

Developing a Framework for a  
Patient-Centered Inpatient Quality Reimbursement Program

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Submitted by

The Johns Hopkins Health System  
University of Maryland Medical System

## **I. Purpose**

The Health Services and Cost Review Commission has requested experts and stakeholders in the healthcare industry to further guide the strategic development of its future performance measurement activities. As the realm of quality reimbursement continues to experience refinement each year, the need for a methodology that takes into consideration the inherent variation in patient populations becomes a key area of focus. This paper seeks to discuss a proof of concept, referred to as “Patient-Centered Inpatient Quality Reimbursement” (PCIQR). The following sections will aim to: 1) provide background information regarding the rationale for the approach illustrated below, 2) describe in concept potential methodology under development, 3) demonstrate a proof of concept for modeling and scoring techniques used for validation; and 4) forecast the potential implications of PCIQR implementation.

## **II. Background and Opportunity**

The rationale for developing the Patient-Centered Inpatient Quality Reimbursement concept was premised on three primary driving principles:

- A methodology that takes into account varying patient populations across hospitals
- Drive clinical excellence that reduces variation in practice and patient outcomes
- Drive provider engagement to better the quality of care at provider settings

The current HSCRC Quality measurement programs look at a single quality opportunity (for example, readmissions) and evaluates patients across all types of diagnoses and care against a single goal rather than evaluating similar patients as a unit, comparing like patients to like patients. A benefit of the service line approach is to provide a true patient-centered evaluation of quality of care and to allow for like comparison across providers. Effective Quality measurement programs will encourage improvement in care practices and patient care outcomes. This is achieved through valid, evidence-based measures that allow for measuring true improvement in quality of care and identification of variation in quality of care across institutions.

## **III. Methodology**

In order to accurately group similar patients, several service lines were explored illustrating low, medium, and high risk medical and surgical cases. These groups can provide the first important distinction between a patient being admitted for a medical diagnosis and a patient being admitted for a surgical procedure. The division of high, medium and low risk will need further analysis to define the most appropriate distinctions across patient types and risks. An

approach for developing associated appropriate service line benchmarks will also need further analysis.

Measures would be selected to include at minimum, those measures that are being used by the Centers for Medicare and Medicaid Services (CMS) for their quality-based reimbursement programs. The measurements included in this PCIQR approach were established as:

- *Readmissions*
- *Maryland Hospital Acquired Conditions (MHACs)*
- *Mortalities*
- *Patient Safety Indicators (PSI)*
- *HCAHPS*

It is key to note that readmissions, MHACs, Mortalities, and PSIs could all be potentially measured by service line, while HCAHPS scores would be measured on a hospital-wide basis. At this point, only inpatient measures are selected. While it is understood that there is a desire to move towards outpatient and population-based measures, more research and modeling is required to understand the validity and reliability of these measures as well as their interaction with the inpatient-based measures used for hospital-based reimbursement.

The amount of inpatient revenue placed at risk for PCIQR is understood to be required to be at least as much as CMS places at risk under their quality-based reimbursement programs. For FY2019, it is understood that hospitals outside of Maryland have 6% of inpatient Medicare revenue at risk under three different quality-based reimbursement programs. Therefore, it is proposed to have the “revenue at risk” values for the aforementioned selected measures sum to 6%, with a reward potential of 3%.

#### **IV. Other Areas of Consideration**

##### *ICD-9 versus ICD-10*

Due to only 6 months of ‘final’ data under ICD-10 coding being available, results are being modeled using ICD-9 data. Consideration should be given if there are any latent issues with these measures and the service line approach once thresholds, benchmarks and risk adjustment are all able to be calculated under an ICD-10 period.

##### *Service Line Definition*

Current service line groups are for demonstration purposes only. This analysis needs further investigation and potential application of K-means clustering to validate the groupings.

### *Risk Adjustment*

Maryland has used risk adjustment methodologies historically that use a risk model that is based on the same 12-month period as the 'base period' for evaluation of a particular measure. Alternative risk models have not been explored with the awareness of the limitation of time to fully vet other possibilities. As incremental changes are made to these quality programs, modifications to the risk adjustment methodologies should be considered and tested – such as time span of the risk model period, variables included in the risk model, and applicability to individual service lines.

### *Data Availability*

Certain measures do not lend themselves to a service line approach, due to the limited availability of the data at a patient level. These measures include the Healthcare Associated Infections (HAI) capture through the CDC's National Health Safety Network (NHSN), HCAHPS measures and process measures. These measures should be considered for hospital-wide measurement at this time, but should continue to be vetted for data availability and opportunities to include in a service line approach.

### *Current Methodology Redesign*

While the modeling to-date generally holds the current program details constant, considerations for modifications should be considered. For example, for the Maryland Mortality measure, modifications to the risk adjustment model should be considered to include factors such as admission from a nursing home and utilization of age cohorts rather than a continuous age variable. It should also be taken under consideration the value of the current measure as an in-hospital mortality measure only. While CMS measures a 30-day mortality (counting mortalities that occur in any location outside the hospital if occurring within 30 days of an index admission at a hospital), it is recommended that Maryland continue with the in-hospital mortality measurement. This current measure is a true measure of care provided within the hospital. Allowing deaths outside the hospital to be counted towards an index hospital's mortality count places erroneous accountability on the hospital versus the actual location of death, such as a long term care facility or hospice facility.

Another example of current methodology modifications to consider is the measurement of the AHRQ Patient Safety Indicators (PSI). While CMS employs the PSI-90 composite measure – a composite of 11 unique patient safety indicators – Maryland should consider evaluating each PSI individually. It should be considered to calculate an individual 'expected' count for each PSI, using similar methodology to MHAC expected value calculation. This method allows the

hospital to see an individual risk-adjusted rate for each PSI and better understand areas of specific opportunity for improvement.

## **V. Conclusion**

A patient-centered approach to measurement of outcomes and quality indicators can potentially provide a better framework for hospitals to identify areas for improvement, appropriately compare performance and identify variation. Aligning patient groups with their associated risk of various outcomes allows for more appropriate measurement and comparison. Further vetting and development is necessary to complete a formal proposal for service line definitions, included measures, scoring and categorization of revenue at risk. We would appreciate the opportunity to further collaborate with HSCRC and other key stakeholders on this proof of concept.