Staff Draft Recommendations for Updating the Quality-Based Reimbursement Program for Rate Year 2020

November 13, 2017

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This document contains the draft staff recommendations for updating the Quality Based Reimbursement Program for RY 2020. Comments may be submitted via hard copy mail to the Commission's address, or by email to dianne.feeney@maryland.gov, and are due by Tuesday, November 28, 2017.

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This draft RY 2020 Quality-Based Reimbursement (QBR) recommendation maintains the quality domains, scoring, and pre-set scale options from RY 2019, and proposes minimal changes to the program except those included in the first two recommendations below, both of which have been previously approved by or discussed with the Commission. The Staff seeks comments on this draft, and expects to present final recommendations at the December Commission meeting.

DRAFT RECOMMENDATIONS FOR RY 2020 QBR PROGRAM

1. Update the Maryland Mortality Measure to include palliative care cases (risk-adjusted for palliative care status) for calculating attainment and improvement scores.

2. Consider inclusion of ED Wait Times measures in the Person and Community Engagement domain.

3. Continue to weight the domains as follows for determining hospitals' overall performance scores: Person and Community Engagement - 50%, Safety - 35%, Clinical Care - 15%.

4. Maintain RY 2019 Pre-set Scaling Options, and continue to hold 2% of inpatient revenue at-risk for the QBR program.

LIST OF ABBREVIATIONS

ACA	Affordable Care Act
CDC	Centers for Disease Control & Prevention
CY	Calendar year
CAUTI	Catheter-associated urinary tract infection
CLABSI	Central line-associated blood stream infections
CMS	Centers for Medicare & Medicaid Services
DRG	Diagnosis-related group
ED	Emergency department
FFY	Federal fiscal year
HCAHPS	Hospital Consumer Assessment of Healthcare Providers and Systems
HSCRC	Health Services Cost Review Commission
MRSA	Methicillin-resistant staphylococcus aureus
NHSN	National Health Safety Network
PQI	Prevention quality indicators
QBR	Quality-Based Reimbursement
RY	Maryland HSCRC Rate Year
SIR	Standardized infection ratio
SSI	Surgical site infection
THA/TKA	Total hip and knee arthroplasty
VBP	Value-Based Purchasing

INTRODUCTION

The Maryland Health Services Cost Review Commission's (HSCRC's or Commission's) quality-based measurement and payment initiatives are important policy tools for providing strong incentives for hospitals to improve their quality performance over time. Under the current All-Payer Model Agreement ("Agreement") between Maryland and the Centers for Medicare & Medicaid Services (CMS), effective January 2014 through December 2018, there are overarching quality performance requirements for reductions in readmissions and hospital acquired conditions as well as ongoing program and performance requirements for all of HSCRC's quality and value based programs.

As long as Maryland makes incremental progress towards the Agreement goals, the State receives automatic exemptions from the CMS Hospital Acquired Conditions program (HAC) and Readmission Reduction program, while the exemption from the CMS Medicare Value-Based Purchasing (VBP) program is requested annually[1]. These exemptions from national quality programs are important because the State of Maryland's all-payer global budget system benefits from having autonomous, quality-based measurement and payment initiatives that set consistent quality incentives across all-payers.

This draft report provides recommendations for updates to Maryland's Quality-Based Reimbursement (QBR) program for Rate Year (RY) 2020, which encompasses the performance results from the final year (2018) of the Agreement. QBR is one of three core quality programs and it places 2% of revenue at risk by scoring a hospital's performance relative to national thresholds and benchmarks for its Safety domain and Person and Community Engagement domain, and it utilizes Maryland specific benchmarks for its Clinical Care domain.

Last year, after experiencing difficulties in having the scale for revenue adjustments based on Maryland performance, the Commission approved a QBR scaling system that is tied to national performance. The Commission also set out the need to revise the Clinical Care portion of the program due to increases in the use and coding of palliative care. Likewise, over the last year, the Commission has been discussing the need to improve Emergency Department throughput. This report discusses the results of implementing the national performance pre-scale in RY 2019, proposes changes to address concerns related to the Clinical Care mortality measure, and introduces Emergency Department pay-for-performance incentives.

Except for the changes noted above, staff is recommending that the Commission minimize changes to the QBR for RY 2020. Staff will also recommend minimizing revisions to other existing quality programs, so that it can focus on future policy development to establish quality strategies and performance goals under the Enhanced Total Cost of Care Model ("Enhanced Model"), which will be effective beginning in CY 2019. For example, staff will establish a

[1] Maryland has received exemptions from the VBP program based upon the reports submitted through FFY 2017, and is awaiting official written exemption notification for FFY 2018. Appendix I provides more QBR program detail, including the timeline for base and performance periods impacting RY 2020.

clinical subgroup to vet available complication measures while transitioning hospitals from wholesale use of Potentially Preventable Complications (PPCs) found in the Maryland Hospital Acquired Conditions (MHAC) program. The future policy changes will be used to make quality-based payment adjustments in RY 2021 and beyond.

BACKGROUND

The Affordable Care Act (ACA) established the hospital VBP program,[2] which requires CMS to reward hospitals with incentive payments for the quality of care provided to Medicare beneficiaries. The program assesses hospital performance on a set of measures in Clinical Care, Person and Community Engagement, Safety, and Efficiency domains. The incentive payments are funded by reducing the base operating diagnosis-related group (DRG) amounts that determine the Medicare payment for each hospital inpatient discharge.[3] The ACA set the reduction at 2 percent for federal fiscal year (FFY) 2017 and beyond.[4] CMS will calculate FFY 2019 hospital final scores based on measures in the four equally-weighted domains.

QBR Scoring Methodology

Maryland's Quality-Based Reimbursement (QBR) program, in place since July 2009, employs measures that are similar to those in the federal Medicare Value-Based Purchasing (VBP) program, under which all other states have operated since October 2012. Similar to the VBP program, the QBR program currently measures performance in Clinical Care, Safety, and Person and Community Engagement domains, which comprise 15%, 35%, and 50% of a hospital's total QBR score, respectively. For the Safety and Person and Community Engagement domains, which constitute the largest share of a hospital's overall QBR score (85%), performance standards are the same as those established in the national VBP program. (The Clinical Care Domain, in contrast, uses a Maryland specific mortality measure and benchmarks) In effect, Maryland's QBR program, despite not having a prescribed national goal, reflects Maryland's rankings relative to the nation by using national VBP benchmarks for the majority of the overall QBR score.

In addition to structuring two of the three domains of the QBR program to be similar to the federal VBP program, the Commission has over time placed increasing emphasis on performance relative to the nation through various benchmarking, domain weighting, and scaling decisions. For example, beginning in RY 2015, the QBR program began utilizing national benchmarks to assess performance for the Person and Community Engagement and Safety domains. Subsequently, the RY 2017 QBR policy increased the weighting of the Person and Community Engagement domain, which is measured by the national Hospital Consumer

[2] For more information on the VBP program, see https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/hospital-value-based-purchasing/index.html?redirect=/Hospital-Value-Based-Purchasing/
[3] 42 USC § 1395ww(o)(7).
[4] 42 USC § 1395ww(o)(7)(C).

Assessment of Healthcare Providers and Systems (HCAHPS) survey instrument to 50%[5]. The weighting was increased in order to raise incentives for HCAHPS improvement, as Maryland has consistently scored in the lowest decile nationally on these measures.

In the RY 2019 QBR recommendation, the Commission also approved moving to a preset scale based on national performance to ensure that QBR revenue adjustments are linked to Maryland hospital performance relative to the nation. Prior to RY 2019, Maryland hospitals were evaluated by national thresholds and benchmarks, but their scores were then scaled in accordance with Maryland performance, i.e. if the top performing hospital had an overall score of 57%, that was the high end of the scale by which all other Maryland hospitals were judged. This resulted in Maryland hospitals receiving financial rewards despite falling behind the nation in Person and Community Engagement and Safety domain performance. Consequently, the scale is now 0 to 80% regardless of the highest performing hospital's score, and the cutoff by which a hospital earns rewards is 45%. This reward cutoff was based on an analysis of FFY 2017 data that indicated that the average national score using Maryland domain weights (i.e. without the Efficiency domain) was 41%; thus, the 45% incentivizes performance better than the nation.

While the QBR program has many similarities to the federal Medicare VBP program, it does differ because Maryland's unique All Payer Model and autonomous position allows the State to be innovative and progressive. For example, the QBR domains are weighted differently than those of the VBP program, as illustrated in Figure 1 below, most notably because QBR does not include an Efficiency domain, and HSCRC has reweighted the Person and Community Engagement domain to encourage improvements. Maryland has implemented an efficiency measure in the Global Budget Revenue (GBR) system, based on a calculation of potentially avoidable utilization (PAU), but it has not made efficiency part of its core quality programs as a domain because the GBR fundamentally incentivizes improved efficiency.[6] Relative to the efficiency domain, as the State moves toward the proposed Total Cost of Care Model, the HSCRC staff plans to expand the PAU definition to incorporate other categories of unnecessary and avoidable utilization, and to incorporate other measures of efficiency based on per beneficiary measures.

Figure 1. RY 2020 Proposed Measures and Domain Weights for CMS VBP and Maryland QBR Programs[7]

	Maryland QBR Domains and Measures	CMS VBP Domain Weights and Measure Differences
Clinical Care	15% (1 measure: all cause inpatient Mortality)	25% (4 measures: condition-specific Mortality, THA/TKA Complication)

[5] The HCAHPS increase reduced the Clinical Care domain from 20% to 15%.

