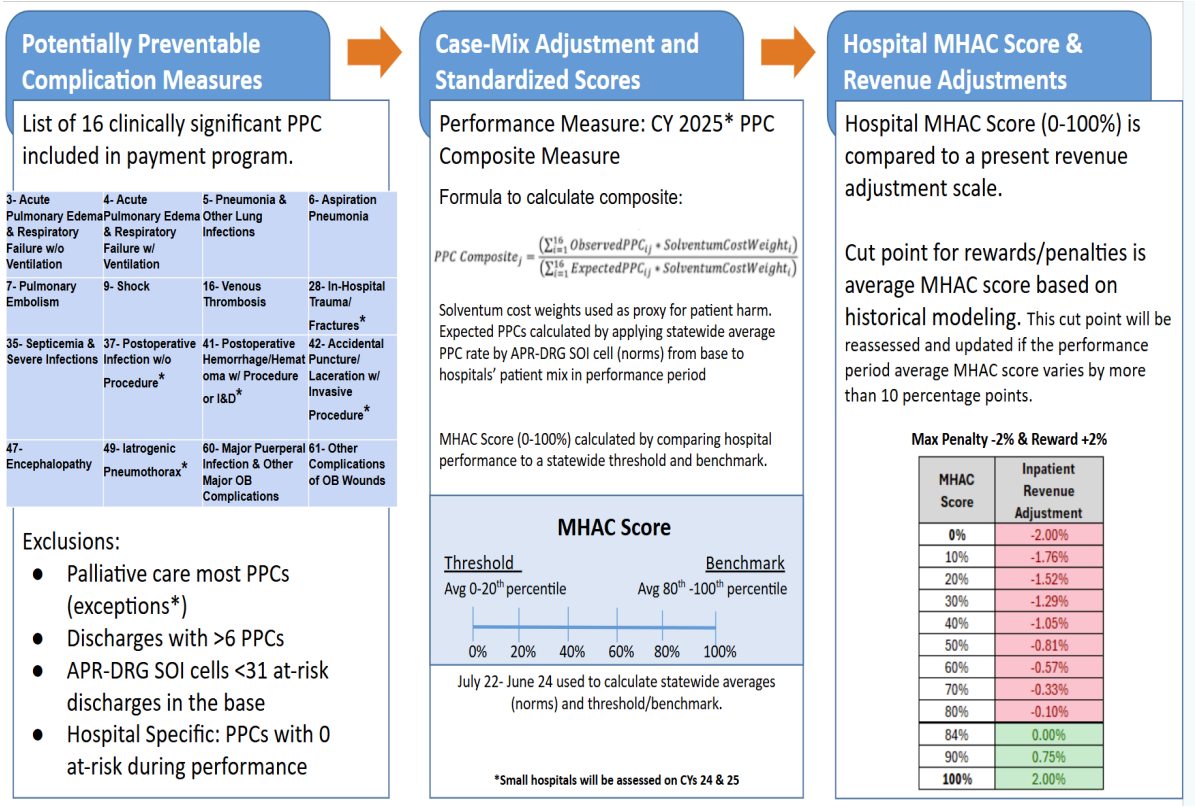
Figure 2 provides an overview of the three steps in the MHAC methodology (also see Appendix C) that converts hospital performance to standardized scores, and then payment adjustments, as outlined below:

> **Step 1.** For the PPCs identified for payment, clinically-determined global and PPC-specific exclusions, as well as volume based diagnosis-severity of illness and hospital-level exclusions are applied to ensure fairness in assignment of complications.
>
> **Step 2.** Case-mix adjustment is used to calculate observed to expected ratios that are then converted to a standardized point score (from 0-100 points) based on each hospital's attainment levels using a similar scoring methodology that is used for CMS Value-Based Purchasing and Maryland QBR program. Specifically, a composite PPC measure is used that weights both the observed PPC count and the expected PPC count by the Solventum cost weights and then sums these across the PPCs to get a weighted observed to expected ratio. This weighted O/E ratio is then compared to a threshold and benchmark to calculate the MHAC score (i.e., if better than the benchmark MHAC score is 100 percent, if worse than the threshold then the MHAC score is 0 percent, and those performing between the threshold and benchmark receive a relative score).

Step 3. The hospital's earned score is then compared to a linear scale to calculate the revenue adjustment percent. The scale is set prospectively and concurrently monitored so that hospitals can track potential revenue adjustments during the performance period; this scaling approach differs from national programs that relatively rank hospitals after the performance period. Additionally, the MHAC scaling differs in that it provides an opportunity for rewards, as opposed to HACRP that reduces payments by 1 percent for hospitals in the worst-performing quartile.

[3] The RY 2027 policy outlines the PPC Composite testing results.

Figure 2. Overview Rate Year 2027 MHAC Methodology



Assessment

This section provides an overview of performance for Maryland hospitals on complications measures, including Solventum PPCs, all-payer and medicare PSIs, and NHSN HAIs. Following the performance results, the staff recommendations on complication measures for RY 2028 is summarized. Staff then provides modeling of scores and revenue adjustments comparing the current methodology, HACRP, and the staff recommendation. The staff recommendation is based on the alignment considerations outlined above, the quality program guiding principles, and timing considerations related to staff resource limits and Commission priorities. Last, there is a discussion on staff priorities for CY 2026 for measuring in-hospital complications in CY 2027 to further align Maryland's program with the CMS HAC Reduction Program and develop a new complications program for all other payers.

Maryland Performance on Potentially Preventable Complications

Performance trends below show the observed to expected ratios for the PPCs currently included in the RY 2027 MHAC program. Under the All-Payer Model (APM), Maryland exceeded the contractual requirement of a 30 percent reduction in all PPCs. Throughout the TCOC Model, Maryland has continued to meet the contractual requirement on complications by maintaining the APM improvements for complications included in the payment program (i.e., not exceeding the CY 2018 PPC rates).

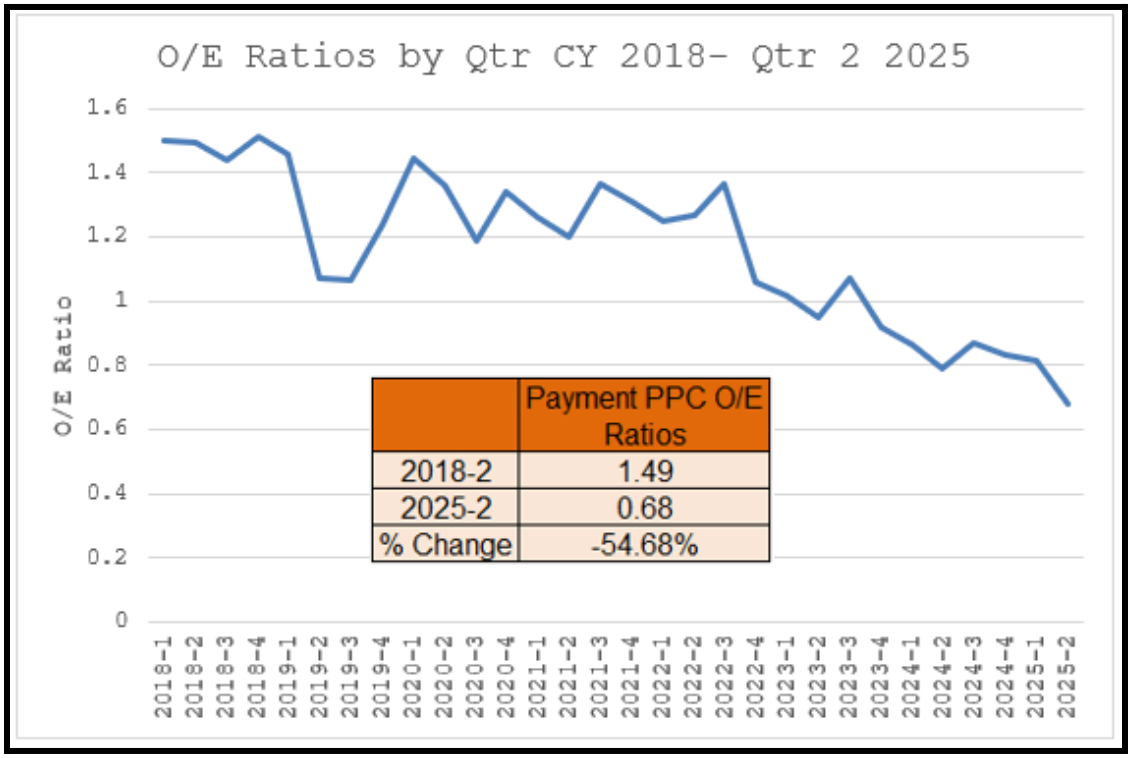
Currently there are sixteen PPCs included in the RY 2027 payment policy:

3	Acute Pulmonary Edema and Resp Failure w/o Ventilation
4	Acute Pulmonary Edema, Resp Failure w/ventilation
5	Pneumonia and Other Lung Infections
6	Aspiration Pneumonia
7	Pulmonary Embolism
9	Shock
16	Venous Thrombosis
28	In-Hospital Trauma and Fractures
35	Septicemia & Severe Infections
37	Post-Operative Infection & Deep Wound Disruption Without Procedure
41	Peri-Operative Hemorrhage & Hematoma w/ Hemorrhage Control Procedure or I&D
42	Accidental Puncture/ Laceration During Invasive Procedure
47	Encephalopathy
49	Iatrogenic Pneumothorax
60	Major Puerperal Infection and Other Major Obstetric Complications
61	Other Complications of Obstetrical Surgical & Perineal Wounds

The MHAC program was redesigned at the start of the TCOC model to focus on a smaller number of complication measures that met criteria developed by the Clinical Adverse Events Measures subgroup that was convened by the HSCRC. All other PPCs are still monitored and reconsidered annually for adoption back into the program. Appendix D provides the criteria that is used to select and re-evaluate complications for inclusion in the payment program versus monitoring, along with the statewide results for payment, monitoring, and all PPCs. Because CMS does not use the PPC measures, staff will need to evaluate whether PPCs will continue to be used as the state transitions to AHEAD. For RY 2028, staff is not recommending any changes to the payment PPCs as discussed further below.

