maryland
health services
cost review commission

To: Hospital CFOs
Cc: Hospital Quality Liaisons, Case-Mix Liaisons
From: HSCRC Quality Team
Date: May 8, 2024 (revised June 12, 2024; revisions in red below)
Re: Final Rate Year 2026 Maryland Hospital Acquired Conditions (MHAC) Policy Recommendations

On February 14, 2024, the Commission approved the staff recommendations for the Rate Year (RY) 2026 MHAC program. This memo summarizes the continuing and new/revised recommendations for the RY 2026 program.

The MHAC policy was redesigned in RY 2021 to modernize the program for the new Total Cost of Care Model. The RY 2026 final recommendations, in general, maintain the measures and methodology that were developed and approved for RYs 2021-2025.[1]

These are the final recommendations for the RY 2026 MHAC program:

1. Continue to use 3M Potentially Preventable Complications (PPCs) to assess hospital acquired complications.
    a. Maintain a focused list of PPCs in the payment program that are clinically recommended and that generally have higher statewide rates and variation across hospitals.
    b. Assess monitoring PPCs based on clinical recommendations, statistical characteristics, and recent trends to prioritize those for future consideration for updating the measures in the payment program.
    c. Engage hospitals on specific PPC increases as indicated/appropriate to understand trends and discuss potential quality concerns.
2. Use more than one year of performance data for small hospitals (i.e., less than 21,500 at-risk discharges and/or 22 expected PPCs). The performance period for small hospitals will be CYs

[1] See the RY 2021 policy for detailed discussion of the MHAC redesign, rationale for decisions, and approved recommendations.

2023 and 2024.

3. Continue to assess hospital performance on attainment only, with adjustment to performance standards for increased stability.
4. Continue to weight the PPCs in the payment program by 3M cost weights as a proxy for patient harm.
5. Maintain a prospective revenue adjustment scale with a maximum penalty at 2 percent and maximum reward at 2 percent and continuous linear scaling with a hold harmless zone between 60 and 70 percent.
6. Future Considerations: 1. Assess options for streamlining (or simplifying) the quality programs overall, or for the hospital acquired complication measures that are currently included in both the QBR Safety Domain and the MHAC program. 2. Assess digitally specified quality measures such as electronic Clinical Quality Measures (eCQMs) for future inclusion in quality programs.

Potentially Preventable Complications in Payment

During the RY 2021 MHAC redesign, the number of complication measures was reduced from 45+ to 14 PPCs that were determined to be clinically significant, actionable, for which there were higher statewide rates and hospital variation. The PPCs not selected for payment are considered “monitoring PPCs” and are evaluated annually to determine whether they should be put back into the payment program. Based on the analysis of data from CYs 2018-2022, staff vetted and stakeholders agreed to include PPC 47 Encephalopathy as a payment PPC in RY 2025. While other PPCs have also shown increases, staff and stakeholders have not recommended including them based on feedback regarding coding concerns, clinical actionability, and inclusion of similar complication in other measures (e.g., NHSN or AHRQ PSI). Including an additional PPC in RY 2025 also required that the small hospital criteria be updated as discussed below. The RY 2026 15 payment PPCs are listed below.

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

PPC Number	PPC Title
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
67	Pneumonia Combo (with and without Aspiration)

PPC Clinical Concerns

Over this past calendar year, hospitals have raised concerns about the small hospital PPC inclusion criteria with regard to the sepsis PPC as well as specific clinical concerns regarding some other PPCs on which they have provided input to 3M for consideration in the annual PPC Grouper updating process.

PPC 35- Septicemia & Severe Infections

One hospital expressed their concerns that they had in previous years been eligible for PPC 35 but had this past year seen their expected rate drop below 2, rendering them ineligible for inclusion of this PPC in their MHAC score. They noted further that the PPC was serious and highly amenable to interventions which they had identified and implemented; however, with the minimum expected criteria of 2, their performance is not counted or recognized in their score. Staff has vetted with the PMWG a proposal that

the minimum criteria be waived for PPC 35 Sepsis in light of its seriousness and preventability. While staff is open to stakeholder input on this issue for future years, our current opinion is that PPCs with small numbers should be removed from the payment program for stability of measurement and that hospitals still benefit from preventing these complications through savings under their global budget.