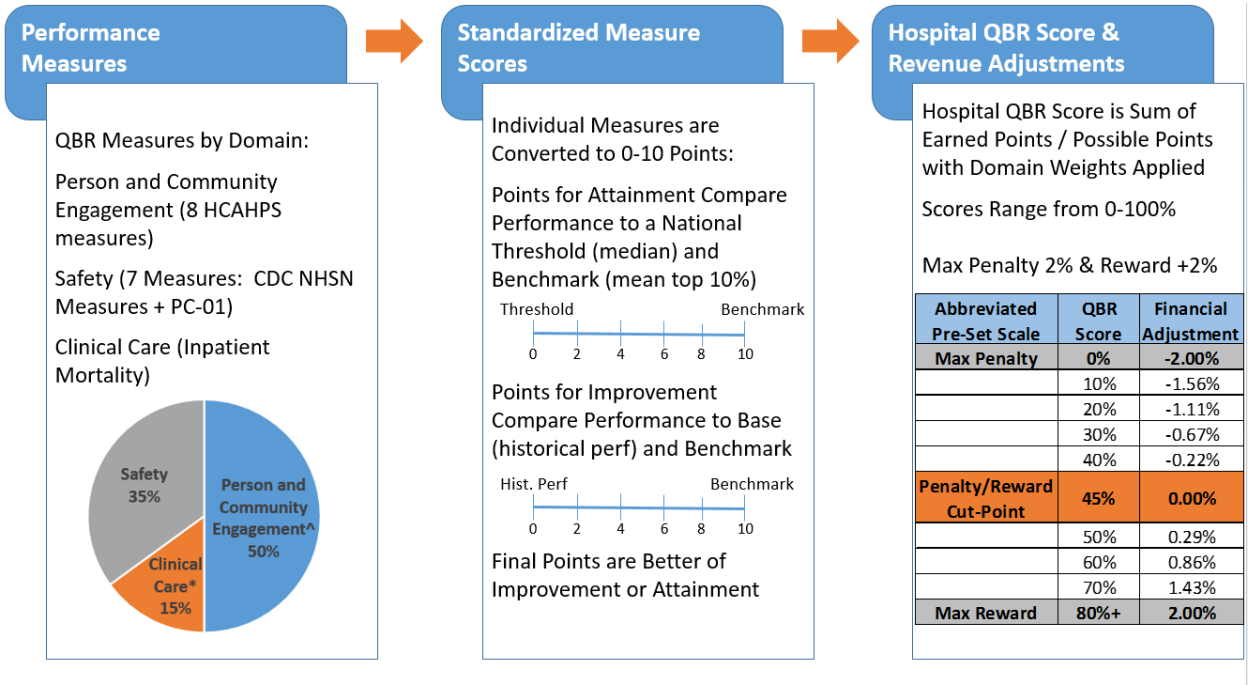
[6] PAU is defined as the costs of readmissions, and of admissions measured by the Agency for Healthcare Research and Quality Prevention Quality Indicators (PQIs).

[7] Details of CMS VBP measures may be found at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Measure-Methodology.html.

	Maryland QBR Domains and Measures	CMS VBP Domain Weights and Measure Differences
Person and Community Engagement	50% (8 HCAHPS measures) With or without 2 ED Wait Time measures (see below)	25% Same HCAHPS measures, no ED wait times measures
Safety	35% (7 measures: CDC NHSN, PC-01)	25% (8 measures: CDC NHSN, PC-01, PSI-90)
Efficiency	N/A	25% (Medicare Spending Per Beneficiary measure)

Calculating hospital QBR scores and associated inpatient revenue adjustments involves: 1) assessing performance on each measure in the domain; 2) standardizing measure scores relative to performance standards; 3) calculating the total points a hospital earned divided by the total possible points for each domain; 4) finalizing the total hospital QBR score (0-100%) by weighting the domains based on the overall percentage or importance the Commission has placed on each domain; and 5) converting the total hospital QBR scores into revenue adjustments using the preset scale that ranges from 0 to 80%, as aforementioned. The process for how scores are calculated in the QBR program is listed in Figure 2 below and is described in further detail in Appendix I:

Figure 2. Process for Calculating RY 2019 QBR Scores



Mortality and Palliative Care

One principal area where Maryland differs from the nation is its Clinical Care or Mortality domain. The federal VBP program evaluates three 30 day condition specific mortality measures, while Maryland utilizes an all-payer, all-cause in-hospital mortality measure. While staff monitors and reports Maryland performance on the condition specific Medicare mortality measures to CMS, the all-payer, all-cause inpatient mortality measure is emblematic of the Commission's commitment and belief that all-payer pay-for-performance incentives can more effectively incentivize hospital improvement.

In the RY 2019 recommendation, staff recommended that its Mortality measure should include palliative care patients in order to comprehensively assess survival rates in Maryland hospitals. As noted by Commissioners last year, the exclusion of palliative care discharges, rather than risk-adjusting for palliative care status and calculating performance standards to account for higher mortality rates among palliative care discharges, allowed hospitals to receive spurious credit for improvement as palliative care use increased over time. This is evidenced by the fact that improvement in survival rates more than doubled when palliative care was excluded.[8]

For this measure for RY 2019, HSCRC calculated scores for improvement that included palliative care patients, and attainment that excluded palliative care patients. The combined measure was put forward as an interim policy so that hospitals could gain familiarity with the mortality measure that includes palliative care patients with risk-adjustment.

ED Wait Time Measures

Over the past year due to longstanding concerns of staff and other stakeholders regarding high ED wait times, and more recently from emergency room physicians, the Maryland Institute of Emergency Medical Services Systems (MIEMSS), and the Maryland General Assembly, staff has researched and analyzed data associated with ED throughput. Specifically, staff has evaluated hospital red and yellow alert data, where hospitals self-identify potential ED back up or lack of availability of beds, and ambulances may be diverted to another hospital. Staff has also evaluated CMS reported data on ED wait times, based on National Quality Forum-endorsed definitions. Through engagement with an ED subgroup, consisting of ED physicians, hospital quality professionals, payers' representatives and consumer advocates, staff concluded that Maryland has an ED throughput problem.

While alert status data has improved in recent quarters (see quarter 2 of CY 2017 in Appendix II), CMS ED wait time data is a national indicator of hospital performance that can be used to set performance objectives relative to national performance. Admittedly, the CMS ED wait time data has a reporting lag of nine months, whereas alert data is updated in real-time and has

[8] The improvement in the survival rate of patients within a hospital 30 days after admissions from FY 2015 to CY 2016 when excluding Palliative care was 0.62%; when included, it was 0.29%.

showed improvement; however, historical analysis of CMS ED wait time data indicates that Maryland has consistently lagged behind the nation.

ASSESSMENT

The purpose of this section is to assess Maryland's performance on current and potential QBR measures and to make recommendations for the RY 2020 QBR program.

Staff analysis indicates that despite strategic decisions to weight more heavily the Person and Community Engagement domain and to implement a preset scale based on national performance, Maryland has experienced stalled or reduced quality improvements compared to the nation. Specifically, Maryland hospitals continue to lag behind the nation in Person and Community Engagement domain measures with little to no improvement statewide since CY 2014, and rebased national measures now indicate that Maryland hospitals have not experienced as significant an improvement in its Safety domain measures as previously believed.

Consequently, in its recommendation for RY 2020, staff is requesting Commissioners to continue utilizing the 0-80% full score distribution scale with a 45% cut off point. Staff acknowledges that retaining the 0-80% scale with a 45% cutoff point may result in higher statewide penalties; however, because a guiding principle of the current and Total Cost of Care Model is to have aggressive and progressive targets staff maintains that this cutoff point should be retained.

Staff has also identified that while the State is comparable to the nation for the three condition specific mortality measures, the exclusion of palliative care in the QBR Clinical Care domain has not comprehensively reflected survival rates in a hospital, as evidenced by the differential in survival improvement rates when palliative care is included versus excluded.

In the recommendation for RY 2020, staff is including palliative care both for improvement and attainment. Finally, due to concerns regarding ED throughput and ambulance diversions, staff has also performed analyses that indicate that approximately 80% of Maryland hospitals perform worse than the national median in ED wait times.[9] Staff acknowledge that there are difficulties with the behavioral health system in the State that are exacerbating throughput problems in EDs. Staff also believes that poor ED wait times are contributing to less favorable hospital HCAHPS scores based on staff analysis of statistical correlation.

Staff, therefore, is requesting the addition of new ED wait time measures, which will increase projected statewide penalties slightly because ED wait time measures indicate the State performs less favorably than national benchmarks.

[9] 85.7% of Maryland hospitals perform worse than the nation in ED-1b, which is median time from emergency department arrival to emergency department departure for admitted emergency department patients, and 78.6% perform worse than the nation in ED-2b, which is admit decision time to emergency department departure time for admitted patient. The median wait times are adjusted based upon ED volume.