Figure 3 below shows the statewide observed to expected (O/E) ratio from 2018 through CY 2025 YTD (July) for the payment PPCs. The O/E ratio presents the count of observed PPCs divided by the calculated number of expected PPCs (which is generated using statewide historical averages by diagnosis and severity of illness level and applying them to the case-mix of discharges a hospital experiences during the performance period). An O/E ratio of greater than 1 indicates that there are more PPCs than expected, and conversely, an O/E ratio less than one indicates that there are fewer PPCs than expected. Overall, there has been almost a 55 percent decrease in the O/E ratio since 2018.

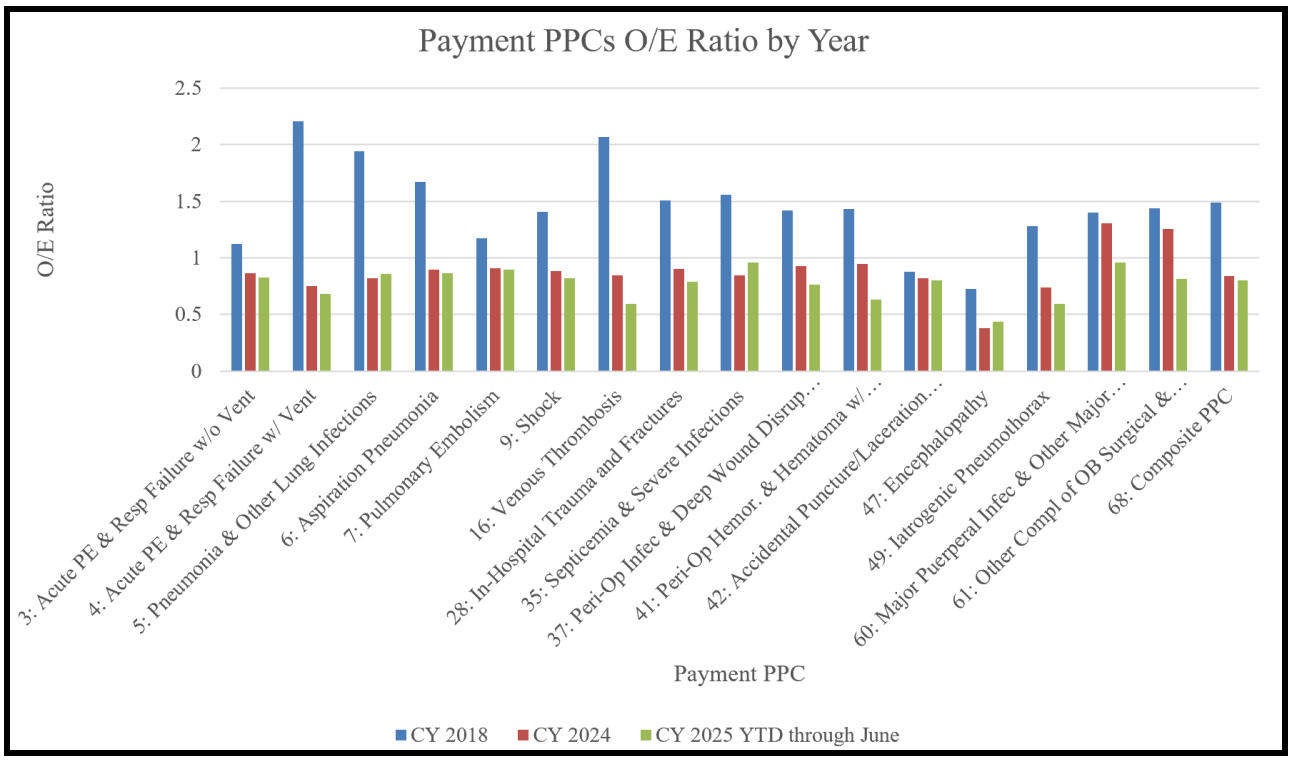
Figure 3. Payment PPCs Observed to Expected Ratios by Quarter CY 2018 to CY 2025 YTD July



	Payment PPC O/E Ratios
2018-2	1.49
2025-2	0.68
% Change	-54.68%

Figure 4 indicates how Maryland is performing relative to CY 2018 on each of the individual payment PPCs, which is the time period used to assess any backsliding on performance under the TCOC Model. Each of the PPCs included in the payment program have shown reductions since 2018, and most have had continued but much more modest reductions from CY 2023 and CY 2024. In CY 2025, all PPCs have an O/E ratio less than 1, indicating that statewide there are fewer PPCs than expected.

Figure 4. Payment PPCs Observed to Expected Ratios by Year, 2018, 2024, 2025



Maryland Performance on AHRQ Patient Safety Index Measures

The PSI-90 composite measure, which is one sixth of the national HACRP program, focuses on a subset of ten AHRQ-specified PSIs of in-hospital complications and adverse events following surgeries, procedures, and childbirth. Maryland's statewide performance compared to the nation on the PSI 90 Composite measure and the individual measures within the Composite for CY 2023 and CY 2024 are summarized below and illustrated in Figures 5 and 6[4].These data show:

- Compared to the nation, Maryland is better on the overall PSI-90 composite and on eight of the ten PSI indicators on an all-payer basis.

[4] Data provided by MHCC used for the Maryland Hospital Performance Guide published on the MHCC website

- Compared to 2023, Maryland has improved on the overall PSI-90 composite and on seven of the 10 indicators in 2024 on an all-payer basis.
- Compared to the nation, Maryland has performed better than or on par on the overall PSI-90 composite in four of the last six years, 2019-2024. In CY 2024, Maryland had almost 20 percent fewer complications than expected on an all-payer basis.

Figure 5. All-Payer PSI 90 Composite and Component Indicators for Maryland Compared to the Nation in 2024, and Maryland's performance over time 2023-2024

PSI Name	Maryland 2024 Compared to the Nation 2024	Maryland 2024 Compared to Maryland 2023
PSI 90 Composite	Better	Improved
PSI 3 Pressure Ulcer	Worse	Improved
PSI 6-Iatrogenic pneumothorax	Better	Improved
PSI 8 In Hospital Fall and Fracture	Better	Worse
PSI 9 Perioperative Hemorrhage or Hematoma	Better	Improved
PSI 10 Postoperative Acute Kidney Injury w/Dialysis	Better	Worse
PSI 11 Postoperative Respiratory Failure	Better	Improved
PSI 12 Postoperative Pulmonary Embolism or DVT	Better	Improved
PSI 13 Postoperative Sepsis Rate	Better	Improved
PSI 14 Postoperative Wound Dehiscence	Better	Worse
PSI 15 Abdominopelvic Accidental Puncture or Lac	Worse	Improved

