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CC: Case Mix Liaisons, Hospital Quality Contacts  
From: HSCRC Quality Team  
Date: May 18, 2021  
Re: Readmissions Reduction Incentive Program (RRIP) Policy for Rate Year (RY) 2023

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In January 2021, the Commission approved the staff recommendations for the Rate Year (RY) 2023 Readmission Reduction Incentive Program (RRIP). This memo summarizes the changes for the RY 2023 program.

### Approved Recommendations

The RRIP policy was redesigned in Rate Year (RY) 2022 to modernize the program for the Total Cost of Care Model. This RY 2023 final recommendation, in general, maintains the measure updates and methodology determinations that were developed and approved for RY 2022.<sup>1</sup>

These are the final recommendations for the RY 2023 Readmission Reduction Incentive Program (RRIP) policy:

1. Maintain the 30-day, all-cause readmission measure.
  - a. Remove Pediatric Oncology cases, in accordance with the intention of the oncology readmission measure.
2. Improvement Target - Maintain the RY 2022 approved statewide 5-year improvement target of -7.5 percent from 2018 base period.
3. Attainment Target - Maintain the attainment target whereby hospitals at or better than the 65th percentile statewide performance receive scaled rewards for maintaining low readmission rates.
4. For improvement and attainment, increase the maximum reward hospitals can receive to 2 percent of inpatient revenue and maintain the maximum penalty at 2 percent of inpatient revenue.
5. Provide additional payment incentive (up to 0.50 percent of inpatient revenue) for reductions in within-hospital readmission disparities. Scale rewards beginning at 0.25 percent of IP revenue for hospitals on track for 50 percent reduction in disparity gap measure over 8 years ( $\geq 15.91$  percent reduction in disparity gap measure 2018 to 2021), capped at 0.50 percent of IP revenue for hospitals on pace for 75 percent or larger reduction in disparity gap measure over 8 years ( $\geq 29.29$  percent reduction in disparity gap measure 2018 to 2021).

<sup>1</sup> See the [RY 2022 policy](#) for detailed discussion of the RRIP redesign, rationale for decisions, and approved recommendations

6. Continue development of an all-payer Excess Days in Acute Care measure in order to account for readmission, emergency department, and observation revisits post-discharge.
7. Adjust the RRIP pay-for-performance program methodology as needed due to COVID-19 Public Health Emergency and report to Commissioners as follows:
  - a. For RY 2022 (CY 2020 performance period)
    - i. Exclude COVID-19 positive cases from the program.
    - ii. Exclude the data for January to June 2020; evaluate whether to use the final six months of 2020 or whether to use a prior time period.
    - iii. Evaluate case-mix adjustment and performance standards concerns arising from use of a pre-COVID time period to determine normative values.
  - b. For RY 2023 (CY 2021 performance period) include COVID-19 positive cases but retrospectively assess any case-mix concerns, including the use of a pre-COVID time period to determine normative values.

The final, approved RRIP policy can be found on the HSCRC quality website:  
<https://hscrc.maryland.gov/Pages/init-readm-rip.aspx>.

### Readmission Measurement

For the RRIP methodology, performance is measured using the 30-day all-payer, all hospital readmission rate (both within and between hospitals) with case-mix adjustments for patient severity (based upon discharge APR-DRG and severity of illness (SOI)) and with exclusions granted for planned admissions.<sup>2</sup> Readmissions to specialty hospitals are also included.<sup>3</sup> See Appendix A for additional details on the HSCRC readmission measure specifications.

The one update to the readmission measure for RY 2023 is:

1. **Removal of pediatric oncology discharges from the readmission measure.** Last year, oncology patients were added to the readmission measure using logic adapted from an NQF-endorsed readmission measure for cancer hospitals. For RY 2023 pediatric oncology cases will be removed in accordance with the measure stewards' intentions.

### Measuring the Better of Attainment or Improvement for RY 2023

Using the updated readmission measure that was approved by the Commission, the improvement and attainment targets for CY 2021 performance are as follows:

- a. Set the all-payer case-mix adjusted readmission rate improvement target at 4.57 percent for CY 2018 to CY 2021, to align with five-year statewide improvement of 7.50 percent.
- b. Set the attainment performance standards for CY 2021 to align with rewards beginning at the 65th percentile as follows:

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<sup>2</sup> Most recent CMS Planned Admission logic is under Version 4. Current CCS Categories to calculate Planned Admissions are under Version 2019.1 for diagnosis codes and Version 2020.1 for procedure codes, more specifications on current CCS may be found here: <https://www.hcup-us.ahrq.gov/toolssoftware/ccs10/ccs10.jsp>.

