

STATE OF MARYLAND  
DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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Vice Chairman

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C. James Lowthers

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Executive Director

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Hospital Rate Setting

**HEALTH SERVICES COST REVIEW COMMISSION**

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**474th MEETING OF THE HEALTH SERVICES COST REVIEW COMMISSION**

**EXECUTIVE SESSION**

**January 12, 2011**

**9:00**

**1. Dimensions Update**

**PUBLIC SESSION OF THE  
HEALTH SERVICES COST REVIEW COMMISSION**

**9:30 a.m.**

**1. Review of the Public and Executive Session Minutes of December 8, 2010**

**2. Executive Director's Report**

**3. Docket Status – Cases Closed - None**

**4. Docket Status – Cases Approved**

- 2096N – Maryland General Hospital
- 2097N – Laurel Regional Medical Center
- 2098A – Johns Hopkins Health System
- 2099A – Johns Hopkins Health System
- 2100A – Johns Hopkins Health System
- 2101A – Johns Hopkins Health System
- 2102N – Washington Adventist Hospital
- 2103N – Washington Adventist Hospital
- 2104N – Adventist Behavioral Health
- 2105N – Adventist Behavioral Health

- 5. Draft Recommendation on Potentially Preventable Readmissions Methodology**
  - a.) MHA PPR Presentation
- 6. Final Recommendation on a Template for Review and Negotiation of an Admission-Readmission Revenue (ARR) Hospital Payment Constraint Program**
- 7. Legal Report**
- 8. Hearing and Meeting Schedule**

**Executive Session Minutes  
of the  
Health Services Cost Review Commission**

**December 8, 2010**

Upon motion made, Vice-Chairman Sexton called the meeting to order at 9: 15 a.m.

The Meeting was held under the authority of Section 10-508 of the State Government Article.

In attendance, in addition to Vice-Chairman Sexton and Chairman Puddester, who joined the meeting, were Commissioners Bone, Lowthers, and Wong.

Robert Murray, Steve Ports, Jerry Schmith, Dennis Phelps, Dianne Feeney, Sule Calikoglu and Oscar Ibarra attended representing Commission staff.

Also attending were Leslie Schulman and Stan Lustman, Commission Counsel.

**Item One**

The Commission was brought up to date on how staff would use the authority delegated to it to extend temporarily the approval of an alternative rate arrangement.

**Item Two**

The Commission discussed confidential financial information relating to the Dimensions Health System. The Commission also addressed the implications of this information along with information pertaining to Dimensions' standing on existing performance measures.

The Executive Session was adjourned at 10:15 a.m.

**MINUTES**  
**473rd MEETING OF THE**  
**HEALTH SERVICES COST REVIEW COMMISSION**

**December 8, 2010**

Chairman Frederick W. Pudderster called the meeting to order at 10:07 a.m. Commissioners George H. Bone, M.D., C. James Lowthers, Kevin J. Sexton, and Herbert S. Wong, Ph.D. were also present.

**ITEM I**  
**REVIEW OF THE MINUTES OF THE PUBLIC SESSION**  
**OF NOVEMBER 3, 2010**

The Commission voted unanimously to approve the minutes of the November 3, 2010 Public Session.

**ITEM II**  
**EXECUTIVE DIRECTOR'S REPORT**

Robert Murray, Executive Director, updated the Commission on the progress of current major initiatives and issues. The major items included: 1) final FY 2011 rate orders have been completed and promulgated; 2) the limiting of the annual discussion of the Reasonableness of Charges (ROC) methodology to technical issues such as the revised Capital Policy; 3) the draft of the Maryland Hospital Preventable Re-admissions initiative will be discussed again at today's meeting; 4) staff continues to work on an evaluation structure for the Community Benefit Report; and 6) input sessions with stakeholders continue, and the draft Admission-Readmission Revenue (AAR) will be presented today.

**ITEM III**  
**DOCKET STATUS CASES CLOSED**

2090N- Memorial Hospital at Easton

2095A – Johns Hopkins Health  
System

**ITEM IV**  
**DOCKET STATUS CASES OPEN**

There were no cases presented for Commission action.

**30 Day Extensions:**

Staff requested that the Commission approve 30 day extensions of the time for review of

proceedings 2096N-Maryland General Hospital and 2097N-Laurel Regional Medical Center.

The Commission voted unanimously to approve staff's request.

### **DESCRIPTION OF THE TOTAL PATIENT REVENUE (TPR) RATE SETTING PROGRAM**

Mr. Murray provided an overview of the TPR rate setting program. Mr. Murray described the TPR program as a voluntary global budget rate setting program, applicable to isolated hospitals with contained catchment areas, which assures hospitals a prescribed amount of revenue independent of the number of patients treated. Although in the past there have been as many as four hospitals on the TPR program at one time, there are currently only two, Garret County Memorial Hospital and Edward W. McCready Memorial Hospital. Initiated in 1981, the TPR program provides hospitals with very strong incentives to reduce unnecessary utilization.

Utilizing the authority granted by the Commission to negotiate individual agreements based on an approved policy framework and template, the TPR program has proven to be a very favorable mechanism to control costs and to provide hospitals with financial sustainability. In addition, the TPR program allows hospitals to serve their communities more effectively; to monitor changes in their delivery system; and to modify their agreements if necessary, while serving as a platform for the possible development of a regional Accountable Care Organization.

According to Mr. Murray, staff is negotiating with nine hospitals, with total gross patient revenue of \$1.3 billion, that are interested in participating in the TPR program.

Commissioner Sexton and Chairman Pudderster asked Mr. Murray to provide a projection of how the hospitals under the TPR program will perform, so that the Commission will be able to measure the results of the program.

### **ITEM V** **DRAFT RECOMMENDATION ON POTENTIALLY PREVENTABLE READMISSIONS** **METHODOLOGY**

Diane Feeney, Associate Director-Quality Initiative, stated that the only change in the draft recommendation was to move the implementation date of the Potentially Preventable Readmissions (PPR) initiative from January 1, 2011 to April 1, 2011, in recognition of data issues. Ms. Feeney reported that since the last public meeting, there have been two technical/finance workgroup meetings, as well as a meeting with MHA's Quality Council to discuss the STAAR (State Action on Avoidable Re-hospitalizations) initiative infrastructure. Staff continues to work diligently on the issue of identifying readmitted patients in the short term with an algorithm and, in the long term, by developing a unique patient identifier.

Chairman Pudderster noted that the recommendation listed a number of reasons that

readmissions could reasonably be prevented by hospitals or physicians; however, the issue of patient non-compliance was omitted.

According to Mr. Murray, the PPR system is a methodology based on averages, the methodology treats patient non-compliance as a random event that all hospitals encounter. Mr. Murray noted that the methodology does adjust for mental health and substance abuse patients who tend to be more of a non-compliance problem.

Commissioner Bone expressed concern that the recommendation did not address the lack of primary care physicians in Maryland who are a key factor in coordinating care to prevent unnecessary readmissions.

Ms. Feeney stated that the STAAR Initiative, contained within the recommendation's appendix addresses the physician shortage problem by establishing cross-continuum teams that include physicians.

Commissioner Bone pointed out that that the STAAR initiative assumes that physicians are available, but they are not.

The Chairman asked Ms. Feeney how confident she was that staff could overcome patient identification problems inherent in the inter-hospital methodology.

Ms. Feeney stated that the use of the inter-hospital methodology is contingent on how well the work on the patient matching algorithm goes, and how confident staff is with its accuracy. Although we are hopeful, we don't know the answer yet. Ms. Feeney noted that staff planned to implement the PPR program with both inter and intra-hospital methodologies as long as they were satisfied that the patient matching algorithm was accurate enough. Ms. Feeney stated that staff would report back to the Commission on its progress with the algorithm.

According to Mr. Murray, the literature from experts in this area indicates that it is important to be able to at least track both inter and intra-hospital readmissions. That is why staff's emphasis has been on being in a position to track all patients. Staff believes it can successfully work through the patient identification issues; it will come to the Commission at the February public meeting with a recommendation as to whether to proceed with both inter and intra-hospital readmissions or to delay implementation pending improvement in our ability to match patients. Mr. Murray pointed out that the PPR methodology is linked to a set of incentives that scales a very modest amount of revenue; delaying its implementation would not be a major setback.

A panel consisting of Beverly Miller, Senior Vice President-Professional Activities of the Maryland Hospital Association (MHA), Traci LaValle, Assistant Vice President-Financial Policy of the MHA, and Patrick Redman, PhD, consultant, representing the Maryland Hospital Association presented written comments on staff's proposed PPR methodology and suggested an alternative methodology.

Ms. LaValle stated that MHA supports an episodic admission-readmission bundling approach for

all hospitals. While similar to staff's proposed Admission-Readmission Revenue (ARR) arrangements, it would utilize only intra-hospital re-admission data. It would permit hospitals to voluntarily be at risk for 100% of all additional re-admissions; however, it would require all other hospitals to be at risk for 60% of all additional re-admissions. The 60% model would replace PPR scaling with hospitals that choose the 100% model being exempt from the 60% model. In essence, hospitals in the 60% model will have a fixed cost percentage of 60% and a variable cost percentage of 40%, i.e., if a hospital reduces its total re-admissions, it gets to keep 60% of the revenue associated with the reduced re-admissions; however, if total re-admissions increase, the hospital loses 60% of the revenue associated with the additional re-admissions.

Dr. Redman outlined the potential savings at the end of three years based on the experience of programs that are similar to MHA's proposal. According to Dr. Redman such programs have reduced preventable re-admissions by up to 25%. They have also produced cost savings to hospitals of 0.2% of inpatient revenue, and 0.5% savings to payers. This is based on an annual investment in transitional care coordination of 0.44%. In addition to the reduction in hospital costs, the better transition of care will lead to better outcomes.

Ms. LaValle stated that reducing re-admissions is the first step on the road towards where we think the health care delivery system is going. However, achieving savings beyond this initial model will require the development of medical home and chronic care models which will take more time, perhaps up to five or ten years and will require intense investment in care coordination, IT infrastructure, and other resources.

Ms. Miller stated that MHA wanted to continue to work with staff to develop a concept and approach for infrastructure for quality improvement, based on the STAAR initiative model, which will be most effective for reducing re-admissions in Maryland.

Hal Cohen, PhD, representing CareFirst of Maryland and Kaiser Permanente, noted that MHA's proposal included a greater fixed cost percentage, which the payers have been advocating for years. Dr. Cohen expressed support for expanding the number of hospitals on the TPR system, as well as the PPR and ARR initiatives. According to Dr. Cohen, the TPR provides the strongest incentives for savings followed by the ARR and PPR in descending order. Dr. Cohen urged the Commission to structure the incentives to hospitals to reflect their relative importance in order to encourage hospitals to participate in the most effective initiatives.

With regard to the PPR, Dr. Cohen stated that his clients support rewards based on improvement in the combination of intra-hospital and inter-hospital re-admissions. However, comparing hospitals on improvement in inter-hospital re-admissions may be difficult. When we are in a position to make that measurement, his clients would support using proven savings to fund the upfront money for the ARR infrastructure. In addition, Dr. Cohen noted that CareFirst and Kaiser recommended this year during the review of the ROC methodology that the Commission evaluate ways of changing how Indirect Medical Education is financed to encourage the training of primary care physicians.

**ITEM VI**  
**DRAFT APPROVAL AND EVALUATION TEMPLATE FOR ADMISSION-  
READMISSION REVENUE (ARR) ARRANGEMENTS**

Mr. Murray summarized staff's draft Approval and Evaluation Template for Admission-Readmission Revenue Arrangements (see draft recommendation, "Template for Review and Negotiation of an Admission Readmission Revenue (ARR) Hospital Payment Constraint Program" on the HSCRC website).

The draft recommendations include: 1) that the basic policy framework to be utilized as the core template for negotiating ARR arrangements; 2) that the proposed agreement provide the basic template for the agreement between the Commission and any hospital entering into an ARR arrangement; and 3) that the Commission direct staff to report back to the Commission in public session on any ARR arrangements negotiated with individual hospitals.

Commissioner Sexton asked Mr. Murray how he proposed the Commission should proceed with this initiative considering the issues of: equity and the voluntary nature of ARR initiative; whether the initiative is moving the Commission to a point where success is judged not by controlling hospital rates, but by controlling total spending on hospital services; as well as the initiative's effect on the Medicare waiver.

Mr. Murray stated that based on the successful history of the Guaranteed Inpatient Revenue system which was also voluntary, staff is convinced that the ARR initiative will produce positive results. Mr. Murray acknowledged the problem of fairness in that the system that would provide the greatest rewards to hospitals that have not done a good job and not made investments to improve.

Mr. Murray observed that while we want all of these new programs to be consistent with the overall goal of bending the cost curve and payment and delivery system reform, we must also realize that this is a very complicated goal. However, if we take incremental steps, such as the ARR initiative, and modify them when necessary, we will eventually achieve our goal.

With regard to the Medicare waiver, Mr. Murray observed that although reducing re-admissions will hurt us on the waiver test, the people at The Centers for Medicare and Medicaid Services (CMS) understand and support what we are doing and are willing to work with us.

Chairman Puddester asked how much flexibility staff needed to negotiate these arrangements.

Mr. Murray stated that there is a trade-off. If the criteria are too rigid, there will be less interest from the hospitals. But more hospitals will show interest and will be more willing to present their individual cases if staff has some degree of flexibility. However, it is the Commission's decision on how much flexibility they grant to staff.

Barry Rosen, representing United Healthcare, expressed concern that under both the ARR initiative and MHA's proposal hospitals would get to keep the upfront funding even they do nothing and their re-admissions remain the same. Mr. Rosen asserted that what is missing from the ARR initiative and MHA's proposal is a guarantee like the one made by MHA, in the joint proposal by CareFirst, United Healthcare, Medicaid, and MHA to settle the 2010 Update Factor, that re-admissions will be reduced.

Mr. Rosen suggested that of the two proposals the ARR initiative would be more effective in reducing readmissions and therefore, more appropriate for upfront funding.

Dr. Cohen expressed support for the 100% reward for reducing re-admissions in the ARR initiative if it is coupled with low update factors. Dr. Cohen urged that upfront costs should be included in the update factor slippage adjustment and that they be paid back.

**ITEM VII**  
**UPDATE ON STATUS OF A STATE-ONLY PHYSICIAN LOAN ASSISTANCE**  
**REPAYMENT PROGRAM**

Steve Ports, Principal Deputy Director-Policy and Operations, summarized the background and current status of the proposed State-Only Loan Assistance Repayment Program (LARP). Mr. Ports reported that there is currently a federal LARP within the Maryland Higher Education Commission (MHEC), which provides funding to provide primary care physicians to pay their education loans, in exchange for a commitment to practice in an area of the State where there is a physician shortage. However, most jurisdictions in Maryland do not qualify for the Program because the federal definition of "areas with a physician shortage" is so restrictive.

As a result, the Task Force on Health Care Access and Reimbursement recommended that a State-Only LARP funded through hospital rates be created. However, the Task Force stipulated that the State-Only program should only be created if: 1) it is in the public interest; 2) it is consistent with the Medicare waiver; and 3) it does not significantly increase costs to Medicare, which would place the Medicare waiver in jeopardy. Legislation was adopted in 2009 to permit MHEC to utilize funding from the HSCRC provided through hospital rates for the State-Only LARP program.

Subsequently, the Secretary of Health directed the HSCRC to work with MedChi to draft a letter for his signature, directed to the Center for Medicare and Medicaid Services (CMS) Administrator describing the value of a State-Only LARP program in Maryland and to request a meeting with the objective of gaining CMS approval. The letter went out several months ago, but as of this date, the Secretary has not received a reply.

**VIII**  
**LEGAL REPORT**

**Regulations**

**Final Adoption**

**Uniform Accounting and Reporting System for Hospitals and Related Organizations – COMAR 10.37.01.03L-1**

The purpose of this action is to require hospitals to file with the Commission an Annual Debt Collection Report in the form prescribed by the Commission.

The Commission voted unanimously to approve the final adoption of this amended regulation.

**SPECIAL PRESENTATION**  
**TO FORMER HSCRC CHAIRMAN, DONALD A. YOUNG, M.D.**

Mr. Murray presented Donald A. Young, M.D. with a plaque honoring him for his service to the citizens of Maryland as Chairman of the Health Services Cost Review Commission. Mr. Murray praised Dr. Young for his vision in recognizing the importance of constraining payment growth as a necessary element in delivering better and more affordable health care to Marylanders and the internal composition to remain true to his policy beliefs. Mr. Murray stated that Dr. Young was not only an eloquent spokesperson on behalf of the Commission and the public interest, but he was also a respectful and fair-minded listener – committed to hearing all sides of an issue.

From his perspective as Executive Director, Mr. Murray observed that Dr. Young always sought to protect staff by standing with them on the front lines. He provided guidance and direction, never failed to consider all-sides of an issue carefully, and did so with class and dignity. During his tenure, Dr. Young clearly lived up to his billing as a Scholar and Gentleman.

**ITEM X**  
**HEARING AND MEETING SCHEDULE**

January 12, 2011	Time to be determined, 4160 Patterson Avenue, HSCRC Conference Room
February 2, 2011	Time to be determined, 4160 Patterson Avenue, HSCRC Conference Room

There being no further business, the meeting was adjourned at 12:07 p.m.

**IN RE: THE PARTIAL RATE                   \*       BEFORE THE HEALTH SERVICES**  
**APPLICATION OF THE                   \*       COST REVIEW COMMISSION**  
**LAUREL REGIONAL                   \*       DOCKET                   2010**  
**HOSPITAL                   \*       FOLIO:                   1907**  
**LAUREL, MARYLAND                   \*       PROCEEDING:           2097N**

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**Commission Approved**

**January 12, 2011**

## **Introduction**

On November 22, 2010, Laurel Regional Hospital (the Hospital) submitted a partial rate application to the Commission requesting a rate for Hyperbaric Chamber (HYP) services. The Hospital is requesting the statewide median rate for HYP services to be effective January 1, 2011.

## **Staff Evaluation**

To determine if the Hospital's HYP rate should be set at the statewide median rate or at a rate based on its own cost experience, the staff requested that the Hospital submit to the Commission all cost and statistical data for HYP services for FY 2011. Based on information received, it was determined that the HYP rate based on the Hospital's actual data would be \$279.37 per RVU, while the statewide median rate for HYP services is \$246.02 per RVU.

## **Recommendation**

After reviewing the Hospital's application, the staff recommends as follows:

1. That COMAR 10.37.10.07 requiring that rate applications be filed 60 days before the opening of a new service be waived;
2. That an HYP rate of 246.02 per RVU be approved effective January 1, 2011;
3. That no change be made to the Hospital's Charge per Case standard for HYP services; and
4. That the HYP rate not be rate realigned until a full year's experience data have been reported to the Commission.

**IN RE: THE APPLICATION FOR  
ALTERNATIVE METHOD OF RATE  
DETERMINATION  
JOHNS HOPKINS HEALTH  
SYSTEM  
BALTIMORE, MARYLAND**

**\* BEFORE THE MARYLAND HEALTH  
\* SERVICES COST REVIEW  
\* COMMISSION  
\* DOCKET: 2010  
\* FOLIO: 1908  
\* PROCEEDING: 2098A**

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**Commission Approved  
January 12, 2011**

## **I. INTRODUCTION**

Johns Hopkins Health System (“System”) filed an application with the HSCRC on December 23, 2009 on behalf of its member hospitals, Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the “Hospitals”), requesting approval to continue to participate in a re-negotiated global price arrangement with Aetna Health, Inc. for solid organ and bone marrow transplant services. The revised arrangement again covers blood and bone marrow transplants, which were covered in prior years but discontinued last year. The Hospitals request that the Commission approve the arrangement for one year beginning January 1, 2011.

## **II. OVERVIEW OF APPLICATION**

The contract will be held and administered by Johns Hopkins HealthCare, LLC (“JHHC”), which is a subsidiary of the System. JHHC will continue to manage all financial transactions related to the global price contract including payments to the System hospitals and bear all risk relating to regulated services associated with the contract.

## **III. FEE DEVELOPMENT**

The hospital portion of the global rates was developed by calculating mean historical charges for patients receiving the procedures for which global rates are to be paid. The remainder of the global rate is comprised of physician service costs. Additional per diem payments calculated for cases that exceed a specific length of stay outlier threshold were similarly adjusted.

## **IV. IDENTIFICATION AND ASSESSMENT OF RISK**

The Hospitals will submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer, collecting payments, disbursing payments to the Hospitals at their full HSCRC approved rates, and reimbursing the physicians. The System

contends that the arrangement among JHHC, the Hospitals, and the physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear risk of potential losses.

## **V. STAFF EVALUATION**

The staff found that the actual experience under the prior arrangement for the last year's solid organ transplants has been favorable. In addition, after review of the data, staff is confident that the global prices for bone marrow transplant services are sufficient to enable the Hospitals to achieve a favorable result.

## **VI. STAFF RECOMMENDATION**

Staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and bone marrow transplant services for a one year period beginning January 1, 2011. The Hospitals must file a renewal application annually for continued participation.

Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

**LIFE TRAC, INC NETWORK GLOBAL PRICE ARRANGEMENT FOR SOLID ORGAN  
AND BLOOD AND MARROW TRANSPLANTS**

**Solid Transplant Procedures**

Kidney – DRG 652

Pancreas - DRG 010

Simultaneous Pancreas Kidney – DRG 008

Lung (single and double) – DRG 007

Heart – DRG 001

Liver – DRG 005

**Blood and Marrow Transplant: DRG 009**

Autologous Transplant & 2<sup>nd</sup> Auto Tandem – ICD-9 codes 41.01, 41.04, or 41.09

Allogeneic Transplant (Related Donor) ICD-9 codes 41.02, 41.03, 41.05, or 41.08  
(*myelobative and non-myelobative*)

Allogeneic Transplant (Unrelated Donor) ICD-9 codes 41.02, 41.03, 41.05, or  
41.08 (*myellobative*)

**IN RE: THE APPLICATION FOR  
ALTERNATIVE METHOD OF RATE  
DETERMINATION  
JOHNS HOPKINS HEALTH  
SYSTEM  
BALTIMORE, MARYLAND**

**\* BEFORE THE MARYLAND HEALTH  
\* SERVICES COST REVIEW  
\* COMMISSION  
\* DOCKET: 2010  
\* FOLIO: 1909  
\* PROCEEDING: 2099A**

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**Commission Approved  
January 12, 2011**

## **I. INTRODUCTION**

Johns Hopkins Health System (“the System”) filed a renewal application with the HSCRC on December 17, 2010 on behalf of its member hospitals, Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the “Hospitals”) for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System requests approval from the HSCRC to continue to participate in a global rate arrangement for solid organ and bone marrow transplants with Coventry Transplant Network for a period of three years.

## **II. OVERVIEW OF APPLICATION**

The contract will be continue to be held and administered by Johns Hopkins HealthCare, LLC (“JHHC”), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the System hospitals and bear all risk relating to regulated services associated with the contract.

## **III. FEE DEVELOPMENT**

The hospital portion of the global rates was developed by calculating the most recent mean historical charges for patients receiving the procedures for which global rates are to be paid. The contract also has a stop loss clause. The remainder of the global rate is comprised of physician service costs. Additional per diem payments were calculated for cases that exceed a specific length of stay outlier threshold.

## **IV. IDENTIFICATION AND ASSESSMENT OF RISK**

The Hospitals will continue to submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer, collecting payments, disbursing payments to the Hospitals at their HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospitals, and the

physicians holds the Hospitals harmless from any shortfalls in payment from the global price contract. JHHC maintains that it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear risk of potential losses.

## **V. STAFF EVALUATION**

Based on the favorable performance in the last year, staff believes that the Hospitals can continue to achieve a favorable experience under this arrangement.

## **VI. STAFF RECOMMENDATION**

The staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and bone marrow transplant services, for a one year period commencing January 1, 2011. The Hospitals will need to file a renewal application for review to be considered for continued participation.

Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

**IN RE: THE APPLICATION FOR  
ALTERNATIVE METHOD OF RATE  
DETERMINATION  
JOHNS HOPKINS HEALTH  
SYSTEM  
BALTIMORE, MARYLAND**

**\* BEFORE THE MARYLAND HEALTH  
\* SERVICES COST REVIEW  
\* COMMISSION  
\* DOCKET: 2010  
\* FOLIO: 1910  
\* PROCEEDING: 2100A**

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**Commission Approved  
January 12, 2011**

## **I. INTRODUCTION**

Johns Hopkins Health System ("System") filed an application with the HSCRC on December 17, 2010 on behalf of Johns Hopkins Hospital (the "Hospital") for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System requests approval from the HSCRC for participation in a global rate arrangement for solid organ and bone marrow transplant services with Blue Cross Blue Shield System's Blue Distinction Centers for Transplants for a period of one year beginning January 1, 2011.

## **II. OVERVIEW OF APPLICATION**

The contract will be held and administered by Johns Hopkins HealthCare, LLC ("JHHC"), which is a subsidiary of the System. JHHC will manage all financial transactions related to the global price contract including payments to the Hospital and bear all risk relating to regulated services associated with the contract.

## **III. FEE DEVELOPMENT**

The hospital portion of the new global rates was developed by calculating mean historical charges for patients receiving live donor kidney transplants at the Hospital. The remainder of the global rate is comprised of physician service costs. Additional per diem payments were calculated for cases that exceed a specific length of stay outlier threshold.

## **IV. IDENTIFICATION AND ASSESSMENT OF RISK**

The Hospital will submit bills to JHHC for all contracted and covered services. JHHC is responsible for billing the payer, collecting payments, disbursing payments to the Hospital at its full HSCRC approved rates, and reimbursing the physicians. The System contends that the arrangement among JHHC, the Hospital, and the physicians

holds the Hospital harmless from any shortfalls in payment from the global price contract. JHHC maintains it has been active in similar types of fixed fee contracts for several years, and that JHHC is adequately capitalized to bear the risk of potential losses.

## **V. STAFF EVALUATION**

Since the format utilized to calculate the case rate, i.e., historical data for like cases, has been utilized as the basis for other successful transplant arrangements in which the Hospital is currently participating, staff believes that the Hospital can achieve a favorable experience under this arrangement.

## **VI. STAFF RECOMMENDATION**

The staff recommends that the Commission approve the Hospital's application for an alternative method of rate determination for solid organ and bone marrow transplant services, for a one year period commencing January 1, 2011. The Hospital will need to file a renewal application for review to be considered for continued participation. Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding ("MOU") with the Hospitals for the approved contract. This document would formalize the understanding between the Commission and the Hospital, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract. The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

**IN RE: THE APPLICATION FOR  
ALTERNATIVE METHOD OF RATE  
DETERMINATION  
JOHNS HOPKINS HEALTH  
SYSTEM  
BALTIMORE, MARYLAND**

**\* BEFORE THE MARYLAND HEALTH  
\* SERVICES COST REVIEW  
\* COMMISSION  
\* DOCKET: 2010  
\* FOLIO: 1911  
\* PROCEEDING: 2101A**

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**Commission Approved  
January 12, 2011**

## **I. INTRODUCTION**

Johns Hopkins Health System (“the System”) filed a renewal application with the HSCRC on December 17, 2010 on behalf of its member hospitals, the Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the “Hospitals”) for an alternative method of rate determination, pursuant to COMAR 10.37.10.06. The System requests approval from the HSCRC for continued participation in a capitation arrangement serving persons insured with Tricare. The arrangement involves the Johns Hopkins Medical Services Corporation and Johns Hopkins Healthcare as providers for Tricare patients. The requested approval is for a period of one year.

## **II. OVERVIEW OF APPLICATION**

The parties to the contract include the Johns Hopkins Medical Services Corporation and Johns Hopkins Healthcare, a subsidiary of the System. The program provides a range of health care services for persons insured under Tricare including inpatient and outpatient hospital services. Johns Hopkins Health Care will assume the risk under the agreement, and all Maryland hospital services will be paid based on HSCRC rates.

## **III. STAFF RECOMMENDATION**

The staff recommends that the Commission approve the Hospitals’ renewal application for an alternative method of rate determination for a one year period beginning January 1, 2011. This recommendation is based on historical favorable contract performance.