Figure 6. Maryland All-Payer State vs National PSI-90 Composite Performance

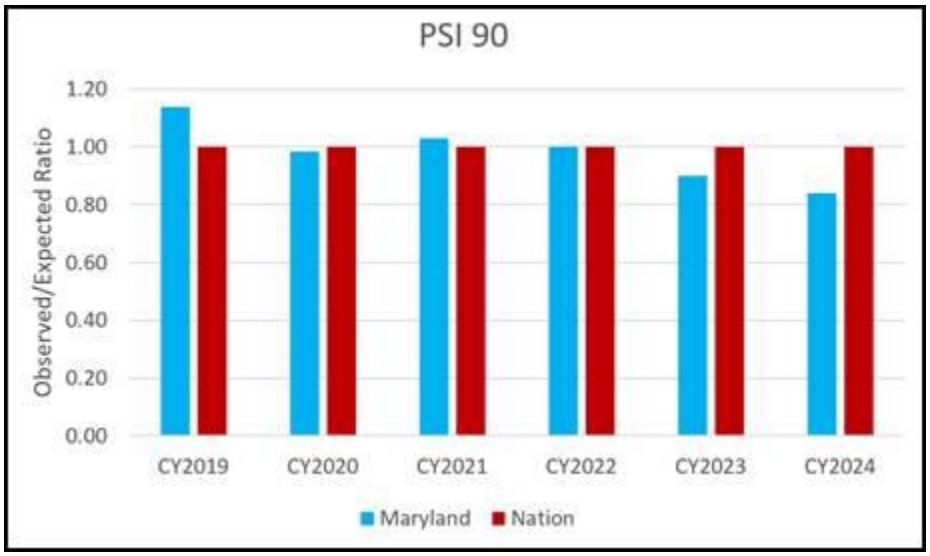
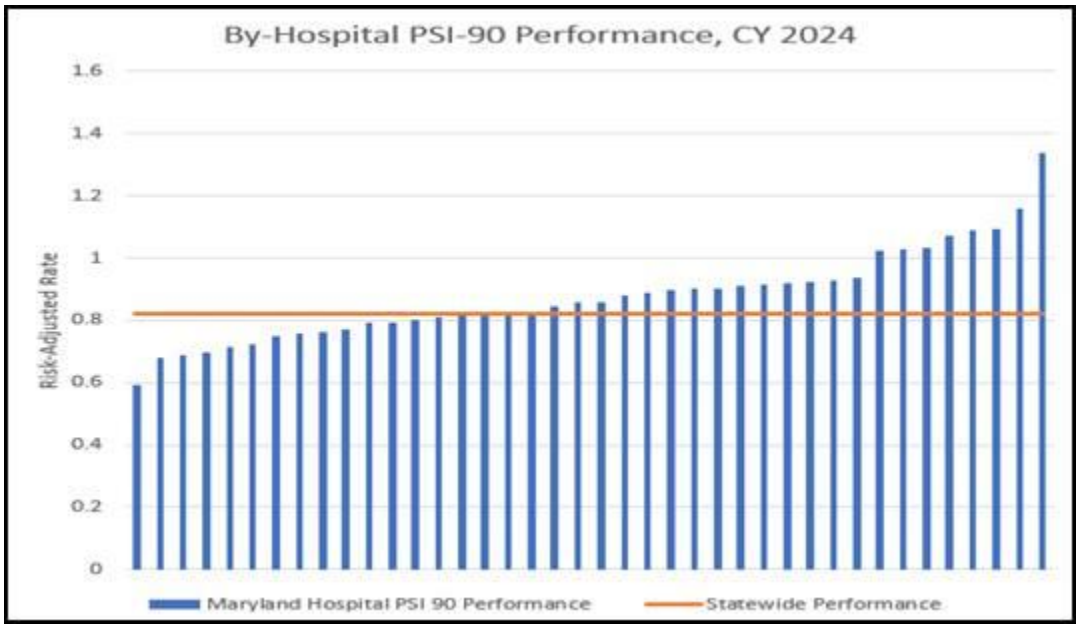


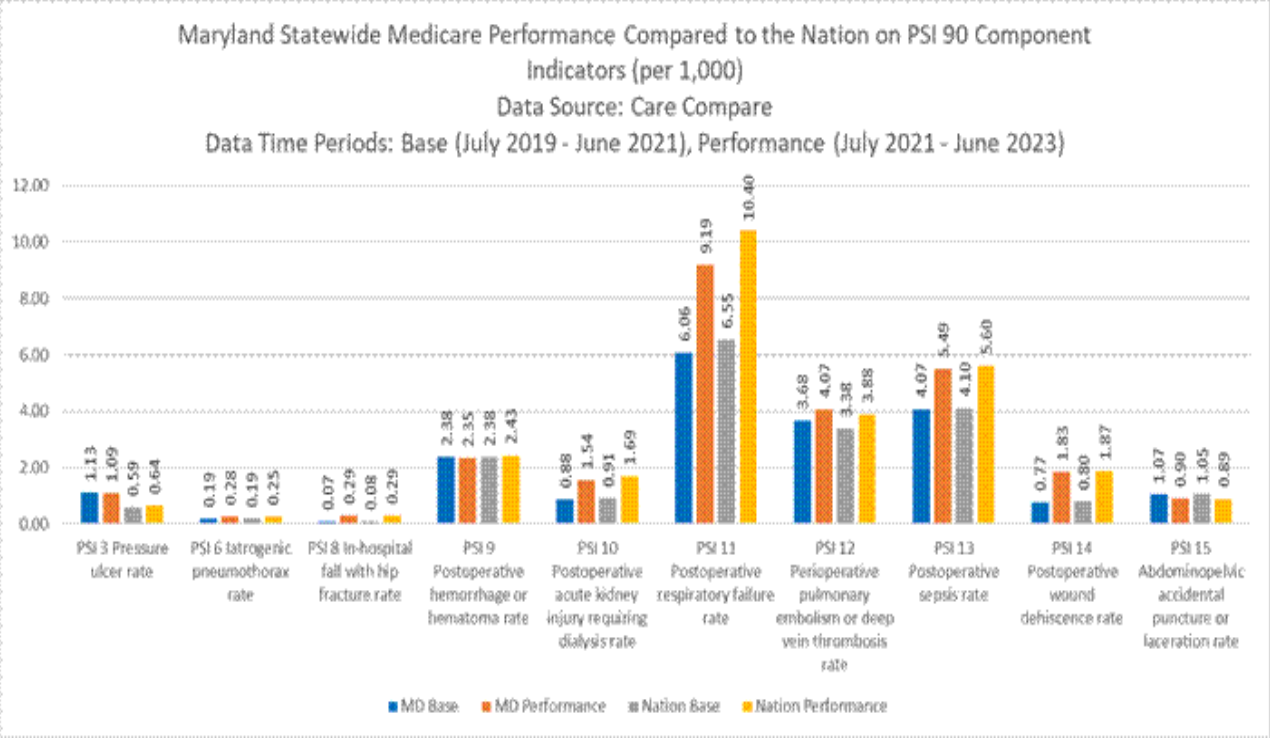
Figure 7 below illustrates the hospital-level performance on the all-payer PSI-90 composite measure for CY 2024; consistent with last year, the variation in performance by hospital suggests there may be opportunity for improvement on this measure.

Figure 7. PSI-90 Composite All-payer Hospital-Level Performance, CY 2024



CMS Care Compare publishes PSI-90 component indicator rates per 1,000 for Medicare patients for the nation and by state. Based on the data available at the time of the RY 2026 exemption request (Figure 8), Maryland rates are lower (better) or on par with the nation for all component indicators for both the base and performance periods with exception of PSI 3 Pressure Ulcer. While the HACRP uses the Medicare PSIs, staff recommends continuing to use the all-payer PSIs from QBR in the MHAC program and note that there is moderate correlation between the all-payer and Medicare versions of the PSI measure.

Figure 8. Maryland Statewide Medicare Performance Compared to the Nation on PSI-90 Component Indicators (per 1,000), July 2019-June 2021 Compared to July 2021-June 2023



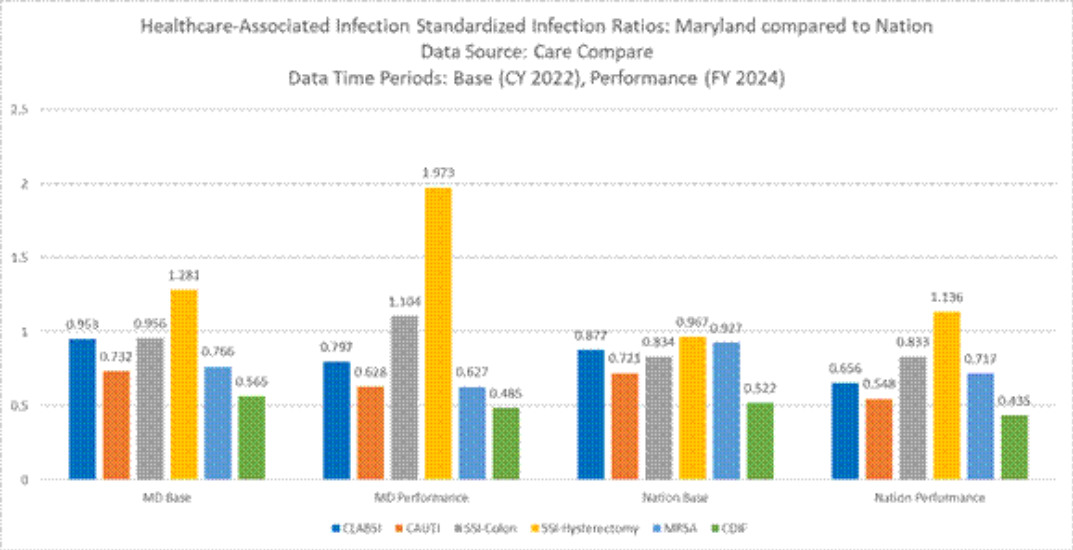
Maryland Performance on NHSN Healthcare-Associated Infections

The CDCs National Healthcare Safety Network (NHSN) tracks healthcare-associated infections, such as central-line associated bloodstream infections and catheter-associated urinary tract infections. Care Compare has updated the Centers for Disease Control (CDC) National Health Safety Network Healthcare Associated Infection (HAI) Standardized Infection Ratio (SIR) data tables for the nation and by state through

June 2024. Figure 9 below shows how Maryland performs relative to the nation, and how performance has changed over time for both Maryland and the nation.

- For the most recent time period, Maryland's performance is favorable compared to that of the nation on MRSA.
- Maryland is worse (higher SIRs) on SSI-hysterectomy, SSI-colon, and slightly worse on CAUTI, CDIF and CLABSI but given small sample sizes for some of these measures, most differences are not statistically significant.
- Both Maryland and the nation improved from the base to the performance period on four of the six HAI categories–CAUTI, CLABSI, CDIF and MRSA, and worsened on SSI-colon and SSI-hysterectomy.