<sup>3</sup> The five specialty hospitals at this time are: 213028 - Chesapeake Rehabilitation; 213029 - Adventist Rehabilitation; 213300 - Mt Washington Pediatric Hospital; 214000 - Sheppard Pratt; and 214003 - Brook Lane.

- i. Use CY 2018 hospital performance results with the above improvement factor added.
- ii. Calculate reward threshold to begin at the 65th percentile, which is 11.27%.
- iii. Maintain the threshold for full attainment reward at the 5th percentile, which is 9.14%

Based on the better of improvement or attainment, the Commission approved scaled penalties of up to 2% and scaled rewards of up to 2% of inpatient revenue. These rewards and penalties are not revenue neutral.<sup>4</sup> Appendix B contains the RY 2023 preset scales for rewards and penalties linked to improvement and attainment performance levels. The percent change will be rounded to two decimal places for the payment incentive.

### **Within-Hospital Disparity Measurement Using Patient Adversity Index (PAI)**

The RY 2023 policy continues a component developed for RY22 that incentivizes hospitals to reduce socioeconomic disparities in readmission rates. The incentives are calculated in three steps: 1) Measure patient socioeconomic exposure; 2) For each hospital, assess the change in readmission rates across socioeconomic exposure, or “gap” measure; 3) Reward hospitals achieving reductions in the gap measure. While the disparity gap was approved as part of the RY 2022 RRIP policy, the improvement reward on the disparity incentive was suspended due to the COVID-19 public health emergency.

We assess patient socioeconomic exposure with the Patient Adversity Index (PAI), a measure developed by the HSCRC. The PAI is calculated for each discharge record. It relies on the patient’s Medicaid status, race, and Area Deprivation Index score as reported on the claim. Each of the three items is given a weight that reflects the strength of its association with readmission. The weight for each item is multiplied against the value reported on the claim, and those products are summed together.

Once we have calculated the PAI score for each discharge, we calculate the gap measure for each hospital. The gap measure is a reflection of how readmission risk within a hospital changes for patients with varying levels of PAI. The measure relies on a statistical model (specifically, a random-slope Poisson regression model). The model estimates the change in readmission rate for a one-unit change in PAI at each hospital, after controlling for patient age, APR-DRG, gender, and the mean PAI value for the hospital.

After the gap measure is calculated, we incorporate this information into hospital reimbursement. Hospital rewards are based on progress toward a goal of reducing disparities by at least 50% over eight years. Hospitals with CY2018 to CY2021 improvement of 15.91% (projected improvement of 50% over eight years) are eligible for a reward of 0.25% of inpatient revenue. Hospitals with greater improvement receive a scaled reward that is capped at 0.5% of IP revenue for an improvement of 29.29% (projected improvement of 75% over eight years).

Additional information in the disparity gap metric can be found in the RRIP policy.

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<sup>4</sup>Across all quality programs, there is a hospital maximum penalty guardrail of 3.42% of total revenue for RY 2021. The RY 2023 maximum guardrail policy will be calculated in accordance with the following formula, per the “Final Maximum Revenue Guardrail for Maryland Hospital Quality Programs” during the November 2019 Commission Meeting - Percent of Medicare revenue at-risk for quality multiplied by the percent of Maryland revenue attributable to inpatient services.

## Grouper Versions

For RY 2023, the data for CY 2021 (performance period) will be run using version 38 of the APR grouper, and CY 2018 will also be rerun using version 38 to calculate the normative values and achieved improvement. A workbook with this updated base period (CY 2018) data has been posted to the CRS Portal.<sup>5</sup>

## RRIP Program Reporting

The HSCRC provides hospitals with monthly summary and case-level reports for monitoring readmissions throughout the performance period. The summary level reporting on the disparity gap will only be updated on a quarterly (preliminary and final) basis and is still under development, and thus initially the summary level reports for the RY 2023 program will only contain the improvement and attainment information. The HSCRC anticipates having the disparity gap reports available when the first quarter of preliminary 2021 data is posted in June 2021. However, in the meantime the case-level data will contain the variables that make up the PAI measure (i.e., medicaid status, race, ADI) so that hospitals can track readmissions for these populations.