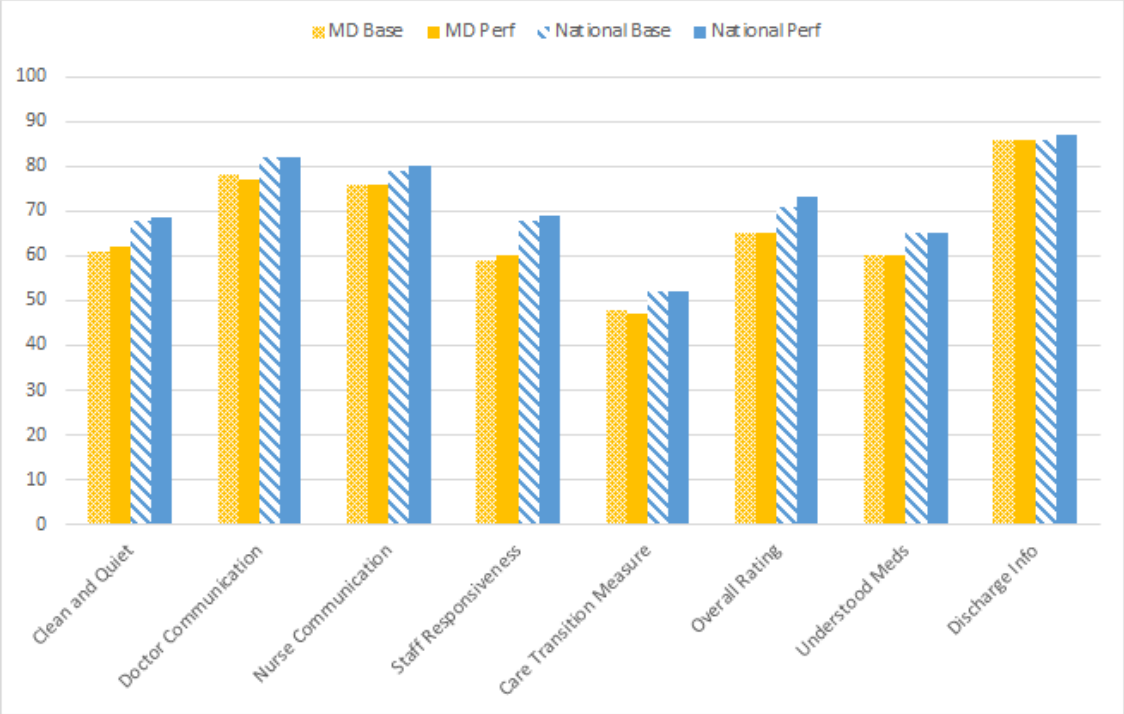
The following section summarizes Maryland hospital performance using base and performance scores for the RY 2018 time period and highlights the status of additional or proposed new measures for the QBR program.

Performance Results on Existing QBR Measures

To conduct this assessment, HSCRC staff evaluated RY 2020 QBR measures (mostly equivalent to the FFY 2020 VBP measures) with the RY 2018 performance period data.

The **Person and Community Engagement** domain measures performance using the HCAHPS patient survey. For this domain, Maryland continues to perform below the nation for both the base and performance periods, with the exception of the discharge information composite question, as illustrated in Figure 3 below.

Figure 3. HCAHPS Results: Maryland Compared to the Nation for RY 2018



***Time period CY 2014 (Base); 10/2015 to 9/2016 (Performance)**

While the statewide data suggests that Maryland continues to lag behind the nation on HCAHPS measures, there is variability in performance across individual hospitals, with some performing better than the national average on each measure. Furthermore, while the statewide improvements were modest, there were individual hospitals with significant improvements on each measure. The box plots in Appendix III illustrate HCAHPS performance and HCAHPS improvement by hospital for Maryland and for non-Maryland. This variation in performance is

important, because it illustrates that Maryland hospitals can improve or perform better than the nation.

Based on the analysis of the Person and Community Engagement domain, HSCRC staff recommends continuing to weight this domain at 50% of the QBR score.

The **Safety** domain consists of six National Health Safety Network (NHSN) measures and one measure of perinatal care. Staff does not recommend any changes to this domain in RY 2020. Maryland has steadily been improving on four of the six NHSN measures (See Figure 4; scores less than 1 indicate lower rates of infection relative to the national baseline). Maryland did not improve upon its scores for the Catheter-associated urinary tract infection (CAUTI) and Central line-associated blood stream infections (CLABSI) measures; however, Maryland was already well below the national Standardized Infection Ratio (SIR) of 1. A score lower than 1 means that Maryland out-performed the nation on these measures.

Figure 4. Maryland NHSN Safety Measures, RY 2018

Measure	Maryland Base Score (CY 2014)	Maryland Performance Score (Oct 2015 – Sep 2016)	Difference (Maryland Base to Performance)	National SIR CY 2013
CLABSI	0.492	**0.67**	**+0.178**	**1**
CAUTI	0.681	**0.70**	**+0.019**	**1**
SSI-Colon	1.088	**0.97**	**-0.118**	**1**
SSI-Hysterectomy	1.203	**0.75**	**-0.453**	**1**
MRSA	1.269	**1.18**	**-0.089**	**1**
C.Diff	1.18	**0.96**	**-0.220**	**1**

In calendar year (CY) 2015, CMS re-based the national standard for the six NHSN measures, moving the national SIRs of 1 to reflect nationwide improvement since their previous baseline in CY 2013. Under these new, re-based measures, Maryland has additional room to improve on three of the four measures, where Maryland's SIR is greater than the national standard of 1 (See Figure 5). For example, the re-based SIR for Methicillin resistant Staphylococcus aureus (MRSA) is 1.30 indicating that Maryland is performing 30% worse than the nation in 2015, while previously for the same time period it was reported that the MRSA SIR was 1.18, indicating that Maryland was 18% worse than the nation in 2013.

Figure 5. Re-based NHSN Safety Measures, October 2015-September 2016

Measure*	Maryland Performance Score (Oct 2015 – Sep 2016)**	National SIR (Rebased CY 15)

SSI-Colon	**1.068**	I
SSI-Hysterectomy	**0.943**	I
MRSA	**1.303**	I
C.Diff.	**1.133**	I

*Re-based measures for CLABSI and CAUTI were released with an error, and will be re-released by NHSN.
** This does not affect actual QBR scores for RY18 but does indicate that our standing relative to the more recent national standards is worse.

The QBR **Safety** domain does not include the Patient Safety Index Composite (PSI-90) measure that is included in VBP. Currently, the Agency for Healthcare Research and Quality (AHRQ) has yet to release a PSI-90 risk-adjustment methodology under ICD-10. The HSCRC plans to re-adopt the PSI-90 composite measure on an all-payer basis as soon as the risk-adjustment is available. Further, it should be noted that staff intends to have the subgroup of clinical experts vet the PSI measures as part of its review of complication measures to use under the TCOC model starting in RY 2021.

The **Clinical Care or Mortality** domain consists of one all-payer, all-cause inpatient mortality measure in the QBR program, while the federal Medicare VBP program measures only three 30-day condition-specific Mortality measures for Heart Attack, Heart Failure, and Pneumonia, as well as a Total Hip and Knee Arthroplasty (THA/TKA) Risk Standardized Complication measure. Staff still has not been able to obtain data from CMS for the THA/TKA Risk Standardized Complication rate, which measures complications, readmissions, or death during the index hospital admission or during a readmission following the specified procedures. Thus, staff will not include this measure in RY 2020.[10] Using the most current data available on Hospital Compare, Maryland Medicare performs on par with the nation for all three condition-specific measures of 30-day Mortality for the performance period of July 1, 2013 to June 30, 2016.

For RY 2018 time periods, staff has calculated improvement on the Maryland mortality measure with and without palliative care patients. Figure 6 shows that overall Maryland improved on all-payer, all-cause inpatient mortality; however, the improvement is 50% lower when palliative care patients are included. The Commission discussed this issue at length last year, and determined that the MD mortality measure should include palliative care patients in order to comprehensively assess improvement on mortality/survival in Maryland and to avoid hospitals receiving spurious credit for improvement due to increases in palliative care use or coding.

For this measure for RY 2019, HSCRC calculated scores for improvement that included palliative care patients, and attainment that excluded palliative care patients. The combined

[10] Staff notes that on an all-payer basis, patients receiving total hip or knee arthroplasty procedures are included in the MHAC program, Readmission Reduction Incentive Program, and the QBR mortality measure.

measure was put forward as an interim policy so that hospitals could gain familiarity with the mortality measure that includes palliative care patients with risk-adjustment. For RY 2020, staff recommends using the same measure of in-hospital mortality (survival) with palliative care patients included for calculating both attainment and improvement scores. The updated measure risk-adjusts for palliative care status and adjusts benchmarks to ensure that hospitals are not unduly penalized for the higher mortality among palliative care patients. The staff is including this change as a specific RY 2020 recommendation for Commission approval, as well as the recommendation to continue to weigh the Clinical Care domain at 15%.

Figure 6. Inpatient Mortality Improvement With and Without Palliative Care, RY 2018

RY 2018 Statewide Unadjusted Survival Rates	FY 2015	CY 2016	Percent Change
w/o Palliative Care	97.68%	98.28%	0.62%
w Palliative Care	95.05%	95.33%	0.29%

Performance Results on Newly Proposed QBR Measures

Emergency Department (ED) Wait Times

As part of the strategic plan to expand the performance measures, staff continues to examine other measures available in public reporting. In the RY 2019 recommendation, staff noted that Maryland has a sustained trend of performing poorly on the ED wait time measures compared to the nation. These measures have been publicly reported nationally on Hospital Compare since CY 2012 (for ED-1b and ED-2b), and since quarter 1 of 2014 (for OP-18b). Under the RY 2019 policy, HSCRC committed to "active" monitoring of the ED wait times measures with consideration as to the feasibility of adding these measures to the QBR program in future years.

Throughout 2017, staff has presented trends in emergency department throughput to the Commission, met with concerned stakeholders, held work group meetings, and modeled different incentives with contractor Mathematica Policy Research. Following this work, staff modeled two CMS Hospital Compare measures of ED Wait Times for potential inclusion in the RY 2020 QBR policy. Given the concern about this issue from stakeholders, the HSCRC has begun requesting analysis and corrective action plans from hospitals that are outliers in ED efficiency. Staff is recommending that the Commission also include the ED Wait Time measures in the QBR program as a longer-term incentive to improve and sustain quality in this area of hospital care.