Figure 9. NHSN SIR Values for CY22 compared to 7/1/23-6/30/24, Maryland versus the Nation



In Maryland the NHSN HAIs are included in the Quality Based Reimbursement (QBR) program, whereas nationally the NHSN measures are included in both the HVBP and HACRP program for Medicare FFS. The RY2023 QBR policy discusses NHSN concerns including the small cell size issues and surveillance bias (i.e., higher testing for infections results in higher rates of identified infections). Given these concerns, staff is hesitant and would like stakeholder input over the coming year on whether to align fully with the nation and use of the NHSN measures in two payment programs (QBR and MHAC), and/or what other measures should be considered for non-Medicare FFS quality policies. or the RY 2028 policy, staff is not

recommending inclusion of the NHSN measures in the MHAC program due to these concerns and inclusion of the measures in QBR.

Digital Measures

The state and CMS are moving towards digital measures to reduce measurement burden and enhance measures with data from electronic health records. By 2030, the CMS goal is for all quality measures to be fully digital. Further, CMS noted the following in their 2022 Digital Quality Measures (dQM) Roadmap:

> *dQMs are designed to reduce administrative burden and costs, reduce the likelihood of manual data entry and interpretation errors, and provide more timely quality assessments by enabling automated, standardized data analysis directly from electronic data sources.*[5]

As discussed in the QBR policy, the state is aligning the hospital digital measure reporting requirements with CMS but providing a small financial incentive for more timely reporting during the performance year and requiring the core clinical data elements for hybrid measures on an all-payer basis. Figure 10 provides a summary of the Electronic Clinical Quality Measures (eCQM) reporting requirements for CY 2026. As the state evaluates future options for complication measures, staff believes that digital measures should be considered to address areas of interest to stakeholders such as maternal morbidity or newer NHSN digital measures such as Hospital Onset Bacteremia.

Figure 10. CY 2026 Required Maryland and CMS Electronic Clinical Quality Measures (eCMQ) Reporting

- **Five eCQMs selected by CMS and three self-selected**
- **CMS-mandated eCQMs (Maryland is aligning with CMS)**:
  - **Safe Use of Opioids—Concurrent Prescribing**: (CMS506)
  - **Cesarean Birth**: (PC-02)
  - **Severe Obstetric Complications**: (PC-07)
  - **Hospital Harm—Severe Hyperglycemia**:newly required by CMS
  - **Hospital Harm—Severe Hypoglycemia**: newly required by CMS

[5] Centers for Medicare & Medicaid Services. 2022. "Digital Quality Measurement Strategic Roadmap." https://ecqi.healthit.gov/sites/default/files/CMSdQMStrategicRoadma p_032822.pdf.

Complication Measure Summary

In summary, the measure recommendations for the RY 2028 MHAC policy are the following:

- Maintain the use of RY 2027 PPCs given all-payer focus and broader applicability (i.e., medical and surgical patients included). Continue to use the new composite measure that offers a superior scoring approach, resulting in hospital specific scores with significantly increased content validity and reliability and better distinguishes hospital performance such that all hospitals are held accountable for PPCs that are most germane to the types of patients and services they provide.
- Add the all-payer AHRQ PSI composite to the MHAC program, assuming approval of its removal from QBR. The staff recommends the all-payer measure because the all-payer rate setting system is still in place for CY 2026 and the volume of discharges allows only one year of data to be needed. While some of the PPCs and PSIs address similar types of complications, staff believes adding the PSI composite as currently used in QBR is appropriate as it provides additional incentive weight for clinically important areas such as sepsis and adds areas of focus not included in the payment PPCs. Staff recommends that the all-payer PSI measure be weighted proportionally to its weight in the HACRP program (i.e., 1/6th of the total MHAC score); thus limiting the impact of the PSI measure on MHAC scores but ensuring hospitals focus on this CMS measure.
- Maintain the NHSN HAI measures in the QBR program but do not add to the MHAC program at this time given measurement concerns related to these surveillance measures.
- Re-convene the Clinical Adverse Events Measures subgroup in Spring of 2026 to assess available complication measures for use in a state program for non-Medicare payers. Assessment should consider alignment with CMS and the state's investments in PPCs, as well as opportunities to focus on non-Medicare priority areas such as maternal complications, digital measures, or areas of poor performance.

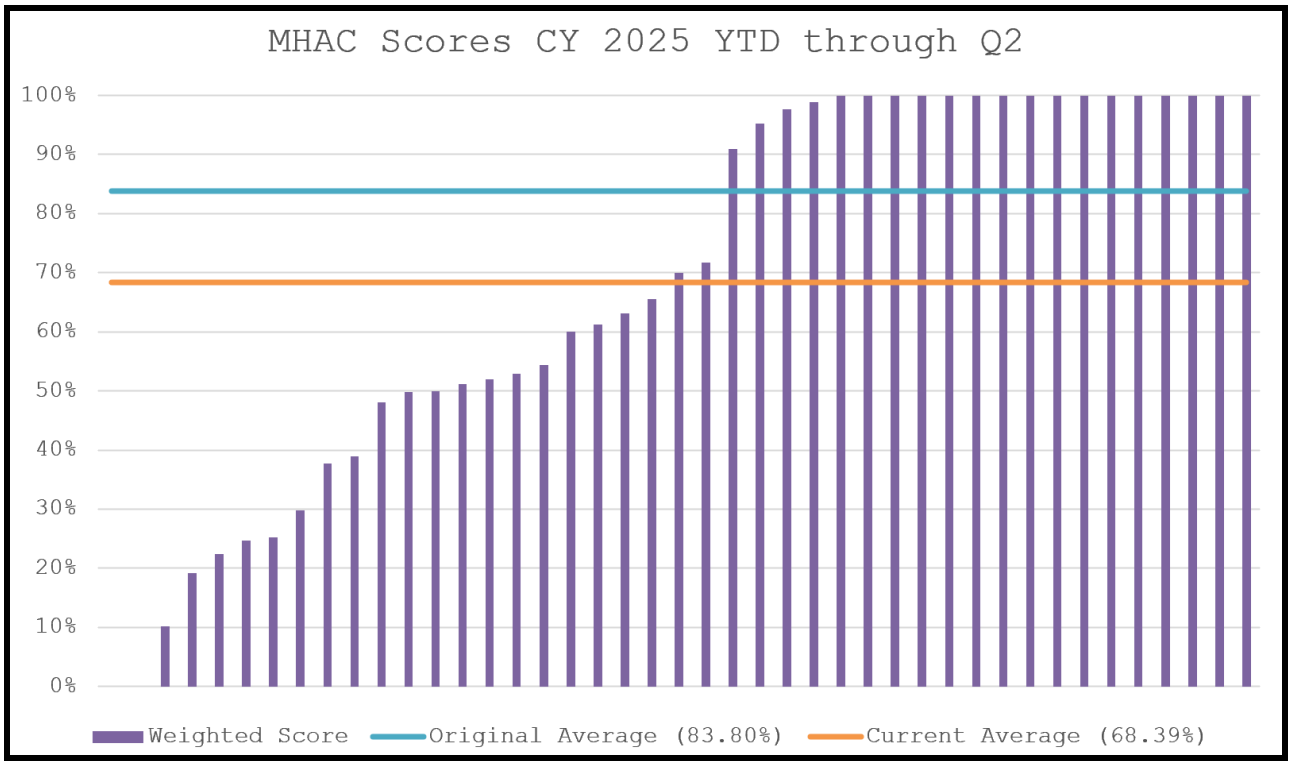
Hospital Scores and Revenue Adjustments

This section provides an overview of the MHAC and HACRP revenue adjustment methodology and then presents modeling of hospital scores and revenue adjustments for the current MHAC methodology, the estimated HACRP results for Maryland hospitals, and the proposed RY 2028 draft recommendations.

Comparison of MHAC and HACRP Scoring and Revenue Adjustment Methodology

The MHAC scoring methodology was significantly updated in RY 2027 based on stakeholder concerns. As discussed above, the approved RY 2027 MHAC policy recommended the use of a PPC composite measure that includes all payment PPCs for the one year performance period (two years for small hospitals) but weights the PPCs by the hospital's expected number of PPCs. This addressed concerns about construct validity as it ensured inclusion of lower volume complications but weighted hospital scores by largest areas of opportunity. Over the last year, staff has explored concerns about academic medical centers being disadvantaged under the PPC risk-adjustment methodology and impact of prospective versus concurrent normative values. Appendix E provides an overview of the results from these analyses. Based on these results, staff does not recommend any changes to the methodology at this time but will continue to support hospitals that submit clinical concerns to Solventum. The total MHAC score is then determined by comparing the PPC composite results to a threshold and benchmark, which is the average of the hospital scores in the top and bottom 1/5th (i.e., the scores below and above the 20th and 80th percentiles) of scores calculated during the two year historical base period. If a hospital scores better than the benchmark, then the score is 100 percent and if the hospital scores worse than the threshold the hospital scores 0 percent, with all those in between receiving a score relative to the threshold and benchmark. Figure 11 provides RY 2027 YTD through June results by hospital, along with the current average score. In order to convert the scores to revenue adjustments, a linear scale from 0 to 100 percent is used and the cut point is the average hospital score. The RY 2027 policy recommended a preliminary cut point of 84 percent based on modeling; however, the actual average score will be used instead of this placeholder and is provided in the monthly reports for hospitals to track (currently 68 percent). The scaling distributes both rewards and penalties up to 2 percent of all-payer inpatient revenue.