PPC 42- Accidental Puncture or Laceration

Two clinical scenarios of concern were raised for this PPC during RY 2025. For patients with cerebral and spinal dural tissue tears during a surgical procedure when adhesions are present, hospitals provided input that they believed cases with a code indicating adhesions are present should be excluded for this PPC. 3M has agreed to remove diagnosis code G9741 - Accidental puncture or laceration of dura during a procedure, from the assignment criteria for PPC 42 for Grouper version 41 released October 2023. Similarly, hospitals provided input that this PPC should be excluded for patients with abdominal adhesions that have abdominal surgical procedures. 3M is now considering this input and will make a determination to be addressed in Grouper version 42 scheduled for release in October 2024. Staff proposes to address the changes and remove the PPC 42 cases of concern retrospectively for RY~~s~~ 2026 by ~~re~~running the PPC data using Grouper version 41 ~~for RY 2025 for PPC 42~~, and version 42 of the PPC Grouper for RY 2026 ~~if needed~~. Hospitals will then be given the better of the score for PPC 42 to reflect a clinical issue recognized by 3M during the performance period while not penalizing hospitals retrospectively.

PPC 07- Pulmonary Embolism

For this PPC, hospitals raised concerns that patients with codes indicating a deep vein thrombosis is present should be excluded from assignment of this PPC. 3M has agreed and has updated the exclusion code list for PPC 7 in Grouper version 41. Staff again proposes to address the changes retrospectively and remove the cases of concern from PPC 7 assignment for RY 2025 by rerunning the PPC data using Grouper version 41 and using the better of the scores for each hospital that qualifies for the PPC.

PPC Detailed Information and Feedback Process

Hospitals can access detailed information on the PPC specifications (including assignment logic, PPC-specific and global exclusions and inclusions, etc.) on the 3M Web Portal at the link below. The process for accessing the 3M website has changed in the last few years. For your first use of this website after

the change, you will need to go to the registration page and use the old username of "MDHosp" as your authorization code, and then complete the fields with your personal information to establish an account.

3M™ Web Portal - Login

3M has established a PPC feedback submission procedure on their 3M HIS support site that hospitals can use to provide any clinical feedback and request consideration for PPC changes. Establish an account, and after logging in, click on your login id in the upper right corner and click on “Enhancement Request”.

https://support.3mhis.com/

Small Hospital Criteria

The MHAC program handles small hospitals in two ways: 1. Hospitals are excluded because they do not meet the minimum criteria of 2 expected and 20 at-risk for any PPC in the two year “base” period; and 2. Hospital performance is assessed using an additional year of data for the performance period (i.e., two years data), if across all payment PPCs the hospital has less than a certain number of cases at-risk or expected. For RY 2026, with the 15 payment PPCs, two years of data will be used if a hospital has less than 21,500 at-risk or 22 expected PPCs.

Scaling Methodology and Revenue At-Risk

The RY 2026 scale uses a full distribution of potential scores (scale of 0-100%), with a hold harmless zone between 60 and 70 percent. Both the minimum and maximum revenue adjustment remain at 2 percent. The preset scale is included in Appendix I of this memorandum. Additional information on the MHAC methodology can be found in Appendix II and in the RY 2026 policy.

Payment Program Base and Performance Periods and Standards

The base period for RY 2026 for determining performance standards is July 2021-June 2023. The performance period is CY 2024, but small hospitals will have a two year performance period (CY 2023 and CY 2024). Since the RY2021 MHAC Redesign, the performance standards have been the O/E ratio at the 90th (threshold = start to earn points) and 10th (benchmark = full points) percentiles. However, for

RY 2026, staff has modified the methodology slightly to make the performance standards less sensitive to potential outliers by averaging the O/E ratios of hospitals performing in the top and bottom 20th percentile (as opposed to taking a single value at a given percentile). This methodology is more in line with the CMS VBP program approach to setting the benchmark. Performance standards, including the normative values for expected PPCs and the thresholds and benchmarks, were released in the CRISP March MHAC Summary report. See below for additional information on reporting.

Grouper Version and Software Revision

The APR-DRG and PPC Grouper Version 41 and its quarterly updates will be used for RY 2026. However, as mentioned above, the data for PPC 42 will be rerun at the end of the year under Version 42 of the PPC Grouper to address clinical issues that 3M has agreed to implement. While this is not ideal, HSCRC staff do not have the final clinical logic or expertise to implement the change outside of the Grouper; however, hospitals may want to approximate the logic to avoid clinical review of these cases.