Consistent with its policy paper regarding applications for alternative methods of rate determination, the staff recommends that this approval be contingent upon the execution of the standard Memorandum of Understanding (“MOU”) with the Hospitals for the approved contract. This document would formalize the understanding between

the Commission and the Hospitals, and would include provisions for such things as payments of HSCRC-approved rates, treatment of losses that may be attributed to the contract, quarterly and annual reporting, confidentiality of data submitted, penalties for noncompliance, project termination and/or alteration, on-going monitoring, and other issues specific to the proposed contract, The MOU will also stipulate that operating losses under the contract cannot be used to justify future requests for rate increases.

STATE OF MARYLAND  
DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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**To:** HSCRC Commissioners

**From:** Dianne Feeney

**Re:** Modifications to the Maryland Hospital Preventable Readmissions (MHPR) Draft Recommendations

**Date:** January 5, 2011

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This is to advise the Commissioners of the most recent changes to the MHPR Draft Recommendations document. Changes to the document from the December 1, 2010 version include:

- pgs. 10 (bottom) and 11 (top)- updated information on staff's work on methods and strategies to construct a unique patient ID to calculate accurate across-hospital PPR rates for the near- mid- and long-term; as indicated in the draft, staff anticipates determining whether a reliable unique ID can be constructed in the near-term with the current data available by the February Commission meeting.
- pg. 18- text indicating the final MHPR recommendation would be presented to the Commission in December 2010 has been deleted.

**Draft Staff Recommendation on Rate Methods and Financial Incentives  
relating to Reducing Maryland Hospital Preventable Readmissions  
(MHPRs)**

Health Services Cost Review Commission

January 5, 2011 Revised

This document represents a revised draft recommendation to be presented to the Commission on January 12, 2011.

## **1.0 - Background**

Inpatient hospitalizations are one of the most costly categories of health care costs in the United States accounting for between 20-25% percent of total health care expenditures.<sup>1</sup> The Institute of Medicine has estimated that approximately 3% of US hospitalizations result in adverse events, and almost 100,000 patients die annually due to medical errors.<sup>2</sup> Reducing rates of hospital readmissions has, thus, attracted considerable attention from policy-makers as a way of improving quality and reducing costs.

Until recently, there has been limited information on the frequency and pattern of hospital readmissions and little ability to appropriately link hospital performance to payment in a responsible and meaningful way. Also, standard prospective payment systems, such as Medicare's Inpatient Prospective Payment System (IPPS) or Maryland's Charge per Case system (CPC) fail to provide incentives for hospitals to appropriately control the frequency of readmissions. Although the HSCRC incorporated a volume-related payment adjustment in 2008, there are few financial incentives for hospitals to invest in the necessary infrastructure to reduce unnecessary readmissions by reducing medical errors during the inpatient stay (that may lead to a repeat admission) or more actively cooperate with other providers to improve coordination of care post discharge.

### **Cost Implications of Readmissions and Wide Variation of Readmission Performance**

In the Medicare program, inpatient care accounts for 37 percent of spending,<sup>3</sup> and readmissions contribute significantly to that cost: 18 percent of all Medicare patients discharged from the hospital have a readmission within 30 days of discharge, accounting for \$15 billion in spending.<sup>4</sup>

In Maryland, the rate of readmissions is based on analysis of 2007 readmission data using the Potentially Preventable Readmissions (PPR) methodology:

- The top performing hospitals had risk/severity adjusted 15-day rates of readmission just below 4%
- The bottom performing hospitals had risk/severity adjusted 15-day rates of readmission just above 8%
- The 15-day readmission rate overall was 6.74%
- The 30-day readmission rate overall was 9.81%
- For readmissions in 15 days, there were \$430.4 million (5.3%) estimated associated charges
- For readmissions in 30 days, there were \$656.9 million (8.0%) estimated associated charges

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<sup>1</sup> Catlin, A. et al. "National Health Spending in 2006: A Year of Change for Prescription Drugs," *Health Affairs*, January/February 2008, Vol. 27, No. 1, pp. 14-29.

<sup>2</sup> To Err is Human, The Institute of Medicine, November, 1999.

<sup>3</sup> Medicare Payment Advisory Commission. 2006. *Healthcare Spending and the Medicare Program: A Data Book*. Washington DC: Medicare Payment Advisory Commission, p.9.

<sup>4</sup> Medicare Payment Advisory Commission. 2007. *Report to the Congress: Promoting Greater Efficiency in Medicare*. Washington, DC: Medicare Payment Advisory Commission, p. 103.

According to a recent national study on readmissions of Medicare patients, Maryland appeared to have the second highest readmission rate (22%) of any jurisdiction in the U.S., with the District of Columbia at 23.2% (see **Appendix I** for a copy of this article and analysis).<sup>5</sup>

## **Factors Contributing to Unnecessary Readmissions**

Multiple factors contribute to the high level of hospital readmissions in the U.S. generally and in Maryland in particular. They may result from poor quality care or from poor transitions between different providers and care settings. Such readmissions may occur if patients are discharged from hospitals or other health care settings prematurely; if they are discharged to inappropriate settings; or if they do not receive adequate information or resources to ensure a continued progression of services. System factors, such as poorly coordinated care and incomplete communication and information exchange between inpatient and community-based providers, may also lead to unplanned readmissions.

Hospital readmissions may also adversely impact payer and provider costs and patient morale. Some hypothesized in the 1980s that Medicare's implementation of IPPS would encourage physicians to discharge patients "sicker and quicker." That did not turn out to be a significant problem for the quality of inpatient care; yet, patients were discharged earlier, which may theoretically increase the risk of readmissions, resulting in greater costs to payers. Moreover, preliminary analysis suggests that the majority of readmissions are for medical services rather than surgical procedures, suggesting that hospital readmissions may not be profitable to hospitals.<sup>6</sup>

Reducing readmissions, then, represents a unique opportunity for policymakers, payers, and providers to reduce health care costs while increasing the quality of patient care. Identifying best practices and policy levers to reduce avoidable readmissions would likely improve quality, reduce unnecessary health care utilization and costs, promote patient-centered care, and increase value in the health care system. Moreover, as some individuals are at greater risk of readmissions as a result of individual characteristics, care coordination efforts that reduce hospital readmissions may help eliminate disparities in health care.

Clearly, there is an urgent need at both a state and national level to develop a set of payment reforms that can provide strong financial incentives for hospitals to reduce their rates of Potentially Preventable Readmissions (PPRs).<sup>7</sup> The increasing focus in linking payment and quality (i.e., the

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<sup>5</sup> Jenks SF, Williams MV, Coleman EA, Rehospitalizations among Patients in the Medicare Fee-for-Service Program. *New England Journal of Medicine*. 360:1418-28, April 2, 2009.

<sup>6</sup> Interviews with Stephen F. Jencks, M.D., M.P.H., Mark V. Williams, M.D. and Eric A. Coleman, M.D., M.P.H. May 2005.

<sup>7</sup> Potentially Preventable Readmissions (PPRs) represent a categorical model developed by 3M Health Information Systems which categorizes and identifies return hospitalizations that may have resulted from the process of care and treatment or lack of post admission follow-up rather than unrelated events that occur post discharge.

overall value of the care provided) is motivated by the dramatic escalation in health care costs and the past inability of policymakers to measure and compare health outcomes.

If readmission rates are to serve as an overall measure of both quality and cost, it is necessary to apply an analytic approach that focuses on those readmissions that could have potentially been prevented. As the nation's only "All-Payer" rate setting system, and with its current use of the highly sophisticated All-Payer-Refined Diagnostic Related Grouping risk-adjustment and case mix classification system (APR-DRGs), the Maryland hospital payment system is uniquely positioned to make use of these readmission measurement systems and link relative hospital performance to financial incentives in a meaningful and productive way.

The following recommendation is intended to describe an approach for incorporating such a system of incentives into the Maryland hospital "All-Payer" payment system beginning in FY 2011.

## **2.0 - Using Payment Incentives to Reduce Unnecessary Readmissions in Maryland**

### **Basic Principles for the Establishment of Payment Incentives**

In developing its method for the incorporation of payment incentives for hospitals to reduce unnecessary readmissions, the HSCRC first identified a set of basic principles to help guide the Commission's overall effort.

**1) Fairness in Measurement:** First, there should be a focus on the development of appropriate adjustment factors to take into account systematic and less-controllable issues and factors that influence readmission rates that all hospitals may experience. Factors that were found to significantly influence readmission rates include age, the presence of mental health and substance abuse secondary diagnoses, disproportionate share effects (Medicaid status), and hospital location (hospitals near the state border will naturally have a higher proportion of their patients readmitted to hospitals outside of Maryland).

**2) Broad Level of Applicability and Fairness in the Application of Rewards and Penalties:** As the HSCRC learned during the course of development of its Maryland Hospital Acquired Conditions (MHACs) initiative, basing payment rewards and penalties on a hospital's relative rate of performance avoids problems generated by a focus on individual cases. Since readmissions are often the result of problems in the care processes relating to coordination and communication between hospitals and post-discharge care providers, a focus on systematic differences in readmission rates across hospitals (comparison of actual readmission rates relative to expected readmission rates by hospital) is appropriate and allows for a much broader level of application. However, a reward/penalty system that applies only to relative hospital performance in a given year does not address year to year changes in individual hospital readmission rates. The Commission may wish to consider the

application of a hybrid system of rewards and penalties, focusing both on relative hospital performance and year to year changes in hospital performance.

**3) Prospective Application:** During the process of the MHAC development, the HSCRC also realized the importance of prospective application of payment incentive programs linked to quality improvement. Individual hospital PPR rates should be compared to expected PPR rates (risk adjusted), and established targets should be set from a previous year so they are known in advance.

**4) Emphasis on Infrastructure Development to Assist Hospitals in Reducing PPRs:** A substantial effort should be made to facilitate hospitals' development of infrastructure and knowledge regarding best PPR-reducing mechanisms/strategies. The HSCRC and other entities (the Hospital Association - as demonstrated in states like Florida) can play a vital role in providing infrastructure support to hospitals to help them identify and implement best practices associated with readmission reduction.

**5) Appropriate Level of Financial Incentive:** Another important realization from the MHAC policy development process was the need to arrive at an appropriate level of financial risk for providers when establishing the link between provider payment and performance. For MHACs, the Commission decided to place hospitals under only a moderate level of risk in the early stages of the initiative. This was because the HSCRC wanted to give hospitals sufficient time to understand the methodology and make use of the available data tools to analyze their performance and put in place the clinical and operational changes necessary to improve performance.

The same arguments also apply to the introduction of payment incentives related to reducing PPRs. However, unlike MHACs, the incentives for reducing readmissions must take into consideration the significant counter-incentives the hospital will face in lost revenue from fewer readmissions. Eventually, the amount of revenue at risk for reducing PPRs must be sufficiently large to counterbalance loss of revenue due to reduced readmissions.

### **3.0 - Maryland Uniquely Positioned to Link Payment to Reduced Readmissions**

Given the HSCRC's use of and experience with the APR-DRGs mechanism for both risk adjustment and revenue constraint, it is natural that the HSCRC might wish to consider the use of a complementary tool (Potentially Preventable Readmissions) as the basis for linking payment to performance related to the reduction of Maryland hospital readmissions. APR-DRGs and PPRs are products of 3M Health Information Systems and have been used in a number of other jurisdictions to measure and monitor rates of preventable hospital readmissions rates.

The following sections briefly identify and define the key components and steps involved in the application of the PPR methodology to measure relative hospital performance on their ability to reduce preventable readmissions.

## Potentially Preventable Readmissions and PPR Logic

A **Potentially Preventable Readmission** is a readmission (return visit to a hospital within a specified period of time) that is clinically-related to an **Initial Hospital Admission**. For readmissions to be “**Clinically-Related**” to an initial admission, it is necessary that the underlying reason for readmission be plausibly related to the care rendered during or immediately following a prior hospital admission.

A clinically-related readmission may have resulted from the process of care and treatment during the prior admission (e.g., readmission for a surgical wound infection) or from a lack of post admission follow up (lack of follow-up arrangements with a primary care physician) rather than from unrelated events that occurred after the prior admission (broken leg due to a car accident) within a specified readmission window.

The **Readmission Window** (sometimes also referred to as the Readmission Interval) is the maximum number of days allowed between the discharge date of a prior admission and the admit date of a subsequent admission in order for the subsequent admission to be a readmission. Readmission analyses have traditionally focused on 30, 15, and 7 day readmission windows.

The Initial Admission is an admission that is followed by a clinically-related readmission within the specified readmission window. Subsequent readmissions relate back to the care rendered during or following the Initial Admission. The Initial Admission initiates a “**Readmission Chain**.”

Readmission Chains are a sequence of PPRs that are all clinically-related to the Initial Admission. A readmission chain may contain an Initial Admission and only one PPR, which is the most common situation, or may contain multiple PPRs following the Initial Admission. In addition to the “clinically-related” PPR APR-DRGs matrix, all readmissions with a principal diagnosis of trauma are considered not potentially preventable.

### Use of APR-DRGs

Under this approach, APR-DRGs can be used as the basis for establishing the clinic relationship between the Initial Admission and the Readmission. In developing the PPR logic, a matrix was created in which there were 314 rows representing the possible base APR-DRGs of the Initial Admission, and 314 columns representing the base APR-DRGs of the readmission. Each cell in the matrix then represented a unique combination of a specific type of Initial Admission and readmission. Clinical panels applied criteria for clinical relevance and preventability to the combination of base APR-DRGs and each cell. The end result was that each of the 98,596 cells contain a specification of whether the combination of the base APR-DRGs for the Initial Admission and for the readmission were clinically-related, and, therefore, potentially preventable. This matrix operationalized the definition of “clinically-related” in the PPR logic.

## **Exclusions and Non-Events**

There are certain circumstances in which a readmission cannot be considered potentially preventable. Some types of admissions require follow-up care that is intrinsically clinically-complex and extensive, and for which preventability is difficult to assess. For these reasons, admissions for major or metastatic malignancies, multiple trauma, and burns are not considered preventable and are globally excluded as an Initial Admission or readmission.

A second type of global exclusion relates to the discharge status of the patient in the Initial Admission. A hospitalization with a discharge status of “left against medical advice” is excluded as either an Initial Admission or readmission because under these circumstances, the hospital has limited influence on the care rendered to the patient. All types of globally-excluded admissions are classified as Excluded Admissions.

The following admissions are classified as Non-events: admissions to non-acute care facilities; Admissions to an acute care hospital for patients assigned to the base APR-DRG for rehabilitation, aftercare, and convalescence; Same-day transfers to an acute care hospital for non-acute care (e.g., hospice care).

## **Readmission Rates**

The 3M PPR Grouper Software classifies each hospital admission as a PPR, Initial Admission, Transfer Admission, Non-event, Excluded Admission, or an Only Admission. The output from the PPR Grouper software can be used to compute PPR rates by computing the ratio of the number of PPR chains divided by the sum of admissions classified as an Initial Admission or an Only Admission.

Non-events, Transfer Admissions, Only Admissions that died, and Excluded Admissions are ignored in the computation of a PPR rate. PPR rates can be computed for readmission to any hospital or can be limited to readmissions to the same hospital only.

Since a hospital PPR rate can be influenced by a hospital’s mix of patient types and patient severity of illness during the Initial Admission, any comparison of PPR rates must be adjusted for case mix and severity of illness. A risk adjustment system such as APR-DRGs is necessary for proper comparisons of readmission rates. As discussed, higher than expected readmission rates can be an indicator of quality of care problems during the initial hospital stay or of the coordination of care between inpatient and outpatient settings.

## Summary of PPR Logic

A readmission that is clinically-related to the prior Initial Admission or clinically-related to the Initial Admission in a readmission chain is a Potentially Preventable Readmission. A higher than expected rate of PPRs means that the readmissions could reasonably have been prevented through any of the following:

- 1) provision of quality care in the initial hospitalization;
- 2) adequate discharge planning;
- 3) adequate post discharge follow-up; and
- 4) coordination between the inpatient and outpatient health care team.

The end result of the application of the PPR logic is the identification of the subset of Initial Admissions that were followed by PPRs. Admissions that are at risk for having a readmission but were not followed by a subsequent readmission (such as Only Admissions) are also identified by the logic. The identification of Initial Admissions, PPRs, and at-risk Only Admissions allows meaningful PPR rates to be computed. A description of the PPR logic with definition of terms and concepts is provided in **Appendix II** to this recommendation.

## **4.0 – Primary Considerations in Deciding on a Payment Model**

### **Evaluating Readmissions to the Same Hospital or All Hospitals?**

The first question that should be addressed is whether to focus on readmissions to the same hospital that treated the initial admission or to evaluate readmissions to all hospitals. Using only readmissions to the same hospital (“intra-hospital admissions”) would capture most of the readmissions, and not require extensive additional risk-adjustments (given that the profile of a hospital’s patient population--age, mental health and indigent mix-- would likely be relatively stable from year to year). A focus on readmissions to the same hospital would also avoid most of the problems associated with attempting to track unique patients across different institutions and also encourage hospitals to improve their absolute rate of intra-hospital readmissions year to year.

However, focus exclusively on intra-hospital readmissions does not capture patients who were so dissatisfied with the initial treatment that they decided to go to a different hospital. Using admissions to all hospitals (“inter-hospital” readmissions) is clearly a more comprehensive approach.

In analyzing intra- and inter-hospital readmission rates, staff has identified patient-level data concerns that hinder the accurate tracking of patients over time within the same hospital, and

technical difficulties greater still across all hospitals. These concerns and technical difficulties encountered are discussed in the section below entitled Challenges to and Alternatives for Tracking Patients Within and Across Hospitals.

## **Challenges to and Alternatives for Tracking Patients Within and Across Hospitals**

As noted above, data challenges have been identified and are a barrier to accurately tracking patient readmissions within and across hospitals, ultimately causing a delay in the implementation of the MHPR initiative in 2010.

### **Within Hospital Data Issues**

To calculate intra-hospital (within the same hospital) readmission rates staff ran the PPR grouper on data using the assigned medical record number (MRN) to match patients over time. Concurrent with the running of the grouper, staff learned that hospitals were not consistently assigning a unique MRN that is constant over time in compliance with HSCRC inpatient and outpatient data submission requirements. Multiple MRN assignments cause readmissions rates to be under-represented and render hospital specific rates inaccurate.

### **Across Hospital Data Issues**

Since there is no unique identifier (ID) assigned for Maryland hospitalized patients, staff has developed a method for assigning unique IDs for matching patients across hospitals who are readmitted using a probabilistic matching approach. The core premise of the algorithm used is to identify unique patients and assign unique IDs to patients with the same gender, date of birth and zip code who are hospitalized within the window of time specified in the MHPR policy (e.g., 30 days).

To further validate the algorithm, the aggregate results yielded from the matching algorithm have been compared with patient matching results from Florida where a unique patient ID is used, and Maryland estimates of aggregate readmission rates fit within the expected relationships of statewide within vs. across hospital readmissions, total readmission rates, and differences by payer. Although these errors do not appear to disproportionately affect one group/class of hospitals over another, staff continues to have the following concerns:

- based on data analysis, the algorithm produces false negative (an individual patient is incorrectly assigned more than one ID) and false positive (different patients are incorrectly assigned the same unique ID) results;
- the data errors are further amplified to the extent that hospitals have assigned multiple MRNs to a unique patient, and have errors in the patients' dates of birth (DOB), and zip code;
- the patient-level case mix data submitted to HSCRC by hospitals does not, staff believe, contain a sufficient amount of patient identifying information (e.g., last four digits of SSN, first

name, last name, etc.) to construct an algorithm that diminishes false negatives and false positives sufficiently to calculate statistically accurate hospital-specific readmission rates.

### **Out of State Data Issues**

Comparable data are not available for admissions out-of-state. As mentioned, failure to account for out-of-state readmissions would reduce the readmission rates for hospitals located close to the border with other states or for hospitals such as large academic centers that draw larger percentages of out-of-state patients for initial treatment who may be readmitted in their home states.

### **Staff Efforts to Address Identified Data Issues**

To address multiple MRN assignments to unique individuals for FY 2010:

- Staff issued a memorandum to hospitals on 5/24/10 advising hospitals of the MRN error and directing hospitals to identify those patients with changed MRNs to HSCRC by 9/28/10, consistent with the final closing date for submission of the Qtr 4 of the case mix data.
- Hospitals were directed to identify patients for whom they purposefully changed the MRN (e.g., changing a social security number MRN to a number that does not contain patient identifying information) and for those whom they inadvertently assigned more than one MRN (e.g., the registration clerk did not identify the MRN previously assigned when the patient presents for care and assigns a new MRN, but the billing department reconciles the patient identity in the patient accounts system).
- Thus far, the results of the MRN data cleaning work are promising, however, certain hospitals still have high duplicate MRNs despite the improvement. Overall, the percentage of MRNs with the same date of birth, sex, and zip code declined by 2.12 as a result of the cleaning process; staff is working on creating an algorithm to link the patient records across the hospitals based on the new MRN data.
- Staff is continuing to work on establishing data mismatch thresholds to identify hospitals likely to have more than an acceptable number of unique patients with multiple MRNs assigned.

Regarding the across hospital readmission data concerns, staff has:

- worked over the last several months to identify best practices in constructing unique patient IDs and on considering what options are plausible in Maryland;
- interviewed 15 states that use statewide unique patient ID numbers;
- discussed with the Agency for Healthcare Research and Quality (AHRQ) Maryland's interest in participating as one of ten states in an AHRQ technical assistance effort to support states in developing unique statewide patient IDs, and AHRQ has indicated that Maryland is one of the ten selected states for participation with work beginning in January 2011.
- continued its work to construct a matching algorithm with the data currently available, and is presently non-conclusive in terms of our ability construct a reliable unique ID in the **short-term**.

- begun discussions with MHCC staff involved in implementing the Chesapeake Regional Information System for Our Patients (CRISP) to discuss collaboration opportunities for the **long-term** in assigning unique patient IDs using shared technology.

If matching algorithm cannot be constructed in the near term to identify patients such that the PPR grouper yields accurate hospitals-specific readmission rates across hospitals, a potential approach to address this in the **mid-term** is through the use of other comprehensive data that account for admissions and readmissions across hospitals in Maryland (see section entitled “Medicare and BlueCross Adjustment Factors” on Page 14). Staff anticipates that the analysis will be complete on whether we can construct a reliable matching algorithm and unique patient ID now by the February 2011 Commission meeting.

To address the out of state readmission issue, staff again proposes the use of other comprehensive data that account for admissions and readmissions both in and out of Maryland (see section entitled “Medicare and BlueCross Adjustment Factors” on Page 14).

### **Additional Adjustment Considerations**

If the Commission is to use an analysis that ranks hospitals on the basis of relative rates of readmissions within a given year, it will need to apply a series of adjustments for variations in the rate of potentially preventable readmissions among hospitals. The rate of readmissions would be calculated using the PPR software developed by 3M, with additional adjustments that are described in this section.

It would be appropriate to adjust for differences in age, mental health status, and Medicaid status, which have been found to be substantially correlated with the case mix adjusted readmission rate. Finally readmission rates should also be adjusted to reflect readmissions from Maryland hospitals to facilities outside of the State. This latter adjustment is necessary to account fairly for the natural outmigration of patients from Maryland hospitals located near the Maryland border. Failure to adjust for this outmigration would unfairly advantage Maryland hospitals in the Metropolitan DC area and other border areas of the State.

### **Calculation of Chain Weights**

Previous PPR calculations were based on the number of readmissions, with all readmissions weighted equally. Clearly the costs associated with readmissions will vary by the type of initial admission. The calculation described in this section modifies the calculation of the relative PPR rates of the hospitals to take into account the chain weights as well as mix of initial admissions in chains by APR-DRG and Severity of illness (SOI).

The APR-DRG and SOI output by the PPR grouper are the standard ones, and not the groupings as modified by the HSCRC to split the mental health admissions based on voluntary/involuntary, and the

splitting of the rehabilitation APR-DRGs. The weights developed for the HSCRC APR-DRGs were consolidated to produce weights that would be applicable to the standard APR-DRGs.

The weight for a re-admission chain was calculated by summing the APR-DRG/SOI weights for each readmission in the chain (not including the initial admission). These weights were then assigned to all readmission chains as the "actual" weight for the chain. The chain weights were then summarized by calculating the mean chain weight for all chains following an initial or only admission in a given APR-DRG/SOI. The resulting weight is the expected weight for readmissions following the initial or only admission in the particular APR-DRG/SOI. The rankings were then recalculated using these weights.

## **Options for Level of Adjustment to be Applied**

1) Option 1 is to simply use the PPR rates themselves (counts of actual vs. expected readmissions). This is what has been presented in previous meetings.

2) Option 2 attempts to factor in the relative costliness of readmissions that follow an initial admission. As such it is most analogous to the MHAC methodology utilized by the Commission when attempting to differentiate hospital performance on the basis of Potentially Preventable Complications. In this instance, the PPR rate would be weighted by the expected weight associated with chains starting with the particular APR-DRG/SOI in the initial admission. This is the method used in the preceding discussion.

3) Option 3 would carry this logic of weighting the readmission chain by the actual weights of each readmission chain. In this option the PPR rate would be adjusted to account for the actual weight of readmissions in the subsequent chain.

4) Option 4, uses the Option 3 approach, but with some outlier threshold applied to limit the weight for which the initial hospital was accountable.

Each of the subsequent options beyond Option 1, are an attempt to refine the PPR rate analysis to make it fairer to individual hospitals and also to be a more accurate representation of actual and preventable additional resource use associated with preventable readmissions.

The HSCRC staff believes that Option 2 is the best compromise between accuracy and simplicity, and because it is the most consistent with the way in which the PPC calculations are being done. The following examples of each of these options should make them clearer. An expanded discussion of the four readmission chain weight options and the formulae for calculation of chain weights, and actual and expected values are shown in **Appendix II**.

## **Additional Adjustments Required**

The following analysis used option 2 above for weighting purposes, data for fiscal years 2008 and 2009, the version 27.0 of the PPR grouper, and focused on readmissions within a 30-day readmission window. A longer readmission window would provide a more comprehensive approach to this analysis – as it captures cases that are potentially preventable but do not present immediately to hospitals in the form of a readmission.

PPR rates, adjusted by the weights of the readmission chains, were calculated by APR-DRG/SOI (risk adjusted) using the entire data set for both years. These statewide readmission rates were then used as the expected values in the analysis.

### Adjustment for Age Category and Mental Health Status

The actual to expected, chain weight adjusted, PPR rates were calculated by age category and mental health status, and the ratio of the two was used as an adjustment factor for age category and mental health status. The age categories used were 0-17, 18-64, and 65 and older. The adjustment factors were as follows in Table 1:

**Table 1 – Adjustment Factors for Age, Mental Health/Substance Abuse Secondary Diagnosis, and Medicaid Presence**

Age category	Mental health diagnosis	Calculated factor
0 – 17	No	0.73
0 – 17*	Yes	0.73
18 – 64	No	0.95
18 – 64	Yes	1.05
65 and older	No	1.05
65 and older	Yes	1.07

\* There are a small number of cases in age category 0 with positive mental health status, so the difference between the values is not significant. A combined factor of 0.73 should be used for all age category 0 cases independent of mental health status.

### **Adjustment for Medicaid as Primary of Secondary Payer**

A chain was determined to be a Medicaid count if the principal or secondary payer was Medicaid or Medicaid HMO for any discharge for that patient in the data set. Using this definition of Medicaid, the Medicaid patients were found to have a substantially higher PPR rate than non-Medicaid patients. The adjustment factor for Medicaid was 1.188, and for non-Medicaid was 0.937 – a 25% difference. Given these results, adjustments should be made for age category, mental health status, and the patient's Medicaid status.

For patients with Medicaid as primary or secondary payer anywhere in the chain of readmissions, there was a significantly higher actual rate compared to the expected rate of readmissions than was explained solely by the APR DRG SOI category.

### **Medicare and Blue Cross Adjustment factors**

In order to adjust for out-of-state readmissions, which would be expected to be higher for hospitals close to borders with other states, Medicare data was obtained for federal fiscal years 2007 and 2008.

The rate of PPRs was calculated by hospital, along with the expected rate using the statewide expected rates developed previously using all payers, and the age and mental health adjustment factors previously listed. The ratio of the actual to the expected was calculated by hospital, first using discharges to hospitals in any state, and then using just discharges from Maryland hospitals. The ratio of these two was the adjustment factor to be applied to adjust for out-of-state Medicare readmissions.