The two measures modeled were ED-1b and ED-2b. A description of these measures is below in Figure 7:[11]

Figure 7. ED Wait Time Measures

Measure ID	Measure Title
ED-1b	Median time from emergency department arrival to emergency department departure for admitted emergency department patients
ED-2b	Admit decision time to emergency department departure time for admitted patient
OP-18*	Emergency department arrival time to departure time for discharged patients.

*OP-18 is not recommended to be a measure in the RY 2020 Program

The inclusion of ED wait times would focus on incentivizing hospitals to improve their ED wait times to be closer to the national medians for their respective volume categories. The volume categories, and performance by Maryland hospitals and nationwide, are provided in Figure 8 below.

[11] Found at: https://www.medicare.gov/HospitalCompare/data/Data-Updated.html#MG3 . Last accessed 10/27/2017.

Figure 8. ED Volume Categories[12]

Volume Category	# of Annual Visits	# of Maryland Hospitals in each volume category[13]	ED-1b			ED-2b		
			Nation	MD	% of MD hospitals above National Median	Nation	MD	% of MD hospitals above National Median
LOW	0-19,999 visits	3	214	291	33.3%	58	84	33.3%
MEDIUM	20,000-39,999 visits	9	258	428	88.9%	89	168	88.9%
HIGH	40,000-59,999 visits	16	296	365	93.8%	119	150	81.3%
VERY HIGH	60,000 + visits	17	334	433	88.2%	136	186	70.6%

As shown in the Figure above, 85.7% of Maryland hospitals perform worse than the nation in ED-1b, which is median time from emergency department arrival to emergency department departure for admitted emergency department patients, and 78.6% perform worse than the nation in ED-2b, which is admit decision time to emergency department departure time for admitted patients. Of note, some outlier hospitals have ED-1b median wait times in excess of ten hours (see Appendix IV).

Staff in conjunction with its contractor, Mathematica Policy Research, also examined the rank order correlation of ED measures with HCAHPS measures to determine the degree to which shorter ED wait times are correlated with better HCAHPS ratings. For all ED volume categories,

[12] Scores reflect most recent data, which is CY 2016 (CMS Hospital Compare measures typically have a 9-month delay).
[13] This Volume Category is based on ED visits in CY 2014 (the base period under the modeling).

Mathematica found that ED-1b and ED-2b measures were significantly correlated with HCAHPS measures, and shorter wait times are associated with better HCAHPS ratings.

Staff, therefore, recommends for the QBR program inclusion of ED-1b and 2b measures, which focus on ED visits that ultimately result in an inpatient admission. These measures would be included in the Person and Community Engagement domain. Staff acknowledges the importance of the ED wait time measure in the outpatient setting (OP-18b), as approximately 85% of emergency department visits do not result in an admission. However, staff is reluctant to include this measure at this time, given that the incentives of the Global Budget Revenue system are largely to enhance care management and reduce unnecessary and avoidable utilization, which may not align with reduced outpatient time.

The staff modeled rewarding hospitals for improving their performance relative to the national median (on a scale of 0-9 possible points). Hospitals at or below the national median (i.e., more efficient) in the performance period would receive a full 10 points on the measure. Additionally, recognizing the multi-faceted challenges to improving ED throughput and build in protections for hospitals making measurable improvement, hospitals that are below the national median but improve enough to receive at least 1 point on each of the measures modeled would receive the better of their QBR scores, with or without the ED wait times included in the Person and Community Engagement domain.

Including ED wait times (using RY 2018 data) would have the following impact on hospitals:

- 26 hospitals would have a lower QBR score (average -.017 lower);
- 1 hospital would have the same score (protected);
- 17 hospitals would have a higher score (average .028 higher).

To see the modeling results by-hospital, please refer to Appendix IV.

RY 2020 Domain Weighting

HSCRC staff is proposing to add two ED wait time measures to the Person and Community Engagement domain, but is proposing no changes to the domain weights for RY 2020, as displayed in Figure 9 below. By definition, this means that the ED wait times would effectively reduce the weight of individual HCAHPS measures in the Person and Community Engagement domain (from 10 points out of 100 to 10 points out of 120). Staff feels comfortable with this weight distribution given that the HCAHPS measures and the ED Wait Times performance are correlated with one another. Appendix I details the available published performance standards for each measure by domain.

Figure 9. Proposed Measure Domain Weights for the CMS Hospital VBP Program and Proposed Domain Weights for the QBR Program, RY 2020

	Clinical Care	Person and Community Engagement	Safety	Efficiency
QBR RY 2020	15% (1 measure - Mortality)	50% (8 measures - 8 HCAHPS)	35% (7 measures - Infection + PC-01)	PAU
QBR RY 2020 ***(w/ ED Wait Times)***	15% (1 measure - Mortality)	50% (10 measures - 8 HCAHPS + ***2 ED Wait Times)***	35% (7 measures - Infection + PC-01)	PAU
CMS FFY 2020 VBP	25% (4 measures - condition-specific Mortality; THA/TKA)	25% (8 measures - HCAHPS)	25% (7 measures - Infection, PC-01, PSI-90)	25%

RY 2020 Modeling

HSCRC staff modeled hospital QBR scores and revenue adjustments consistent with the preset scaling approach approved for RY 2019. With the exception of the HSCRC-derived measures, the thresholds and benchmarks for the QBR scoring methodology are based on the national average (threshold) and the top performance (benchmark) values for all measures. A score of 0 means that performance on all measures are below the national average or not improved, while a score of 1 means all measures are at or better than the top 5 percent best performing rates. Although hospital scores reflect performance relative to the national thresholds and benchmarks, the previous use of a statewide distribution to set the scaling for financial incentive payment adjustments created a disconnect between Maryland and national performance. The problem resulting from using Maryland scores for scaling was evident in the initial results for RY 2017, which provided significant reward payments despite the State's unfavorable collective performance. Thus, the Commission moved to a preset scale that reflects a full distribution and raised the reward potential to 2% of inpatient revenue for RY 2019. Given continued poor performance for Maryland relative to the nation, staff believes that the more aggressive scaling is warranted and proposes to continue this scale for RY 2020 QBR program.

This preset scale uses a modified full score distribution ranging from 0% to 80%, and sets the reward/penalty cut-point at 45%. The 45% cutoff was established by estimating the national average VBP scores for FFY2017 without the efficiency domain and with RY 2017 Maryland QBR-specific weights applied, which was 41%. Therefore, HSCRC staff recommended 45% as the cut-point for RY 2019 in order to establish an aggressive bar for receiving rewards. Currently FFY2018 VBP scores have not yet been released and thus we have not updated this analysis.

Staff modeled hospital scores for RY 2020 QBR using the aforementioned preset scale with a cutoff point of 45% and RY 2018 data (the most current data at the time of the modeling). Staff also incorporated two changes into its modelling between RY 2019 and RY 2020 that were discussed in detail earlier in the policy recommendation. They are as follows:

- The Maryland Mortality measure includes palliative care cases (risk-adjusted for palliative care status) for both improvement and attainment

- (Optional) The addition of ED-1b and ED-2b, two measures of ED Throughput efficiency.

The inclusion of ED wait times is listed as optional, because it was not previously approved by Commissioners, unlike the inclusion of palliative care for both improvement and attainment. As such, staff modelled QBR with and without ED measures to provide an immediate choice to Commissioners, but staff nevertheless still advocates for inclusion of the ED measures in the QBR program.

Hospital-specific scores, modeling RY 2018 data with RY 2020 measures, are included in Appendix V.[14]

The modeled hospital-specific and statewide revenue impacts (with or without ED modeling) are found in Appendix VI. With ED measures excluded, 2 hospitals receive rewards totaling $2.4M and the remaining hospitals receive penalties totaling $47.4M. With the ED measures included, 3 hospitals receive rewards totaling $2.2M, and the remaining hospitals receive penalties totaling $49.1M.

FUTURE TOTAL COST OF CARE MODEL DIRECTION

To date, Maryland hospitals have met all of the Agreement goals laid out in the current contract with CMS. For the Total Cost of Care Model, which will begin in January 2019, current contract terms do not define specific quality performance targets. The HSCRC, in consultation with staff and industry, has begun laying the framework for establishing specific quality performance targets in the Total Cost of Care Model. Specifically, performance targets must be aggressive and progressive, must align with other HSCRC programs, must be comparable to federal programs, and must consider rankings relative to the nation. But beyond guiding principles, nothing definitive has yet been established.

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

Work will begin shortly to develop new policy targets, as this is a straightforward exercise, but aligning measures will require more time, because this requires more than adding hospital quality measures or assessing performance relative to the nation. Rather, it requires bundling outcomes across quality programs, evaluating opportunities for performance standards outside the hospital

[14] Johns Hopkins Hospital data was suppressed in Quarter 3 of 2016; therefore, all RY 2020 modeling includes Hospital Compare scores for Johns Hopkins Hospital from one quarter back (July 2015-June 2016).

walls, ensuring that GBR financial incentives are compatible, and developing reporting measures that are more holistic and patient-centered. To meet these requirements, various exercises will be needed, including: convening a clinical subgroup to evaluate the universe of measures of complications that Maryland should include in its pay for performance regimen; evaluating external data sources to determine if the Commission can utilize them to incentivize improvement outside the hospital; revisiting financial methodologies and cultivating new ones, such as Inter-Hospital Cost Comparison, to ensure resources are being disseminated in accordance with TCOC model goals; and potentially even establishing an overarching service line approach to the Hospital Quality programs so as to break down silos and promulgate a more holistic and patient-centered environment. Staff acknowledges this will require a lot of work in concert with industry and stakeholders, but the success of the TCOC model depends on reducing cost on a per capita basis without compromising quality of care.

RECOMMENDATIONS FOR RY 2020 QBR PROGRAM

1. Update the Maryland Mortality Measure to include palliative care cases (risk-adjusted for palliative care status) for calculating both attainment and improvement scores.