Figure 11. MHAC Scores CY 2025 YTD through June



The HACRP scoring and revenue adjustments differ significantly from the MHAC methodology. First, each eligible measure is weighted equally and the performance periods are two years for all hospitals and measures. Thus, for FFY 2028, the performance periods for NHSN and PSI started in January 2024 and July 2023, respectively (i.e., 12 and 18 months of the performance period will elapse by the end of CY 2026). To calculate the scores, measure results are truncated at the 5th and 95th percentile and then results across measures are standardized using z-scores that compare each hospital's results to the national mean, divided by the standard deviation and summed across eligible measures. Then hospitals with a total HAC score greater than the 75th percentile (i.e., the worst-performing quartile) are subject to a full 1 percent payment reduction for all Medicare FFS patients. Unlike the MHAC program, the HACRP program does not provide rewards to hospitals.

Based on estimated results from CMMI for FFY 2025 HACRP, as shown in Figure 12, the state performed better than the 75th percentile of national performance (0.3178 vs 0.3667). The by-hospital results indicate that 16 of 43 Maryland hospitals would have been penalized under HACRP. However, it should be noted

again, that there are concerns about small cell sizes and other biases in the NHSN measures since they were originally designed for surveillance purposes and not payment. Furthermore, small or unique hospitals such as UMD Chestertown, UMD Rehabilitation and Orthopedic Institute, and Levindale are included in hospitals that would be penalized but are not measured on most of the measures. For example, UMD Chestertown is only measured on c dif and had three observed cases in two years, exceeding the expected of 1.55 cases. However, the HSCRC does remain concerned that some of the larger hospitals in the State do appear to have opportunities for improvements on some of the complication measures relative to the nation.

Figure 12. HACRP Total HAC Scores, Maryland Compared with the Nation, FFY 2025

National 75th percentile Total HAC Score with and without Maryland Hospitals	Average Total HAC Score for Maryland Hospitals
0.3667 with MD 0.3652 without MD	0.3178

Figure 13 provides the RY 2025 MHAC and estimated FFY 2025 HACRP revenue adjustments for Maryland hospitals. As discussed above, HACRP assesses a full 1 percent penalty to the 16 out of 43 hospitals that are in the worst-performing quartile nationally. Staff believes the MHAC program should continue to provide scaled rewards and penalties for RY 2028 but welcome stakeholder feedback on total revenue at risk (+/- 2 percent) and not relatively rank MD hospitals retrospectively. Modeling of HACRP scores using the HSCRC scaling approach has been suggested by stakeholders. Using FFY 2025 HACRP scores and a linear scale using the minimum and maximum actual scores and average score based on National data, the net revenue adjustments are -$27.4 million with -$38.6 M in penalties and +$11.2 M in rewards. It also should be noted that FFY 2026 scores under HACRP are not yet available on Care Compare.

Figure 13. Maryland's FFY 2025 Estimated HACRP and RY 2025 Final MHAC Revenue Adjustments

Program	Statewide Net Total	%	Penalties	%	Rewards	%
MHAC	$ 39,309,084	0.33%	$ (8,879,421)	-0.07%	$ 48,188,505	0.41%
HACRP	$ (63,317,885)	-0.53%	$ (63,317,885)	-0.53%	$ -	-

Scores and Revenue Adjustment Modeling Results

Staff has modeled hospital scores using CY 2024/RY 2026 base and performance periods. Staff has also modeled and compared the revised RY 2027 MHAC methodology to the previous methodology and continue to support the use of the composite (results not shown). Figure 14 provides the statewide revenue adjustments with and without the addition of the all-payer PSI measure. Specifically, the PSI data for CY 2024 was compared to a benchmark and threshold that was calculated in the same way as the MHAC performance standards (i.e., average of the top and button quintile from base period) and 0-100 points was assigned based on attainment only. The PPC and PSI scores were then combined by weighting the PPCs as 5/6th and PSI as 1/6th of the overall score. The cut point was the average statewide score for each scenario (i.e., 80% for PPC only and 78% for PPCs and PSI). The figure shows that penalties remain similar when the PSI is added but rewards are reduced by almost $10 M statewide. Appendix E provides the by-hospital results for both models.

Figure 14. Estimated Revenue Adjustments with and without AHRQ PSI-90

RY 2026 Modeling	PPCs Only	PPCs and PSIs
Net Total $	**$30,107,361**	**$19,680,755**
Penalty $	-$42,239,158	-$42,753,131
Percent Inpatient	-0.36%	-0.36%
Reward $	$72,346,519	$62,433,886
Percent Inpatient	0.61%	0.53%

Draft Recommendations

The draft recommendations for the RY 2028 Maryland Hospital Acquired Conditions (MHAC) program are as follows:

1. Use Potentially Preventable Complication (PPC) composite and all-payer AHRQ Patient Safety Indicator 90 to assess hospital acquired complications.
2. Assess PPC performance using more than one year of data for small hospitals (i.e., less than 21,500 at-risk discharges and/or 22 expected PPCs).

3. Assess hospital performance based on statewide attainment standards.
4. Set revenue at-risk at a maximum penalty at 2 percent and maximum reward at 2 percent using the average Maryland hospital score as the cut point for start of rewards.
5. Going forward, consider other candidate measures/measure sets that may be important for assessing hospital avoidable, harmful complications and appropriate for use in the program under a non-Medicare FFS quality program.

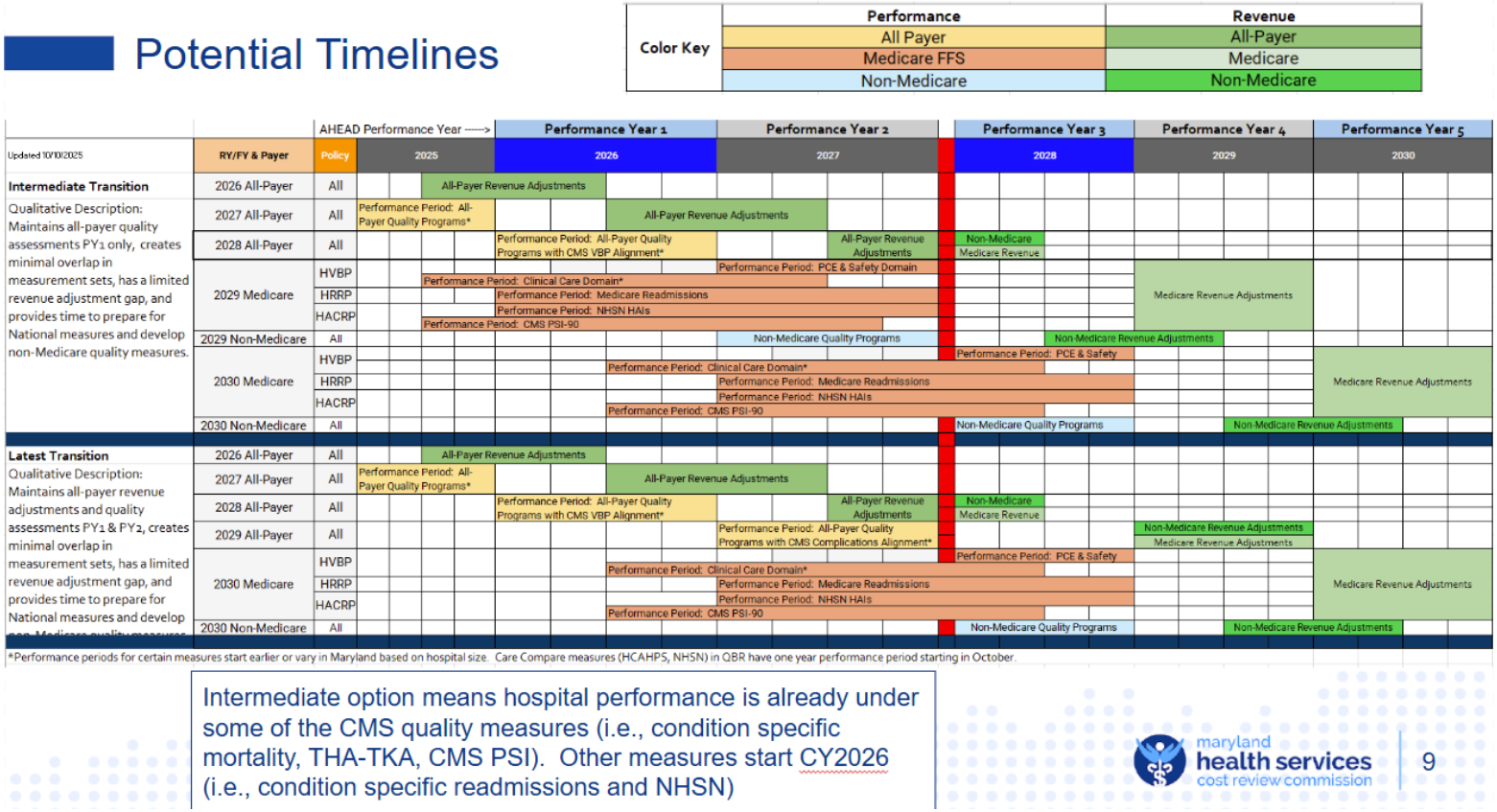
Appendix A: Quality Program Transition under AHEAD

Below are the high-level details of quality assessments in the AHEAD Model, based on staff's current understanding of the new AHEAD State Agreement requirements and discussions with CMMI staff:

- Maryland hospitals will move to CMS hospital quality programs for Medicare FFS either for FFY 2029 or FFY 2030 payment adjustments (i.e, performance period mid-2025 through CY2027 or mid-2026 through CY2028). Staff will need to continue to request a waiver from CMMI for the all-payer programs.
- RY 2028 (i.e., CY 2026 performance) will be under Maryland all-payer policies and CMS will implement the revenue adjustments in CY 2028 for the Medicare FFS global budgets (and HSCRC will implement for all other payers).
- State may continue quality adjustments to hospital global budgets for all other payers (i.e., non-Medicare FFS) and is required to report annually to CMMI on the quality programs including measures, performance, revenue adjustments.
- State will align non-Medicare FFS quality programs with the CMS programs to reduce hospital burden where feasible and appropriate, but also consider focus areas where the state could deviate from CMS based on State, payer, or other stakeholder priorities.