Staff also secured similar multi-state data from CareFirst Blue Cross of Maryland. This readmission factor calculated for Medicare data will be combined with the corresponding factor developed by Blue Cross to calculate an estimated adjustment factor for out-of-state readmissions.

For a majority of hospitals, the out of state readmission rates across the Medicare and CareFirst data were very consistent. In the case of a few hospitals, there are inconsistencies between the Medicare and CareFirst migration adjustment factors calculated. It may be necessary, therefore, to calculate an alternative out-of-state adjustment factor for these hospitals. Staff continues to work with the Department of Health and Mental Hygiene to develop a clean data set sufficient to calculate similar cross-state readmission rates from the Medicaid data. Thus far, it has not been possible to develop a similar adjustment using Medicaid data.

Staff can use the above-outlined methodology to calculate inter-hospital readmission rates within the state if an alternative to using HSCRC data is necessary in the short term, and will continue to work on these and other outstanding technical issues, but we believe that the data for out-of-state

readmission rates will be sufficient to establish meaningful adjustment factors to allow for a fair and reasonable comparison across hospitals.

**Proposed Payment Methodology**

Staff believes that the first phase of a PPR-based payment policy in Maryland can be implemented with a structure similar to the payment structure used in linking payment to performance for MHACs and the Quality-Based Reimbursement (QBR) initiatives. This means that PPR payment would be structured by scaling a magnitude of at-risk system revenue, either positive or negative, across all hospitals at the time of the application of the annual update factor (in the case of MHACs, this amount has been modeled using 0.5% of system revenue). As with MHACs and QBR, this first phase would be implemented in a revenue-neutral way with the precise magnitude of at-risk revenue determined in the context of anticipated future updates and the need to offset “counter-incentives” faced by the hospital, and other considerations.

**Hybrid Model Recognizing Both Improvement and Attainment**

HSCRC has met with MHA to discuss their proposal to initially measure intra-hospital (within) readmissions, and to base rewards and penalties on hospital improvement year-to-year. While staff is receptive to MHA’s proposal, staff would urge the industry and the Commission to consider the readmission issue in a broader context that encompasses collaboration across the care continuum and supports achievement of desirable community/population health goals to lower readmissions.

**Appendix III** contains comment letters from the industry on the draft MHPR recommendation.

Staff also remains concerned that a model that focuses only on improvement will not recognize hospital performing relatively well on readmissions whose improvement levels may not be as high as those hospitals starting with worse readmission rates. Therefore, consistent with the Commission’s approach for the Quality Based Reimbursement initiative, staff believes the Commission should consider a reward/penalty system for readmissions that takes into consideration both hospital improvement year to year by measuring intra-hospital readmissions, and hospital attainment or “relative performance” by measuring inter-hospital performance. The pros and cons of each approach are illustrated in the table below.

**Table 2. Intra- and Inter-Hospital Readmission Measurement Pros and Cons**

	<b>Pros</b>	<b>Cons</b>
MHA Proposal: Intra-Hospital Readmission	<ul style="list-style-type: none"> <li>• Less data challenges</li> <li>• Recognizes improvement</li> <li>• Lesser need for adjustments</li> </ul>	<ul style="list-style-type: none"> <li>• Less fair: all readmissions not considered</li> <li>• Greater potential for gaming (e.g. readmit to another same system hospital)</li> </ul>

Measurement		
Inter-Hospital Readmission Measurement	<ul style="list-style-type: none"> <li>• Focus on attainment</li> <li>• Fairer: captures all readmissions</li> <li>• Recognizes attainment</li> </ul>	<ul style="list-style-type: none"> <li>• Relatively more data challenges, particularly due to lack of unique patient ID</li> <li>• More complex/ need for adjustments</li> </ul>

**Appendix IV** shows the unadjusted readmission rates for intra-hospital, inter-hospitals and total readmission rates including those that occurred out of state using Medpar 2008 data. Overall, 30% of readmissions within 15 days and 26% of readmissions within 30 days have at least one readmission in a hospital other than the original hospital where the initial admission occurred. In some hospitals this rate is as low as 2% while in others it is more than 50%. Compared to inter-hospital readmission rates, out of state migration is smaller and has less variation. Overall, only 4% of readmissions have at least one readmission in an out of state hospital, with a range of 0 to 25% among hospitals. These data illustrate the need to include inter-hospital readmission rates as well as out of state adjustments in measuring hospital relative performance.

### **Timing Considerations Related to Base and Performance Measurement Periods**

MHA and HSCRC staff agree that it is of great import that we implement the MHPR initiative as soon as possible, beginning in the latter part of the current fiscal year. Consistent with plan to address the Case Mix lag, April 1, 2011 is recommended as the implementation start date. This necessitates that the initial measurement period begin this Rate Year, starting March 1, 2011 and using 13 months of performance, and that the base measurement period be March 1, 2010 to April 1, 2011. HSCRC staff will continue to work with the industry to identify and address the issues and implications of the recommended initial base and measurement periods.

### **Infrastructure Development Considerations**

The HSCRC staff believe it will be extremely appropriate and helpful to the MHPR initiative for the HSCRC to assist in the development of a MHPR Improvement Infrastructure to assist hospitals in their attempt to improve upon the processes of transitioning patients out of the hospital after an admission and otherwise decreasing the rates of readmission within the targeted Readmission Window (currently recommended to be 30 days post initial discharge).

The staff intends to recommend an approach that would at first be funded by means of a small assessment on hospital rates (0.01% is anticipated – generating approximately \$1 -1.2 million per year for at least the first two years). These funds are proposed to be used to obtain the technical assistance the state would need to establish an infrastructure using the Institute for Healthcare Improvement’s State Action on Avoidable Rehospitalizations (STAAR) approach.

### **STAAR Overview**

In May 2009, the Institute for Healthcare Improvement (IHI) launched State Action on Avoidable Rehospitalizations (STAAR). Initially funded through a grant from The Commonwealth Fund, STAAR is

a multi-state, multi-stakeholder approach to dramatically improve the delivery of effective care at a regional scale.

The initiative aims to reduce rehospitalizations by working across organizational boundaries in a state or region. The work requires not only front-line process improvement, but also identification and mitigation of barriers to system-wide improvement, especially policy and payment reforms that will reduce fragmentation and encourage coordination across the continuum of care. The initiative has three high leverage opportunities for action:

- improving transitions for all patients,
- proactively addressing the needs of high risk patients, and
- engaging patients and their caregivers in assuming a proactive role in their plans.

STAAR was initially implemented in three states— Massachusetts, Michigan, and Washington— by engaging payers, state and national stakeholders, patients and families, and caregivers at multiple care sites and clinical interfaces. The work in the first three states is anticipated as a four year project.

As this work has progressed for one year, IHI has offered to make programming and information learned from the initiative available to Maryland. The initiative would provide both technical assistance at the policy level and support provider efforts at the front line. Additional information about a proposed STAAR Initiative for Maryland may be found in **Appendix V**.

During this two-year period of State support the HSCRC would contract with IHI to provide technical assistance to establish and run the initiative, a collaborative style model. After the first two years HSCRC would assess the ongoing need to fund ongoing technical assistance or other features of the STAAR initiative, and would seek matching and/or replacement funding from Federal or outside foundation sources as needed for the ongoing work..

### **Other Related Activity and Next Steps**

Since the early spring of this year, HSCRC staff has convened a series of educational, technical and clinical vetting sessions for representatives of the Maryland hospital and payer industries.

HSCRC convened a clinical vetting session on September 24, 2010 with hospital clinical and coding personnel, HSCRC staff, and the developers of the 3M Health Information System tools utilized in the proposed MHPR methodology. The responses to comments requested and received in advance of the meeting were reviewed as well as other clinical questions raised. As a result of the session, a clinical subgroup of mental health and substance use clinical representatives, including the Maryland Psychiatric Society, will be convened by HSCRC on October 29<sup>th</sup> to focus on specific clinical issues raised by the group. In addition, a second clinical vetting session is scheduled for November 1<sup>st</sup>.

Starting this Fall, staff began convening a series of meetings with MHA, DHMH and the Maryland Patient Safety Center, the first of which was October 14, 2010, to discuss the organization, development, and funding of the MHPR Infrastructure Initiative as described above that would be

designed to establish a Quality Improvement Program to assist Maryland hospitals in analyzing their own PPR performance and reducing their readmissions.

Staff will also continue to convene the MHPR Technical Finance Work Group as needed in order to address the outstanding technical and payment model issues identified.

### **Staff Draft Recommendations**

Based on the staff work chronicled above and the input received thus far from the Maryland Hospital Preventable Readmission Work Group, for Rate Year FY 2011, the HSCRC staff makes the following draft recommendations:

1. Implement a rate-based approach for measuring PPRs where hospitals are evaluated both on their relative ranking in a given on inter-hospital readmission rates and on their year-to-year performance on intra-hospital readmissions rates;
2. Implement a hybrid system of rewards and penalties that will give equal weight to absolute attainment and year-to-year improvement in readmission rates;
3. For measuring performance on annual attainment, base the calculation of relative performance on inter-hospital readmission rates on actual vs. expected PPR rates using a 15-day Readmissions Window;
4. Adjust individual hospital inter-hospital PPR performance by adjustment factors relating to: a) age splits; b) presence of mental health/substance abuse secondary diagnoses; c) disproportionate share effects; and d) out-of-state migration;
5. Base the relative hospital performance for purposes of scaling at-risk revenue on the actual number of weighted readmissions over the expected number of weighted readmissions (weighted by the chain weight), divided by the total case mix weight associated with the included initial or only admission at the hospital;
6. Also use PPR rates for evaluating within-hospital (intra-hospital) readmissions rate of performance that measures hospital readmission rate improvement in the performance period compared with the base period;
7. Implement scaling of hospital payment adjustments so that a hospital's performance on the PPR methodology, either positive or negative, is reflected at the time of its update factor - the magnitude of funds scaled (at-risk revenue) should be established in the context of future rate discussions;
8. Regarding base and performance measurement periods, consistent with the case mix lag recommendation approved by the Commission in the June 9, 2010 meeting, for future fiscal year adjustments, staff recommends incorporating a three month lag into the data periods used for readmission base and performance measurement. This would go into effect for rate year 2012. The base measurement period would be the thirteen month period of March 1, 2010 through March 31,

2011. The performance measurement period would be the thirteen month period from March 1, 2011 through March 31, 2012. Performance-based adjustments would be applied rate year 2013. The base and performance periods will be 13 months in duration, in order to capture readmissions from the end of each period during the course of the 15-day readmission window. Further, future measurement will recognize and incorporate needed adjustments related to the most current methodologies such as denials and one day stays. Any technical implementation issues will be vetted with the MHPR Technical Finance Work Group and MHA's Financial Technical Issues Task Force as needed;

9. Consistent with the process for the establishment of the HSCRC's MHAC initiatives, provide a mechanism on an ongoing basis to receive input and feedback from the industry and other stakeholders to refine and improve the PPR logic;

10. Make a tracking tool reasonably accessible to hospitals so that they may track their performance throughout the measurement year;

11. Beginning in the Fall of 2010 and forward, work with the Institute for Healthcare Improvement, MHA, DHMH, the Maryland Patient Safety Center and representatives of the Maryland hospital and payer industries to develop and secure funding for a state-wide initiative Maryland Hospital Preventable Readmission Infrastructure and Quality Improvement Project utilizing the STAAR initiative model, which will provide technical assistance to implement the best methods to reduce preventable readmissions, provide assistance to hospitals to improve processes of transitioning patients out of the hospital after an acute care admission, and otherwise decrease the rate of hospital readmissions within the specified readmission time intervals.

## **Appendix I – NEJM Jencks Article on Readmissions**

SPECIAL ARTICLE

# Rehospitalizations among Patients in the Medicare Fee-for-Service Program

Stephen F. Jencks, M.D., M.P.H., Mark V. Williams, M.D.,  
and Eric A. Coleman, M.D., M.P.H.

## ABSTRACT

### BACKGROUND

From an independent consulting practice, Baltimore (S.F.J.); the Division of Hospital Medicine, Northwestern University Feinberg School of Medicine, Chicago (M.V.W.); and the Care Transitions Program, Division of Health Care Policy and Research, University of Colorado at Denver, Denver (E.A.C.).

Reducing rates of rehospitalization has attracted attention from policymakers as a way to improve quality of care and reduce costs. However, we have limited information on the frequency and patterns of rehospitalization in the United States to aid in planning the necessary changes.

### METHODS

We analyzed Medicare claims data from 2003–2004 to describe the patterns of rehospitalization and the relation of rehospitalization to demographic characteristics of the patients and to characteristics of the hospitals.

### RESULTS

Almost one fifth (19.6%) of the 11,855,702 Medicare beneficiaries who had been discharged from a hospital were rehospitalized within 30 days, and 34.0% were rehospitalized within 90 days; 67.1% of patients who had been discharged with medical conditions and 51.5% of those who had been discharged after surgical procedures were rehospitalized or died within the first year after discharge. In the case of 50.2% of the patients who were rehospitalized within 30 days after a medical discharge to the community, there was no bill for a visit to a physician's office between the time of discharge and rehospitalization. Among patients who were rehospitalized within 30 days after a surgical discharge, 70.5% were rehospitalized for a medical condition. We estimate that about 10% of rehospitalizations were likely to have been planned. The average stay of rehospitalized patients was 0.6 day longer than that of patients in the same diagnosis-related group whose most recent hospitalization had been at least 6 months previously. We estimate that the cost to Medicare of unplanned rehospitalizations in 2004 was \$17.4 billion.

### CONCLUSIONS

Rehospitalizations among Medicare beneficiaries are prevalent and costly.

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**M**EDICARE CURRENTLY PAYS FOR ALL rehospitalizations, except those in which patients are rehospitalized within 24 hours after discharge for the same condition for which they had initially been hospitalized. Recent policy proposals would alter this approach and create payment incentives to reduce the rates of rehospitalization. The Medicare Payment Advisory Commission (MedPAC) recommended to Congress in its report in June 2008 that hospitals receive from the Centers for Medicare and Medicaid Services (CMS) a confidential report of their risk-adjusted rehospitalization rates and that after 2 years, rates should be published. MedPAC also recommended complementary changes in payment rates, so that hospitals with high risk-adjusted rates of rehospitalization receive lower average per case payments. The commission reported that Medicare expenditures for potentially preventable rehospitalizations may be as high as \$12 billion a year.<sup>1</sup> In July 2008, the National Quality Forum adopted two measures of hospital performance based on the rate of rehospitalization,<sup>2</sup> and the CMS indicated an interest in making the rehospitalization rate a measure for value-based hospital payment.<sup>3</sup> Reducing rehospitalization is an important element of President Barack Obama's February 2009 proposal for financing health care reform.<sup>4</sup> Such proposals would radically change the accountability of hospitals for patients' outcomes after discharge.

These proposals addressing all-cause rehospitalization highlight the importance of understanding the factors that influence the disparate causes of rehospitalization. Although there is extensive literature on rehospitalization attributed to particular conditions, especially heart failure,<sup>5</sup> there is very limited research addressing the broader issues involving the multitude of diseases and processes that contribute to rehospitalization. Until the 2007 MedPAC report (cited in the 2008 MedPAC report<sup>1</sup>), there was, to our knowledge, no follow-up of the measurement of the overall Medicare rehospitalization rate that Anderson and Steinberg made in their seminal study in 1984.<sup>6</sup> Building on the 2007 MedPAC report, we undertook this study to examine three key questions: What is the frequency of unplanned and planned rehospitalizations within 30 days after discharge? How long does the elevated risk of rehospitalization persist? What is the frequency of follow-up

outpatient visits with a physician after a patient's discharge from a hospital?

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## METHODS

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### DATA SOURCES

We used data from the Medicare Provider Analysis and Review (MEDPAR) file for the 15-month period from October 1, 2003, through December 31, 2004; the MEDPAR file does not contain any discharges from 855 critical access hospitals or discharges of patients who were enrolled in managed-care plans. Inpatient claims for individual patients were linked with the use of the Health Insurance Claim Number–Beneficiary Identification Code. To study follow-up visits, we used the 5% national sample of linked physician and hospital claims for 2003 that is maintained in the CMS Chronic Condition Data Warehouse.<sup>7</sup> We used data from different intervals depending on the amount of previous or follow-up data that we needed for the analysis. The study design and procedures were approved by the Colorado Multiple Institutional Review Board.

### ASSESSMENT OF REHOSPITALIZATION AND DIAGNOSES

We defined the rate of rehospitalization in the following way: the number of patients who were discharged from an acute care hospital and readmitted to any acute care hospital within 30 days divided by the total number of people who were discharged alive from acute care hospitals. We counted no more than one rehospitalization for each discharge. We excluded from the numerator and denominator patients who were transferred on the day of discharge to other acute care hospitals, including patients who were admitted to hospital specialty units, inpatient rehabilitation facilities, and long-term care hospitals (we included all other same-day rehospitalizations in our analyses). We also excluded patients who were rehospitalized for rehabilitation (diagnosis-related group [DRG] 462) within 30 days after discharge. We calculated rates over a 12-month period for the cohort that was discharged between October 1 and December 31, 2003, after determining that seasonal variation was less than 0.2 percentage point. In this calculation, data for a patient were censored when he or she was rehospitalized or died before hospitalization.

To examine the patterns of diagnoses at discharge and rehospitalization, we identified the five medical and five surgical DRGs that accounted for the largest number of rehospitalizations within 30 days after discharge and tabulated the 10 most frequent reasons for rehospitalization for each DRG. To estimate the fraction of rehospitalizations that might have been planned, we examined the 100 DRGs that are most frequently assigned to rehospitalized patients and ranked them according to whether planning was clinically plausible (e.g., rehospitalization for pneumonia is very unlikely to have been planned, whereas rehospitalization for placement of a stent could well be) and whether the rate of rehospitalization for the DRG showed the exponential rate of decrease that is characteristic of most DRGs when planned rehospitalization is unlikely (for details, see the Supplementary Appendix, available with the full text of this article at NEJM.org).

We calculated a hospital's expected rehospitalization rate as the rehospitalization rate expected if each of its Medicare discharges had the same rehospitalization risk as the national average for Medicare discharges in the same DRG (indirect adjustment). We used the ratio of observed to expected hospitalizations to stratify hospitals into quartiles and calculated differences in rehospitalization rates among hospitals with 1000 or more Medicare discharges.

We used the Medicare provider number to assess whether the patient was readmitted to the same hospital from which he or she had been discharged. We also tabulated length of stay and Medicare payment weights for DRGs (which are based on the average use of hospital resources for treatment of Medicare patients) for rehospitalized patients and for those who had not been hospitalized in the previous 6 months.

#### RELIABILITY OF DATA

Published definitions of DRGs include a classification of the diagnosis as medical or surgical. The CMS systematically audits the coding of DRGs. Dates of admission and discharge are tied to hospital billing systems, and errors may trigger audits or payment reviews. Whether a beneficiary is receiving dialysis treatment or is disabled is determined in the Medicare eligibility process. Discharge disposition is generally not used for payment and is often unreliable. We used black race, which is reported to be reliably coded, as a co-

variate but did not use Hispanic ethnic group, which is reported to be seriously undercoded.<sup>8,9</sup>

#### STATISTICAL ANALYSIS

We used the Cox proportional-hazards model to assess patient-level predictors of rehospitalization. The number of days before rehospitalization represented the survival time, data were censored at the time of death or the end of the observation period, and covariates were the patient characteristics that were available in the MEDPAR file or that could be calculated from the information in it: the hospital's ratio of observed to expected hospitalizations, the national rehospitalization rate for the patient's DRG, race (black or nonblack), use or nonuse of dialysis, presence or absence of disability, sex, Supplemental Security Income (SSI) status, length of stay as compared with the national average for the DRG, number of hospitalizations in the preceding 6 months, and age group. We included the hospital's ratio of observed to expected hospitalizations as a covariate so that differences among hospitals would not obscure the effects of other predictors. Hospital-level characteristics, such as the number of beds, urban or rural location, and teaching or nonteaching status — characteristics that Anderson and Steinberg used in their analyses<sup>6</sup> — are not available in the MEDPAR file, but their effect should be captured in the hospital's ratio of observed to expected hospitalizations. For this analysis we used discharges from April 1 through September 30, 2004, to allow 6 months for identifying previous hospitalizations. We performed all analyses with SAS software.<sup>10</sup>

## RESULTS

#### FREQUENCY OF REHOSPITALIZATION

A total of 13,062,937 patients enrolled in the Medicare fee-for-service program were discharged from 4926 hospitals between October 1, 2003, and September 30, 2004; 516,959 of these patients were recorded as having died, and 690,276 went to other acute care settings, leaving 11,855,702 (90.8%) at risk for rehospitalization. Table 1 shows the cumulative percentage of rehospitalizations and outpatient deaths before rehospitalization by 30, 60, 90, 180, and 365 days after discharge for the cohort of Medicare patients discharged between October 1 and December 31, 2003; 19.6% of the patients were rehospitalized within 30 days,

**Table 1. Rehospitalizations and Deaths after Discharge from the Hospital among Patients in Medicare Fee-for-Service Programs.**

Interval after Discharge	Patients at Risk at Beginning of Period	Cumulative Rehospitalizations by End of Period <i>number (percent)</i>	Cumulative Deaths without Rehospitalization by End of Period
<b>All discharges</b>			
0–30 days	2,961,460 (100.0)	579,903 (19.6)	103,741 (3.5)
31–60 days	2,277,816 (76.9)	834,369 (28.2)	134,697 (4.5)
61–90 days	1,992,394 (67.3)	1,006,762 (34.0)	151,901 (5.1)
91–180 days	1,802,797 (60.9)	1,325,645 (44.8)	177,234 (6.0)
181–365 days	1,458,581 (49.3)	1,661,396 (56.1)	200,852 (6.8)
>365 days	1,099,212 (37.1)		
<b>Discharges after hospitalization for medical condition</b>			
0–30 days	2,154,926 (100.0)	453,993 (21.1)	87,736 (4.1)
31–60 days	1,613,197 (74.9)	653,998 (30.3)	113,188 (5.3)
61–90 days	1,387,740 (64.4)	788,535 (36.6)	127,274 (5.9)
91–180 days	1,239,117 (57.5)	1,032,141 (47.9)	147,851 (6.9)
181–365 days	974,934 (45.2)	1,280,579 (59.4)	166,561 (7.7)
>365 days	707,786 (32.8)		
<b>Discharges after hospitalization for surgical procedure</b>			
0–30 days	806,534 (100.0)	125,910 (15.6)	16,005 (2.0)
31–60 days	664,619 (82.4)	180,371 (22.4)	21,509 (2.7)
61–90 days	604,654 (75.0)	218,227 (27.1)	24,627 (3.1)
91–180 days	563,680 (69.9)	293,504 (36.4)	29,383 (3.6)
181–365 days	483,647 (60.0)	380,817 (47.2)	34,291 (4.3)
>365 days	391,426 (48.5)		

34.0% within 90 days, and 56.1% within 365 days. About two thirds (62.9%) of Medicare fee-for-service beneficiaries who were discharged (67.1% after hospitalization for a medical condition and 51.5% after hospitalization for a surgical procedure) were rehospitalized or died within a year. To avoid double counting, we do not report deaths that occurred during or after rehospitalization. When we omitted cases of end-stage renal disease and included same-day readmissions, as Anderson and Steinberg did,<sup>6</sup> the 60-day rate of rehospitalization was 31.1%.

#### REASONS FOR REHOSPITALIZATION

Table 2 shows the five medical and five surgical reasons for the index (i.e., initial) hospitalization that were associated with the largest number of

rehospitalizations and the top 10 reasons for rehospitalization for each index reason. Most rehospitalizations (84.4% among patients who were discharged after initial hospitalization for medical conditions and 72.6% among patients who were discharged after surgical procedures) were for medical diagnoses. The 100 most frequent rehospitalization DRGs accounted for 73.2% of total rehospitalizations. Among the rehospitalizations ascribed to these 100 DRGs, 10% belonged to 19 DRGs, such as chemotherapy and stent insertion, for which we estimated that planned rehospitalizations were probably an important part of total rehospitalizations (see the Supplementary Appendix). We did not attempt to estimate the percentage of these rehospitalizations that were actually planned.

**Table 2. Highest Rates of Rehospitalization and Most Frequent Reasons for Rehospitalization, According to Condition at**

Condition at Index Discharge	30-Day Rehospitalization Rate	Proportion of All Rehospitalizations		
			Most Frequent	2nd Most Frequent
<i>percent</i>				
<b>Medical</b>				
All	21.0	77.6	Heart failure (8.6)	Pneumonia (7.3)
Heart failure	26.9	7.6	Heart failure (37.0)	Pneumonia (5.1)
Pneumonia	20.1	6.3	Pneumonia (29.1)	Heart failure (7.4)
COPD	22.6	4.0	COPD (36.2)	Pneumonia (11.4)
Psychoses	24.6	3.5	Psychoses (67.3)	Drug toxicity (1.9)
GI problems	19.2	3.1	GI problems (21.1)	Nutrition-related or metabolic issues (4.9)
<b>Surgical</b>				
All	15.6	22.4	Heart failure (6.0)	Pneumonia (4.5)
Cardiac stent placement	14.5	1.6	Cardiac stent (19.7)	Circulatory diagnoses (8.5)
Major hip or knee surgery	9.9	1.5	Aftercare (10.3)	Major hip or knee problems (6.0)
Other vascular surgery	23.9	1.4	Other vascular surgery (14.8)	Amputation (5.8)
Major bowel surgery	16.6	1.0	GI problems (15.9)	Postoperative infection (6.4)
Other hip or femur surgery	17.9	0.8	Pneumonia (9.7)	Heart failure (4.8)

\* Index conditions listed within medical and surgical groups are in order of decreasing total number of rehospitalizations within 30 days after discharge. The diagnosis-related group (DRG) numbers for the conditions listed are as follows: acute myocardial infarction: 121, 122, 123, 516, 526; arrhythmias: 138, 139; amputation: 113; cardiac stent: 517, 527; chest pain: 143; circulatory disorders: 124; COPD: 088; depression: 429; drug toxicity: 449; drug or alcohol misuse: 521; fracture of hip or pelvis: 236; gastrointestinal bleeding: 592; gastrointestinal problems: 182, 183, 184; heart failure: 127; major bowel surgery: 148, 149; major hip or knee problems: 209; nutrition-related or metabolic issues: 296, 297, 298; operation for infection: 415; organic mental conditions: 429; other hip or femur surgery: 210; other circulatory diagnoses: 144; other vascular surgery: 478, 479; pneumonia: 79, 80, 81, 89, 90, 91; postoperative infection: 418; psychoses: 430; pulmonary edema: 087; rehabilitation: 462; renal failure: 316; respiratory or ventilation issues: 475; septicemia: 416, 417; and urinary tract infection: 320, 321, 322. COPD denotes chronic obstructive pulmonary disease, and GI gastrointestinal.