2. Consider inclusion of ED Wait Times measures in the Person and Community Engagement domain.

3. Weight the domains as follows for determining hospitals' overall performance scores: Person and Community Engagement - 50%, Safety - 35%, Clinical Care - 15%.

4. Maintain RY 2019 Pre-set Scaling Options, and continue to hold 2% of inpatient revenue at-risk for the QBR program.

APPENDIX I. HSCRC QBR PROGRAM DETAILS

Domain Weights and Revenue at-Risk

As illustrated in the body of the report, for the RY 2018 QBR program, the HSCRC will weight the clinical care domain at 15 percent of the final score, the Safety domain at 35 percent, and the Person and Community Engagement domain at 50 percent.

The HSCRC sets aside a percentage of hospital inpatient revenue to be held "at risk" based on each hospital's QBR program performance. Hospital performance scores are translated into rewards and penalties in a process that is referred to as scaling.[15] Rewards (referred to as positive scaled amounts) or penalties (referred to as negative scaled amounts) are then applied to each hospital's update factor for the rate year. The rewards or penalties are applied on a one-time basis and are not considered permanent revenue. The Commission previously approved scaling a maximum reward of one percent and a penalty of two percent of total approved base inpatient revenue across all hospitals for RY 2019.

HSCRC staff has worked with stakeholders over the last several years to align the QBR measures, thresholds, benchmark values, time lag periods, and amount of revenue at risk with those used by the CMS VBP program where feasible,[16] allowing the HSCRC to use data submitted directly to CMS. As alluded to in the body of the report, Maryland implemented an efficiency measure in relation to global budgets based on potentially avoidable utilization outside of the QBR program. The potentially avoidable utilization (PAU) savings adjustment to hospital rates is based on costs related to potentially avoidable admissions, as measured by the Agency for Healthcare Research and Quality Prevention Quality Indicators (PQIs) and avoidable readmissions. HSCRC staff will continue to work with key stakeholders to complete development of an efficiency measure that incorporates population-based cost outcomes.

QBR Score Calculation

QBR Scores are evaluated by comparing a hospital's performance rate to its base period rate, as well as the threshold (which is the median, or 50th percentile, of all hospitals' performance during the baseline period), and the benchmark, (which is the mean of the top decile, or approximately the 95th percentile, during the baseline period).[17]

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[15] Scaling refers to the differential allocation of a pre-determined portion of base-regulated hospital inpatient revenue based on assessment of the quality of hospital performance.

[16] HSCRC has used data for some of the QBR measures (e.g., CMS core measures, CDC NHSN CLABSI, CAUTI) submitted to the Maryland Health Care Commission (MHCC) and applied state-based benchmarks and thresholds for these measures to calculate hospitals' QBR scores up to the period used for RY 2017.

[17] If included in RY 2020 QBR, the ED Wait times measures will not have a benchmark, but will calculate hospital improvement relative to the national threshold, which is the national median for each respective volume category.

Attainment Points: During the performance period, attainment points are awarded by comparing an individual hospital's rates with the threshold and the benchmark. With the exception of the MD Mortality measure applied to all payers, the benchmarks and thresholds are the same as those used by CMS for the VBP program measures.[18] For each measure, a hospital that has a rate at or above benchmark receives 10 attainment points. A hospital that has a rate below the attainment threshold receives 0 attainment points. A hospital that has a rate at or above the attainment threshold and below the benchmark receives 1-9 attainment points

Improvement Points: The improvement points are awarded by comparing a hospital's rates during the performance period to the hospital's rates from the baseline period. A hospital that has a rate at or above the attainment benchmark receives 9 improvement points. A hospital that has a rate at or below baseline period rate receives 0 improvement points. A hospital that has a rate between the baseline period rate and the attainment benchmark receives 0-9 improvement points.

Consistency Points: The consistency points relate only to the experience of care domain. The purpose of these points is to reward hospitals that have scores above the national 50th percentile in all of the eight HCAHPS dimensions. If they do, they receive the full 20 points. If they do not, the dimension for which the hospital received the lowest score is compared to the range between the national 0 percentile (floor) and the 50th percentile (threshold) and is awarded points proportionately.

Domain Denominator Adjustments: In particular instances, QBR measures will be excluded from the QBR program for individual hospitals. In the Person and Community Engagement domain, ED wait time measures (if included in the RY 2020 program) will be excluded for protected hospitals. As described in the body of the report, a hospital may exclude one or both of the ED Wait Time measures if it has earned at least one improvement point and if its improvement score would reduce its overall QBR score. If a measure is excluded, the Person and Community Engagement domain will reduce from 120 total points to 110 points.

Similarly, hospitals are exempt from measurement for any of the NHSN Safety measures for which there is less than 1 predicted case in the performance period. If a hospital is exempt from an NHSN measure, its Safety domain score denominator reduces from 60 to 50 points. If it is exempt from two measures, the Safety domain score denominator would be 40 total possible points. Hospitals must have at least 3 of 6 Safety measures in order to be included in the Safety domain.

Domain Scores: Composite scores are then calculated for each domain by adding up all of the measure scores in a given domain divided by the total possible points x 100. The better of attainment and improvement for experience of care scores is also added together to arrive at the

[18] If included in RY 2020 QBR, the ED wait times would not calculate attainment points, but would instead award a full 10 points to hospitals at or below (more efficient) than the national medians for their respective volume categories in the performance period.

experience of care base points. Base points and the consistency score are added together to determine the experience of care domain score.

Total Performance Score*:* The total Performance Score is computed by multiplying the domain scores by their specified weights, then adding those totals and dividing them by the highest total possible score. The Total Performance Score is then translated into a reward/ penalty that is applied to hospital revenue.

RY 2020 Proposed Timeline (Base and Performance Periods; Financial Impact)

Calendar Year	Q116	Q216	Q316	Q416	Q117	Q217	Q317	Q417	Q118	Q218	Q318	Q418	Q119	Q219	Q319	Q419	Q120	Q220
Quality Programs that Impact Rate Year 2020																		
QBR	Hospital Compare Base Period* (Proposed)														Rate Year Impacted by QBR Results (Missing are THA/TKA, ED Wait Times)			
								Hospital Compare Performance Period* (Proposed)									
			Maryland Mortality Base Period (Proposed)															
									QBR Maryland Mortality Performance Period (Proposed)									

Person and Community Engagement Domain

Dimension	Benchmark	Achievement Threshold	Floor
Communication with Nurses	87.12%	79.08%	51.80%
Communication with Doctors	88.44	80.41%	50.67%
Responsiveness of Hospital Staff	80.14%	65.07%	35.74%
Communication about Medicines	73.86%	63.30%	26.16%
Cleanliness and Quietness of Hospital Environment	79.42%	65.72%	41.92%
Discharge Information	92.11%	87.44%	66.72%
3-Item Care Transition	62.50%	51.14%	20.33%
Overall Rating of Hospital	85.12%	71.59%	32.47%

Safety Domain

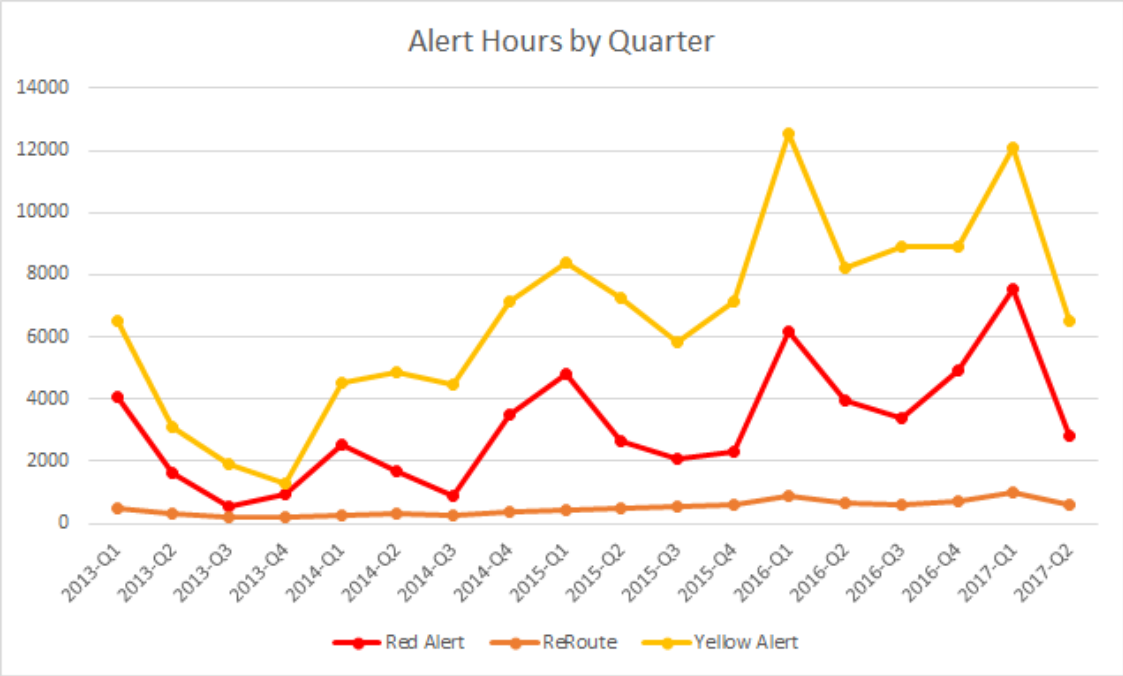
Measure ID*	Measure Description	Benchmark	Achievement Threshold
CAUTI	Catheter-Associated Urinary Tract Infection	0	0.828
CDI	Clostridium *difficile* Infection	0.091	0.852
CLABSI	Central Line-Associated Blood Stream Infection	0	0.784
MRSA	Methicillin-Resistant Staphylococcus *aureus*	0	0.815
PC-01	Elective Delivery Prior to 39 Completed Weeks Gestation	0	0
SSI	SSI - Abdominal Hysterectomy	0	0.722
	SSI - Colon Surgery	0	0.781

Mortality Domain

Measure ID*	Measure Description	Benchmark	Achievement Threshold
Mortality	All Condition Inpatient Mortality	96.7046	94.8918

APPENDIX II. MARYLAND EMERGENCY DEPARTMENT DIVERSION

Maryland Emergency Department Diversion (by Alert Type, By Quarter) is presented below. **Yellow Alerts** are voluntary, and indicate that a hospital's emergency department temporarily requests that it receive absolutely no patients in need of urgent medical care.[19] **Red Alerts** are also voluntary, and indicate that a hospital has no ECG monitored beds available.[20] **ReRoute Alerts** are involuntary, and indicate that an advanced life support/basic life support unit is being held in the emergency department due to lack of an available bed.[21] For all three alert types, statewide alert hours have decreased in the second quarter of 2017, when compared to the same time period in 2016.