Summary reports and case-level data for the RRIP program are sent to hospitals via the CRISP Reporting Services (CRS) Portal. Each hospital has a point-of-contact, the Chief Financial Officer or their designee, who is contacted by CRISP to approve requests for access. If you need access to quality reports, please send an email to CRISP Support ([support@crisphealth.org](mailto:support@crisphealth.org)) indicating level of access (summary reports or case-level data). In addition, an interactive Tableau report is available on the portal that allows users to dig further into their hospitals' readmission trends - by service line, by PAI component, and by other summary and detail-level data elements.

For RY 2023, the Portal provides a summary workbook that contains: a) the normative values; b) full base period CY 2018 readmission results under v38 (may vary over time; see Appendix B for details); c) CY 2018 to CY 2021 year-to-date improvement (by payer); and d) the readmission rate adjusted for out-of-state readmissions, which is used for attainment. The summary report will also contain a calculation sheet and the improvement and attainment revenue adjustment scales. A separate disparity gap summary report will also be posted, which contains a tab with the calculated disparity gap and improvement overtime, as well as tabs providing the readmission rate by the PAI components (e.g., for Medicaid and non-Medicaid).

If you have any questions, please e-mail [hscrc.quality@maryland.gov](mailto:hscrc.quality@maryland.gov).

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<sup>5</sup> The CGS software version will continue to update throughout the year; these updates typically do not impact the methodology. If you have questions on this policy, please see the Quarterly Data Forum.

## Appendix A: HSCRC RY 2023 Readmissions Measure Specifications

### 1) Performance Metric

The methodology for the Readmissions Reduction Incentive Program (RRIP) measures performance using the 30-day all-payer all hospital (both intra- and inter-hospital) readmission rate with adjustments for patient severity (based upon discharge all-patient refined diagnosis-related group severity of illness [APR-DRG SOI]) and planned admissions.<sup>6</sup> Unique patient identifiers from CRISP are used to be able to track patients across hospitals for readmissions.

The measure is similar to the readmission rate that is calculated by CMMI to track Maryland performance versus the nation, with some exceptions. The most notable exceptions are that the HSCRC measure includes psychiatric patients in acute care hospitals, and readmissions that occur at specialty hospitals. In comparing Maryland's Medicare readmission rate to the national readmission rate, the Centers for Medicare & Medicaid Services (CMS) will calculate an unadjusted readmission rate for Medicare beneficiaries. Since the Health Services Cost Review Commission (HSCRC) measure is for hospital-specific payment purposes, an additional adjustment is made to account for differences in case-mix. See below for details on the readmission calculation for the RRIP program.

### 2) Inclusions and Exclusions in Readmission Measurement

- Planned readmissions are excluded from the numerator based upon the CMS Planned Readmission Algorithm V. 4.0. The HSCRC has also added all vaginal and C-section deliveries and rehabilitation as planned using the APR-DRGs, rather than principal diagnosis.<sup>7</sup> Planned admissions are counted as eligible discharges in the denominator, because they could have an unplanned readmission.
- Discharges for newborn APR-DRG are removed.<sup>8</sup>
- Pediatric Oncology cases are removed prior to running readmission logic.<sup>9</sup>
- Rehabilitation cases as identified by APR-860 (which are coded under ICD-10 based on type of daily service) are marked as planned admissions and made ineligible for readmission after readmission logic is run.
- Admissions with ungroupable APR-DRGs (955, 956) are not eligible for a readmission, but can be a readmission for a previous admission.
- APR-DRG-SOI categories with less than two discharges statewide are removed.
- Hospitalizations within 30 days of a hospital discharge where a patient dies is counted as a readmission; however, the readmission is removed from the denominator because the case is not eligible for a subsequent readmission.
- Admissions that result in transfers, defined as cases where the discharge date of the admission is on the same or next day as the admission date of the subsequent admission, are removed from the denominator. Thus, only one admission is counted in the denominator, and that is the admission to the transfer hospital (unless otherwise ineligible, i.e., died). It is

<sup>6</sup> Planned admissions defined under [CMS Planned Admission Logic version 4 – updated March 2018]

<sup>7</sup> **Rehab DRGs:** 540, 541, 542, 560, and 860; **OB Deliveries and Associated DRGs:** 580, 581, 583, 588, 589, 591, 593, 602, 603, 607, 608, 609, 611, 612, 613, 614, 621, 622, 623, 625, 626, 630, 631, 633, 634, 636, 639, 640, and 863.