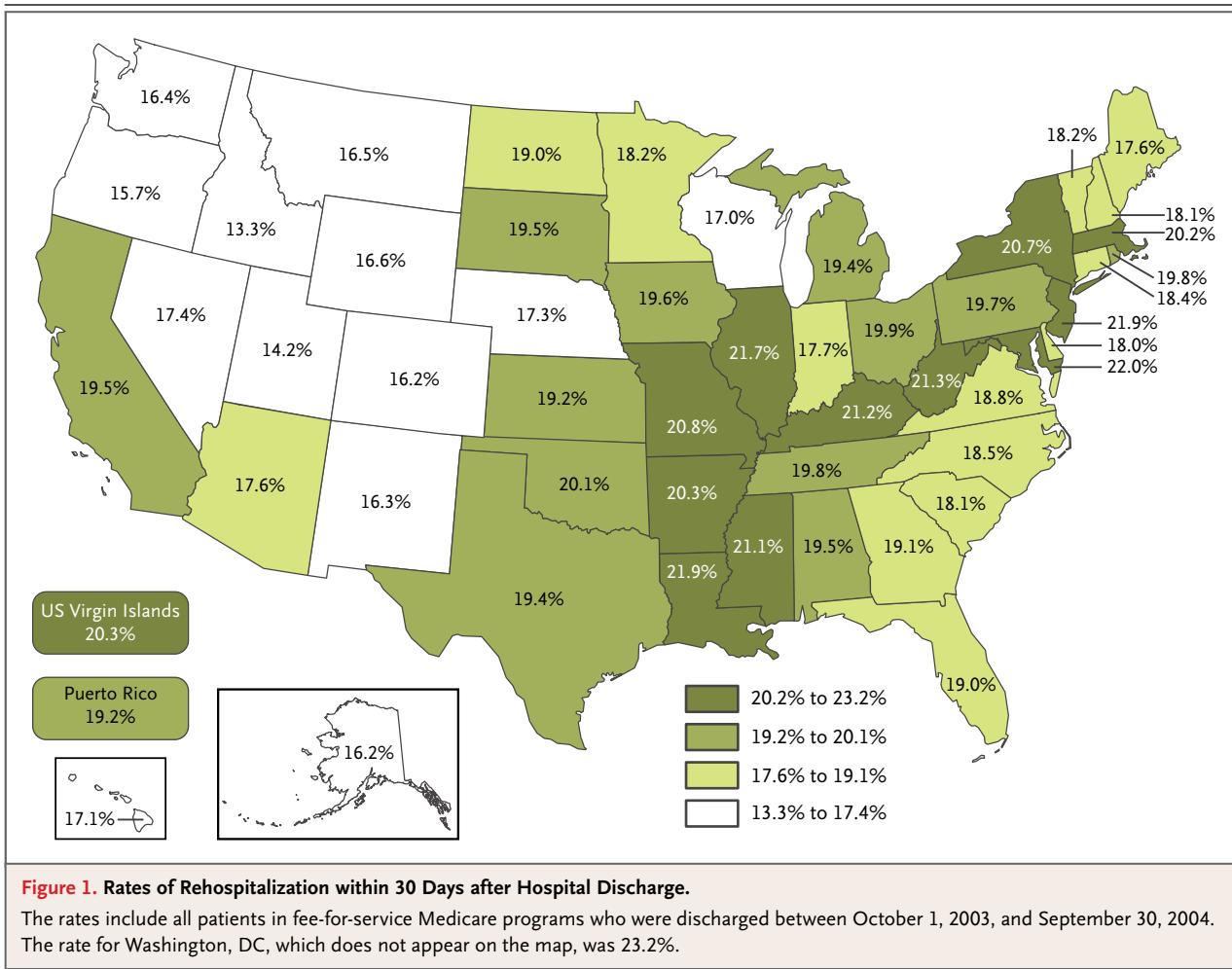
Index Discharge.*			
Reason for Rehospitalization			
3rd Most Frequent	4th Most Frequent	5th to 10th Most Frequent	Less Frequent
<i>percent of all rehospitalizations within 30 days after index discharge</i>			
Psychoses (4.3)	COPD (3.9)	GI problems, nutrition-related or metabolic issues, septicemia, GI bleeding, renal failure, urinary tract infection (17.0)	All other (58.9)
Renal failure (3.9)	Nutrition-related or metabolic issues (3.1)	Acute myocardial infarction, COPD, arrhythmias, circulatory disorders, GI bleeding, GI problems (14.0)	All other (36.9)
COPD (6.1)	Septicemia (3.6)	Nutrition-related or metabolic issues, GI problems, respiratory or ventilation problems, pulmonary edema, GI bleeding, urinary tract infection (14.9)	All other (38.9)
Heart failure (5.7)	Pulmonary edema (3.9)	Respiratory or ventilation problems, GI problems, nutrition-related or metabolic issues, arrhythmias, GI bleeding, acute myocardial infarction (12.5)	All other (30.3)
Drug or alcohol misuse (1.6)	Pneumonia (1.6)	Chest pain, nutrition-related or metabolic issues, depression, GI problems, COPD, organic mental conditions (7.0)	All other (20.6)
Pneumonia (4.3)	Heart failure (4.2)	Major bowel surgery, urinary tract infection, septicemia, GI bleeding, COPD, chest pain (13.4)	All other (52.1)
GI problems (3.3)	Septicemia (2.9)	Nutrition-related or metabolic issues, postoperative infection, placement of cardiac stent, GI bleeding, operation for infection (14.6)	All other (68.7)
Chest pain (6.1)	Heart failure (5.7)	Atherosclerosis, acute myocardial infarction, GI bleeding, GI problems, arrhythmias, other vascular surgery (19.4)	All other (40.6)
Pneumonia (4.2)	Postoperative infection (3.1)	GI problems, GI bleeding, heart failure, operation for infection, rehabilitation, nutrition-related or metabolic issues (15.8)	All other (60.6)
Heart failure (5.0)	Other circulatory problems (4.4)	Postoperative infection, other circulatory procedures, operation for infection, peripheral vascular disorders, pneumonia, septicemia (19.0)	All other (51.0)
Nutrition-related or metabolic issues (5.6)	GI Obstruction (4.3)	Pneumonia, major bowel surgery, renal failure, septicemia, operation for infection, GI bleeding (15.4)	All other (52.4)
Septicemia (4.7)	GI bleeding (4.0)	Urinary tract infection, fracture of hip or pelvis, other hip or femur surgery, aftercare, nutrition-related or metabolic issues, major hip or knee problems (20.7)	All other (56.1)

#### GEOGRAPHIC PATTERN

Figure 1 shows the geographic pattern of rates of rehospitalization within 30 days after discharge in the United States and two of its territories. The rehospitalization rate was 45% higher in the five states with the highest rates than in the five states with the lowest rates.

#### HOSPITALS

Except as noted, the following results are for hospitals with 1000 or more annual Medicare discharges. The correlation of the number of patients discharged with rehospitalization rates was low ( $r = -0.11$ ,  $P < 0.001$ ). Hospitals with a ratio of observed to expected hospitalizations in the high-



**Figure 1. Rates of Rehospitalization within 30 Days after Hospital Discharge.**

The rates include all patients in fee-for-service Medicare programs who were discharged between October 1, 2003, and September 30, 2004. The rate for Washington, DC, which does not appear on the map, was 23.2%.

est quartile had an expected 30-day rehospitalization rate of 20.6%, as compared with their observed rate of 26.1%. The corresponding rates for hospitals in the lowest quartile were 18.7% and 14.3%, respectively. One quarter (25.1%) of the admissions in hospitals in the highest quartile came from rehospitalizations within 30 days after discharge (as compared with 17.0% of admissions in all hospitals and 13.1% of admissions in hospitals in the lowest quartile).

The rehospitalization rate that was expected on the basis of DRGs strongly predicted the observed rate ( $R^2=0.276$ ,  $P<0.001$ ). Unadjusted hospital rates correlated strongly with DRG-adjusted rates ( $r=0.975$ ,  $P<0.001$ ); rehospitalization rates 30 and 90 days after discharge also correlated strongly ( $r=0.953$ ,  $P<0.001$ ). In the case of hospitals with 1000 or more Medicare discharges, 24.4% (interquartile range, 17.4 to 29.5) of the

patients who were rehospitalized within 30 days were admitted to another hospital; in the case of hospitals with fewer than 1000 discharges, 44.2% (interquartile range, 23.6 to 60.0) of the patients were admitted to another hospital.

**PATIENTS**

The average hospital stay for rehospitalized patients was 0.6 day (13.2%) longer than the stay for patients in the same DRG who had not been hospitalized within the previous 6 months (2,962,208 patients) ( $P<0.001$ ). The average Medicare payment weight is 1.41 for index hospitalizations and 1.35 for rehospitalizations. Table 3 shows the relative risk of rehospitalization within 30 days after discharge that was associated with each of the variables we analyzed. The reason for the index hospitalization (i.e., the DRG), the number of previous hospitalizations, and the length of stay had more

influence on the risk of rehospitalization than demographic factors such as age, sex, black race, SSI status, and presence or absence of disability.

**OUTPATIENT VISITS**

Figure 2 shows the percentage of patients discharged to the community after hospitalization for medical conditions and subsequently rehospitalized for whom there was no bill for an outpatient physician visit between the time of discharge and rehospitalization; both the percentage on each day after discharge and the cumulative percentage are shown. There was no associated bill for an outpatient visit for 50.1% of the patients who were rehospitalized within 30 days after discharge and for 52.0% of those who were rehospitalized for heart failure within 30 days after discharge.

**DISCUSSION**

The 19.6% rate of rehospitalization within 30 days after discharge that we report for Medicare beneficiaries in 2003–2004 is consistent with the rate in MedPAC’s 2008 report of 2005 data (17.6% at 30 days),<sup>1</sup> and the difference probably reflects methodologic differences rather than a temporal trend. We found that the rehospitalization rate at 60 days was 31.1% when we analyzed the data in the same way as Anderson and Steinberg, who reported a rate of 22.5% at 60 days for the 1976–1978 period.<sup>6</sup> This larger difference is more likely to indicate an actual increase in rehospitalization rates over time, perhaps owing to a shorter duration of index hospitalization or to the increase in ambulatory surgery over the past 30 years. Friedman and Basu found that among persons 18 to 64 years of age in five states, the rate of rehospitalization for any reason within 6 months after discharge was 81% of the rate among those older than 64 years of age,<sup>11</sup> which is consistent with our finding that the rehospitalization rate was only weakly related to age.

Our analysis also shows that the risk of rehospitalization after discharge persists over time (Table 1). Further studies will be needed to understand the relative contributions to this risk of failures in discharge planning, insufficient outpatient and community care, and severe progressive illness.

This study was limited by our reliance on Medicare billing data, which provide an incom-

**Table 3. Predictors of Rehospitalization within 30 Days after Discharge.\***

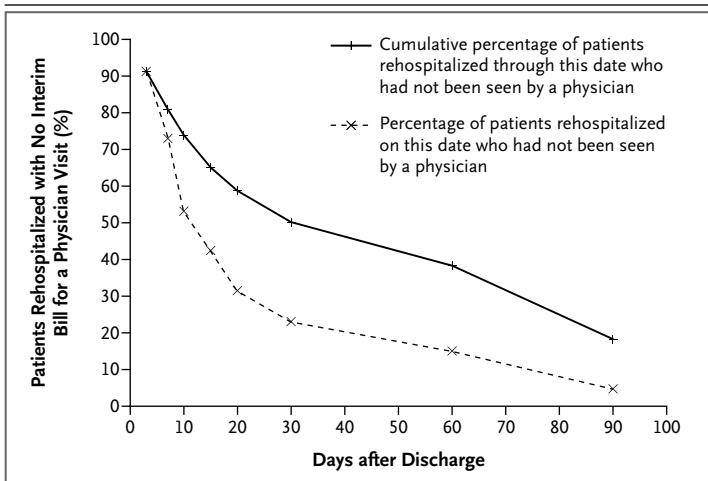
Variable	Hazard Ratio (95% Confidence Interval)
Hospital’s ratio of observed to expected hospitalizations†	1.097 (1.096–1.098)
National rehospitalization rate for DRG‡	1.268 (1.267–1.270)
No. of rehospitalizations since October 1, 2003	
0	1.00
1	1.378 (1.374–1.383)
2	1.752 (1.746–1.759)
≥3	2.504 (2.495–2.513)
Length of stay	
>2 times that expected for DRG	1.266 (1.261–1.272)
0.5–2 times that expected for DRG	1.00
<0.5 times that expected for DRG	0.875 (0.872–0.877)
Race‡	
Black	1.057 (1.053–1.061)
Other	1.00
Disability	
End-stage renal disease	1.417 (1.409–1.425)
Receipt of Supplemental Security Income	1.117 (1.113–1.122)
Male sex	1.056 (1.053–1.059)
Age	
<55 yr	1.00
55–64 yr	0.983 (0.978–0.988)
65–69 yr	0.999 (0.989–1.009)
70–74 yr	1.023 (1.012–1.035)
75–79 yr	1.071 (1.059–1.084)
80–84 yr	1.101 (1.089–1.113)
85–89 yr	1.123 (1.111–1.136)
>89 yr	1.118 (1.105–1.131)

\* Data are for patients in Medicare fee-for-service programs who were discharged from the hospital between April 1, 2004, and September 30, 2004, and were followed until October 31, 2004. Data were analyzed with the use of the Cox proportional-hazards model. P<0.001 for all variables except an age of 65 to 69 years. DRG denotes diagnosis-related group.

† These estimates are standardized.

‡ Race was determined from MEDPAR files.

plete picture and contain some unreliable elements, and on DRGs, which are not fully adjusted for severity of illness. Unmeasured differences in severity of illness might bias comparisons of rehospitalization rates across states, hospitals, and demographic groups. However, DRG adjustment is a moderately strong predictor of the rehospitalization rate (R<sup>2</sup>=0.276), so the very high



**Figure 2. Patients for Whom There Was No Bill for an Outpatient Physician Visit between Discharge and Rehospitalization.**

Data are for patients in fee-for-service Medicare programs who were discharged to the community between January 1, 2003, and December 31, 2003, after an index hospitalization for a medical condition. Data are derived from claims maintained in the Chronic Condition Data Warehouse of the Centers for Medicare and Medicaid Services.

correlation between unadjusted and DRG-adjusted hospital-level rates suggests that additional adjustment for risk may not add greatly to the analysis of rehospitalization rates. In addition, our assessment of outpatient follow-up was limited by the use of billing data that do not capture most visits to nonphysician providers.

Fisher et al.<sup>12</sup> have argued that the availability of hospital beds induces demand without improving health and that the availability of a bed may also facilitate hospitalization if a patient's condition deteriorates, but we were unable to link measures of the number of hospital beds in a community to the data analyzed here. Nevertheless, their argument bears directly on the question of whether higher rehospitalization rates are evidence of better care or just more care. Similarly, better access to primary care and better continuity of care may reduce the number of rehospitalizations, but we have no data on where in the United States these features are provided, nor do we know where a "medical home"<sup>13</sup> — an enhanced primary care coordinator for all of a patient's care — has been adopted.

Five lines of evidence suggest that rates of rehospitalization might be reduced. First, controlled studies<sup>14-16</sup> have shown that certain interventions at the time of discharge sharply reduce the rates

of rehospitalization among patients with heart failure and other Medicare beneficiaries, and preliminary reports suggest that these and other interventions are more effective when used more widely. In contrast, coordination-of-care interventions that are limited to community settings appear to be ineffective in reducing rehospitalization.<sup>17</sup> Research also shows that supportive palliative care can reduce rehospitalization and increase patient satisfaction.<sup>18</sup> In addition, the Quality Improvement Organizations appear to have reversed a national trend of increased hospitalizations from home settings by working with individual agencies that provide home health care.<sup>19</sup>

Second, the absence of a bill for an outpatient physician visit in the case of more than half of the patients with a medical condition who were readmitted within 30 days after discharge to the community is of great concern and suggests a considerable opportunity for improvement. Our concern is heightened by the same finding among patients with heart failure, who are known to have a response to intensified care.<sup>20</sup> Hospitals and physicians may need to collaborate to improve the promptness and reliability of follow-up care.

Third, although claims data are less informative about follow-up care after surgical procedures (because of the global surgical fee), many patients who are discharged after a surgical procedure may benefit from earlier medical follow-up, since a substantial majority of postsurgical rehospitalizations are for medical conditions.

Fourth, our estimate that 90% of rehospitalizations within 30 days after discharge are unplanned suggests that rehospitalization is probably not primarily driven either by clinical practices (e.g., staged surgery) that cannot be efficiently rendered in one hospitalization or by profit-seeking division of services into multiple hospitalizations.

Fifth, the variation among states (Fig. 1) and hospitals suggests that improvement on a national scale may be possible, but the data do not show which practices cause the differences or whether the differences are exportable.

Medicare payments for unplanned rehospitalizations in 2004 accounted for about \$17.4 billion of the \$102.6 billion in hospital payments from Medicare,<sup>21</sup> making them a large target for cost reduction. (This cost estimate is derived by multiplying the 19.6% rehospitalization rate by 90%,

which represents the percentage of unplanned rehospitalizations, and multiplying that product by 96%, since DRG-based payments for rehospitalizations are 4% lower than those for index hospitalizations.) Convincing estimates of potential savings must await evaluation of large-scale improvement efforts.

Although the care that prevents rehospitalization occurs largely outside hospitals, it starts in hospitals. In a quarter of the hospitals, about 25% of the admissions are rehospitalizations that occur within 30 days after discharge. Cynics may suggest that preventing rehospitalization is not in the financial interest of hospitals, but our analysis suggests a more complex picture. Rehospitalizations may not be profitable for many hospitals. Although the average length of stay for rehospitalized patients was 0.6 day more than that for patients in the same DRG whose most recent hospitalization had been at least 6 months previously, DRG-based payments would be largely the same. For a hospital with excess capacity, there may be as much financial benefit from rehospitalizations as from first-time admissions, but for a hospital that manages its capacity more carefully, there may not.

Almost all hospitals will need help in gauging their performance with respect to rehospitalizations, because they have no access to data on the 20 to 40% of their patients who are rehospitalized elsewhere. Only holders of all-hospital discharge data, such as governments and other third-party payers, have the ability to track patients across providers and systems. Medicare could help by providing data on all Medicare rehospitalizations (suitably de-identified) to help hospitals and communities better understand their performance.

Our analysis generally confirms Anderson and Steinberg's findings regarding the value of demographic factors in predicting the risk of rehospitalization,<sup>6</sup> but it shows that previous rehospitalization, a longer index hospitalization as compared with the norm for the DRG, the need for dialysis, and the DRG to which the patient is assigned at the end of the stay are more powerful predictors. However, when the typical patient has almost two chances in three of being rehospitalized or of dying within a year after discharge, it is probably wiser to consider all Medicare pa-

tients as having a high risk of rehospitalization. For example, ensuring that a follow-up appointment with a physician is scheduled for every patient before he or she leaves the hospital is probably more efficient than trying to identify high-risk patients and arranging follow-up care just for them.

Rehospitalization is a frequent, costly, and sometimes life-threatening event that is associated with gaps in follow-up care. We are beginning to understand that the rate of rehospitalization can be reduced with the implementation of more reliable systems, but it would be premature to predict how much reduction can be achieved. Although the rehospitalization rate is often presented as a measure of the performance of hospitals, it may also be a useful indicator of the performance of our health care system.<sup>22</sup> From a system perspective, a safe transition from a hospital to the community or a nursing home requires care that centers on the patient and transcends organizational boundaries. Our purpose in this report has been to strengthen the empirical foundation for designing and providing such care.

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## REFERENCES

1. A path to bundled payment around a rehospitalization. In: Report to the Congress: reforming the delivery system. Washington, DC: Medicare Payment Advisory Commission, June 2005:83-103.
2. Candidate hospital care additional priorities: 2007 performance measure. Washington, DC: National Quality Forum, 2007.
3. Application of incentives to reduce avoidable readmissions to hospitals. *Fed Regist* 2008;73(84):23673-5.
4. Connolly C. Obama proposes \$634 billion fund for health care. *Washington Post*. February 26, 2009:A1.
5. Ross JS, Mulvey GK, Stauffer B, et al. Statistical models and patient predictors of readmission for heart failure: a systematic review. *Arch Intern Med* 2008;168:1371-86.
6. Anderson GF, Steinberg EP. Hospital readmissions in the Medicare population. *N Engl J Med* 1984;311:1349-53.
7. Chronic Condition Data Warehouse (CCW) home page. West Des Moines: Iowa Foundation for Medical Care, 2008. (Accessed March 9, 2009, at <http://ccwdata.org>.)
8. Blustein J. The reliability of racial classifications in hospital discharge abstract data. *Am J Public Health* 1994;84:1018-21.
9. Eicheldinger C, Bonito A. More accurate racial and ethnic codes for Medicare administrative data. *Health Care Financ Rev* 2008;29:27-42.
10. SAS for Windows, version 8.2. Cary, NC: SAS Institute.
11. Friedman B, Basu J. The rate and cost of hospital readmissions for preventable conditions. *Med Care Res Rev* 2004;61:225-40.
12. Fisher ES, Wennberg JE, Stukel TA, et al. Associations among hospital capacity, utilization, and mortality of US Medicare beneficiaries, controlling for sociodemographic factors. *Health Serv Res* 2000;34:1351-62.
13. Barr M, Ginsburg J. The advanced medical home: a patient-centered, physician-guided model of health care. Philadelphia: American College of Physicians, 2006.
14. Coleman EA, Parry C, Chalmers S, Min S-J. The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med* 2006;166:1822-8.
15. Naylor MD, Broton DA, Campbell RL, Maislin G, McCauley KM, Schwartz JS. Transitional care of older adults hospitalized with heart failure: a randomized, controlled trial. *J Am Geriatr Soc* 2004;52:675-84.
16. Jack BW, Chetty VK, Anthony D, et al. A reengineered hospital discharge program to decrease rehospitalization: a randomized trial. *Ann Intern Med* 2009;150:178-87.
17. Peikes D, Chen A, Schore J, Brown R. Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *JAMA* 2009;301:603-18.
18. Brumley R, Enguidanos S, Jamison P, et al. Increased satisfaction with care and lower costs: results of a randomized trial of in-home palliative care. *J Am Geriatr Soc* 2007;55:993-1000.
19. Rollow W, Lied TR, McGann P, et al. Assessment of the Medicare quality improvement organization program. *Ann Intern Med* 2006;145:342-53.
20. Göhler A, Januzzi JL, Worrell SS, et al. A systematic meta-analysis of the efficacy and heterogeneity of disease management programs in congestive heart failure. *J Card Fail* 2006;12:554-67.
21. Medicare & Medicaid statistical supplement. Baltimore: Centers for Medicare & Medicaid Services, 2007. (Accessed March 9, 2009, at <http://www.cms.hhs.gov/MedicareMedicaidStatSup/downloads/2007Table5.1b.pdf>.)
22. Adeyemo D, Radley S. Unplanned general surgical re-admissions — how many, which patients and why? *Ann R Coll Surg Engl* 2007;89:363-7.

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**Appendix II – Chain Weight Options and formulae for calculation of chain weights, and actual and expected values**

**Formulae for calculation of chain weights, and actual and expected values**

Let  $W_i$  be the case mix weight for a case in APR-DRG/SOI  $i$ .

If chain  $j$  has  $n$  readmissions with weights  $w_{jk}$ ,  $k=1, \dots, n$ , then:

$$c_j = \text{chain weight for chain } j = \sum_k w_{jk}$$

where the index  $k$  runs from 1 to  $n$ .

The expected chain weight for a chain starting with a discharge with an initial APR-DRG/SOI of  $i$  is:

$$e_i = \sum_j c_j / n_i$$

where the summation runs over all the readmission chains starting with an initial APR-DRG/SOI of  $i$  and  $n_i$  is the number of readmission chains starting with an initial APR-DRG/SOI of  $i$ .

Assign an expected chain weight to each readmission chain, and an expected chain weight of zero to each only admission, call these  $g_i$ .

Calculate the statewide expected chain weight for each only or initial admission in APR-DRG/SOI  $i$ . This is:

$$f_i = e_i \times \frac{(\# \text{ initial admissions with APR-DRG/SOI } i)}{(\# \text{ of initial or only admissions with } i)}$$

For all APR-DRG/SOI  $i$ , assign  $f_i$  to each initial or only admission  $i$ .

The readmission index for a hospital is then:

$\sum g_n / \sum f_n$ , where n runs over all initial or only admissions at the hospital.

It should be noted that this calculation does not take account of the adjustment factors for age category, mental health status or Medicaid status. These factors can be applied to the individual expected numbers  $f_i$  before the final summation.

### **Option 1: PPR rate**

In this option all readmission chains are counted, and they all have equal weight. The APR-DRG/SOIs will have different proportions of readmissions associated with them, and the expected readmission rate for a hospital is adjusted using these different proportions.

In each of the options we will consider the same 2 cases with initial admissions in:

Case 1: APR-DRG/SOI 811.1 - allergic reaction / minor

Case 2: APR-DRG/SOI 161.4 - cardiac defibrillator and heart assist implant/ extreme.

Under Option 1 readmission chains following either of these initial admissions are counted as equal.

### **Option 2: Expected chain weight**

The chain weight is the mean case mix weight associated with readmissions following a given APR-DRG/SOI. The chain weights are used to calculate both the actual and expected PPR rates for each hospital. Thus, the hospital is being held accountable for the proportion of readmission chains within each APR-DRG/SOI, and these are weighted by the expected chain weight for the APR-DRG/SOI, but not for the actual case mix weights of the readmissions.

The expected chain weights vary from .3 to 7.6. with a median value of 1.26.

APR-DRG/SOI 811.1 (minor allergic reaction) has a chain weight of 0.53, while 161.4 (cardiac defibrillator and heart assist implant) has a chain weight of 1.93. Under Option 1 a readmission chain following 811.1 would have the same impact as a readmission chain following an initial admission in 161.4. Under Option 2 the readmission chain following 161.4 would be weighted with the chain weight of 1.93.

In neither case would any account be taken of the actual case mix weights of the readmissions that occurred.

Case 1: Expected and actual weight is 0.53

Case 2: Expected and actual weight is 1.93

### **Option 3: Actual and expected chain weights**

The chain weight is the mean case mix weight associated with readmissions following a given APR-DRG/SOI. The chain weights are used to calculate the expected PPR rates for each hospital. The actual case mix weights for the readmissions would be used to calculate the actual PPR rate for the hospital. Thus, the hospital is being held accountable for both the proportion of readmission chains within each APR-DRG/SOI, and the case mix weights for the actual readmissions.

A chain with an initial APR-DRG/SOI of 161.4 would have an expected chain weight of 1.93, but its actual chain weight would be the sum of the case mix weights for the readmissions that actually occurred following that particular initial admission.

Since some chains can be quite long, and the case mix weights associated with some of the readmissions can be high, it would be desirable to place a limit, or outlier threshold, on the chain weights used in the actual PPR rate calculation, which leads to option 4. The individual chain weights range from 0 to 35.

Case 1: Expected weight is 0.53, actual weight anywhere from 0.26 to 0.76.

Case 2: Expected weight is 1.93, actual weight anywhere from 0.45 to 8.5.

### **Option 4: Option 3 with an outlier**

The non-zero individual chain weights range from 0.16 to 35. Only 1% have a chain weight greater than 10. To reduce the risk an outlier threshold should be applied if option 3 is selected.

## **Appendix III: Comment Letters on the MHPR Draft Recommendation**



Maryland  
Hospital Association

**MHA**

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October 12, 2010

Robert Murray  
Executive Director  
Health Services Cost Review Commission  
4160 Patterson Avenue  
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Dear Mr. Murray:

On behalf of the 67 members of the Maryland Hospital Association (MHA), we are writing to comment on the October 13 staff draft recommendation, "Rate Methods and Financial Incentives Relating to Reducing Maryland Hospital Preventable Readmissions (MHPR)." Maryland's hospitals are committed to achieving an unavoidable readmissions rate of zero. As part of the annual payment update process, MHA, United, CareFirst, and Secretary Colmers in June proposed a hospital update that included an additional 0.44 percent to help hospitals put into place, this fiscal year, programs to reduce all-cause readmissions by 10 percent. We appreciate the opportunity to work with HSCRC staff over the last several months on technical aspects of the proposal, and we remain committed to implementing a readmissions payment policy this fiscal year.

However, the October draft proposal includes two specific provisions that we cannot support:

- It measures readmissions across all hospitals (inter-hospital); it should measure readmissions to the same hospital (intra-hospital).
- It rewards hospitals for achieving a lower readmission rate than the statewide average; it should reward improvement compared to the hospital's own prior performance.

### **Intra-hospital Readmissions**

#### *Identifying readmissions to the same hospital*

HSCRC staff relies on each hospital's assignment of the medical record number (MRN) to identify readmissions to the same hospital. Ideally, the hospital assigns a unique MRN to each patient, and that MRN stays with the patient for life. In reality, data entry errors are inevitable, and can include transposing a patient's birth year, misspellings or culturally acceptable but unusual spellings of a patient's last name, nicknames, or name changes associated with marriages and divorces. All may cause a patient to have two or more MRNs. Hospitals with many such errors have, as a logical result, an artificially low readmissions rate. HSCRC has required hospitals to correct these MRN errors and is developing a method to monitor and sanction excessive errors. We believe the MRN assignment is adequate to compare a hospital's readmission rate to itself over time.