[19] Full **Yellow Alert** Definition, per MIEMSS: The emergency department temporarily requests that it receive absolutely no patients in need of urgent medical care. Yellow alert is initiated because the Emergency dept is experiencing a temporary overwhelming overload such that priority II and III patients may not be managed safely. Prior to diverting pediatric patients, medical consultation is advised for pediatric patient transports when emergency departments are on yellow alert.

[20] Full **Red Alert** Definition, per MIEMSS: The hospital has no ECG monitored beds available. These ECG monitored beds will include all in-patient critical care areas and telemetry beds.

[21] Full **ReRoute** Alert Definition, per MIEMSS: An ALS/BLS unit is being held in the emergency department of a hospital due to lack of an available bed. (This does not replace Yellow Alert.)

APPENDIX III. HCAHPS HOSPITAL-LEVEL ATTAINMENT AND IMPROVEMENT, MARYLAND COMPARED TO THE NATION

As illustrated in the box plot graphs below, HSCRC staff analyzed the range of hospital performance for both Maryland (blue dots) and the nation (gray dots) in order to understand the distribution of attainment (Figure 1) and improvement (Figure 2) on HCAHPS survey results for Maryland compared to the nation. For each box plot, the center shaded region represents the values in the interquartile range (between 25th and 75th percentile of scores), with the median of the scores located at the center of the region. The top and bottom of the shaded region indicate the 75th and 25th percentile, respectively. Outliers are indicated by any values outside of the whiskers (the lines extending above and below the shaded region). The range of Maryland hospital scores reflects that some Maryland hospitals, while not necessarily performing above the 75th percentile, are able to perform above the national average.

While the statewide data suggests that Maryland continues to lag behind the nation, there is variability in hospital performance, with some hospitals performing better than the national average on each measure. Furthermore, while the statewide improvements were modest, there were individual hospitals with significant improvements on each measure. The figures below illustrate HCAHPS performance and HCAHPS improvement by hospital for Maryland and for non-Maryland.

Figure 1. HCAHPS Hospital Performance Distribution, Maryland Compared to the Nation

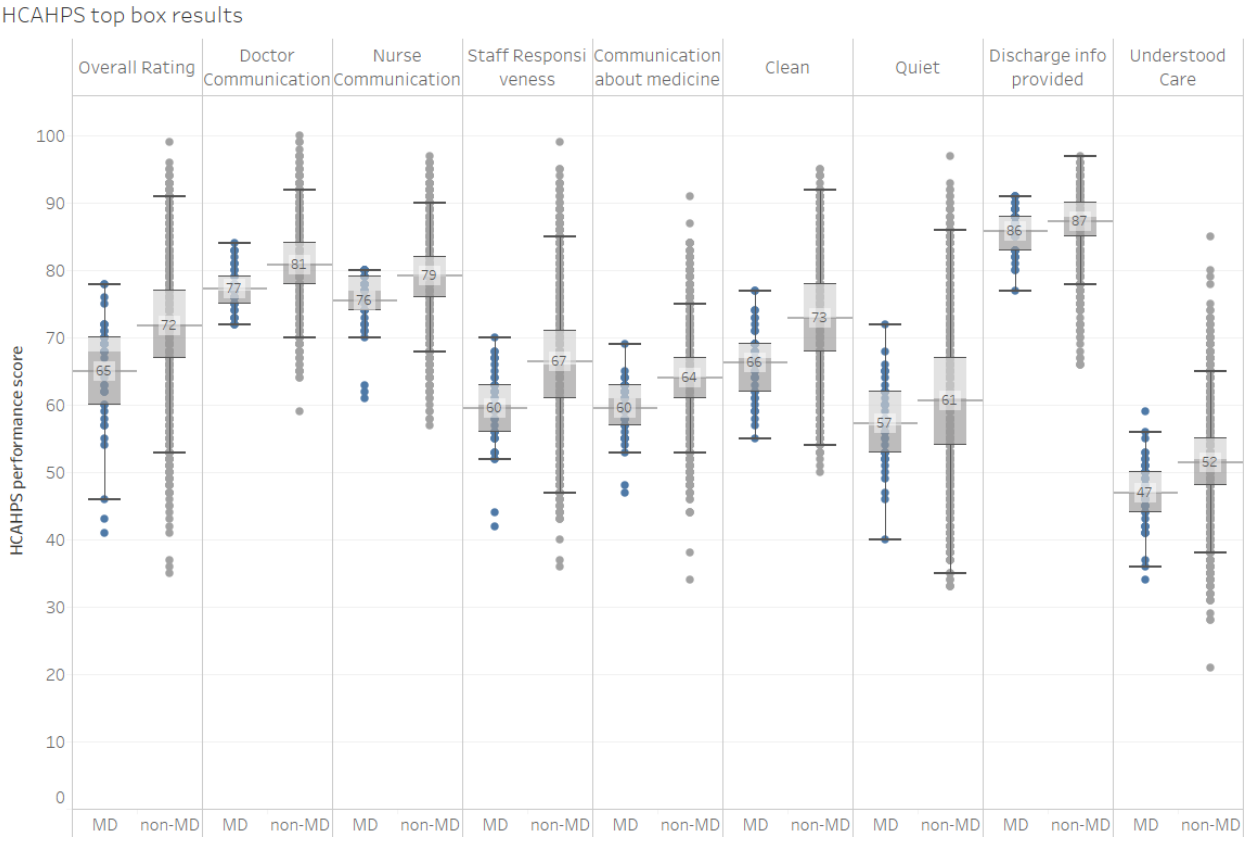
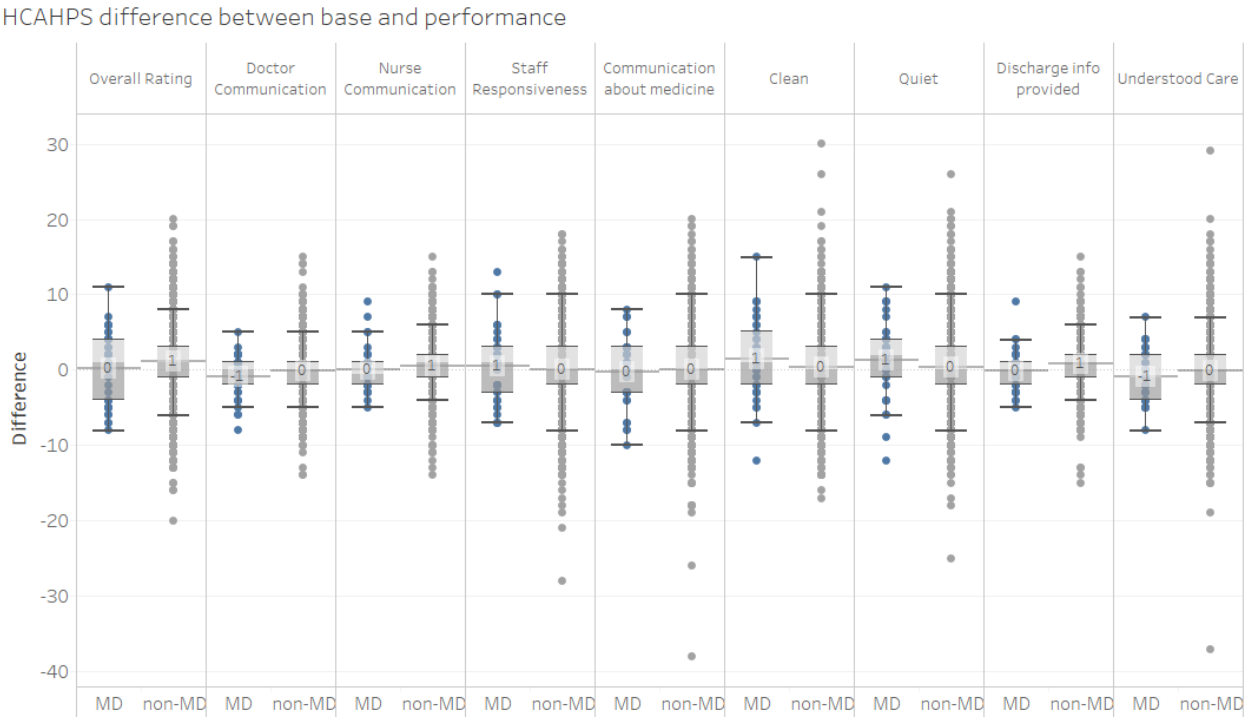