<sup>8</sup> **Newborn APR-DRGs:** 580, 581, 583, 588, 589, 591, 593, 602, 603, 607, 608, 609, 611, 612, 613, 614, 621, 622, 623, 625, 626, 630, 631, 633, 634, 636, 639, 640, and 863.

<sup>9</sup> **Oncology DRGs** (for which pediatric cases are removed): 41, 110, 136, 240, 281, 343, 382, 442, 461, 500, 511, 512, 530, 680, 681, 690, 691, 692, 693, 694, 695, and 696.



- the second discharge date from the admission to the transfer hospital that is used to calculate the 30-day readmission window.
- Beginning in RY 2019, HSCRC started including information about discharges from chronic beds within acute care hospitals.
  - In addition, the following data cleaning edits are applied:
    - Cases with null or missing CRISP unique patient identifiers (EIDs) are removed.
    - Duplicates are removed.
    - Negative interval days are removed.

HSCRC staff is revising case-mix data edits to prevent submission of duplicates and negative intervals, which are very rare. In addition, CRISP EID matching benchmarks are closely monitored. Currently, hospitals are required to make sure 99.5 percent of inpatient discharges have a CRISP EID.

### 3) Details on the Calculation of Case-Mix Adjusted Readmission Rate

#### Data Source:

To calculate readmission rates for RRIP, inpatient abstract/case-mix data with CRISP EIDs (so that patients can be tracked across hospitals) are used for the measurement period, with an additional 30 day runout. To calculate the case-mix adjusted readmission rate for CY 2018 base period and CY 2021 performance period, data from January 1 through December 31, plus 30 days in January of the next year are used. The base period data are used to calculate the normative values, which are used to determine a hospital's expected readmissions, as detailed below, as well as the estimated CY 2018 readmission rates.<sup>10</sup>

Please note that, beginning in RY 2020, the base year readmission rates will not be "locked in", and may change if there are CRISP EID or other data updates. The HSCRC does not anticipate changing the base period data, and does not anticipate that any EID updates will change the base period data significantly; however, the HSCRC has decided the most up-to-date data should be used to measure improvement. As with previous performance periods, the CRISP EIDs are updated throughout the year, and thus, month-to-month results may change based on changes in EIDs.

**SOFTWARE:** APR-DRG Version 38 (ICD-10) for CY 2018-CY 2021.

#### Calculation:

$$\text{Case-Mix Adjusted Readmission Rate} = \frac{\text{(Observed Readmissions)}}{\text{(Expected Readmissions)}} \quad * \text{ Statewide Base Year Readmission Rate}$$

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

<sup>10</sup> For RY 2023 RRIP, normative values will also be retrospectively analyzed to determine adequacy given the ongoing COVID-19 Public Health Emergency.

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

**Risk Adjustment Calculation:**

Calculate the Statewide Readmission Rate without Planned Readmissions.

- Statewide Readmission Rate = Total number of readmissions with exclusions removed / Total number of hospital discharges with exclusions removed.

For each hospital, enumerate the number of observed, unplanned readmissions.

For each hospital, calculate the number of expected unplanned readmissions at the APR-DRG SOI level (see Expected Values for description). For each hospital, cases are removed if the statewide discharge APR-DRG and SOI cells have less than two total cases in the base period data (CY 2018).

Calculate at the hospital level the ratio of observed (O) readmissions over expected (E) readmissions. A ratio of > 1 means that there were more observed readmissions than expected, based upon a hospital's case-mix. A ratio of < 1 means that there were fewer observed readmissions than expected based upon a hospital's case-mix.

Multiply the O/E ratio by the base year statewide rate, which is used to get the case-mix adjusted readmission rate by hospital. Multiplying the O/E ratio by the base year state rate converts it into a readmission rate that can be compared to unadjusted rates and case-mix adjusted rates over time.