### *Identifying readmissions to other Maryland hospitals*

To identify a readmission to a different hospital than where the initial admission occurred, the HSCRC must be able to identify the same patient at different hospitals. Accurately identifying patients in different databases requires a sophisticated algorithm that identifies potential matches using several pieces of patient-specific information. Most commonly, these algorithms use first name, last name, middle name, date of birth, and the last four digits of the social security number. The HSCRC discharge database is limited to the MRN, date of birth, zip code, and gender. These four elements are not enough to accurately identify patients admitted to different hospitals. The method proposed by HSCRC staff, therefore, results in false positives by identifying different people as the same person, and false negatives by failing to identify readmissions.

### *Identifying readmissions to out-of-state hospitals*

Hospitals near state borders, and hospitals whose patients are referred from out of state, are likely to have patients readmitted to hospitals outside of Maryland. To capture these readmissions, the HSCRC would need timely access to all-payor claims data from the surrounding states. However, readmissions data from out-of-state hospitals is limited. At best, the HSCRC can analyze historical data from Medicare and CareFirst. The limited data are not sufficient to identify readmissions in real time. Instead, the HSCRC proposes an adjustment factor for each hospital. An adjustment based on limited historical data is insufficient for a payment methodology.

### **Compare Hospital to Self, not to a Benchmark**

The payment incentive should be structured to reward hospitals for improvement compared to their own prior performance, not compared to the statewide average or some other arbitrary benchmark. Many intrinsic factors affect a hospital's readmissions rate--the mix of cases, the geographic area from which patients are drawn (including transfers in, and referrals from other states), the level of family support and resources of the patients, and the availability of primary care and specialty care in the community. Comparing one hospital's readmissions rate to a benchmark or to another hospital, and basing payment on this relative ranking, assumes we know and are able to adjust for all those factors. Comparing a hospital's performance to its own performance in a prior time period truly measures improvement and mitigates those intrinsic factors.

The potentially preventable readmissions (PPR) methodology uses the all-patient refined (APR) diagnosis groupings and the severity of illness (SOI) categories as a proxy for readmission risk. The APR/SOI groupings are based on the cost and utilization of care and were developed to explain resource use at the hospital. It is not clear how well the APR/SOI resource use groupings predict readmissions. Until we have more experience with the PPR methodology, and can validate the APR/SOI as a proxy for readmission risk, we should not compare one hospital's readmission rate to another.

## **Incentive Funding**

We appreciate HSCRC staff's acknowledgment that additional resources are required to help hospitals reduce readmissions. However, the 0.01 percent funding proposed by Commission staff is inadequate to the task. Reducing readmissions requires not just technical assistance and knowledge sharing, but also additional resources at each hospital. While HSCRC staff mentions the Institute for Healthcare Improvement's (IHI) State Action on Avoidable Rehospitalizations (STAAR) initiative, Project RED is one of only four interventions with very strong evidence to indicate it reduces readmissions. Project RED is a standardized process created at Boston University Medical Center to prepare patients for discharge, and is one of the National Quality Forum's Safe Practices. The objective is to reduce readmissions and increase patients' personal health literacy. The intervention includes 11 specific steps involving patient education, comprehensive discharge planning using a standardized "After Hospital Care Plan," making appointments for post-discharge follow-up and testing, medication reconciliation, and post-discharge telephone follow-up. A key aspect of the program involves the hiring and training of "Discharge Advocates." Each step requires additional resources.

## **Clinical Issues**

### *3M PPR Clinical Logic*

Maryland hospitals appreciate the series of educational and clinical vetting sessions that the HSCRC has convened so that clinicians, coders, and other hospital representatives could review the clinical logic underlying 3M's Potentially Preventable Readmissions methodology. We have submitted detailed questions and recommended changes to the inclusion and exclusion criteria during these sessions, and we believe the HSCRC needs to make further refinements to the PPR methodology for inclusion in its initiative. Significant concerns remain about mental health and substance abuse conditions, chronic conditions, planned surgical readmissions, and selected major diagnoses such as kidney transplants and sickle cell disease. We support the HSCRC's plan to convene a subgroup of mental health and substance abuse professionals to address these issues, and recommend that the other concerns identified above be given a similar opportunity for further discussion.

### *Readmission Window*

Studies make clear that the more time passes after the initial admission, the more likely the readmission is due to the progression of chronic disease, socio-economic factors, and access to outpatient care. MHA, therefore, in a clinical vetting session last spring, recommended that the readmission window be 15 days instead of the 30 days originally recommended by HSCRC staff. We are pleased that staff has agreed and revised its original recommendation.

### *Infrastructure Support/STAAR Initiative*

In addition to implementing financial incentives for hospitals to reduce preventable readmissions, the HSCRC staff proposes to initiate an MHPR Infrastructure and Quality Improvement Project using IHI's STAAR project. We have been invited to attend an October 14 meeting to learn more about this initiative and HSCRC's proposed approach for implementing it

Robert Murray  
October 12, 2010

Page 4

in Maryland. We will be pleased to provide feedback to the HSCRC staff once we have had an opportunity to review the information and share it with our members.

In conclusion, Maryland's hospitals are committed to implementing a readmissions payment policy this fiscal year, and we expect to present the HSCRC with a more formal recommendation at its next meeting. Our proposal will measure intra-hospital readmission rates and provide clear incentives for hospitals to reduce readmissions from one year to the next. Please contact either of us with any questions.

Sincerely,



Beverly Miller  
Senior Vice President, Professional Activities



Traci La Valle  
Assistant Vice President, Financial Policy

cc: Frederick W. Puddester, Chairman, HSCRC  
HSCRC Commissioners



OCT 22 '10 04:10:12

October 20, 2010

Robert Murray  
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Baltimore, Maryland 21215-2299

Dear Bob:

The Johns Hopkins Health System (JHHS) and University of Maryland Medical System (UMMS) strongly support the development and implementation of strategies to reduce preventable readmissions, and are, in fact, engaged in aggressive projects to address care coordination across the transitions of care throughout the health systems and into the community. We believe that providers and payers at all levels of care need to partner in order to find ways in which to manage patients at increased risk for readmission to the hospital. JHHS and UMMS also endorse the need for pay-for-performance tools, especially as CMS is poised to implement pay-for-performance for disease specific readmission rates, and believe that Maryland is well positioned to provide leadership in this area. However, provider engagement and patient and public acceptance of performance improvement programs require that the measures be evidence-based, have at least “face validity,” and be continually evaluated and adjusted as data become available. Nonetheless, there are currently no standardized statistical models adequately developed that meet all of these criteria as they pertain to identifying preventable readmissions.<sup>1,2</sup> It is for this reason that the “STate Action on Avoidable Readmissions (STAAR--an IHI and Commonwealth fund project across multiple states), has pointedly chosen an all-cause readmission measure for organizational performance improvement.

The HSCRC has proposed the use of the 3M Potentially Preventable Readmissions (PPRs) as a global readmissions measurement tool and the use of a comparative risk adjustment model to gauge Maryland hospital performance. We have serious concerns with the implementation of this model as planned, and instead would like to propose an alternative model which we believe may achieve the same ends while alleviating these concerns.

Our specific concerns are:

**1. Readmissions which have not been proven to be clinically related to the original admission and are not preventable should not be part of the methodology:**

While the 3M PPRs tool is an innovative attempt to determine preventable readmissions by initial APR-DRGs, and associated readmission APR-DRGs, the relationships between these APR-DRGs have not been studied or validated. In this model, readmissions are counted as potentially preventable if they are assumed to be related to the initial diagnosis or the initial hospitalization. Many diagnoses are linked that in our view cannot be justified as clinically related and would lack face validity among our providers as well as the public. A preliminary examination of individual readmission encounters using the PPR methodology reveals oversimplification of the multitude of interrelationships that impact readmissions and influence preventability. In a small sample of cases readmitted in all categories, readmissions were either not related, related but planned, or related but not preventable in 60% of the cases. (Not a statistically significant sample, See **Addendum**). For example, a patient originally admitted for heart failure and then readmitted with “Other Endocrine Disorders” or “Schizophrenia” would be counted as a potentially preventable readmission. In these, as well as numerous other instances, there is no evidence to suggest that there is a reasonable association between the original and subsequent admissions, nor are there outcome studies that define specific interventions which could prevent such a rehospitalization. While the argument exists that all hospitals are judged by the same criteria and therefore no one system is unfairly penalized, we believe the criteria should bear an obvious relationship to care quality.

**2. The proposed Risk Adjustment Methodology does not fairly adjust for factors which hospitals do not control, is not transparent, and has never been tested or validated.**

We believe that the proposed risk adjustment model to rank Maryland hospitals according to an observed/expected PPR rate and ascribe financial incentives does not accurately depict hospital performance and therefore may penalize hospitals unfairly. As with all global indicators such as mortality, complications and readmissions, *validated and context* specific risk adjustment must be applied... “the measure must be sufficiently valid for the explicit purpose for which it is used.”<sup>3,4</sup> Risk adjustment outcomes must meet certain standards, especially when used for profiling. Model transparency is critical to determine these standards and include at a minimum a detailed description of the process for selecting predictor variables, variable frequencies and associated odds ratios for *readmission* prediction; and various other validation criteria.<sup>5</sup> With any readmission methodology, appropriate risk adjustment for age, socioeconomic status, access to care, severity of illness, and number of co-morbid conditions must be included to best focus opportunities for improvement. “From a policy perspective, a validated risk-standardized statistical model to accurately profile hospitals using readmission rates is unavailable in the published English-language literature to date.”<sup>2</sup>

- The use of APR-DRG Severity of Illness (SOI) categories is limited in its ability to measure the risk of readmission.<sup>3</sup> The literature is clear that while SOI may be useful as one indicator of hospital resource utilization, it is not a predictor of rehospitalizations. Higher severity levels

“usually reflect multiple organ impairment with the greatest association of resource use and risk of mortality.”<sup>6</sup>”

- The proposal to adjust for average readmission chain weights, yet another utilization indicator, is not tested or validated and, we believe, does not measure care quality.
- Maryland as a normative group is small and each hospital has its own unique characteristics and dominance in certain specialty areas that cannot be adequately compared across this one state alone.
- The risk model as a whole is obscure with poorly defined adjustment factors for age, mental health, and Medicaid; as well as presumptive estimations for out of state migration and inter-hospital readmission calculations.

The numbers and interrelationships of chronic conditions to be managed outside of the hospitalization, i.e. access to primary care and patient characteristics such as functional status, motivation and literacy, are major drivers of readmissions even after optimal care in the hospital and are not captured in the SOI. As an example, with the proposed methodology, Johns Hopkins Bayview Medical Center (JHBMC) has a high observed/expected PPR rate. Yet the average number of chronic conditions in the JHBMC index admission group for those ultimately readmitted, using the AHRQ Co-Morbidity classifications, is 20% higher than the same population at The Johns Hopkins Hospital (JHH), which has a 3% higher average SOI. Furthermore, JHBMC is a highly regarded leader in nationally recognized innovations related to care coordination and transitions of care to decrease preventable readmissions, including “Safe-Discharge,” “Hospital at Home,” the “Alike Project,” and “Guided Care.” If the ultimate goal is to incentivize hospitals to implement strategies which reduce readmissions, the measurement must be able to detect those improvements.

#### **Our Proposal for a constructive Maryland model:**

- 1. Given the above concerns, we propose first that Maryland implement the use of PPRs as a multi-year process, so that early steps can be taken while other issues are addressed in parallel.**
- 2. Implement readmission methodology based on hospitals’ improvement as opposed to comparing hospitals to one another, until a validated Risk of Readmission statistical model is available.**
  - a. If PPRs are to be used as a method for pay for performance in the state of Maryland, we recommend implementation based on an **improvement** rather than a **scaling** model.
  - b. Measure hospitals on *observed* readmissions returning to the original hospital (*intra-hospital* measurement). Examination of JHHS data shows an intra-hospital readmission rate of 68-82%. Readmission process improvements made in the areas of

care coordination and discharge processes should ultimately reduce *all* avoidable readmissions, whether intra or inter hospital.

- c. We would also support alternative approaches such as implementing the **NQF endorsed** CMS readmission measures for Heart Failure, Myocardial Infarction and Pneumonia, or an all cause readmission measure (as recommended by the IHI STaar Initiative), until such time as evidenced-based and validated risk adjustment can be applied to global indicators such as PPRs.

We are very much committed to partnering with the HSCRC and 3M to further the science of readmission indicators through our research infrastructure.

**3. As the tools for validated and risk adjusted readmission measures are limited, we propose using the 3M PPRs for initiating organizational quality improvement with the following modifications:**

- a. **Include only the “clinical related categories” that are most likely attributable to the initial admission and can be impacted by improved care coordination and quality processes (i.e. 1, 3, and 5).** This excludes those categories that relate to chronic illnesses, ambulatory conditions, surgery to address a continuation of a problem, and readmissions for mental illness or substance abuse (2a, 2b, 4, 6a, 6b, 6c).
  - The clinical related categories of 2a and 2b relate to chronic illnesses, and ambulatory chronic conditions over which the acute care setting exerts very limited control. Access to primary care is a significant factor in avoiding preventable hospitalizations related to chronic conditions<sup>7</sup> and Maryland has a growing shortage of primary care physicians. (MHA and MedChi, 2008). There is a plethora of evidence on the relationship of chronic disease and increased risk of hospitalization from *unmodifiable* causes and “pending an agreed on method to adjust for confounders, global readmission rates are not a useful indicator of quality of care.”  
6.8.9.10
  - Including readmissions for “surgery to address a continuation of a problem,” may inadvertently increase hospital costs as well as patient risk by increasing diagnostic studies and invasive procedures in order to avoid rehospitalization after a “watch and wait” period.
  - The current proposal includes almost all hospital readmissions for mental health and substance abuse as potentially preventable, regardless of cause. Evidence related to clinically effective treatment for psychiatric and substance abuse illnesses lags behind that of the non-behavioral illnesses, e.g., heart failure. Recent large studies demonstrate that current medications for schizophrenia, bipolar disorder and major depression are no more effective than ones used 30 years ago. Only a minority of patients start care with a commitment to stay in care and comply with the healthcare team recommendations. In a recent study of Medicaid beneficiaries with mood

disorders, it was found that 24% of patients were rehospitalized after discharge. “Those with co-morbid substance abuse accounted for 36% of all baseline admissions, and half of all readmissions.”<sup>11</sup> The New York Medicaid program has excluded the behavioral health conditions from its adoption of PPRs. We believe these should be excluded from the proposed Maryland program as well.

**b. The time interval to measure hospital attribution for readmissions should be no longer than 15 days. We are pleased that the HSCRC has chosen to accept this recommendation after the initial draft proposal.**

- The literature is disparate on the time interval that most closely correlates to problems evolving from an initial hospitalization. Consensus is that the further the re-admission is from the index hospitalization, the more likely it is attributable to chronic disease progression, socio-economic factors, and failure of the outpatient environment. Hospital readmissions cluster shortly after discharge (1-7 days) and decline thereafter.<sup>12</sup> Evaluation of the PPR readmission rates for JHHS shows that 66% of the readmissions occur within 15 days of the initial hospitalization, with the largest bolus of readmission being in the 1—7 day period.

**c. Eliminate “elective” readmissions as a proxy for “planned.”**

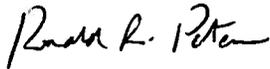
- “Elective” admissions are considered to be planned, and should be excluded from the methodology<sup>9</sup> based on HSCRC “nature” of admission. In the JHHS PPR analysis up to 7% of the readmission chains were “elective.” In the clinical related category #4 (readmissions for a surgical procedure to address a continuation or a recurrence of the problem causing the initial admission), the rate was as high as 57%.

**4. Evaluate the impact of the readmission program in each year, monitoring for unintended consequences, and comparing to all-cause readmission rates to validate the measurement.**

As we move forward with the implementation of care coordination strategies to reduce readmissions, we believe we must also pay close attention to the development of unintended consequences. It is quite possible that acute care length of stay will increase due to pressures to address all issues related to ambulatory and chronic conditions during the hospitalization. Pressures on Emergency Departments to treat and discharge patients may be increased especially where access to primary care is problematic. Unnecessary invasive procedures and diagnostic studies may be performed to avoid readmissions for those traditionally “watch and wait” conditions. More seriously, there may be delays in timely care for sick patients while alternative strategies are employed. Finally, there may be a risk of increased mortality due to delay in needed care while trying to avoid rehospitalization. A recent important study revealed that a “higher occurrence of readmissions after index admissions was associated with lower risk-adjusted 30 day mortality” and “a higher readmission rate may be a consequence of successful care.”<sup>13</sup>

We believe the proposal above is a sound basis for an initial readmission measurement methodology in Maryland. The fundamental reasons for readmissions most directly attributable to hospitals are inadequate care coordination and poor quality of inpatient care. If the principal objective of the HSCRC proposal is hospital performance improvement, potentially preventable readmission measures should focus on these two areas. Patient characteristics, chronic disease progression, and failure of the ambulatory environment, while important reasons for rehospitalization, are under limited control of the acute care organization alone. Readmissions as a clinical outcome are both a **quality** and a **utilization** indicator. While we need to understand both dimensions, it is in the area of quality that acute care organizations can have the greatest impact. The Johns Hopkins Health System and the University of Maryland Medical System are committed to reducing unnecessary hospitalizations and are actively engaged in finding the best ways to do this. All Maryland hospitals deserve to be measured in a way that will accurately reflect their efforts to reduce rehospitalizations.

Sincerely,



Ronald R. Peterson  
President  
Johns Hopkins Health System



Robert A. Chrencik  
President and Chief Executive Officer  
University of Maryland Medical System

**Johns Hopkins Health System and University of Maryland Medical System**

**Position Statement on the HSCRC Proposal for Implementation of Maryland Hospital Preventable Readmissions (MHPRs): Executive Summary**

- 1. We agree that readmissions should be prevented and that hospitals should have a role in that effort.**
- 2. We are concerned that the current proposal may unfairly reward/penalize hospitals for factors which are not in their control.**
- 3. We therefore propose that Maryland:**
  - a. Adopt a multiple year framework for implementation.**
  - b. Use 3M PPR methodology, but use only reason categories 1, 3 and 5 as basis for measurement, using 15 days as the time limit, and excluding elective admissions.**
  - c. Use an improvement-only methodology using *observed* readmission rates, as expected risk models have not been validated or tested in a readmissions context.**
  - d. Include readmissions back to the same hospital only (intra-hospital), as accuracy in identifying readmissions to all hospitals in the state is problematic (as noted by the HSCRC), and lack of data transparency will impede process improvements.**
  - e. Validate, after each of first 3 years, the 3M results against an all-cause readmission methodology to determine whether results are similar. If very different, this should drive changes; if very similar, this would support the methodology and its continuation.**
- 4. As we contribute to overall healthcare cost reductions by reducing unnecessary admissions, hospitals will need adequate revenues to cover their costs in order to remain financially viable.**

## References

1. Halfon, P., Eggli, Y., Pretre-Rohrbach, I., Meylan, D., Marazzi, A., & Burnand, B. (2006). Validation of the potentially avoidable hospital readmission rate as a routine indicator of the quality of hospital care. *Med Care*, 44(11), 972-981.
2. Ross, J. S., Mulvey, G. K., Stauffer, B., Patlolla, V., Bernheim, S. M., Keenan, P. S., et al. (2008). Statistical models and patient predictors of readmission for heart failure: a systematic review. *Arch Intern Med*, 168(13), 1371-1386.
3. Iezzoni LI. The risks of risk adjustment. *JAMA*. 1997 Nov 19;278(19):1600-7.
4. Iezzoni L.I. (editor) (2003) Risk Adjustment for Measuring Health Care Outcomes, 3rd edition AcademyHealth/HAP
5. David M. Shahian MD, FACSa, Matthew M. Hutter MD, MPH, FACSa, David F. Torchiana MD, FACSa and Lisa I. Iezzoni MD, Msc. Transparency: A Mandatory Requirement for Risk Models *Journal of the American College of Surgeons*, Volume 206, Issue 6, June 2008, Pages 1240-1242
6. Friedman, B., Jiang, H. J., & Elixhauser, A. (2008). Costly hospital readmissions and complex chronic illness. *Inquiry*, 45(4), 408-421.
7. Bindman, A. B., Grumbach, K., Osmond, D., Komaromy, M., Vranizan, K., Lurie, N., et al. (1995). Preventable hospitalizations and access to health care. *JAMA*, 274(4), 305-311.
8. Hannan, E. L., Racz, M. J., Walford, G., Ryan, T. J., Isom, O. W., Bennett, E., et al. (2003). Predictors of readmission for complications of coronary artery bypass graft surgery. *JAMA*, 290(6), 773-780.
9. French, D. D., Bass, E., Bradham, D. D., Campbell, R. R., & Rubenstein, L. Z. (2008). Rehospitalization after hip fracture: predictors and prognosis from a national veterans study. *J Am Geriatr Soc*, 56(4), 705-710.
10. Benbassat, J., & Taragin, M. (2000). Hospital readmissions as a measure of quality of health care: advantages and limitations. *Arch Intern Med*, 160(8), 1074-1081.
11. Prince JD, Akincigil A, Hoover DR, Walkup JT, Bilder S, Crystal S. Substance abuse and hospitalization for mood disorder among Medicaid beneficiaries. *Am J Public Health*. 2009 Jan;99(1):160-7. Epub 2008 Nov 13.
12. Franklin, P. D., Noetscher, C. M., Murphy, M. E., & Lagoe, R. J. (1999). Using data to reduce hospital readmissions. *J Nurs Care Qual, Spec No*, 67-85.

13. Gorodeski, E. Z., Starling, R. C., & Blackstone, E. H. (2010). Are all readmissions bad readmissions? *N Engl J Med*, 363(3), 297-298.

### **Other Bibliography**

Hasan, O., Meltzer, D. O., Shaykevich, S. A., Bell, C. M., Kaboli, P. J., Auerbach, A. D., et al. Hospital readmission in general medicine patients: a prediction model. *J Gen Intern Med*, 25(3), 211-219.

Smith, D. M., Giobbie-Hurder, A., Weinberger, M., Oddone, E. Z., Henderson, W. G., Asch, D. A., et al. (2000). Predicting non-elective hospital readmissions: a multi-site study. Department of Veterans Affairs Cooperative Study Group on Primary Care and Readmissions. *J Clin Epidemiol*, 53(11), 1113-1118.

## Addendum

**Example 1: Child with severe Lupus is readmitted for planned hemodialysis.** 12 Year old child with APR-DRG 115 OTHER EAR, NOSE, MOUTH, THROAT & CRANIAL/FACIAL DIAGNOSES and readmitted with APR-DRG 346 CONNECTIVE TISSUE DISORDERS (clinical category 2B ). Child has underlying stage IV severe Lupus nephritis; index admission with Sialoadenitis with airway obstruction; readmitted for PLANNED dialysis catheter placement and hemodialysis (after failing courses of Rituximab, and steroids). **Questionably Related, PLANNED; not preventable**

**Example 2: Child awaiting heart transplant readmitted for elective cardioversion for an abnormal heart rhythm.** 13 year old patient admitted with APR-DRG 201 CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS; readmitted with same diagnosis (clinical category 1). Patient has complex congenital cardiac disease; awaiting heart transplant; recent admission for atrial tachycardia managed by medication. In follow-up clinic appointment, noted continued atrial flutter (although stable), **PLANNED** readmission for cardioversion. **Related, not preventable.**

**Example 3: A female readmitted for planned breast reconstruction following bilateral mastectomy for breast cancer.** 67 year old post bilateral Mastectomy patient admitted and readmitted as PLANNED for staged 363 BREAST PROCEDURES EXCEPT MASTECTOMY (free DIEP Flap). (Clinical category 4) **Related, Planned.**

**Example 4: Woman awaiting a liver transplant is readmitted with liver failure following an unrelated surgery for breast cancer.** 51 year old women with end-stage liver disease (secondary to autoimmune hepatitis), admitted for 362 MASTECTOMY PROCEDURES; and readmitted with 279 HEPATIC COMA & OTHER MAJOR ACUTE LIVER DISORDERS. Patient initially admitted for mastectomy for early stage breast cancer which did not preclude her from being on the liver transplant list. She was at baseline until 2 days prior to admission when she became increasingly lethargic and readmitted with hepatic encephalopathy (rising ammonia). Patient treated and evaluated for causes of decompensation of hepatic disease. (Multiple other co-morbid conditions including venous stasis, recurrent cellulitis, etc.). (Clinical category 2b). **Unrelated; not preventable**

**Example 5: Male with end stage kidney disease and multiple chronic conditions, is readmitted for heart failure after missing his dialysis appointments.** 53 year old with multiple end stage organ diseases, including ESRD, congestive hepatopathy, Diabetes, COPD, Hepatitis C; hypoglycemia, (and more), admitted with 460 RENAL FAILURE and readmitted with 194 HEART FAILURE. Patient readmitted after missing 2 hemodialysis sessions, as he felt his “legs didn’t work.” Patient has history of noncompliance and continues to be readmitted due to failure to keep dialysis appointments. (Patient has had significant family and social services support to understand issues surrounding non-compliance with dialysis). (Clinical category 2a) **Related; not preventable.**

**Example 6: Woman readmitted for mental illness after refusing transfer to psychiatry following initial admission for bladder infection.** 62 year old with long history of bipolar disorders, non-compliance with meds, and multiple co-morbid conditions (COPD, Hypertension, Peptic Ulcer Disease,

Diabetes, Morbid Obesity, etc.) admitted for 463 KIDNEY & URINARY TRACT INFECTIONS and readmitted for 753 BIPOLAR DISORDERS. Initially admitted for Acute Renal Failure and UTI. Patient had not been taking meds, was depressed and expressed suicidal ideation. Psychiatry consulted; lithium restarted. Patient refused admission/transfer to Psych. Discharged to niece's home. Readmitted 2 days later "floridly thought disordered and psychotic." (Clinical related category 6a) **Questionably related; not preventable**

**Example 7: Patient undergoes planned additional coronary intervention within month post heart attack.** IK is a 78 year old woman with a history of chronic renal insufficiency and coronary artery disease who experienced an NSTEMI and underwent PCI of two vessels on 4/20/09. She had coronary disease in another vessel as well, but this was deferred electively because of her renal dysfunction. On 5/19/09 she returned for elective PCI of the remaining vessel. Admitted with 175 PERCUTANEOUS CARDIOVASCULAR PROCEDURES W/O AMI and readmitted for same APR-DRG. (Clinical category 4, nature of admission emergency due to original planned observation status). **Related; Planned**

**Example 8: Patient has a bleed while taking needed medications post-coronary intervention.** DM is a 43 year old gentleman who was admitted with a non-ST elevation myocardial infarction (174 PERCUTANEOUS CARDIOVASCULAR PROCEDURES W AMI) and underwent stenting of the culprit lesion on 12/8/09. He was discharged on dual antiplatelet therapy and GI prophylaxis. He presented on 12/24/09 with GI bleeding (254 OTHER DIGESTIVE SYSTEM DIAGNOSES). He was without a GI bleed history (and H Pylori negative). (Clinical category 3.) **Related; Unpreventable**

**Example 9: Patient is readmitted for depression after admission for chest pain.** KH is a 46 year old gentleman with a history of hypertension, sternotomy secondary to gunshot wounds, depression (on therapy), alcohol abuse who presented on 9/14/09 for chest pain (203 CHEST PAIN). He stayed in ED for observation for the day (never admitted to a medical care team) and underwent stress test which was negative for ischemia. He was discharged and then returned to the hospital on 10/14/09 with depression (754 DEPRESSION EXCEPT MAJOR DEPRESSIVE DISORDER) and was discharged on the same depression medications and doses as had been discharged from ED observation. (Clinical category 6a). **Unrelated; Unpreventable**

**Example 10 : Elderly man readmitted for planned amputation and skin grafting due to progression in arterial vascular disease.** 80 year old man with APR DRG 464 Wound debridement with skin graft excision for musculoskeletal/connective tissue disease WCC and readmitted with APR DRG 905 Skin graft for injuries. Patient has a long standing history of vascular disease, osteoarthritis with total knee replacement, chronic obstructive pulmonary disease, stroke, hypertension, Type II Diabetes Mellitus who had the first of several femoral artery bypass grafts in August 2006. Due to the patient's chronic and progressive debility, multiple gangrenous toes and secondary infections, decubitus ulcers on the feet and heels, the patient was readmitted ELECTIVELY for amputation and skin grafting. Clinical category #5; case is evidence of both disease progression and scheduled procedure and NOT preventable. **Related; Planned; Not Preventable**