Figure 2. HCAHPS Hospital Improvement, Maryland Compared to the Nation



APPENDIX IV. MODELING OF ED WAIT TIME – IMPACT ON HCAHPS DOMAIN

			ED-1b				ED-2b				HCAHPS Domain	
CMS ID	Hospital Name	Volume Indicator	National Benchmark (in Minutes)	Base (in Min)	Performance (in Min)	Improvement Points	National Benchmark (in Minutes)	Base (in Min)	Performance (in Min)	Improvement Points	Without ED	With ED
210001	Meritus	VERY HIGH	332	358	374	0	130	190	185	0	0.22	0.1833
210002	UMMC	VERY HIGH	332	662	662	0	130	394	326	2	0.22	0.2000
210003	PG Hospital	HIGH	295	580	587	0	111	326	303	1	0.02	0.0250
210004	Holy Cross	VERY HIGH	332	406	463	0	130	160	210	0	0.14	0.1167
210005	Frederick	VERY HIGH	332	320	335	0	130	110	108	10	0.29	0.3250
210006	UM-Harford	MEDIUM	259	327	335	0	88	105	112	0	0.09	0.0750
210008	Mercy	VERY HIGH	332	326	362	0	130	89	130	0	0.38	0.3167
210009*	Johns Hopkins	VERY HIGH	332	525	243	10	130	210	554	0	0.44	0.4500
210010	UM-Dorchester	MEDIUM	259	394	359	2	88	134	120	3	0.13	0.1500
210011	St. Agnes	VERY HIGH	332	360	370	0	130	124	128	10	0.14	0.2000
210012	Sinai	VERY HIGH	332	460	610	0	130	165	239	0	0.23	0.1917
210013	Bon Secours	MEDIUM	259	448	366	4	88	204	169	3	0.05	0.1000
210015	MedStar Fr Square	VERY HIGH	332	430	463	0	130	160	175	0	0.13	0.1083
210016♦	Washington Adventist	HIGH	295	488	434	2	111	254	226	1	0.19	0.1900
210017	Garrett	LOW	216	199	206	10	60	49	60	0	0.34	0.3667
210018	MedStar Montgomery	MEDIUM	259	309	332	0	88	142	157	0	0.17	0.1417
210019	Peninsula	VERY HIGH	332	317	310	10	130	146	152	0	0.42	0.4333
210022	Suburban	HIGH	295	422	353	5	111	225	182	3	0.37	0.3750
210023	Anne Arundel	VERY HIGH	332	524	525	0	130	308	298	0	0.37	0.3083
210024	MedStar Union Mem	VERY HIGH	332	348	368	0	130	137	154	0	0.35	0.2917
210027	Western	HIGH	295	298	309	0	111	113	98	10	0.28	0.3167

			ED-1b				ED-2b				HCAHPS Domain	
CMS ID	Hospital Name	Volume Indicator	National Benchmark (in Minutes)	Base (in Min)	Performance (in Min)	Improvement Points	National Benchmark (in Minutes)	Base (in Min)	Performance (in Min)	Improvement Points	Without ED	With ED
	Maryland											
210028	MedStar St. Mary's	HIGH	295	375	448	0	111	160	210	0	0.29	0.2417
210029	JH Bayview	HIGH	295	437	486	0	111	180	197	0	0.13	0.1083
210030	UM-Chestertown	LOW	216	329	352	0	60	92	98	0	0.1	0.0833
210032	Union of Cecil	MEDIUM	259	289	323	0	88	84	90	0	0.25	0.2083
210033	Carroll	HIGH	295	336	353	0	111	93	158	0	0.12	0.1000
210034	MedStar Harbor	HIGH	295	309	357	0	111	121	151	0	0.16	0.1333
210035	UM-Charles Regional	VERY HIGH	332	293	327	10	130	94	91	10	0.11	0.2583
210037	UM-Easton	MEDIUM	259	394	359	2	88	134	120	3	0.13	0.1500
210038	UMMC Midtown	MEDIUM	259	361	445	0	88	155	161	0	0.13	0.1083
210039	Calvert	HIGH	295	386	413	0	111	160	175	0	0.2	0.1667
210040	Northwest	HIGH	295	464	362	6	111	188	110	10	0.45	0.5083
210043●	UM-BWMC	VERY HIGH	332	427	431	0	130	215	202	1	0.19	0.1727
210044	GBMC	HIGH	295	311	368	0	111	110	134	0	0.23	0.1917
210048	Howard County	VERY HIGH	332	439	462	0	130	198	205	0	0.18	0.1500
210049	UM-Upper Chesapeake	VERY HIGH	332	346	341	3	130	114	114	10	0.2	0.2750
210051	Doctors	HIGH	295	396	410	0	111	142	176	0	0.13	0.1083
210055	Laurel Regional	MEDIUM	259	390	499	0	88	169	252	0	0.06	0.0500
210056	MedStar Good Sam	HIGH	295	392	397	0	111	141	141	0	0.13	0.1083
210057	Shady Grove	VERY HIGH	332	369	380	0	130	144	166	0	0.22	0.1833
210060	Ft. Washington	HIGH	295	273	278	10	111	72	86	10	0.17	0.3083

			ED-1b				ED-2b				HCAHPS Domain	
CMS ID	Hospital Name	Volume Indicator	National Benchmark (in Minutes)	Base (in Min)	Performance (in Min)	Improvement Points	National Benchmark (in Minutes)	Base (in Min)	Performance (in Min)	Improvement Points	Without ED	With ED
210061	Atlantic General	MEDIUM	259	236	222	10	88	79	74	10	0.21	0.3417
210062	MedStar Southern MD	HIGH	295	403	379	2	111	170	140	5	0.11	0.1500
210063	UM-St. Joe	HIGH	295	355	396	0	111	113	129	0	0.52	0.4333

In this figure, base period is CY 2014 and performance period is Oct 2015 to Sept 2016.

*Scores for 210009 – JHH reflect its CMS Hospital Compare data from one quarter back (July 2015 – June 2016) due to suppression of this hospital's performance period data.

♦ QBR Score for 210016 – Washington Adventist Hospital "with ED" is protected, as the hospital improved on both ED wait time measures between base and performance; model returned better of QBR scores.

● QBR Score for 210043 – UM-Baltimore Washington "with ED" includes ED-1b only, as the hospital improved between base and performance for ED-2b; model took better of QBR scores with or without ED-2b.

APPENDIX V. MODELING OF SCORES BY DOMAIN: RY 2018 QBR DATA WITH RY 2020 MEASURES

Hospital ID	Hospital Name	HCAHPS Final Points	HCAHPS Denom.	HCAHPS Final Score	Mortality Final Points - Modeled	Mortality Final Score - Modeled	Safety Total Points	Safety Denom.	Safety Final Score	Total Score
210001	Meritus	22	100	0.22	5	0.5	14	60	0.2333	0.2667
210002	UMMC	22	100	0.22	4	0.4	14	60	0.2333	0.2517
210003	PG Hospital	2	100	0.02	1	0.1	29	60	0.4833	0.1942
210004	Holy Cross	14	100	0.14	9	0.9	19	60	0.3167	0.3158
210005	Frederick	29	100	0.29	10	1	14	60	0.2333	0.3767
210006	UM-Harford	9	100	0.09	6	0.6	9	30	0.3000	0.2400
210008	Mercy	38	100	0.38	0	0	35	60	0.5833	0.3942
210009	Johns Hopkins	44	100	0.44	7	0.7	19	60	0.3167	0.4358
210010	UM-Dorchester	13	100	0.13	3	0.3	20	60	0.3333	0.2267
210011	St. Agnes	14	100	0.14	4	0.4	16	60	0.2667	0.2233
210012	Sinai	23	100	0.23	7	0.7	17	60	0.2833	0.3192
210013	Bon Secours	5	100	0.05	0	0	8	40	0.2000	0.0950
210015	MedStar Fr Square	13	100	0.13	10	1	26	60	0.4333	0.3667
210016	Washington Adventist	19	100	0.19	3	0.3	27	60	0.4500	0.2975
210017	Garrett	34	100	0.34	5	0.5	.	.	.	0.3768
210018	MedStar Montgomery	17	100	0.17	6	0.6	44	60	0.7333	0.4317

Hospital ID	Hospital Name	HCAHPS Final Points	HCAHPS Denom.	HCAHPS Final Score	Mortality Final Points - Modeled	Mortality Final Score - Modeled	Safety Total Points	Safety Denom.	Safety Final Score	Total Score
210019	Peninsula	42	100	0.42	5	0.5	24	60	0.4000	0.4250
210022	Suburban	37	100	0.37	7	0.7	22	50	0.4400	0.4440
210023	Anne Arundel	37	100	0.37	1	0.1	21	60	0.3500	0.3225
210024	MedStar Union Mem	35	100	0.35	7	0.7	11	50	0.2200	0.3570
210027	Western Maryland	28	100	0.28	4	0.4	8	60	0.1333	0.2467
210028	MedStar St. Mary's	29	100	0.29	4	0.4	10	30	0.3333	0.3217
210029	JH Bayview	13	100	0.13	4	0.4	23	60	0.3833	0.2592
210030	UM-Chestertown	10	100	0.1	0	0	.	.	.	0.0770
210032	Union of Cecil	25	100	0.25	10	1	21	60	0.3500	0.3975
210033	Carroll	12	100	0.12	10	1	30	60	0.5000	0.3850
210034	MedStar Harbor	16	100	0.16	7	0.7	32	60	0.5333	0.3717
210035	UM-Charles Regional	11	100	0.11	5	0.5	28	60	0.4667	0.2933
210037	UM-Easton	13	100	0.13	0	0	20	60	0.3333	0.1817
210038	UMMC Midtown	13	100	0.13	8	0.8	17	40	0.4250	0.3338
210039	Calvert	20	100	0.2	10	1	20	40	0.5000	0.4250
210040	Northwest	45	100	0.45	10	1	19	50	0.3800	0.5080
210043	UM-BWMC	19	100	0.19	3	0.3	18	60	0.3000	0.2450
210044	GBMC	23	100	0.23	10	1	16	60	0.2667	0.3583
210048	Howard County	18	100	0.18	10	1	29	60	0.4833	0.4092