MHAC Program Reporting through CRISP Portal

All monthly and quarterly MHAC summary reports and case-level data files will continue to be made available to hospitals through the CRISP portal. The monthly CRISP summary MHAC reports were updated in the March 2024 release to provide RY 2026 program details and resources (i.e., for the payment PPCs, 3M cost weights, performance standards, revenue adjustment scale, hospital PPC exclusions, normative values, and a calculation sheet). Most hospital contacts have access to the summary report, and a limited number of hospital contacts have access to the case-level detail that contains PHI. The “by hospital by PPC by quarter” tab in the CRISP reports is updated quarterly for all payment and non-payment PPCs. HSCRC will continue to monitor the non-payment program PPCs and use this data to track overall PPC performance as should hospitals. For access to the CRS portal, contact support@crisphealth.org.

If you have any questions, please contact the Quality Team at hscrc.quality@maryland.gov

Appendix I: RY 2026 MHAC Revenue Adjustment Scale

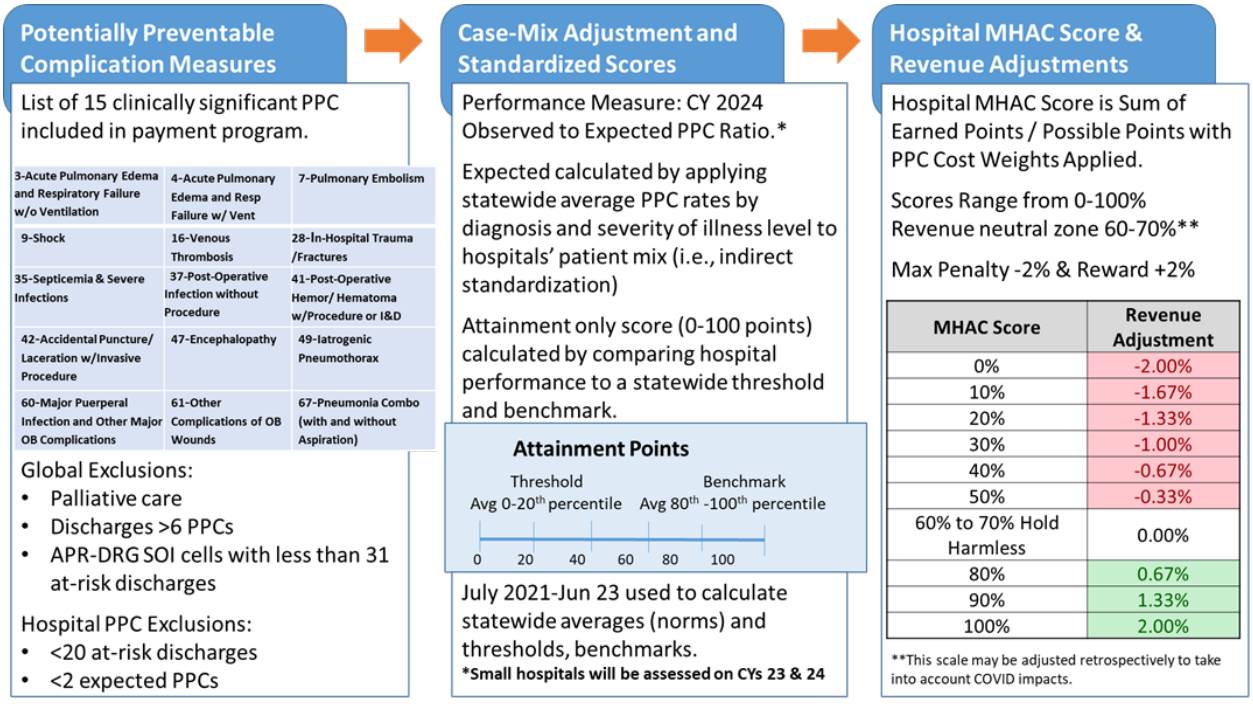
Below is a concise version of the RY 2026 MHAC scale, which ranges from 0 to 100 percent and includes a hold harmless zone between 60 and 70 percent.

Abbreviated Version	
Final MHAC Score	**% Revenue Adjustment**
0%	**-2.00%**
5%	-1.83%
10%	-1.67%
15%	-1.50%
20%	-1.33%
25%	-1.17%
30%	-1.00%
35%	-0.83%
40%	-0.67%
45%	-0.50%
50%	-0.33%
55%	-0.17%
60%	0.00%
65%	0.00%
70%	0.00%
75%	0.33%
80%	0.67%
85%	1.00%
90%	1.33%
95%	1.67%
100%	**2.00%**
Penalty Cut-point	**60%**
Reward Cut-point	**70%**

Appendix II: RY 2026 MHAC Program Methodology

Figure 1 below provides a summary overview of the approved RY 2026 MHAC methodology.