**Example 11: Male readmitted for amputation following unsuccessful blood vessel grafting to restore circulation to injured foot.** 76 year old patient hospitalized for APR DRG – 623 Skin graft and wound debridement for endo, nutrit, metabolic disease wcc and readmitted for APR DRG – 240 Amputation for circulatory system disorder except upper limb and toe W/CC. The patient is known to have coronary artery disease, diabetes Mellitus Type II, MI with coronary artery bypass graft, gastrointestinal bleed, syncope, chronic renal failure. The patient suffered a fall 5 months prior with resulting pneumothorax, cellulites with open foot wounds that required amputation of the toes and plantar artery bypass grafting. A note from the attending physician....“WILL NEED A TRANS METATARSAL AMPUTATION OF THE FOOT BUT THIS WILL NEED TO BE SCHEDULED FOR A LATER DATE AS THE PATIENT’S ...spouse...IS VERY ILL AND HAS BEEN PLACED IN HOME HOSPICE. Patient discharged home with open areas on foot to be readmitted later for surgery.” The patient was readmitted for definitive, ELECTIVE readmission for below the knee amputation after the spouse expired. Clinical category #5: The readmission was not preventable due to the progression of long standing vascular disease. This case demonstrates the patient’s right to choose when and how they will be treated. **Related; Planned; Not preventable.**

**Appendix IV – Inter- and Intra- hospital Rates of Preventable Readmissions (Medpar Data 2008)**

**UNADJUSTED INTRA AND INTER HOSPITAL AND OUT OF STATE READMISSION RATES,  
CY2008 MEDICARE DATA**

PROVIDER NAME	15 DAY READMISSION INTERVAL			30 DAY READMISSION INTERVAL			ADJUSTMENT FACTORS			
	INTRA HOSPITAL	INTRA & INTER HOSPITAL	TOTAL W/ OUT OF STATE	INTRA HOSPITAL	INTRA AND INTER HOSPITAL	TOTAL W/ OUT OF STATE	INTRA/INTER HOSPITAL		OUT OF STATE	
							15 DAY	30 DAY	15 DAY	30 DAY
Washington County Hospital	7.20%	7.48%	7.76%	11.11%	11.54%	11.96%	1.028	1.024	1.055	1.04
Univ. of Maryland Medical System	6.36%	12.16%	12.48%	9.29%	17.32%	17.72%	1.864	1.798	1.044	1.04
Prince Georges Hospital	7.70%	11.39%	12.19%	11.41%	17.03%	18.63%	1.429	1.417	1.134	1.15
Holy Cross Hospital of Silver	5.71%	8.20%	8.62%	9.27%	13.08%	13.50%	1.397	1.354	1.088	1.06
Frederick Memorial Hospital	7.90%	8.63%	8.84%	12.42%	13.44%	13.71%	1.082	1.067	1.038	1.03
Harford Memorial Hospital	8.75%	11.29%	11.47%	13.25%	16.09%	16.28%	1.248	1.150	1.028	1.02
St. Josephs Hospital	6.20%	9.22%	9.39%	9.03%	13.67%	13.83%	1.456	1.471	1.024	1.01
Mercy Medical Center, Inc.	6.03%	9.77%	9.86%	8.98%	13.89%	14.06%	1.561	1.466	1.015	1.01
Johns Hopkins Hospital	6.40%	9.98%	10.56%	9.52%	14.60%	15.45%	1.520	1.481	1.099	1.09
St. Agnes Hospital	5.96%	8.49%	8.57%	9.13%	12.96%	13.06%	1.385	1.359	1.016	1.01
Sinai Hospital	5.49%	8.99%	9.06%	8.15%	13.45%	13.52%	1.588	1.577	1.017	1.01
Bon Secours Hospital	6.93%	13.26%	13.19%	10.71%	19.73%	19.78%	1.736	1.600	0.995	1.00
Franklin Square Hospital	7.26%	9.37%	9.45%	11.69%	14.24%	14.36%	1.253	1.169	1.013	1.01
Washington Adventist Hospital	6.05%	9.50%	10.43%	9.30%	14.06%	15.35%	1.519	1.438	1.156	1.14
Garrett County Memorial Hospital	5.73%	5.97%	6.91%	9.11%	9.28%	10.29%	1.035	1.012	1.186	1.12
Montgomery General Hospital	7.89%	10.13%	10.38%	11.21%	14.53%	14.86%	1.253	1.252	1.043	1.03
Peninsula Regional Medical Center	6.76%	7.33%	7.78%	10.46%	11.28%	11.96%	1.078	1.068	1.093	1.08
Suburban Hospital Association, Inc	6.57%	8.07%	8.69%	9.28%	11.65%	12.57%	1.214	1.231	1.112	1.10
Anne Arundel General Hospital	6.63%	7.57%	7.74%	9.93%	11.46%	11.73%	1.123	1.126	1.033	1.03
Union Memorial Hospital	5.23%	9.46%	9.54%	8.18%	14.40%	14.50%	1.746	1.674	1.012	1.01
The Memorial Hospital	7.38%	8.79%	9.11%	11.02%	13.31%	13.56%	1.172	1.179	1.052	1.03
Sacred Heart Hospital	7.58%	8.71%	8.85%	11.42%	12.98%	13.28%	1.139	1.116	1.028	1.03
St. Marys Hospital	9.59%	10.56%	11.25%	14.85%	16.04%	16.63%	1.092	1.065	1.090	1.05
Johns Hopkins Bayview Med.	8.64%	12.52%	12.65%	13.08%	18.02%	18.15%	1.386	1.295	1.022	1.01
Chester River Hospital Center	7.80%	8.18%	8.28%	11.76%	11.82%	12.00%	1.034	0.988	1.025	1.02
Union Hospital of Cecil County	9.60%	10.18%	11.05%	14.33%	15.17%	15.95%	1.055	1.049	1.122	1.08
Carroll County General Hospital	7.72%	8.54%	8.73%	12.05%	13.05%	13.43%	1.079	1.046	1.030	1.03
Harbor Hospital Center	6.53%	9.54%	9.62%	10.33%	14.34%	14.37%	1.406	1.311	1.012	1.00
Civista Medical Center	8.70%	10.01%	10.34%	13.35%	15.55%	15.87%	1.129	1.135	1.053	1.03
Memorial Hospital at Easton	7.94%	8.27%	8.31%	12.23%	12.69%	12.79%	1.031	1.022	1.012	1.01
Maryland General Hospital	8.39%	13.85%	13.93%	13.56%	21.30%	21.43%	1.516	1.393	1.012	1.01
Calvert Memorial Hospital	5.81%	7.24%	7.53%	9.72%	12.14%	12.28%	1.221	1.217	1.060	1.02
Northwest Hospital Center, Inc.	7.23%	10.07%	10.23%	11.52%	15.95%	16.16%	1.337	1.296	1.023	1.01
Baltimore Washington Medical	7.56%	9.88%	10.09%	12.15%	15.41%	15.66%	1.272	1.216	1.025	1.02
Greater Baltimore Medical Center	5.12%	7.15%	7.35%	7.69%	10.88%	11.11%	1.358	1.351	1.035	1.02
McCready Foundation, Inc.	5.75%	9.09%	9.06%	8.51%	12.50%	12.46%	1.550	1.429	1.000	1.00
Howard County General Hospital	6.27%	8.19%	8.39%	10.24%	12.84%	13.09%	1.275	1.207	1.036	1.02
Upper Chesapeake Medical Center	6.87%	8.50%	8.67%	10.95%	12.99%	13.24%	1.204	1.138	1.029	1.02
Doctors Community Hospital	6.96%	9.93%	10.40%	10.52%	15.02%	15.59%	1.391	1.378	1.080	1.06
Southern Maryland Hospital	7.77%	9.59%	10.62%	11.82%	14.43%	15.76%	1.215	1.188	1.161	1.13
Laurel Regional Hospital	7.06%	9.99%	10.54%	11.18%	15.17%	15.91%	1.358	1.261	1.084	1.07
Good Samaritan Hospital	8.19%	10.05%	10.11%	12.77%	15.79%	15.88%	1.175	1.164	1.010	1.00
Shady Grove Adventist Hospital	6.38%	7.28%	7.60%	9.92%	11.38%	11.79%	1.117	1.112	1.065	1.05
James Lawrence Kernan Hospital	1.23%	5.13%	5.08%	1.30%	6.31%	7.14%	4.000	4.667	1.000	1.14
Fort Washington Medical Center	4.61%	8.46%	9.99%	7.17%	11.54%	13.73%	1.795	1.547	1.253	1.25
Atlantic General Hospital	6.79%	7.98%	8.04%	10.58%	12.41%	12.87%	1.162	1.149	1.026	1.05
<b>MD TOTAL</b>	<b>6.92%</b>	<b>9.23%</b>	<b>9.52%</b>	<b>10.61%</b>	<b>13.91%</b>	<b>76.24%</b>	<b>1.300</b>	<b>1.263</b>	<b>1.049</b>	<b>1.04</b>

## **Appendix V-- Maryland Proposed STAAR Initiative**

### **Proposed Approach for a Maryland State Action on Avoidable Rehospitalizations (STAAR) Initiative October 2010**

#### ***Background***

In May 2009, the Institute for Healthcare Improvement (IHI) launched State Action on Avoidable Rehospitalizations (STAAR). Funded through a grant from The Commonwealth Fund, STAAR is a multi-state, multi-stakeholder approach to dramatically improve the delivery of effective care at a regional scale.

The initiative aims to reduce rehospitalizations by working across organizational boundaries in a state or region. The work requires not only front-line process improvement, but also identification and mitigation of barriers to system-wide improvement, especially policy and payment reforms that will reduce fragmentation and encourage coordination across the continuum of care. The initiative has three high leverage opportunities for action:

- improving transitions for all patients,
- proactively addressing the needs of high risk patients, and
- engaging patients and their caregivers in assuming a proactive role in their plans.

STAAR was initially implemented in three states— Massachusetts, Michigan, and Washington— by engaging payers, state and national stakeholders, patients and families, and caregivers at multiple care sites and clinical interfaces. The work in the first three states is anticipated as a four year project. As this work has progressed for one year, IHI has offered to make programming and information learned from the initiative available to Maryland. The initiative would provide both technical assistance at the policy level and support provider efforts at the front line.

#### ***ROLE AND OPTIONS FOR MARYLAND STAAR LEADERSHIP PARTNERS***

The role of the key leadership group for STAAR is to identify strategies to address systemic barriers to improving transition of care and to establish an ongoing feedback loop with providers on the progress of addressing the barriers. Specifically, STAAR leaders are to address barriers in the following areas:

- State-wide data/ measurement,
- Payment/policy reforms,
- Financial implications on providers, and
- Working / communicating across the care continuum.

To build upon the success of the initial group of states implementing STARR, a public-private partnership of four key stakeholders is proposed as the leadership group. The proposed entities include:

- The Health Services Cost Review Commission
- The Maryland Hospital Association
- Maryland Patient Safety Center

- DHMH Office of the Secretary or designee

### ***ROLE & POTENTIAL ENTITIES TO BE REPRESENTED ON THE STEERING COMMITTEE***

The role of the Steering Committee for STAAR is to work with the key leadership group of STAAR to fully identify the systemic barriers and flesh out the potential strategies for addressing the barriers as well as engaging in the action steps to put the agreed upon strategies in place. Entities to consider for representation on the Steering Committee include:

- Maryland Health Care Commission
- Delmarva QIO
- Health Services Cost Review Commission
- Hospital association
- State medical society
- Maryland equivalent of osteopathic association?
- Department of health
- Blue Cross Blue Shield plan
- State association of health plans
- Aging services
- Maryland Patient Safety Center
- Key hospital industry representatives
- Institute for Healthcare Improvement Medicaid program operations and quality assurance
- Hospice and palliative care association
- State association of nurse executives
- Large nursing home provider-Genesis or Erickson?
- Consumer organizations
- Home health association
- Health Information exchange- CRISP
- Senior health organizations

### ***STAAR CORE SET UP FEATURES FOR PROVIDERS***

For Maryland to implement a STAAR initiative, provider participants must agree to engaging in three areas of activity, including:

- Conducting initial and ongoing measurement of 30-day all-cause readmission rates;
- Establishing cross-continuum teams comprising physician office, skilled nursing facility; hospital, home care and patient/family members;<sup>8</sup> and,
- Performing a readiness diagnostic by conducting at least five interviews and root cause analysis where readmission has occurred within the 30 day window in the measurement “base” period.

### ***STAAR CORE IMPROVMENT PROCESSES FOR PROVIDERS***

Key improvement processes that STARR participants must agree to implement include:

- Conducting enhanced readmission assessment that includes social and logistic information/factors for patients and families that impact risk for readmissions.
- Employing enhanced learning and coaching “teach-back” techniques with patients and families that includes facilitating their understanding and responding back regarding:
  - The reason they are admitted to the hospital.
  - How to do self care after discharge.
  - What to do if their symptoms worsen after they leave the hospital.
- Employing systematic methods to ensure timely communication with the next setting of care such that information is transferred the day of discharge.

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<sup>8</sup> To date, 67 cross continuum teams have been established across MA, MI and WA, 38 of which include patient and family representatives/participants.

- Employing systematic methods to ensure timely follow up with patients and families at moderate risk for readmission.

**Next Steps**

To move forward in determining whether STAAR is an appropriate fit for Maryland, the following next steps and timelines are proposed:

- Meet with proposed key leadership entities to discuss the proposal and next steps.
- Review and modify as needed the proposed list of leadership and steering committee participants.
- Should we determine it appropriate to go forward, convene a meeting with the proposed key leadership organizations and IHI staff.

\*\*\*\*\*

**Appendix A:  
IHI STAAR Resources Currently Available**

*The blue text below are URL links currently posted on STAAR to the IHI website.*

**[How-to Guide: Creating an Ideal Transition Home](#)**

This guide was created to support participating organizations in their work over the course of the STAAR initiative and beyond to improve transitions in care.

- [How-to Guide Summary and Strategies for Getting Started](#)

**[STAAR Project Summary](#)**

A one-page summary of the STAAR initiative.

**[STAAR: A State-Based Strategy to Reduce Avoidable Rehospitalizations](#)**

This document reflects the work of IHI to date to develop a state-wide strategy for reducing avoidable rehospitalizations.

As part of the *Effective Interventions to Reduce Rehospitalizations* project, which preceded the STAAR initiative, IHI produced materials to highlight promising approaches to reduce avoidable rehospitalizations.

- **[A Survey of the Published Evidence](#)**

This document is a survey of the published literature regarding the effective interventions to reduce avoidable rehospitalizations.

- **[A Compendium of Promising Interventions](#)**

This companion document to the Published Evidence provides information regarding current best programs and practices to reduce rehospitalizations.

**[STAAR: A Tool for State Policy Makers](#)**

The checklist provided in this tool focuses on aspects of the health care system that policy makers can influence and for which data is available to assess their state’s performance regarding hospital readmission rates.

**[Decreasing Avoidable 30-Day Rehospitalizations](#)**

This Minicourse presentation at the December 2009 IHI National Forum describes key drivers of rehospitalization rates, how national data compares to state and regional findings, high-leverage changes to reduce hospitalizations, and characteristics of the STAAR multistakeholder quality initiative that crosses organizational boundaries.

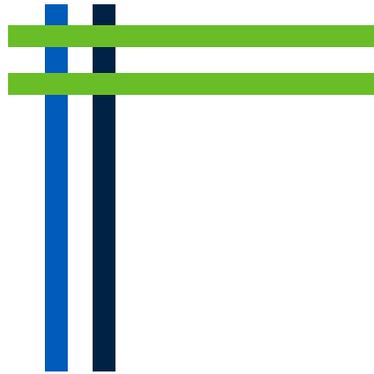
***STAAR Issue Briefs on Reducing Barriers to Care Across the Continuum***

Measuring Rehospitalizations at the State Level

The Financial Impact of Readmissions on Hospitals

Engaging Payers

Working Together in a Cross-Continuum Team



# Maryland Readmissions Policy

**Maryland Hospital Association**

**January 12, 2011**

# Objectives

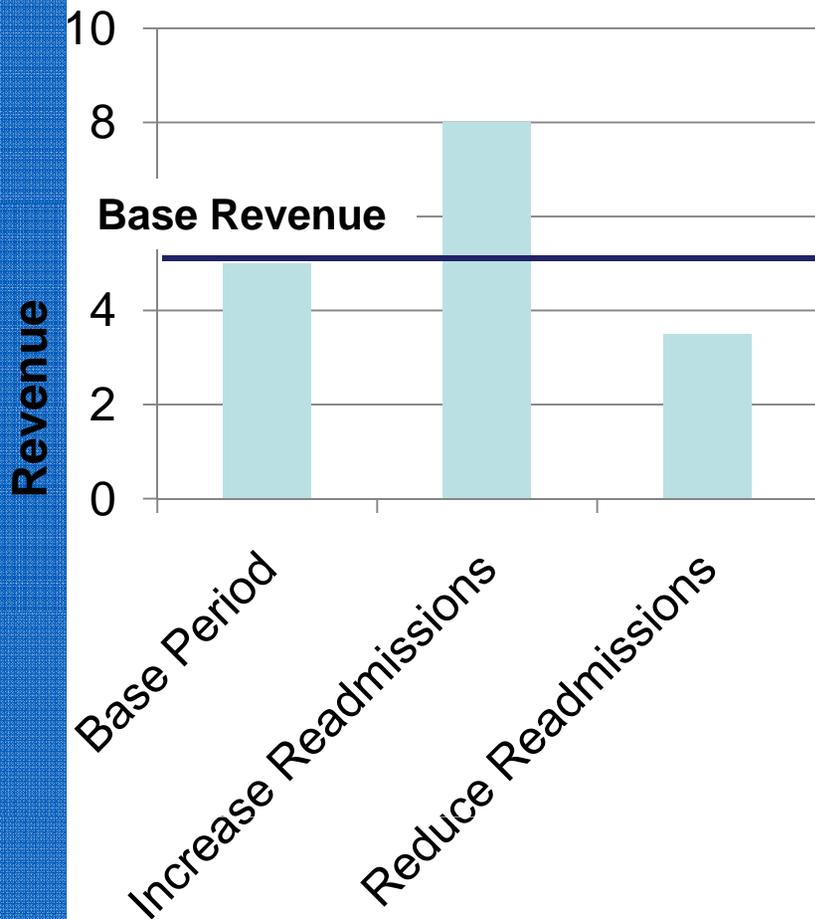
1. MHA supports an episode-based readmissions payment policy for all Maryland hospitals
2. Overview of MHA's readmissions payment policy proposal
3. Advance funding and financial impact of MHA's readmissions proposal

# MHA Supports Readmissions Policy for All Hospitals

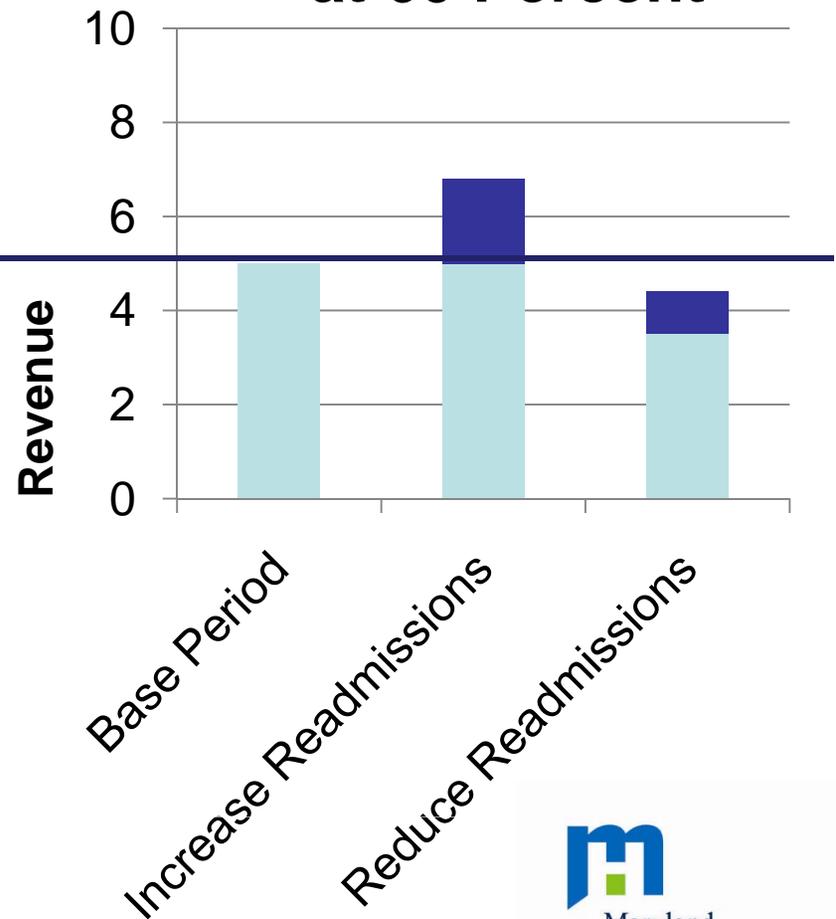
- MHA supports HSCRC admission-readmission episode payment policy
- 100 percent risk model is voluntary
- MHA proposes lower-risk, admission-readmission episode payment policy option for all other hospitals

# Readmissions Episode Policy Provides Clear Incentive

## No Readmissions Policy



## Episode-Based Payment at 60 Percent



# Episode-Based Readmissions Policy for All Hospitals

- Voluntary option at 100 percent risk
- Lower-risk, 60 percent, episode model for all other hospitals
  - Allows the hospital to keep the existing revenue base
  - Revenue defined per episode of care, not charge-per-case
    - Hospital is at risk for increases in readmissions
    - Hospital benefits from reductions in readmissions
    - Model provides incentives to invest in care coordination beyond the hospital stay
    - Reductions in intra-hospital readmissions benefit payors:
      - Reduced inter-hospital readmissions
      - Reduced stays not in bundling (e.g., one-day stays)
      - Reduced admissions beyond episode period
      - Reduced ED visits through improved care coordination

# Episode-Based Readmissions Policy for All Hospitals

- Benefits
  - Innovation in payment model toward episode, away from volume
  - Dovetails with medical home effort
  - Care coordination/transitional care improves quality, safety, and effectiveness of care
  - Care coordination improves patient experience
  - Reduced readmissions/ER visits save money
  - Increased capacity for newly insured under reform and aging population; thus easing system strain and spending to increase capacity

# Key Features of MHA Proposal

# MHA Supports HSCRC Admission-Readmission Revenue (ARR Proposal)

- Similar to MHA's November proposal
- Compares hospital performance to self in prior time period--rewards improvement
- Measures readmissions to same hospital (or system)
- Clear incentive to reduce readmissions
- Voluntary
- Hospital at risk for 100 percent of cost if readmissions increase
- Too much risk for some hospitals

# MHA Proposal Includes Lower-Risk Option

- MHA proposes similar, lower-risk option for all other hospitals
  - Compares hospital performance to self in prior time period--rewards improvement
  - Measures readmissions to same hospital (or system)
  - Clear incentive to reduce readmissions
  - Hospital at risk for 60 percent of cost if readmissions increase
  - Mandatory

# MHA Proposal

- Can be implemented now
  - Does not require out of state data
  - Does not require unique patient identifier
  - HSCRC and hospitals can continue to pursue modifications to identify readmissions to other hospitals
  - Provides time to better understand readmission risk factors to compare rates among hospitals

# Up-Front Financing and Return on Investment

# Implementation Costs

## Cost Per Discharge

Hospital Setup Costs	
Project Management and Consulting	\$10,000
Nurse Training	\$5,000
Technology Setup	\$10,000
<b>TOTAL Initial Cost</b>	<b>\$25,000</b>
Operational Costs	
Nurse Time Per Discharge (in hours)	0.50
Nurse Hourly Cost	\$65
Printing Cost Per Discharge	\$4
Technology	\$10
Follow up Phone Intervention Time	0.30
Clinical Pharmacist Hourly Cost	\$100
<b>TOTAL Per Discharge</b>	<b>\$77</b>

## Statewide Cost

*Total Number of Discharges	697,053
Number of Hospitals	49
Total Initial Cost	\$1,225,000
Total Operational Cost	\$53,324,555
<b>First Year Annual Cost</b>	<b>\$54,549,555</b>

# Mature Cost Savings Potential--PPRs

- Several pilot programs have reduced readmissions.
  - Up to 25 percent reduction in “preventable readmissions”
- Approximate magnitude:
  - Assume potentially preventable readmissions of 8 percent
  - a 25 percent improvement = 2.0 percent of inpatient revenue
  - 2.0 percent inpatient revenue = 1.4 percent of total revenue
  - **PPR savings to payors and public = 0.56 percent**

# Additional System Savings--Not Bundled

- Reduced revenue not bundled (85 percent)
  - Reduced ER visits--0.1 percent total hospital revenue
  - Reduced inter-hospital readmissions (20 percent)--0.2 percent total hospital revenue
  - Readmission revenue not bundled (e.g., one-day stays)--0.2 percent
  - Reduced admissions beyond 15 day window--not quantified
- **Savings to payors and public = 0.50 percent**

# Savings Summary

## Mature annual savings

	Hospital Revenue	Payors Savings (Cost)
PPR reduction	(0.56%)	0.56%
Return visits not bundled	(0.50%)	0.50%
Hospital cost savings	0.70%	
Implementation cost	<u>0.44%</u>	<u>(0.44%)</u>
Net impact	0.08%	0.62%

Reduces hospital costs and improves  
quality of care

# Summary

- The statewide readmissions policy should mirror the ARR policy
  - Clear incentive is an important reform opportunity
  - Does not require a unique ID or other states' data
- It is aimed at improved care delivery with net cost reductions
- Require intense investments of care coordination, IT, and other resources

# **Template for Review and Negotiation of an Admission-Readmission Revenue (ARR) Hospital Payment Constraint Program**

## **FINAL STAFF RECOMMENDATION**

Health Services Cost Review Commission  
4160 Patterson Avenue  
Baltimore, MD 21215  
(410) 764-2605  
Fax (410) 358-6217

January 12, 2011

This document represents a final recommendation as adopted by the Commission at its January 12, 2011 public meeting.

## 1.0 Introduction

The United States health care system currently experiences an unacceptably high rate of unnecessary hospital readmissions. These excessive readmission rates are a symptom of our fragmented payment system and result in considerable unnecessary cost and substandard care quality. The purpose of this document is to describe the components of a proposed Admission-Readmission Revenue (“ARR”) episode payment structure designed to provide incentives for hospitals to improve overall care coordination and substantially reduce readmission rates. The recommendation also proposes a policy framework for the evaluation and approval of an ARR pilot for any hospital who agrees to adhere to a set of prescribed conditions and responsibilities. The ARR pilot initiative thus represents an important and urgently needed step in the Commission’s attempt to utilize its current regulatory authority to better rationalize Maryland’s hospital payment and delivery system.

### **1.1 Utilizing the Commission’s Current Authority to Reduce Readmissions**

Similar to previous episode-based payment pilots developed by the Health Services Cost Review Commission (the “HSCRC,” or “Commission”) in past years, ARR pilots apply only to hospital services, are to be offered to Maryland hospitals on a voluntary basis, and are consistent with the HSCRC’s statutory and federal waiver authority.<sup>1</sup> Additionally, the implementation of the ARR payment pilots is compatible with other HSCRC payment policy and should not impact non-ARR hospitals or non-hospital provider reimbursement. As such, the ARR approach represents a logical continuation of the Commission’s efforts over the past 30 years to develop innovative and voluntary payment structures that provide better financial incentives to improve care coordination, overall quality of care and reduce health care costs.