Hospital ID	Hospital Name	HCAHPS Final Points	HCAHPS Denom.	HCAHPS Final Score	Mortality Final Points - Modeled	Mortality Final Score - Modeled	Safety Total Points	Safety Denom.	Safety Final Score	Total Score
210049	UM-Upper Chesapeake	20	100	0.2	5	0.5	13	60	0.2167	0.2508
210051	Doctors	13	100	0.13	4	0.4	35	50	0.7000	0.3700
210055	Laurel Regional	6	100	0.06	2	0.2	6	40	0.1500	0.1125
210056	MedStar Good Sam	13	100	0.13	5	0.5	14	50	0.2800	0.2380
210057	Shady Grove	22	100	0.22	1	0.1	26	60	0.4333	0.2767
210060	Ft. Washington	17	100	0.17	6	0.6	.	.	.	0.2689
210061	Atlantic General	21	100	0.21	10	1	23	40	0.5750	0.4563
210062	MedStar Southern MD	11	100	0.11	0	0	14	60	0.2333	0.1367
210063	UM-St. Joe	52	100	0.52	10	1	32	60	0.5333	0.5967
210065	HC-Germantown	10	100	0.1	10	1	10	30	0.3333	0.3167

*Scores for 210009 – JHH reflect its CMS Hospital Compare data from one quarter back (July 2015 – June 2016) due to suppression of this hospital's performance period data. HSCRC is working to obtain the suppressed data directly from CMS and anticipates having that data for the final policy recommendation.

APPENDIX VI. MODELING OF QBR PROGRAM FINANCIAL IMPACT

RY 2020 QBR SCALING - Modeled with RY 2018 prelim final data and RY 2020 Measures			Without ED Wait Times Measures			With ED Wait Times Measures		
HOSPID	**HOSPITAL NAME**	**RY17 Permanent Inpatient Revenue**	**RY 2018 QBR Prelim Score**	**% Revenue Impact**	**$ Revenue Impact**	**RY 2018 QBR Prelim Score**	**% Revenue Impact**	**$ Revenue Impact**
210001	MERITUS	$ 185,173,878	27%	-0.81%	-$1,508,920	25%	-0.90%	-$1,659,981
210002	UNIVERSITY OF MARYLAND	$ 874,727,573	25%	-0.88%	-$7,711,015	24%	-0.93%	-$8,098,033
210003	PRINCE GEORGE	$ 215,010,869	19%	-1.14%	-$2,444,865	20%	-1.13%	-$2,420,545
210004	HOLY CROSS	$ 339,593,506	32%	-0.60%	-$2,024,807	30%	-0.65%	-$2,200,566
210005	FREDERICK MEMORIAL	$ 178,853,951	38%	-0.33%	-$583,024	39%	-0.25%	-$443,558
210006	HARFORD	$ 46,975,749	24%	-0.93%	-$438,440	23%	-0.97%	-$454,099
210008	MERCY	$ 216,281,427	39%	-0.25%	-$536,811	36%	-0.39%	-$841,094
210009	JOHNS HOPKINS	$ 1,357,164,899	44%	-0.06%	-$854,511	44%	-0.04%	-$554,930
210010	DORCHESTER	$ 24,256,573	23%	-0.99%	-$240,782	24%	-0.95%	-$229,952
210011	ST. AGNES	$ 233,151,492	22%	-1.01%	-$2,348,665	25%	-0.87%	-$2,038,262
210012	SINAI	$ 397,073,246	32%	-0.58%	-$2,309,113	30%	-0.67%	-$2,647,155
210013	BON SECOURS	$ 62,008,295	10%	-1.58%	-$978,353	12%	-1.47%	-$909,455
210015	FRANKLIN SQUARE	$ 287,510,180	37%	-0.37%	-$1,065,002	36%	-0.42%	-$1,203,709
210016	WASHINGTON ADVENTIST	$ 150,097,509	30%	-0.68%	-$1,017,328	30%	-0.68%	-$1,017,328
210017	GARRETT COUNTY	$ 21,836,267	38%	-0.33%	-$71,041	40%	-0.23%	-$51,145
210018	MONTGOMERY GENERAL	$ 79,298,762	43%	-0.08%	-$64,655	42%	-0.14%	-$114,543
210019	PENINSULA REGIONAL	$ 235,729,906	43%	-0.11%	-$261,922	43%	-0.08%	-$191,727
210022	SUBURBAN	$ 189,851,798	44%	-0.03%	-$50,627	45%	-0.02%	-$29,533
210023	ANNE ARUNDEL	$ 296,168,973	32%	-0.57%	-$1,678,291	29%	-0.70%	-$2,083,713
210024	UNION MEMORIAL	$ 231,121,787	36%	-0.41%	-$955,303	33%	-0.54%	-$1,255,248
210027	WESTERN	$ 171,858,929	25%	-0.90%	-$1,553,185	27%	-0.82%	-$1,413,062

RY 2020 QBR SCALING - Modeled with RY 2018 prelim final data and RY 2020 Measures			Without ED Wait Times Measures			With ED Wait Times Measures		
HOSPID	**HOSPITAL NAME**	**RY17 Permanent Inpatient Revenue**	**RY 2018 QBR Prelim Score**	**% Revenue Impact**	**$ Revenue Impact**	**RY 2018 QBR Prelim Score**	**% Revenue Impact**	**$ Revenue Impact**
	MARYLAND							
210028	ST. MARY	$ 77,346,008	32%	-0.57%	-$441,199	30%	-0.68%	-$524,234
210029	HOPKINS BAYVIEW MED CTR	$ 348,529,477	26%	-0.85%	-$2,956,227	25%	-0.90%	-$3,124,373
210030	CHESTERTOWN	$ 18,989,104	8%	-1.66%	-$314,797	6%	-1.71%	-$325,600
210032	UNION HOSPITAL OF CECIL	$ 68,179,037	40%	-0.23%	-$159,084	38%	-0.33%	-$222,112
210033	CARROLL COUNTY	$ 116,510,378	39%	-0.29%	-$336,586	38%	-0.33%	-$388,368
210034	HARBOR	$ 107,761,881	37%	-0.35%	-$375,227	36%	-0.41%	-$439,190
210035	CHARLES REGIONAL	$ 68,387,041	29%	-0.70%	-$476,141	37%	-0.37%	-$250,752
210037	EASTON	$ 100,000,562	18%	-1.19%	-$1,192,651	19%	-1.15%	-$1,148,006
210038	UMMC MIDTOWN	$ 114,950,934	33%	-0.52%	-$593,913	32%	-0.56%	-$649,345
210039	CALVERT	$ 63,319,998	43%	-0.11%	-$70,356	41%	-0.19%	-$117,353
210040	NORTHWEST	$ 125,696,184	51%	0.33%	$416,593	54%	0.50%	$626,326
210043	BALTIMORE WASHINGTON	$ 227,399,457	25%	-0.91%	-$2,071,862	24%	-0.95%	-$2,158,779
210044	G.B.M.C.	$ 216,554,825	36%	-0.41%	-$882,148	34%	-0.49%	-$1,066,412
210048	HOWARD COUNTY	$ 176,085,796	41%	-0.18%	-$319,654	39%	-0.25%	-$436,693
210049	UPPER CHESAPEAKE HEALTH	$ 133,152,736	25%	-0.89%	-$1,178,579	29%	-0.72%	-$956,924
210051	DOCTORS COMMUNITY	$ 132,931,890	37%	-0.36%	-$472,647	36%	-0.40%	-$536,454
210055	LAUREL REGIONAL	$ 59,724,224	11%	-1.50%	-$895,863	11%	-1.52%	-$909,135
210056	GOOD SAMARITAN	$ 158,579,215	24%	-0.94%	-$1,494,169	23%	-0.99%	-$1,570,287
210057	SHADY GROVE	$ 219,319,153	28%	-0.77%	-$1,689,683	26%	-0.85%	-$1,868,599
210060	FT. WASHINGTON	$ 19,371,986	27%	-0.80%	-$155,923	38%	-0.33%	-$64,229

RY 2020 QBR SCALING - Modeled with RY 2018 prelim final data and RY 2020 Measures			Without ED Wait Times Measures			With ED Wait Times Measures		
HOSPID	**HOSPITAL NAME**	**RY17 Permanent Inpatient Revenue**	**RY 2018 QBR Prelim Score**	**% Revenue Impact**	**$ Revenue Impact**	**RY 2018 QBR Prelim Score**	**% Revenue Impact**	**$ Revenue Impact**
210061	ATLANTIC GENERAL	$ 38,966,012	46%	0.04%	$13,916	52%	0.41%	$160,540
210062	SOUTHERN MARYLAND	$ 163,339,853	14%	-1.39%	-$2,274,743	16%	-1.30%	-$2,129,226
210063	UM ST. JOSEPH	$ 234,995,507	60%	0.84%	$1,969,329	55%	0.59%	$1,387,145
210065	HC-GERMANTOWN	$ 62,086,212	32%	-0.59%	-$367,950	32%	-0.59%	-$367,950

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Statewide Impact	**Without ED Wait Times**	**With ED Wait Times**
Total Penalties	-47,416,062	-49,111,660
% Inpatient Revenue	-0.54%	-0.56%
Total rewards	2,399,839	2,174,011
% Inpatient revenue	0.03%	0.02%