Figure A1. provides a potential timelines for quality program transition.

Figure A1. Timeline Options for Quality Program Transition



Intermediate option means hospital performance is already under some of the CMS quality measures (i.e., condition specific mortality, THA-TKA, CMS PSI). Other measures start CY2026 (i.e., condition specific readmissions and NHSN)

Appendix B: PPC and PSI Overlap

In advance of the RY 2021 MHAC policy, performance of individual PPCs considered "overlapping" with PSI 90 component measures was done. Results of this analysis in Figure B.1. below show significant variability in the Numerator and Denominator populations and their performance rates for each matched set of PSI/PPC combinations. Payment PPCs are highlighted in grey. Known differences in populations and logic of specifications account for some of these results. As an example, both PSI 13 and PPC 38 address Sepsis, however PSI 13 covers only postoperative Sepsis while PPC 38 is for all inpatients. Other differences include Age and Major Diagnostic Category (MDC) variables. Overall, these data suggest the measure specifications are not sufficiently aligned for PSIs and PPCs to be considered comparable across most of the "overlapping" measure sets. Instead measures within each measure set would be compared to their own historical performance rates in order to understand trends. This may have implications if the PSIs were to replace PPCs in the future and would require generating historical performance data for the PSIs. An updated overlap analysis is in process and will be presented in the final recommendation. Of final note, while PPCs are more comprehensive in some of their constructs but lack national comparative performance data and benchmarks, staff believes that inclusion of both PPCs and PSIs provides for comprehensive measurement of complications acquired in the hospital and makes progress toward aligning with the HAC RP program.

Figure B.1. PPC-PSI Overlap Analysis Results, 2016-2017

Measures Compared	Measure Inclusion	Numerator Cases		Denominator Cases	
		Frequency	Percent	Frequency	Percent
PSI 03: Pressure Ulcer PPC 31: Pressure Ulcers	PSI and PPC	78	5%	232,044	40%
	PSI Only	1,580	95%	347,286	59%
	PPC Only	0	0%	4,511	1%
PSI 06: Iatrogenic Pneumothorax Rate PPC 49: Iatrogenic Pneumothorax	PSI and PPC	62	26%	678,312	67%

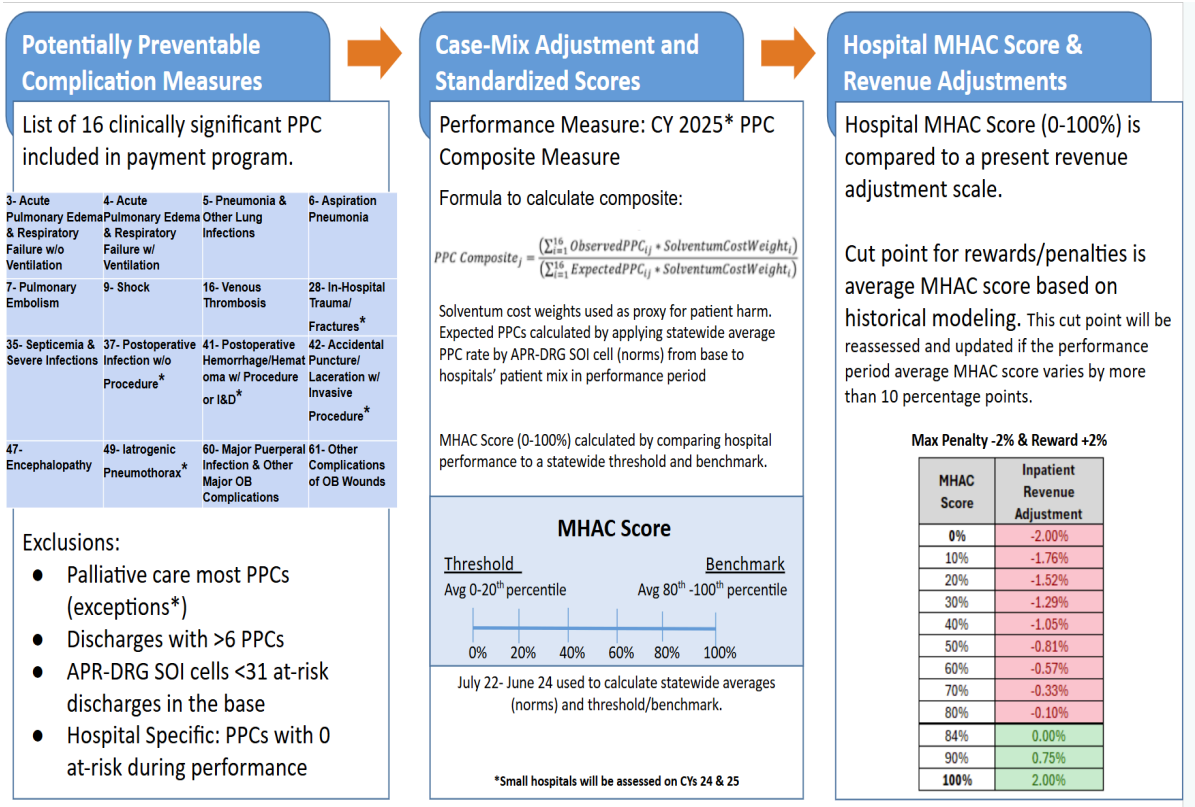
Measures Compared	Measure Inclusion	Numerator Cases		Denominator Cases	
		Frequency	Percent	Frequency	Percent
	PSI Only	85	35%	174,105	17%
	PPC Only	95	39%	158,280	16%
PSI 08: In Hospital Fall with Hip Fracture Rate PPC 28: In-Hospital Trauma and Fractures	PSI and PPC	46	24%	639,474	66%
	PSI Only	71	37%	76,032	8%
	PPC Only	77	40%	252,146	26%
PSI 09: Perioperative Hemorrhage or Hematoma Rate PPC 41: Peri-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Procedure	PSI and PPC	124	21%	186,281	65%
	PSI Only	407	69%	34,501	12%
	PPC Only	62	10%	65,793	23%
PSI 10: Postoperative Acute Kidney Injury Requiring Dialysis Rate PPC 25: Renal Failure with Dialysis	PSI and PPC	18	11%	117,181	16%
	PSI Only	86	51%	17,122	2%
	PPC Only	66	39%	610,198	82%
PSI 11: Postoperative Respiratory Failure Rate PPC 03: Acute Pulmonary Edema and Respiratory Failure without Ventilation	PSI and PPC	79	5%	103,100	14%
	PSI Only	411	24%	12,119	2%
	PPC Only	1,234	72%	603,232	84%
PSI 11: Postoperative Respiratory Failure Rate PPC 04: Acute Pulmonary Edema and Respiratory Failure with Ventilation	PSI and PPC	122	9%	103,282	14%
	PSI Only	368	28%	11,937	2%
	PPC Only	819	63%	603,420	84%

Measures Compared	Measure Inclusion	Numerator Cases		Denominator Cases	
		Frequency	Percent	Frequency	Percent
PSI 12: Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate PPC 07: Pulmonary Embolism	PSI and PPC	327	25%	193,929	22%
	PSI Only	876	67%	41,913	5%
	PPC Only	104	8%	646,464	73%
PSI 12: Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate PPC 16: Venous Thrombosis	PSI and PPC	136	10%	193,882	22%
	PSI Only	1,067	77%	41,960	5%
	PPC Only	174	13%	646,632	73%
PSI 13: Postoperative Sepsis Rate PPC 35: Septicemia & Severe Infections	PSI and PPC	132	11%	25,838	6%
	PSI Only	305	26%	104,487	26%
	PPC Only	727	62%	270,936	68%
PSI 14: Postoperative Wound Dehiscence Rate PPC 38: Post-Procedural Infection and Deep Wound Disruption with Procedure	PSI and PPC	9	8%	44,734	16%
	PSI Only	56	53%	25,974	10%
	PPC Only	41	39%	201,391	74%
PSI 15: Unrecognized Abdominopelvic Accidental Puncture or Laceration Rate PPC 42: Accidental Puncture/Laceration During Invasive Procedure	PSI and PPC	102	19%	118,342	13%
	PSI Only	89	16%	35,575	4%
	PPC Only	351	65%	770,804	83%

Appendix C. RY 2027 MHAC Program Methodology

In April 2025 the Commission approved staff recommendations for the Rate Year (RY) 2027 MHAC program. Figure C.1 below provides a summary overview of the approved RY 2027 MHAC methodology.