**Expected Values:**

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

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

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

Let:

N = norm

P = Number of discharges with a readmission

D = Number of eligible discharges

i = An APR DRG category and a single SOI level

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

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

Once a set of norms has been calculated, the norms are applied to each hospital's DRG and SOI distribution. In the example below, the computation presents expected readmission rates for a single diagnosis category and its four severity levels. This computation could be expanded to include multiple diagnosis categories, by simply expanding the summations.

Consider the following example for a single diagnosis category.

**Expected Value Computation Example – Individual APR-DRG**

<b>A</b> Severity of Illness Level	<b>B</b> Eligible Discharges	<b>C</b> Discharges with Readmission	<b>D</b> Readmissions per Discharge (C/B)	<b>E</b> Normative Readmissions per Discharge	<b>F</b> Expected # of Readmissions (A*E)
1	200	10	.05	.07	14.0
2	150	15	.10	.10	15.0
3	100	10	.10	.15	15.0
4	50	10	.20	.25	12.5
<b>Total</b>	<b>500</b>	<b>45</b>	<b>.09</b>		<b>56.5</b>

For the diagnosis category, the number of discharges with a readmission is 45, which is the sum of discharges with readmissions (column C). The overall rate of readmissions per discharge, 0.09, is calculated by dividing the total number of eligible discharges with a readmission (sum of column C) by the total number of discharges at risk for readmission (sum of column B), i.e.,  $0.09 = 45/500$ . From the normative population, the proportion of discharges with readmissions for each severity level for that diagnosis category is displayed in column E. The expected number of readmissions for each severity level shown in column F is calculated by multiplying the number of eligible discharges (column B) by the normative readmissions per discharge rate (column E). The total number of readmissions expected for this diagnosis category is the sum of the expected numbers of readmissions for the 4 severity levels.

In this example, the expected number of readmissions for this diagnosis category is 56.5, compared to the actual number of discharges with readmissions of 45. Thus, the hospital had 11.5 fewer actual discharges with readmissions than were expected for this diagnosis category. This difference can also be expressed as a percentage or the O/E ratio.



## Appendix B: RY 2023 RRIP Revenue Adjustment Scales

The tables below summarize the revenue adjustment scales for the improvement and attainment scales. All readmission rates used for the RRIP calculations are case-mix adjusted; readmission rates used to calculate attainment adjustment are further adjusted for proportion of out-of-state readmissions.

### Improvement

Per Figure 1 below, hospitals with a 25.57 percent or larger decline (improvement) in CY 2021 readmission rates compared to CY 2018 base year rates will receive a positive adjustment of two percent of their inpatient revenue. Hospitals with a 16.43 percent or larger increase in their readmission rates will receive a negative adjustment of two percent of their inpatient revenue. Hospitals with performance between these two points will receive rewards and penalties based on their performance proportionate with the improvement target. For example, a hospital with a 15.07 percent decline (improvement) would receive a 1 percent positive adjustment.

### Attainment

A similar point scale is created to calculate rewards and penalties based on attainment rates, illustrated in Figure 2. Hospitals with a CY 2019 Readmission Rate of 9.14 percent or lower will receive a positive adjustment of two percent inpatient revenue. Hospitals with a rate of 13.39 percent or greater will receive a negative adjustment of two percent of their inpatient revenue.

**The final adjustment amounts are determined by the better of attainment or improvement (Column B in both Figures).**

Figure 1. Abbreviated RY 2023 Improvement Scale

Improvement Target: CY 2018 – CY 2021 Improvement Target = **-4.57%**

All Payer Readmission Rate Change CY18-CY21	RRIP % Inpatient Revenue Payment Adjustment
A	B
<b>Improving Readmission Rate</b>	2.0%
-25.57%	2.00%
-15.07%	1.00%
<b>Target</b>	<b>0.00%</b>
5.93%	-1.00%
16.43%	-2.0%
<b>Worsening Readmission Rate</b>	-2.0%

Figure 2. Abbreviated RY 2023 Attainment Scale

Attainment Threshold: CY 2021 = **11.27%**

All Payer Readmission Rate CY21		RRIP % Inpatient
<b>Lower Absolute Readmission</b>		2.0%
<b>Benchmark</b>	9.14%	2.00%
	10.20%	1.00%
<b>Threshold</b>	11.27%	0.00%
	12.33%	-1.00%
	13.39%	-2.00%
<b>Higher Absolute Readmission</b>		-2.0%