This effort is also consistent with the increased national focus on reducing unnecessary hospital readmissions.<sup>2</sup> The Patient Protection and Accountable Care Act (the “ACA”) directs Medicare to implement a series of significant payment penalties for hospitals with high readmission rates, beginning in 2012. The Maryland Hospital system will be exempt from these penalties only to the extent that it can demonstrate to the Secretary of Health and Human Services that the system’s performance on reducing unnecessary readmissions meets or exceeds what is being required of hospitals nationally.<sup>3</sup> The ARR pilot programs provide Maryland with an opportunity to chart its own course and demonstrate its ability to once again out-perform the nation. Yet, the time to do so is very short.

### **1.2 Need for a Broader Approach and Strategic Direction in the Development of Broader Payment Bundles that Include both Hospital and Non-Hospital Services**

While the ARR approach is both timely and is consistent with current HSCRC regulatory authority, the staff and the Commission realize that further efforts to rationalize the Maryland health care delivery system will be needed. Moving beyond GIR, TPR and ARR hospital-based payment structures will require the development of a broader approach and strategic direction by the Commission. Discussions with various stakeholders and the Commission reveal the need to establish a more formal process for developing a policy framework to enable: 1) the establishment of long-term goals and performance metrics; 2) soliciting input from key stakeholders; and 3) select and design bundled payment initiatives

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<sup>1</sup> The HSCRC’s Guaranteed Inpatient Revenue (or “GIR”) and the Total Patient Revenue (or “TPR”) payment structures are two important pre-cursors to the ARR that embodied these same features.

<sup>2</sup> See “Defragmenting Care” Editorial by Stephen F. Jencks, MD MPH, *Annals of Internal Medicine*, December 2010 (Attached as an Appendix III to this policy recommendation).

<sup>3</sup> See the Patient Protection and Accountable Care Act Section 3025(q)(2)(B)(ii).

that include both hospital and non-hospital services. This broader effort should be aligned with current efforts on the part of the HSCRC, Secretary of Health, hospitals and payers to “Modernize” Maryland’s All-Payer waiver.

Staff believes that this broader approach should not be either physician-centric or hospital-centric, but rather patient-centric and population-centric in nature. The realization of this goal will however, require the cooperation of both hospitals and physicians and the alignment of financial incentives of all providers. We believe the All-Payer nature of our system coupled with our commitment to better align financial incentives across the health care system will encourage hospitals and physicians to work cooperatively to help the State achieve this overarching goal.

There is currently an economic imperative to pursue these remedies, given the eroding affordability of health care in this country. There is also a clinical imperative given that our fragment payment structure all too often results in ineffective and uncoordinated care. Given Maryland’s distinct advantages, we believe the State is on the threshold of substantively addressing these deficiencies and making major strides toward the goal of ensuring and promoting the health of patient communities and populations, broadly defined.

## 2.0 Admission-Readmission Revenue (ARR) Hospital Payment Pilots

### **2.1 Background – A History of HSCRC Payment Innovation**

Since the inception of hospital rate regulation in Maryland, the HSCRC has experimented with innovative methods of hospital reimbursement. Pursuant to the provisions of Health-General Article, Section 19-219 and COMAR 10.37.10.06, the Commission may approve experimental payment methodologies that are consistent with the HSCRC’s legislative mandate to promote effective and efficient health service delivery and primary policy objectives of cost containment, expanded access to care, equity in payment, financial stability, improved quality, and public accountability.

Our fragmented system for reimbursing health services in this country has, for the most part, provided large disincentives for hospitals and other providers to construct efficient and effective coordinated care models. To address these deficiencies, the HSCRC has implemented episode-based reimbursement and broad-based quality of care Pay-for-Performance (“P4P”) methods designed to promote lower cost and higher quality care. These reimbursement methods include the implementation of the following landmark payment mechanisms: 1) the Guaranteed Inpatient Revenue system - the nation’s first Diagnostic Related Group (“DRG”) based per case payment structure; 2) the Total Patient Revenue structure - a global budget or capitated payment structure covering a given hospital’s inpatient and outpatient regulated facility charges; and 3) the Charge per Visit (“CPV”) structure – a bundled payment system covering the vast majority of hospital outpatient services.<sup>4</sup> The Commission’s three P4P quality of care initiatives: the Quality-Based Reimbursement (“QBR”); Maryland Hospital Acquired Condition (“MHAC”); and the planned Maryland Hospital Preventable Readmission (“MHPR”) also depart from national approaches by

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<sup>4</sup> The GIR, CPV, and TPR systems are examples of bundled payment structures that place hospitals at risk for service use. The GIR system which evolved into the Charge per Case system in 2001) imposed a case mix adjusted per case constraint on services used per inpatient stay. The CPV imposes a case mix adjusted constraint on services used per outpatient encounter. The TPR, the broadest of the three structures, establishes a global cap on all hospital inpatient and outpatient services for a particular hospital.

virtue of their broad-based and normative methodologies and are superior in their capacity to provide positive change.

During the era of Managed Care domination, in the mid 1990s, the Commission also used its Alternative Rate Methodology (“ARM”) authority to allow hospitals to enter into at-risk arrangements with specific commercial payers. These ARM arrangements were generally fixed payment structures that bundled both hospital and non-hospital health services around an acute episode (global case rates for specific DRGs) or were applicable to services provided for a population of patients (capitation or partial capitation). ARM arrangements, thus, differed from other core Commission reimbursement methods in that they included non-hospital services and resulted from a specific arrangement between a given hospital and commercial payer.<sup>5</sup>

GIR and TPR arrangements were similar to ARM contracts in that they resulted in hospitals assuming additional financial risk; however these payment structures applied to hospital services only, covered all payers, and were executed on a voluntary basis by hospitals directly with the Commission. The proposed ARR reimbursement structure similarly applies to hospital services only; it would be applied under the Commission’s all-payer rate setting authority; and it would necessitate the execution of a voluntary agreement between a pilot hospital and the HSCRC.

## **2.2 Historical Approval Process for Experimental Payment in Maryland**

Because GIR and TPR rate structures built on the HSCRC’s all-payer unit rate setting system and were natural evolutions in the process of episode-based hospital payment, the Commission adopted a review and approval policy that included the approval of an overall Policy Template outlining the overall structures of the arrangements, including the evaluation criteria, reporting requirements, rate adjustments, and compliance and monitoring requirements. Once this Policy Template was approved, the Commission then delegated the authority to the HSCRC staff to apply the approval criteria contained in the Template and negotiate GIR and TPR arrangements with individual hospitals on a voluntary basis. This approach achieved a balance between ensuring sufficient oversight of the approval process by the Commission while maintaining the ability to be sufficiently responsive and flexible in implementation of these arrangements.

Under this approach, the staff would apply the Commission-approved terms and requirements on a consistent basis – but could have some limited flexibility to respond to unique circumstances of individual hospitals. An agreement detailing the terms and requirements was then executed between the Commission and the given hospital, and the staff was then required to summarize each negotiated arrangement publicly before the Commission.

This document proposes a similar approval policy for ARR arrangements for the upcoming Fiscal Year (FY 2012).

## **2.3 Factors Prompting the Development of ARRs**

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<sup>5</sup> It should be noted that while the bundled payment structures approved under the Commission’s ARM authority were similar in principle to some of the payment arrangements contemplated in the HSCRC’s current Bundled Payment Initiative, managed care-driven payment reforms of the mid-1990s were based more on managing cost and discounting payment than they were on managing care and developing integrated delivery systems. The resulting backlash by patients and providers was major factor in the reversion of the health system to fee-for-service payment mechanisms, consumer-focused reforms, and significant provider consolidation in recent years. (Accountable Care Organizations: Will They Deliver? Marsha Gold. Policy Brief January 2010. Mathematica Policy Research Inc.).

There are a number of economic and environmental factors motivating this effort – including the recent passage of National Health Insurance reform and concerns about the affordability of care and financial sustainability of our current health care system. Dramatic slowing in hospital volume growth and the Commission’s need to mirror tight updates nationally have also brought many to the realization that we must look for other ways to ensure the financial sustainability of Maryland’s hospital/health system.

Commensurate with these events is a recognized need to transition our health care delivery system toward a more coordinated care model, focusing on promoting health of populations and, at the same time, improving efficiency and quality of the care delivered.

Given the existence of the All-Payer rate setting system, a more organized hospital system, and other key regulatory and market dynamics, the State of Maryland has a unique opportunity to restructure the health care delivery system to achieve these overarching goals.

Under the current Charge per Case reimbursement structure, payers pay for all admissions based on the patient’s diagnosis, regardless of whether we are dealing with an initial stay or a readmission for the same or a related condition. As such, our system, as currently structured provides strong financial disincentives against the establishment of coordinated care models that can successfully avert many readmissions.

Although some may call for the development of these care coordination structures before placing hospitals at financial risk for readmission performance, this argument ignores a basic lesson of hospital financing learned over 30 years of rate setting experience. Hospitals respond to financial incentives. As long as the current financial incentives remain in place, no substantive delivery system change will occur. Instead, hospitals must be sufficiently and properly incentivized in order for them to invest adequate resources in the needed care delivery models to reduce readmissions.

## **2.4 Substantial Evidence - Care Transition Improvements Can Reduce Readmissions**

There is now substantial evidence to show that targeted interventions by hospital and other clinicians can substantially reduce the level of unnecessary rehospitalization in the U.S. health care system. According to a report to Congress by the Medpac (the Commission that advises Congress on Medicare payment and policy issues) in June 2008, many readmissions can be avoided by improving certain aspects of care:

*“For example, by furnishing better, safer care during the hospital stay, providers can avoid complications that necessitate readmissions. Attending to patients’ medication needs at discharge also makes a difference. Medication errors after discharge are not uncommon and contribute to readmissions. Improving communication with patients before and after discharge also reduces the need for readmission. Patients are often not adequately informed about self-care. Similarly, improving communication with other providers is important. Too often discharge summaries are not complete and are not available at the time of the first post discharge physician visit.”*

Additionally, a recent editorial by Dr. Stephen Jencks, an advisor to Medicare and the Institute for Health Improvement, identified “compelling evidence from a series of controlled studies, in which interventions to improve the transition from hospital to post hospital care have reduced rehospitalizations by 30% to 50%.” Dr. Jencks believes that this evidence shows that the readmissions problem in the United States is a function of our fragmented payment system and more a failure of those transitions, than a “willful overuse of hospital services.”<sup>6</sup> Spending on readmissions in Maryland is considerable and accounts for much of the variation in spending for hospitalization episodes (see Table 1). Within 30 days of discharge, 16.6% of admissions are readmitted to the same facility (“intra-hospital” readmission), accounting for

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<sup>6</sup> See “Defragmenting Care” Editorial by Stephen F. Jencks, MD MPH, *Annals of Internal Medicine*, December 2010 (Attached as an Appendix III to this policy recommendation).

over \$1.2 billion in overall Maryland hospital spending in 2010 (out of a total of approximately \$9 billion spending on inpatient hospitalizations in FY 2010). Not all these readmissions are avoidable, but a high proportion of them are.<sup>7</sup> Utilizing Dr. Jencks’ estimates for potential readmission reduction, the Maryland system could potentially realize annual savings of between \$360 and \$600 million annually from successful and broad-based implementation of the ARR and TPR payment pilots. These savings can be effectively redeployed to: 1) help ensure the financial sustainability of Maryland’s health care industry; 2) help finance the cost associated with the insurance expansions authorized by the ACA; and 3) be returned in part to business, labor, families and tax-payers who are increasingly demanding better value for their health care dollars.

Table 1 also illustrates the remarkable stability in intra-hospital readmission rates across hospitals overtime.<sup>8</sup>

Table 1

Raw Intra Hospital All-Cause 30 Day Readmissions (no adjustment for out of state readmissions)

Hospital	provno	Fiscal Years Ending						Annual Average Change 2005-2010	Hospital Type
		2005	2006	2007	2008	2009	2010		
Laurel	210055	12.5%	11.1%	11.6%	12.0%	12.0%	11.3%	-0.3%	Border
WAH	210016	14.9%	14.8%	14.6%	13.8%	14.3%	14.4%	-0.1%	Border
Suburban	210022	16.4%	16.0%	16.3%	17.1%	16.8%	16.4%	0.0%	Border
Shady Grove	210057	11.4%	11.6%	11.1%	11.6%	11.9%	11.5%	0.0%	Border
Holy Cross	210004	9.9%	9.8%	9.9%	10.1%	10.3%	10.8%	0.2%	Border
PG	210003	10.4%	10.4%	9.8%	10.2%	11.5%	11.4%	0.2%	Border
Cumberland	210025	16.7%	16.8%	15.8%	16.2%	16.0%	9.8%	-1.4%	Rural
Garrett	210017	16.4%	14.7%	16.6%	15.7%	14.2%	14.3%	-0.4%	Rural/Border
Western MC	210027	24.9%	25.1%	25.5%	24.4%	24.4%	22.9%	-0.4%	Rural
Easton	210037	18.9%	17.6%	17.9%	17.6%	18.2%	17.0%	-0.4%	Rural
Dorchester	210010	22.4%	21.7%	22.0%	22.0%	22.3%	20.8%	-0.3%	Rural
Atl General	210061	17.6%	17.7%	17.5%	17.5%	18.3%	17.2%	-0.1%	Rural
McCreedy	210045	NA	NA	NA	NA	NA	NA	0.0%	Rural
Harford	210006	21.4%	21.2%	19.9%	21.3%	22.7%	21.9%	0.1%	Rural
Carroll	210033	19.2%	18.8%	19.5%	20.0%	20.3%	19.8%	0.1%	Rural
Wash Co	210001	16.8%	16.9%	17.6%	17.3%	17.2%	17.6%	0.2%	Rural
Frederick	210005	15.8%	16.0%	16.7%	17.0%	17.6%	16.7%	0.2%	Rural
PRMC	210019	18.1%	18.6%	18.0%	18.2%	18.3%	19.0%	0.2%	Rural
Chester	210030	18.7%	19.5%	20.8%	20.0%	19.2%	19.7%	0.2%	Rural
Union Cecil	210032	19.6%	20.2%	19.5%	21.0%	21.2%	20.7%	0.2%	Rural
St. Marys	210028	15.5%	17.8%	17.7%	18.3%	18.4%	16.6%	0.2%	Rural
Civista	210035	14.8%	15.1%	15.7%	16.6%	16.9%	16.7%	0.4%	Rural
Ft. Wash	210060	14.2%	14.3%	12.7%	13.9%	14.2%	13.1%	-0.2%	Suburban
Calvert	210039	16.4%	16.7%	15.2%	15.0%	15.1%	15.5%	-0.2%	Suburban
S. Md	210054	16.8%	16.1%	16.0%	16.0%	16.6%	16.0%	-0.2%	Suburban
St. Joe	210007	14.3%	14.5%	14.7%	15.6%	15.8%	14.0%	-0.1%	Suburban
Doctors	210051	19.1%	19.5%	18.6%	19.4%	19.1%	18.9%	-0.0%	Suburban
BWMC	210043	21.5%	21.3%	21.3%	21.3%	22.2%	21.4%	-0.0%	Suburban
St. Agnes	210011	17.3%	16.4%	16.1%	15.6%	16.5%	17.2%	-0.0%	Suburban
Anne Arund	210023	12.5%	12.3%	12.0%	12.2%	12.8%	12.7%	0.0%	Suburban
GBMC	210044	11.2%	12.1%	11.3%	11.3%	11.8%	11.6%	0.1%	Suburban
Howard	210048	11.8%	12.5%	12.7%	11.7%	11.8%	12.3%	0.1%	Suburban
FSQ	210015	17.7%	17.6%	17.9%	18.1%	18.6%	18.3%	0.1%	Suburban
Northwest	210040	19.8%	20.0%	19.5%	19.9%	20.7%	20.6%	0.1%	Suburban
Montg Gen	210018	16.0%	16.5%	17.3%	16.8%	16.9%	16.8%	0.2%	Suburban
Upper Ches	210049	16.0%	16.4%	16.0%	16.0%	16.8%	17.3%	0.3%	Suburban
JHH Onc	210904	27.8%	27.4%	27.3%	27.0%	27.3%	27.3%	-0.1%	Teaching
MIEMSS	218992	NA	NA	NA	NA	NA	NA		Teaching
UMCC	218994	NA	NA	NA	NA	NA	NA		Teaching
JHH	210009	17.8%	17.8%	17.8%	18.2%	18.0%	17.9%	0.0%	Teaching
UMMS	210002	17.2%	17.3%	17.7%	16.9%	17.6%	17.9%	0.1%	Teaching
JH Bayview	210029	16.8%	16.8%	17.2%	17.2%	17.6%	18.3%	0.3%	Teaching
Kernan	210058	7.7%	9.3%	8.2%	7.6%	5.7%	6.8%	-0.2%	Urban
Bon Secours	210013	23.3%	23.9%	24.8%	23.2%	22.3%	22.7%	-0.1%	Urban
Union	210024	18.2%	18.4%	17.6%	17.2%	18.2%	18.4%	0.0%	Urban
Mercy	210008	14.3%	15.0%	14.2%	14.8%	14.9%	14.5%	0.0%	Urban
Harbor	210034	16.9%	16.7%	16.4%	17.2%	17.3%	17.3%	0.1%	Urban
Good Sam	210056	23.6%	24.0%	24.3%	24.4%	24.1%	24.0%	0.1%	Urban
Sinai	210012	15.6%	15.9%	15.2%	15.6%	16.0%	16.7%	0.2%	Urban
Md Gen	210038	18.6%	19.4%	19.8%	20.0%	20.2%	20.7%	0.4%	Urban
State		16.2%	16.3%	16.2%	16.3%	16.6%	16.6%	0.1%	

<sup>7</sup> Note: “intra-hospital” readmissions are a subset of total readmissions (readmissions back to the same hospital and readmissions to other facilities – also called “inter-hospital” readmissions). Intra-hospital readmissions account for approximately 70% of total readmissions in the State.

<sup>8</sup> Note: the difference in magnitudes of intra-hospital readmission rates across facilities may well reflect differences in the service area configurations and patient populations of facilities. For instance, due to their relative isolation, rural facilities will naturally experience much higher rates of readmission than would hospitals in more densely overlapping services areas.

## 2.5 Admission-Readmission Revenue Arrangements - General Description

Like the GIR and TPR payment arrangements that preceded it, the proposed ARR structure would build on the all-payer unit rate setting system and may be considered a natural progression in the Commission's efforts to rationalize the health care financing system in Maryland. ARR's are also consistent with the Commission's philosophy for the development of episode-based and bundled payment (one of incrementally building out payment bundles around the acute hospitalization by gradually expanding the scope of services and the window of time over which the services are provided).<sup>9</sup> Additionally, ARR's are consistent with major longstanding Commission policy goals – to ensure the long-term financial sustainability of the Maryland hospital and health care system, while simultaneously achieving better outcomes and more effective and efficient care delivery over the long term.<sup>10</sup>

All bundled payment arrangements involve a transfer of financial risk from payers to providers, and the ARR is no exception. As currently conceived, the ARR structure would hold hospitals at-risk for controlling the number of cases that are readmitted to the facility following an initial admission. However, the level of financial risk transferred to providers under an ARR falls somewhere in between the level of risk transferred under the GIR and TPR (under the GIR, hospitals were at risk for controlling utilization per case, while under the TPR, hospitals are at risk for controlling all inpatient and outpatient utilization).<sup>11</sup>

It is contemplated that readmissions under the ARR at-risk structure would be defined as any readmission (otherwise referred to as “all-cause readmissions”) to the same hospital facility (or groups of hospitals in a common health system) within 30 days of the most recent discharge.

## 2.6 Proposed Operational Structure

Like the GIR and the TPR, the ARR arrangement would impose a constraint on the amount of revenue a hospital could keep during a particular year. Hospitals would still be paid HSCRC approved unit rates – rates based on the units of service provided for any given case. These unit rates would still be updated on an annual basis per the Commission's normal inflation update process, with any associated adjustments for price compliance, case mix change, volume change and ROC, MHAC and QBR scaling provisions. Like the GIR and TPR, hospitals would then be responsible for managing utilization in order to meet their pre-established revenue constraints. But unlike the GIR (where hospitals' allowed revenues were determined by the number of admissions times a case mix adjusted CPC standard) and the TPR (where hospital revenues are constrained by a global budget revenue cap – regardless of underlying volumes),

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<sup>9</sup> While the rationale for bundling payment is compelling, the HSCRC staff believes that an incremental approach is necessary to improve incentives, while, at the same time, being able to adjust for the level of financial risk assumed and avoiding large-scale unintended consequences. An incremental approach is also appropriate because it will allow the Commission the ability to match the financial incentives provided to the ability of providers to operationalize the necessary coordinated care structures. Small financial incentives have less influence than large ones, but achieving effective change will require balancing financial risk and provider capabilities.

<sup>10</sup> See the staff's discussion document entitled, “Commission-Directed Initiative to Establish a System of Bundled Payment Structures to Promote Coordinated Care Delivery and Access to Affordable and High-Quality Care,” presented to the Commission on October 13, 2010.

<sup>11</sup> Staff would further note that while the ARR structure will involve bundling more revenue than the current GIR/CPC per case constraint system, the amount of revenue under the arrangement and at risk financially is relatively small compared to that assumed by hospitals under a TPR constraint structure. ARR's could cover 7-8% of hospital revenue for a given ARR facility vs. 100% of revenue being subject to a cap under the TPR structure.

hospitals under ARR arrangements would still be held to a standard Charge per Episode (“CPE”) that would provide a combined revenue constraint for both initial admissions and subsequent readmissions, up to a limit of three readmissions.

Appendix IV provides details of the steps in the calculation of the rate for the initial admissions. Basically, this rate is increased relative to the rate that would be set under the CPC so that it includes a component to cover the charges that were associated with included readmissions in the base year. The hospital will receive this addition to cover readmissions in the rate year and it will be independent of the actual number of readmissions in the rate year. Thus, the hospital will benefit to the extent readmissions drop, and will have to absorb the costs of any increase in readmissions.

As with the GIR, hospitals may find this ARR structure attractive because it provides them with a strong financial incentive to put in place the care coordination mechanisms necessary to reduce the potential for any patient to be readmitted and keep 100% of the savings associated with that outcome. Allowing for the retention of 100% of the savings enables hospitals and related providers to generate sufficient funding to invest in the needed care coordination infrastructures. It also begins to remove the current disincentives providers face to treat in a holistic and comprehensive fashion. Patients will stand to benefit because they will likely receive better overall care and avoid additional unwanted and costly acute hospitalizations. The positive impacts of this approach are significantly enhanced by the All-Payer nature of the Maryland system in that these more rational and effective care mechanisms can be applied to all patients, public and private.

The health care system would benefit from this arrangement because hospital efforts to reduce intra-hospital readmissions will also likely reduce inter-hospital readmissions. Further savings to the system may accrue as improved discharge planning and better coordinated post-acute care help reduce repeat emergency department visits and other avoidable episodes of care.

The health system may also stand to gain if hospitals, now reaping the benefits of improved productivity in the form of better care coordination for readmission cases, are able to sustain tighter annual updates by the HSCRC. This is the same dynamic that allowed the HSCRC to outperform the rest of the nation following the implementation of the GIR. Under the GIR constraint, Hospitals “cannibalized” excess use of days and ancillaries per case and were allowed to retain these savings. These productivity gains achieved and retained by hospitals allowed for the implementation of tighter annual updates by the Commission (relative to what was experienced nationally). This basic structure enabled Maryland to move from a position of over 24% above the U.S. on hospital cost per adjusted admission in 1976 to over 11% below the U.S. in 1993.<sup>12</sup>

Based on preliminary discussions with several hospitals and per past practice of the Commission when implementing experimental payment methodologies, it is likely that ARR pilot programs will seek approval for a three year term of operation.

## **2.7 Example of an ARR**

A simplified example of this ARR-CPE structure is shown in Table 2 below. It illustrates the results for two different readmission scenarios for a hospital with \$100,000,000 of inpatient revenue, 10,000 total admissions (including 1,000 readmissions) and an average charge per case of \$10,000.

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<sup>12</sup> Over this period, Maryland hospitals received annual updates of inflation plus 1% on average vs. annual updates nationally of inflation plus 2 to 3%.

Assuming the hospital treats the same profile of patients in year 2 as in year 1, Scenario 1 contemplates a 30% reduction in the number of readmissions. Scenario 2 contemplates a 30% increase in the number of readmissions. In Scenario 1, in the absence of the ARR structure, the hospital would realize a \$1 million reduction in its revenue. This result shows why hospitals currently face strong financial disincentives to develop coordinated care models designed to reduce readmissions. However under the ARR, the hospital is guaranteed the \$1,000,000 associated with their historical readmission performance (the original CPC of \$10,000 x 1,000 historical base readmissions) or \$100,000,000 in overall inpatient revenue absent changes in the number of admissions. If the hospital successfully reduces readmissions through better care transition, it is rewarded by being allowed to keep 100% of the savings it created. The savings is realized through an increase in the approved charge per case associated with other admissions. This increase to the original \$10,000 CPC (an increase of \$345 per case in this example) is tantamount to an extra surcharge that provides a warranty to payers against having to pay for readmissions.<sup>13</sup>

Table 2 – ARR Example

**Admission-Readmission Revenue (ARR) Example**

**Ground Hog's Year 2**

Year 2 - reflects exact same profile of patients as Year 1 except for changes in Readmissions

**Simplified Example**

Line	Year1	Scenario 1 Hospital Reduces Readmissions by 333 Year2	Scenario 2 Readmissions Increase by 333 Year2
1 Admissions	10,000	9,667	10,333
2 Approved charge per case (beginning of year)	\$10,000	\$10,000	\$10,000
3 Total Inpatient Revenue Generated	\$100,000,000	\$96,666,000	\$103,333,000
4 Bonus (loss) for readmission performance		\$3,334,000	(\$3,333,000)
5 Total Inpatient Revenue Allowed to Keep		\$100,000,000	100,000,000
6 Readmissions	1,000	667 RA's down by 333	1,333 RA's up by 333
7 Pct readmitted	10.00%	6.90%	12.90%
8 Surcharge (Reduction) per case due to ARR performance		\$345	(\$323)
9 Total Actual Charge per case Retained at end of year		\$10,345 Avg. CPC needed to "Hit" Target Revenue	\$9,677 Avg. CPC needed to "Hit" Target Revenue

In Scenario 2, the hospital realizes a 30% increase in its readmissions. Since the hospital is 100% at risk for readmissions, any increase in the number or readmissions (all other things being equal) will result in a reduction of \$323 in their approved charge per case for all other cases. This is because payers are guaranteed to pay no more than they did for the base level of readmissions (1,000 readmissions x \$10,000

<sup>13</sup> In this case, however, the warranty amount is structured to provide the hospital with 100% of the savings associated with reduced readmissions.

per case) or \$100,000,000 in total inpatient revenue for the hospital (all other things being equal). In this case, the hospital must lower its average charge per case for each initial admission to avoid having payers pay for the increased level of readmissions.

## 2.8 Other Considerations

### 1) Consistency with HSCRC Rate Methods

As with the GIR and TPR – the Commission staff will make sure that the proposed ARR arrangements are structured to account for all necessary adjustments to rates through the application of the Commission’s annual rate updates and unit rate compliance during the course of the year. Any exclusions or additional adjustments must also be identified and described.<sup>14</sup> The precise methodology for how the Charge per Episode constraints would be established is contained in Appendix III. CPE and unit rate compliance will be handled similarly to current CPC/unit rate compliance.

### 2) Ensuring Accountability and Quality of Care

Also, as is articulated in the Patient Protection and Accountable Care Act, it is important that as providers are gradually given more responsibility and budgetary autonomy for reducing utilization, they also be held accountable to the public for more efficient and effective operation. A concern about more bundled payment structures is that they may encourage providers to provide insufficient care. The first form of protection against this unwanted result is the use of robust risk-adjustment systems and methods to account sufficiently for variations in illness severity of patients and appropriately match payment to the required level of resource use. Beyond this, the public can be protected through the use of outlier payments and exclusions for unusual cases, while providing financial rewards and penalties to hospitals based on their performance on various process and outcome measures. Hospitals should thus be monitored on quality measures -- particularly for minority and disadvantaged populations.