Figure C.1. Overview of RY 2027 Approved MHAC Methodology



The MHAC policy was redesigned in RY 2021 to modernize the program in alignment with the new Total Cost of Care Model. The RY 2027 final recommendations maintained the current complication measures but updated the methodology for calculating hospital scores and applying revenue adjustments. These changes are intended to address small cell size concerns and comprehensiveness of the program.

The methodology for the MHAC program measures hospital performance using the PPC composite Observed (O) /Expected (E) ratio. Expected number of PPCs are calculated using historical data on statewide PPC rates by All Patient Refined Diagnosis Related Group and Severity of Illness Level (APR-DRG SOI). See below for details on how the expected number of PPCs are calculated for each hospital.

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 diagnosis (APR-DRG) category and severity level by dividing the observed number of PPCs by the total number of admissions. The PPC norm for a single diagnosis and severity level is calculated as follows:

Let:

N = norm

P = Number of discharges with one or more PPCs

D = Number of "at-risk" discharges

i = A diagnosis category and severity 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 diagnosis category and its four severity levels.

Consider the following example in Figure C.2 for an individual diagnosis category.

Figure C.2. Expected Value Computation Example for one Diagnosis Category

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 diagnosis 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 diagnosis category is displayed in column E. The expected number of PPCs for each severity 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 diagnosis category is the expected number of PPCs for the severity 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 less than 30 at-risk discharges statewide.

MHAC Exclusions

The following exclusions are applied:

- Discharge is in an APR-DRG SOI cell has less than 31 statewide discharges; and
- Discharge has more than 6 PPCs (i.e., a catastrophic case, for which complications are probably not preventable).

Potentially Preventable Complications (PPCs) in Payment

During the RY 2021 MHAC redesign, the number of complication measures was reduced from 45+ to a subset of 14 complications that were clinically significant and actionable, as well as meeting measurement criteria such as higher statewide rates, variation across hospitals, and validity and reliability of individual PPCs. The PPCs not selected for payment are considered "monitoring PPCs" and are evaluated annually by staff and stakeholders to determine whether they should be put back into the payment program. For RY 2027, the same payment PPCs are being included as were included in the RY 2026 policy, as shown in Figure C.3. However, the two pneumonia related PPCs, which were combined previously into a single PPC referred to as PPC 67, are now assessed individually in RY 2027. Additional discussion on PPC selection for RY27 and discussion of the future of the program can be found in the policy and PMWG meeting documentation. Hospitals are now accountable for all 16 PPCs as long as they have at least one at-risk discharge for each PPC during the performance period (i.e., there is no longer a requirement of at least two expected and 20 at-risk and PPC inclusion is no longer determined during the base period).

Figure C.3. RY 2027 Payment PPCs

PPC Number	PPC Title
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation

PPC Number	PPC Title
5	Pneumonia and Other Lung Infections
6	Aspiration Pneumonia
7	Pulmonary Embolism
9	Shock
16	Venous Thrombosis
28	In-Hospital Trauma and Fractures
35	Septicemia & Severe Infections
37	Post-Operative Infection & Deep Wound Disruption without Procedure
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D
42	Accidental Puncture/Laceration During Invasive Procedure
47	Encephalopathy
49	Iatrogenic Pneumothorax
60	Major Puerperal Infection and Other Major Obstetric Complications
61	Other Complications of Obstetrical Surgical & Perineal Wounds

Performance Metric and Scoring

As stated above, for RY 2027, the performance on PPCs is assessed using a single composite measure that weights the component measures by the Solventum cost weights (as has been done previously) and the hospital-specific expected PPCs (new). Staff worked with Mathematica to test multiple ways to create a composite measure that better addressed small cell size issues and did not remove PPCs for a hospital with lower expected values. Specifically, Mathematica used data from FY 2018 through FY 2024 to model six iterations of Maryland hospital results under the existing methodology and three composite options. To inform decision making, staff assessed the content validity, predictive validity, and reliability of each composite option vs. the existing methodology across the six iterations of results. composite Option 1, which provides relatively higher weight within the composite for PPC measure based on hospital-specific expected numbers, was found to improve content validity and reliability the most and was selected for use in the program. By including all PPCs for a hospital with any at-risk discharges in the performance period, the modeling done by Mathematica shows that the number of payment PPCs evaluated increased for

hospitals of all sizes. Figure C.4. shows the change in the average number of PPCs evaluated under the previous and new composite methodology by hospital size.

Figure C.4. Number of PPCs Evaluated Under Previous Method Vs. composite

Hospital Category	Number of Hospitals	Average Number of PPC Measures Evaluated using Previous Methodology	Average Number of PPC Measures Evaluated using composite Methodology
Small Hospitals	5	3.6	13.2
Medium Hospitals	13	10.5	14.2
Large Hospitals	24	13.7	15

Instead of scoring (i.e., assigning 0 to 100 points) at the individual PPC level, there is now only one threshold and benchmark value used to assess hospital performance on the PPC composite measure. The threshold and benchmark for the PPC composite measure are calculated using the base period data. As shown in the equation below, the PPC composite score is calculated as the sum of the hospital's observed PPCs times the Solventum Cost Weight for each payment PPC measure divided by the sum of the hospital's expected PPCs times the Solventum Cost Weight for each payment PPC measure.

$$PPC\ Composite_j = \frac{\left(\sum_{i=1}^{16} ObservedPPC_{ij} * SolventumCostWeight_i\right)}{\left(\sum_{i=1}^{16} ExpectedPPC_{ij} * SolventumCostWeight_i\right)}$$

The composite does not explicitly weight PPC measures by volume, but PPC measures with higher expected PPCs receive more weight. The expected PPCs for a PPC measure generally increases as the volume of at-risk discharges increases.

MHAC Score (0-100 percent)

Each hospital's final MHAC score was previously calculated by adding up the attainment points for each PPC and dividing by the total possible attainment points to get a percent score. Under the new scoring methodology, the PPC composite measure is compared to the threshold and benchmark and the result is

the MHAC percent score. The threshold (worse performance) and benchmark (better performance) are calculated by averaging the PPC composite score for all hospitals in the bottom or top 20th percentile of performance in the base period, respectively.

If the PPC composite measure for the performance period is greater than the threshold, the hospital scores zero percent.

If the PPC composite measure for the performance period is less than or equal to the benchmark, the hospital scores 100 percent.

If the PPC composite measure is between the threshold and benchmark, the hospital scores between 0-100 percent. The formula to calculate the MHAC scores is as follows:

- MHAC Score = [99 * ((Hospital's PPC composite measure - Threshold)/ (Benchmark –Threshold))] + 0.5

Small Hospital Criteria Updates

Prior to the RY 2027 policy update, the MHAC program excluded individual PPCs for a hospital that did not meet the minimum criteria of 2 expected and 20 at-risk for any PPC in the two year "base" period. As discussed above, all hospitals with greater than zero at-risk discharges for a given PPC in the performance period, will have that PPC included in the new composite measure. Small hospitals (i.e., a hospital with less than 21,500 at-risk discharges or 22 expected PPCs in the two-year base period) will continue to be assessed using two years data.

Updated Scaling Methodology and Revenue At-Risk

The RY 2027 program uses a continuous scale with a full distribution of potential scores (scale of 0-100%) and the cut point of 84 percent (i.e., score at which penalties end and rewards begin) is based on the average hospital scores from modeling. The previously established "hold harmless zone" where hospitals were not rewarded or penalized, has been removed. Both the minimum and maximum revenue adjustment remain at 2 percent of inpatient revenue. Given the changes to the scoring methodology, the cut point for the

revenue adjustment scale will be reassessed based on actual performance scores for RY 2027 and modified if the hospital average score varies by more than 10 percentage points.

RY2027 Base and Performance Periods

The base period is the historical time period used for determining performance standards, including the normative values used to calculate expected PPCs and the threshold and benchmark for scoring performance. For RY 2027 the base period is July 2022-June 2024. The performance period is CY 2025, but small hospitals will have a two year performance period (CY 2024 and CY 2025).