Figure 1. Overview of RY 2026 Approved MHAC Methodology



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 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 2 for an individual diagnosis category.

Figure 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.

PPC Exclusions

Consistent with prior MHAC policies, the number of at-risk discharges is determined prior to the calculation of the normative values (hospitals with <20 at-risk discharges are excluded for a particular PPC) and the normative values are then re-calculated after removing PPCs with <2 complication expected. The following exclusions will also be applied:

For each hospital, discharges will be removed if:

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

For each hospital, PPCs will be removed if during July 2021 to June 2023:

- The number of cases at-risk is less than 20; and
- The expected number of PPCs is less than 2.

The PPCs for which a hospital will be assessed are determined using the July 2020 to June 2022 data and not reassessed during the performance period. This is done so that scores can be reliably calculated during the performance period from a pre-determined set of PPCs. The MHAC summary workbooks provide the excluded PPCs for each hospital.

Combination PPCs

Based on clinical input and 3M recommendation, starting in RY 2021 two pneumonia (PPC 5 Pneumonia & Other Lung Infections & PPC 6 Aspiration Pneumonia) PPCs were combined into single pneumonia PPC and the 3M cost weight is a simple average of the two PPC cost weights.

Hospital Exclusions

Acute care hospitals that do not have sufficient volume to have at least 20 at-risk and 2 expected for any payment program PPC are excluded from the MHAC policy.

Benchmarks and Thresholds

For each PPC, a threshold and benchmark value are calculated using the determined base period data. In previous rate years when improvement was also assessed, the threshold was set at the statewide median of 1 and the benchmark was the O/E ratio for the top performing hospitals that accounted for 25% of discharges. In RY 2021 under an attainment only methodology, staff adapted the MHAC points system to allow for greater performance differentiation by establishing the threshold and benchmark values of hospitals with observed to expected ratios at the top 90th and bottom 10th percentiles. For RY 2026, staff adjusted the threshold to the value of the observed to expected ratio at the average of the bottom 20th percentile of hospital performance, the benchmark to the value of the observed to expected ratio at the average of the top 80th percentile of hospital performance, and assigning 0 to 100 points for each PPC between these two percentile values.

Attainment Points (possible points 0-100)

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 100 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 = [99 * ((Hospital's performance period score - Threshold)/ (Benchmark – Threshold))] + 0.5

Calculation of Hospital Overall MHAC Score

To calculate the final score for each hospital, the attainment points earned by the hospital and the potential points (i.e., 100) for each PPC are multiplied by the 3M cost weights. Hospital scores across PPCs are calculated by summing the total weighted points earned by a hospital, divided by the total

possible weighted points (100 per PPC * 3M cost weight). Figure 5 provides a hypothetical example of the points based scoring approach with the 3M cost weights.

Small Hospital Methodology

Hospital-specific PPC inclusion requirements were updated for the RY 2025 policy, i.e., all hospitals are required to have at least 20 at-risk discharges and 2 expected PPCs in order for a particular PPC to be included in the payment program. Because of the volatility in performance scores for smaller hospitals, the Commission also approved the following policy updates in RY 2025:

> "Establish small hospital criteria for assessing performance under the MHAC policy based on the number of at-risk discharges and expected PPCs (i.e., small hospitals are those with less than 21,500 at-risk discharges and/or 22 expected PPCs across all payment program PPCs) as opposed to the number of PPC measure types, and for hospitals that meet small hospital criteria, increase reliability of score by using two years of performance data to assess hospital performance (i.e., for RY 2025 use CY 2022 and 2023). "

RY 2026 MHAC PPC Cost Weights and Performance Standards

PPC Number	PPC Description	v41 Cost Weight
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	0.3086
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	1.1585
7	Pulmonary Embolism	1.2437
9	Shock	1.2107
16	Venous Thrombosis	1.4963
28	In-Hospital Trauma and Fractures	0.4538
35	Septicemia & Severe Infections	1.2943

PPC Number	PPC Description	v41 Cost Weight
37	Post-Operative Infection & Deep Wound Disruption without Procedure	1.6222
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D	1.0429
42	Accidental Puncture/Laceration During Invasive Procedure	0.4972
47	Encephalopathy	0.8396
49	Iatrogenic Pneumothorax	0.4424
60	Major Puerperal Infection and Other Major Obstetric Complications	0.7592
61	Other Complications of Obstetrical Surgical & Perineal Wounds	0.1525
67	Pneumonia Combo (with and without Aspiration)	1.1741