Appendix D: PPC Criteria and Performance

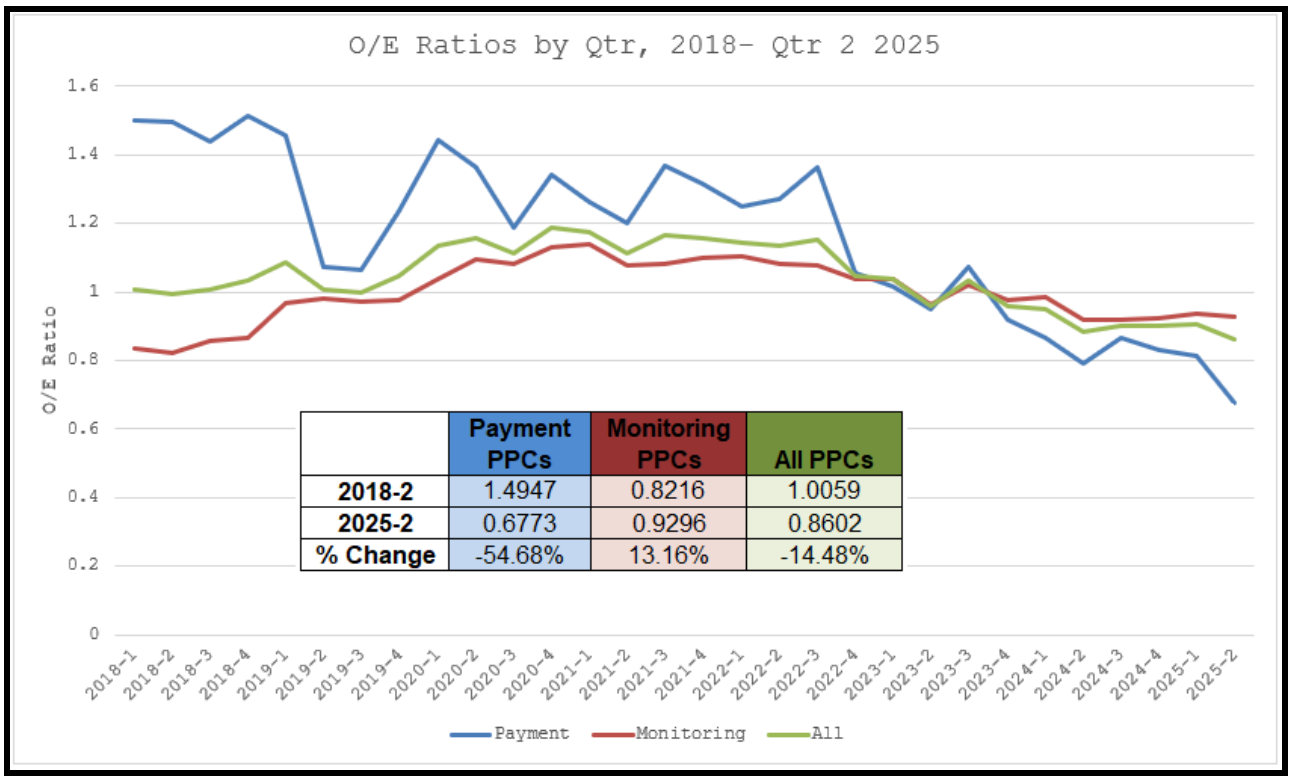
The RY 2021 MHAC policy redesign recommended monitoring the PPCs not selected for the MHAC Payment program. Each year the staff reviews PPCs results with stakeholders and determines whether any of the PPCs should be moved back into the payment program.

To determine whether any monitoring PPCs should be moved back into the payment program, staff and stakeholders have used the criteria listed below.

- PPC Data Analysis/Statistics
  - Greater than 50% increase in O/E ratio since 2018
  - Rate per 1,000 generally 0.5 or above
  - Volume of observed events 100 or above (over two years)
  - Significant variation across hospitals O/E ratios less than 0.85 and greater than 1.15
  - At least half of the hospitals are eligible for the PPC
- Additional Considerations
  - PSI overlap
  - Clinical significance
  - Potential influence of coding practices/changes
  - Opportunity for improvement/actionability
  - All-payer

Figure D.1. provides the quarterly PPC O/E ratios from CY 2018 through 2025 Q2 for monitored PPCs, payment PPCs and overall.

Figure D.1. All PPCs Observed to Expected Ratios by Quarter, CY 2018 to CY 2025 YTD



	Payment PPCs	Monitoring PPCs	All PPCs
2018-2	1.4947	0.8216	1.0059
2025-2	0.6773	0.9296	0.8602
% Change	-54.68%	13.16%	-14.48%

Appendix E: By Hospital MHAC Modeling

RY 2026 Estimated Scores			PPCs Only			PPCs and PSIs		
Hospital ID	Hospital Name	CY 24 Estimated Inpatient Revenue	MHAC Scores	Percent Adjustment	$ Adjustment	MHAC Scores	Percent Adjustment	$ Adjustment
210001	Meritus	$251,995,786	1.00	2.00%	$5,039,916	0.99	1.91%	$4,808,679
210002	UMMS- UMMC	$1,473,072,120	0.63	-0.42%	-$6,218,162	0.62	-0.41%	-$6,076,374
210003	UMMS- Capital Region	$309,492,831	0.36	-1.11%	-$3,446,840	0.30	-1.24%	-$3,845,051
210004	Trinity - Holy Cross	$413,940,590	0.53	-0.68%	-$2,835,054	0.48	-0.77%	-$3,184,252
210005	Frederick	$254,562,530	0.64	-0.41%	-$1,038,390	0.57	-0.55%	-$1,409,749
210008	Mercy	$220,664,524	0.60	-0.51%	-$1,131,723	0.64	-0.37%	-$827,466
210009	JHH- Johns Hopkins	$1,818,903,395	0.34	-1.14%	-$20,810,465	0.34	-1.12%	-$20,434,519
210011	St. Agnes	$254,764,484	0.82	0.20%	$517,386	0.81	0.27%	$698,318
210012	Lifebridge- Sinai	$519,012,883	1.00	2.00%	$10,380,258	0.96	1.60%	$8,316,472
210015	MedStar- Franklin Square	$371,862,302	1.00	2.00%	$7,437,246	0.94	1.42%	$5,276,126
210016	Adventist- White Oak	$242,890,872	0.96	1.58%	$3,833,611	0.92	1.24%	$3,006,037
210017	Garrett	$28,988,189	0.91	1.13%	$328,258	0.89	1.01%	$292,038
210018	MedStar- Montgomery	$96,052,028	0.55	-0.64%	-$611,637	0.56	-0.57%	-$547,896
210019	Tidal- Peninsula	$350,375,491	0.78	-0.06%	-$193,193	0.80	0.17%	$579,935
210022	JHH- Suburban	$249,484,035	0.70	-0.26%	-$651,946	0.68	-0.27%	-$664,905
210023	Luminis- Anne Arundel	$367,930,454	0.77	-0.08%	-$300,105	0.81	0.24%	$873,462
210024	MedStar- Union Mem	$267,917,283	0.90	1.04%	$2,781,897	0.91	1.17%	$3,123,185
210027	Western Maryland	$183,379,829	1.00	2.00%	$3,667,597	0.96	1.66%	$3,050,593
210028	MedStar- St. Mary's	$100,479,485	0.91	1.07%	$1,076,850	0.87	0.76%	$766,395
210029	JHH- Bayview	$471,786,218	0.67	-0.33%	-$1,571,608	0.62	-0.42%	-$1,989,337
210032	ChristianaCare, Union	$84,802,922	1.00	2.00%	$1,696,058	1.00	2.00%	$1,696,058
210033	Lifebridge- Carroll	$162,844,959	0.88	0.82%	$1,343,433	0.84	0.53%	$863,523
210034	MedStar- Harbor	$128,234,465	1.00	2.00%	$2,564,689	1.00	2.00%	$2,564,689
210035	UMMS- Charles	$97,586,229	0.81	0.09%	$84,700	0.77	-0.02%	-$24,239
210037	UMMS- Easton	$123,617,439	0.81	0.05%	$61,043	0.77	-0.04%	-$50,990
210038	UMMS- Midtown	$140,418,656	0.81	0.05%	$67,920	0.83	0.40%	$564,211
210039	Calvert	$80,925,064	0.68	-0.30%	-$245,568	0.70	-0.22%	-$179,285
210040	Lifebridge- Northwest	$160,861,387	1.00	2.00%	$3,217,228	0.93	1.39%	$2,233,160
210043	UMMS- BWMC	$325,584,009	0.78	-0.07%	-$220,921	0.81	0.28%	$909,865
210044	GBMC	$263,774,655	0.73	-0.17%	-$455,836	0.62	-0.41%	-$1,088,062
210048	JHH- Howard County	$220,287,562	0.46	-0.86%	-$1,887,682	0.44	-0.88%	-$1,933,999
210049	UM Upper Chesapeake	$236,862,562	1.00	2.00%	$4,737,251	0.87	0.79%	$1,875,468
210051	Luminis- Doctors	$187,232,106	0.85	0.47%	$887,645	0.87	0.85%	$1,584,150
210056	MedStar- Good Sam	$186,628,391	1.00	2.00%	$3,732,568	0.98	1.79%	$3,332,974
210057	Adventist- Shady Grove	$333,973,100	1.00	2.00%	$6,679,462	0.94	1.48%	$4,942,847
210058	UMMS- UMROI	$80,968,088	1.00	2.00%	$1,619,362	1.00	2.00%	$1,619,362
210060	Adventist-Ft. Washington	$37,782,970	0.64	-0.41%	-$153,838	0.67	-0.28%	-$104,320
210061	Atlantic General	$47,434,007	0.41	-0.98%	-$466,190	0.46	-0.83%	-$392,687
210062	MedStar- Southern MD	$210,921,411	0.95	1.49%	$3,132,806	0.88	0.91%	$1,913,613
210063	UMMS- St. Joe	$292,568,045	1.00	2.00%	$5,851,361	1.00	2.00%	$5,851,361
210064	Lifebridge- Levindale	$68,147,842	1.00	2.00%	$1,362,957	1.00	2.00%	$1,362,957
210065	Holy Cross Germantown	$94,710,748	0.83	0.26%	$245,017	0.82	0.35%	$328,408