As noted above, in addition to the economic imperative to inject more rational financial incentives into our payment system, there is a clear clinical imperative as well. In recent years, the Commission has initiated a number of quality measures and has plans for the addition of other metrics and analyses that will help the HSCRC better understand the interaction between various process and outcomes measures over time. These quality metrics are far broader than those in place nationally and give Maryland a further advantage in assuring that our health system will meet our goal of enhancing the overall value of the care delivered by providers in the State. Although the Commission has not found a direct relationship between the level of financial risk assumed by hospitals under various bundled payment structures and their resulting performance on current quality measures, it is important that the Commission monitor the quality performance of hospitals entering into ARR arrangements. In order to achieve maximum improvements in the value of the care delivered over the long-term, financial incentives should be focused equally on improving quality and containing cost.<sup>15</sup>

The Commission should also monitor other utilization trends and system performance metrics over time – such as the rate of emergency room visits, observation cases, and admission of ambulatory sensitive cases. If the overall goal of bundled payment initiatives is to reduce overall system utilization and expense, then

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<sup>14</sup> It is anticipated that zero and one day length of stay cases, planned readmissions, categorically excluded cases, and outlier trim revenue will be excluded from the ARR-CPE.

<sup>15</sup> Accountable Care Organizations: Will They Deliver? Marsha Gold. Policy Brief January 2010. Mathematica Policy Research Inc.

it is important that reductions in unnecessary readmissions are not accompanied by increases in Emergency Room visits, observation cases, and rates of admission for ambulatory sensitive cases.

### 3) Potential Remedies for Unanticipated Events

Additionally, readmission rates may be influenced by changes in the mix of a hospital's patient population over time. Adjustments to the methodology may be required in the event of a major change to a facility's service mix or mix of indigent patients. Finally, it is important that any agreement between a hospital and the HSCRC related to the implementation of an ARR arrangement also specify potential remedies for unanticipated circumstances outside the control of the hospital. Examples of such factors include an influenza epidemic or a major natural or terrorist disaster in the area, which results in a larger than usual number of hospitalizations and potential readmissions.

## 3.0 Consistency with Current Commission Policy Goals

In devising and recommending a policy framework for the eventual approval of ARR arrangements with hospitals, it is important that these arrangements be consistent with the long-standing policy objectives of the HSCRC and the overarching goal of payment reform as articulated by the Accountable Care Act: that of promoting delivery system change resulting in improved value of our health care (reduced total spending and improved overall quality) and focusing more effectively on improving the health of populations broadly defined. The following discussion attempts to assess the potential for the ARR payment approach to be consistent with these policy objectives and overarching goal.

In addition to these overarching goals and objectives, the staff is optimistic that these pilot bundled payment arrangements will demonstrate the ability of hospitals and health systems to clinically integrate their care services, manage increased financial risk, and generate much needed productivity and quality improvements. This experience will be important for the Commission as it seeks to expand the number of hospitals operating under bundled payment arrangements and expand the scope and window of services contained in payment bundles in the future.

### **3.1 Potential for Achieving HSCRC Goals and Broader Health System Change**

Staff believes that the ARR arrangements are consistent with the following long-standing objectives of the Commission:

#### a) Financial Stability and Access Considerations

As noted, a primary rationale for expanding the Commission's arsenal of bundled payment structures relates to the need to provide hospitals and other providers with additional incentives and opportunities to generate productivity improvements and cost savings. These cost savings (if retained by providers) can be a major source of funding and help ensure the financial sustainability of the Maryland health care industry.

Reductions in utilization realized by hospitals (such as reduced intra-hospital readmissions) operating under at-risk bundled payment arrangements should also result in a more affordable health care system and, at the same time, free up the capacity needed to treat additional patient volumes associated with future health insurance expansions authorized by the ACA and the health needs of an aging population in the State.

However, this new source of funding will only be available for hospitals and health systems that are most successful in producing higher levels of efficiency and effectiveness in operation. Ultimately, required reductions in the overall level of health care expenditures will not support our provider infrastructure as it is currently configured. And, commensurate with the ability of hospitals to generate additional productivity in their operations, the HSCRC must seek to bend the cost curve so that the paying public also benefits from these activities through more affordable health care.

Navigating through this period will prove challenging as long as the health care financing system is transitioning from a largely fee-for-service paradigm to a system that is highly integrated clinically and financially. Yet, the staff believes that the HSCRC is uniquely positioned to move the Maryland hospital industry toward this more productive fixed cost and clinically integrated model. If successful, it will allow for the financial stability of the provider industry and, at the same time, facilitate the access expansions mandated by the recently passed national health reform and necessitated by a rapidly aging population.

#### b) Maintaining Payment Equity

Payment equity was an issue in the context of ARMs – because they were payer specific and they potentially played into the managed care strategy of discounting to generate needed savings. Discounting without care management inevitably resulted in a transfer of an excessive amount of financial risk to providers and, in some cases, so-called cost-shifting.

While the GIR, TPR, and ARRs pilots do result in the transfer of additional financial risk to providers, staff believes that the magnitude of risk transferred has and will be commensurate with the ability of providers to manage that risk. In addition, because these programs involve hospital services, they fall under the HSCRC's all-payer rate setting authority. The Commission, therefore, has strong compliance mechanisms to ensure continued payment equity across payers.

#### c) Cost Containment

Gradual and incremental expansion of bundled payment systems means we are moving to largely fixed cost or global budget type system. Focus of this system will now be on controlling total expenditures or, if viewed on a population basis, on controlling the growth of health care expenditures per capita. The Commission's experience with such payment mechanisms has been very favorable. Hospitals operating under the Commission's TPR constraint system have consistently had lower use rates and lower case mix adjusted charge per case. There is some anecdotal evidence that these facilities also have experienced lower rates of readmissions as well. Outside of Maryland, global budget systems have experienced some success in the Finger Lakes region of Upstate New York.

Although these systems result in the assumption of financial risk, they also give providers significant budgetary autonomy and the ability to allocate clinical resources more efficiently and effectively, thereby achieving levels of clinical integration and care coordination that are superior to facilities that operate under more fragmented payment structures.<sup>16</sup>

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<sup>16</sup> The concept of Accountable Care Organizations (“ACO”), as articulated by the Accountable Care Act, is another example of a vertically integrated provider driven entity, organized to accept full risk for the provision of care to broad populations. The federal government is in the process of establishing rules regarding eligibility and potential for shared savings distribution to ACOs by the Medicare program.

ARR arrangements represent an incremental (albeit less powerful) step in this direction. Hospitals that have more effective working relationships with their medical staffs will be in the best position to be successful (i.e., generate savings by improving care and reducing unnecessary utilization) under bundled or fixed cost payment models. The HSCRC must then assure the public that it, too, will share in the productivity gains achieved. This can be accomplished through keeping the rate of growth of total expenditures low (and continuing to bend the cost curve downward as it has in recent years) and by eventually sharing directly in the savings generated by fixed cost and vertically integrated provider systems.

#### d) Ensuring overall Public Accountability and Prospects for Improved Quality of Care

Accountability, in HSCRC parlance, has traditionally meant that hospitals should be accountable to the public through rate reviews and public access to data, including the extent and nature of all trustee relationships. Additionally, the HSCRC has provided public reports on hospital financial condition, relative efficiency, and relative quality of care performance on an annual basis. Providing hospitals with increasing levels of fiscal autonomy (under payment structures like the ARR) carries with it the need to also ensure that they are accountable to the public for their overall performance. In particular, this means being able to demonstrate the increased value of the care they provide (i.e., lower cost and higher quality). ARR arrangements provide an opportunity for hospitals to achieve higher levels of value, and it is the hospitals' and the HSCRC's responsibility to report on this performance. Thus, the adoption of more bundled payment arrangements will require a higher degree of monitoring and reporting – both to demonstrate that these structures result in a higher value of care and to ensure that there are not unintended results that undermine the overall goal of improved efficiency and effectiveness.

As the system moves more toward bundled and fixed payment structures, an additional monitoring responsibility will be to make sure that the amount of financial risk transferred to a hospital under these arrangements is reasonable and manageable.

#### Overall Assessment

In general, the staff believes that ARR arrangements can be structured to be completely compatible with the HSCRC's primary policy objectives. Moreover, the staff believes that more bundled payment structures have the potential to improve the rate setting system's performance on all of these dimensions, while in addition to making considerable progress toward meeting the overarching goal of improving the health of populations broadly defined.

## 4.0 Concerns and Other Considerations

While the ARR structure presents the Commission and the hospital industry with some favorable opportunities for improving the efficiency and effectiveness of the overall health care system, there remain some concerns and uncertainties that should be acknowledged and considered:

### **4.1 Potential for Conflicting Incentives in a System in Transition**

As noted above, the ARR bundled payment arrangements represent a natural next step in the attempts of the HSCRC to promote payment structures that improve hospital efficiency and effectiveness. While the staff views incorporating ARR at-risk structures into hospital reimbursement as a very positive

development, it would note that facilities that opt for ARR arrangements will still face a conflicting set of reimbursement incentives.<sup>17</sup> On the one hand, these hospitals will appropriately invest in infrastructure and implement care coordination mechanisms that are geared toward reducing volumes (readmissions). On the other hand, these facilities will still be financially incentivized to continue to pursue “top-line” strategies (volume and revenue generation) for other parts of their care delivery systems.

For instance, one advantage of the ARR structure for facilities that are already operating at near-full or full-occupancy levels is that a substantive reduction in readmissions will free-up capacity that can be back-filled by additional admissions. If the particular facility generally provides care that is higher quality and lower cost (higher value), then this circumstance could reflect a positive development for the health system. Payers, physicians, and patients who are incentivized to seek out hospitals providing the highest value of care will naturally gravitate to this facility.<sup>18</sup>

However, if this new operating capacity is used to admit more marginal patients (for instance patients with ambulatory sensitive conditions - conditions that are better treated on an outpatient basis or by a primary care physician), this dynamic may end up costing the system more through higher overall expenditures. Likewise, reductions in readmissions that are accompanied by “rebounds” to emergency rooms or observation units (in lieu of being formally readmitted) could also result in the public effectively paying twice for the care being rendered. This would result because under the ARR structure, hospitals initially would retain 100% of the savings associated with readmission reductions under the contemplated Charge per Episode payment constraint. Yet, if patients who previously would have been readmitted, merely bounce back to hospitals as emergency cases or observations, then the public will be made to pay both the CPE and additional charges associated with increased Emergency Department (“ED”) or observation visits.

The current hospital-physician contracting model (which is structured to pay performance bonuses for additional billings) adopted by many facilities could undermine the potential of the ARR to ultimately produce the anticipated overall system savings. In its review of hospital ARR requests, staff will devote attention to understanding the nature and structure of physician contracting for a given facility and make appropriate adjustments to the ARR agreement where necessary.

## **4.2 Need to Modify the Commission’s Volume Adjustment Calculation for Readmissions**

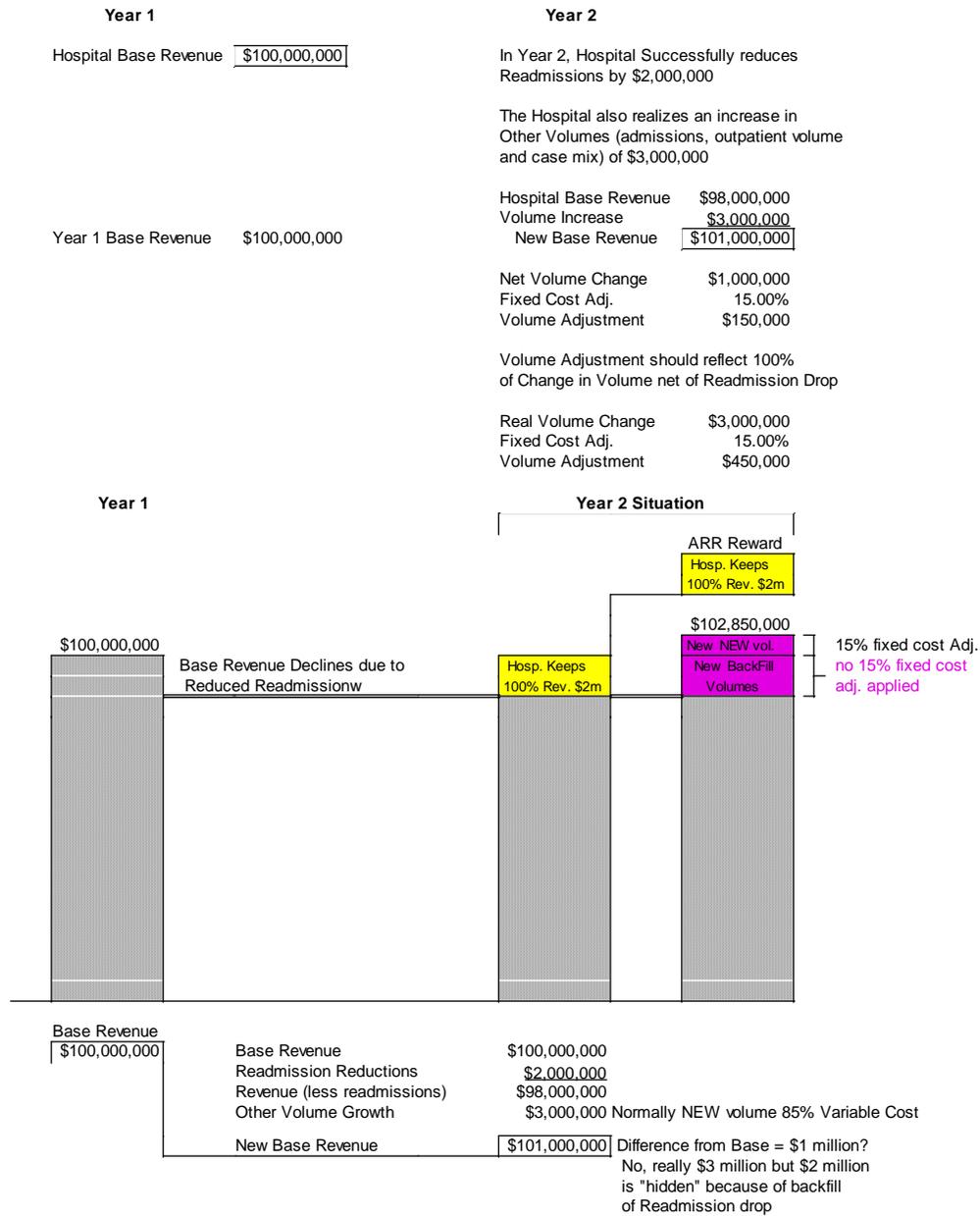
The potential for back-filled volumes is a legitimate concern for the Commission particularly in the context of the current HSCRC policy regarding the application of the fixed cost volume adjustment. Figure 1 illustrates how, under the Commission’s current policy for volume adjustments, a hospital could realize windfalls associated with volume increases that “back-filled” reductions in readmissions. Under this scenario, a hospital could receive 100% of the savings due to the reduction in re-admission and 100% of the additional revenue for the new volume.

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<sup>17</sup> This is in contrast to hospitals under a 100% fixed cost TPR structure where hospitals face a consistent incentive to reduce unnecessary utilization and provide the most efficient and effective care possible for their communities.

<sup>18</sup> Over time, more progressive payment structures – such as those contemplated by the Primary Care Advanced Medical Home model currently championed by CareFirst Blue Cross of Maryland will contain strong financial incentives for community physicians to redirect patients to lower cost and higher quality acute care facilities.

Figure 1 – Volume Adjustment Example



In order to negate this, staff will propose that the fixed cost adjustment be applied to any volume increase realized by the hospital after taking into consideration changes in readmission volume.

### 4.3 Need to Transition the Rate System to More of “Fixed Cost” System over Time

The staff has advocated that the HSCRC pursue an incremental strategy in the implementation of its bundled payment initiative (to allow time for providers to invest in necessary infrastructure and manage the risk most effectively). However, the staff would also recommend that the Commission assist this

transition by moving the overall system to more of a fixed cost system. This can be accomplished through the approval of additional TPR arrangements with qualifying hospitals, along with changes to the fixed cost adjustment factor to hospital rates. Staff will be proposing changes to the Commission's fixed cost adjustment factor for both ARR and non-ARR, non-TPR hospitals to both counteract the negative effects of these conflicting incentives facing ARR hospitals and to help move the entire Maryland hospital system toward more of a fixed cost system (i.e., increasing the fixed cost adjustment in the future) – which ultimately is far more supportive of the articulated goal of achieving a population-centric health care financing system.

#### **4.4 Future Rate Updates**

Additionally, hospitals that do not opt for the ARR model will continue to be primarily focused on “top-line” revenue generation strategies (attempting to ensure their financial viability from continued volume growth and higher annual payment updates). This may present difficulties for the Commission if it attempts to transfer some portion of the savings associated with successful ARR implementation back to the public in the form of lower overall payment updates. Hospitals generating productivity gains through the ARR may be more willing to accept lower payment updates, while those operating on more of a variable cost basis will resist attempts by the Commission to substantively bend down the hospital cost curve. As emphasized throughout this document, bending the cost curve by gradually reducing future hospital rate updates is a key mechanism to return some of the savings generated from these initiatives to the public at large.

#### **4.5 Concerns Raised by the Physician Community**

Although the ARRs deal exclusively with hospital services (non-hospital services are not bundled into the payment structures), concerns have been raised regarding the potential impact of the ARR and other bundled payment approaches on other providers in the health care system. In particular, ARR structures will encourage a much higher degree of cooperation and coordination between hospitals and their medical staff, and between hospitals and physicians in the community. The ARR structure, then, is also favorable in that it provides strong incentives for these additional linkages to occur.

Yet, physician supply issues are a significant concern in the State given evidence of low Medicaid and Commercial Insurance reimbursement levels in Maryland relative to other states. There is a worry that these lower reimbursement levels will exacerbate shortages of physicians, particularly Primary Care Physicians (or “PCPs”). To better understand the extent of physician shortage issue and where these shortages occur, the Commission has requested that Maryland Health Care Commission perform an updated analysis of physician supply based on the results of survey question responses by physicians included in licensure renewal applications for all practicing physicians in the State. These new data can be invaluable for both Commissions and other policy makers in assessing and addressing these overall supply and mal-distribution issues and should be considered as the HSCRC contemplates bundling both hospital and non-hospital services.

Loan assistance for Primary Care Physicians and incentives to teaching programs to increase the size of PCP residency programs are two ways in which the HSCRC can help address physician supply issues in the future. The HSCRC has expressed support for programs such as the State-Only Loan Assistance Repayment Program (or “LARP”) and other modifications to Commission policy that could provide incentives to teaching programs to increase their Primary Care residency programs. The HSCRC staff is also convening a workgroup to consider modifications to the Commission's policy on Graduate Medical

Education as a means of improving the incentives for increasing the pipeline of Primary Care Physicians providing patient care in the State.

Additionally, physician representatives have raised concerns regarding existing regulations and rules that limit the ability of providers to cooperate around care delivery. These too should be re-examined in the context of the development of bundled payment initiatives that include both hospital and non-hospital services. Modifications to existing authority to allow for potential sharing of savings generated through more efficient and effective care delivery also should be considered.

Finally, it is clear that concerns about liability affect physician and hospital decisions about the way care is delivered.<sup>19</sup> These concerns could take on greater significance if providers are now perceived as restricting the use of services under more fixed payment structures. Tort reform and/or other structural changes to how medical liability is handled under a health care system characterized by tighter clinical and financial integration will likely be required.<sup>20</sup>

The HSCRC staff is very sensitive to the concerns of physicians and practitioners, particularly as the Commission moves beyond just hospital bundling. The staff understands the importance of involving physicians in discussions of future plans for gain-sharing and bundling involving physician services. We welcome continued involvement and suggestions from physicians and all providers on the best way to address these and other issues when the Commission looks to bundle payments beyond just hospital services. As the Commission moves beyond its GIR, TPR, and ARR episode payment structures, it should focus its efforts on opportunities to align incentives of physicians and hospitals to improve quality, the patient care experience, and to promote efficiency. This should include development of clearly delineated principles and approaches with input from the physician community.

#### **4.6 Need to Address Existing Health Disparities and Special Needs Populations**

Special efforts also will be needed to ensure that underserved patients – minorities, special needs patients, etc. – can benefit from the increased value provided by hospitals operating under more fixed payment structures. Here, too, there may be opportunities for large cost savings through the development of more coordinated care infrastructures. The HSCRC should consider eventually providing extra incentives for hospitals to focus on reducing health care disparities within the general framework of TPR or ARR arrangements.

#### **4.7 Fairness in Implementation of ARR Pilots**

One of the many current criticisms of the ACO and Shared Savings Program (“SSP”) model being proposed by the Centers for Medicare and Medicaid Services (“CMS”) is that Medicare’s establishment of the expected total expenditures for patient care by an ACO will be based on historical experience. Many believe that a critical weakness of the SSP model is that providers that have the most to gain from shared savings are the ones who seemingly have wasted the most resources, while those who are already doing a good job by being low cost and high quality would have to make greater investments to improve and would be less likely to be rewarded.

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<sup>19</sup> See FA Sloan, JH Shadle. Is there Empirical Evidence for “Defensive Medicine”? A Reassessment. J. Health Econ. 2009 Mar; 28(2): 481-91.

<sup>20</sup> **Appendix IV** contains a letter from a representative of organized physician groups calling for, among other things, medical liability reform efforts.

While potential ARR hospitals may also be starting from different levels of base line performance, because the ARR arrangements will be voluntary, hospitals with high historical readmission rates may not decide to opt for an ARR structure if the Commission makes any downward adjustment to their CPE. It should also be noted that it is not always clear what factors may have contributed to differences in readmission rates across hospitals. Geographic isolation of hospitals, proximity of hospitals to other states, the presence of particularly services at hospitals that tend to generate higher rates of readmission are factors that could explain the current variations in readmission rates across Maryland hospitals. Also, as is shown in Table 1 above, historical performance on intra-hospital readmission rates has been relatively stable, indicating that no one hospital or group of hospitals has likely applied much effort to reduce their steady-state readmission rates in recent years. Given these circumstances and the inability of staff to differentiate good historical performance from less favorable historical performance, the staff recommends no adjustment for variations in base-line readmission performance.

#### **4.8 Request by Hospitals Contemplating ARR Pilots for “Upfront Funding”**

During the course of previous discussions with hospitals regarding their interest in participating in an ARR arrangement, the issue of potential “Upfront Funding” was raised. Hospitals have argued that to perform successfully under an ARR, considerable additional investment in discharge planning and care management and coordination will be required. Additionally, during the initial year of operation of an ARR, there will naturally be a mismatch between costs sustained and additional revenue flow related to reducing readmissions and averting the costs associated with the unnecessary readmission.

The staff recognizes the need to provide the appropriate balance of incentives and risk in order to make sure hospitals are properly incentivized to enter into and succeed under an ARR arrangement. However, in a competitive market, firms that succeed at generating mechanisms and innovations resulting in cost reductions (which also in a competitive market later result in price reductions to consumers) generally go fully at risk for these investments. They do so generally knowing that if they are successful, they will recoup these extra upfront costs through the savings they generate under the short-term market price and additional market share they realize by out-competing all other producers.<sup>21</sup>

In an era of excessively high cost of hospital care (and arguably relatively poor value for current dollars expended), it is difficult to contemplate raising rates to the paying public to further incentivize hospitals to take these appropriate next steps. Higher value care is and will be increasingly demanded by patients and first party payers. Hospitals that pro-actively take steps to develop infrastructures to meet this demand (and fiscal imperative from an overall State and federal budget standpoint) will be in a position to recoup these upfront costs through savings.

To balance these conflicting priorities, the staff recommends the possibility of fronting hospitals entering into ARR arrangements up to a maximum of 0.5% of their inpatient revenue for a period of two years with the expectation that these one-time funds will be “paid back” to the public (beginning in year three and possibly also subsequent years through commensurate one-time reductions to rates).<sup>22</sup> Handling advance funding in this fashion (as a loan) will allow for better matching of costs and revenues associated with the ARR program, ensure that hospitals retain an appropriate incentive to achieve success in their program, and not place the public at any additional risk over the short term. Additionally, staff will ask

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<sup>21</sup> The staff further notes that occasionally in competitive markets, producers are able to solicit upfront funding for innovative improvements to the production process from venture capitalists. This funding, however, is in the form of a loan with the promise of repayment of principal with a rate of return.

<sup>22</sup> Staff may wish to retain some flexibility on both the magnitude of temporary up-front funding it applies up to the recommended ceiling depending on the unique characteristics and factors of hospitals requesting an ARR structure and back-end ability of that facility to in essence “pay these temporary amounts back” to the system.

ARR hospitals to provide a detailed description of planned interventions and a list of budgeted costs associated with the development of their coordinated care infrastructure.<sup>23</sup>

#### **4.9 Need for Continuous Monitoring and Periodic Evaluation**

Given the need to evaluate the overall success of the ARR programs and the need to monitor for any unintended consequences related to unanticipated changes in hospital utilization or quality, it is important that the HSCRC and ARR hospitals devise a system of continuous surveillance of both utilization and quality metrics and establish a process for interim and final evaluation of the ARR program. Such a surveillance and evaluation structure is also important to ensure accountability and that these arrangements provide increased value for the public at large.

The staff will propose that as part of an ARR agreement, a hospital and the HSCRC track performance on a number of utilization and quality metrics on a quarterly basis. These metrics should include, but not be limited to the following: 1) rates of intra-hospital readmissions; 2) for ARR hospitals that are part of larger health systems, the tracking and reporting of patients who are admitted and readmitted to other system facilities in addition to a system for monitoring all readmissions (both intra- and inter-hospital); 3) emergency room visits and observation cases (with particular focus on any changes in the rates of so-called preventable emergency visits and observation cases and visits and cases occurring within the first 15 days after discharge); 4) admission rates and the rates of admission of ambulatory sensitive cases; and 5) quarter-by-quarter monitoring of rates of hospital acquired complications.

In addition, the HSCRC should work to enhance its quality metrics by investigating the relationship between measures of quality (such as the relationship between process measures and outcome measures and the relationships between complications, readmissions, and mortality) and incorporating other process and patient experience of care measures into the mix of factors considered by the Commission when evaluating care quality.

Finally, given current concerns regarding physician workforce issues, the Commission should require ARR pilot hospitals to report back to the HSCRC on any changes in physician workflow requirements resulting from the implementation of the ARR pilots.

#### **4.10 Developing a Mechanism to Track and Eventual Inclusion of Inter-hospital Readmissions**

Although the initial ARR arrangements will focus on “intra-hospital” readmissions only, it is important that the Commission and the hospital industry not lose sight of the disposition of patients who are not readmitted to the facility that treated them for the originating admission. The HSCRC staff believes it can establish an acceptable methodology for monitoring inter-hospital readmissions (readmissions between hospitals). ARR hospitals that are part of health systems will also be required to track and report on inter-hospital readmissions between their own facilities. The success of the entire ARR program will depend on the Commission’s ability to understand the impact of the ARR pilots on all readmissions, not just intra-hospital readmissions. Ultimately, it is contemplated that ARR pilots will be measured on the basis of both intra- and inter- hospital rehospitalizations. In an era of population-based health care, truly integrated

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<sup>23</sup> Note: since it is contemplated that upfront funding amounts provided to ARR hospitals will be treated as “one-time adjustments” to hospital rates no additional adjustment relative to the calculation of hospital performance on the Commission’s Reasonableness of Charges is required.

clinical care models will be oriented toward treating and improving the overall health of communities, not just the health of patients within the four walls of their institutions.

#### **4.11 Potential for Future Modifications of ARR Arrangements**

While the Commission has generally entertained experimental payment programs and structures that are in effect for a three year period (to provide some degree of stability and predictability of the structure of such arrangements for hospitals and payers), the staff believes it important to allow an opportunity for both the ARR hospital and the HSCRC to propose modifications to the agreement as results are obtained and as other circumstances and opportunities present themselves. For instance, ARR hospitals may wish to expand the services included in the ARR methodology (this expansion could include additional hospital or non-hospital services or modifications to the window of time over which the services in the bundled are provided). It is also anticipated that CMS and the newly organized Centers for Medicare and Medicaid Innovation (“CMMI”) may be receptive to providing states with additional flexibility regarding the incorporation of non-hospital services in experimental payment structures of this nature. The ability to better align the incentives of hospitals and non-hospital providers creates expanded opportunities to generate savings and improve the overall quality of care.

### **5.0 Moving Forward - Need for a Broader Discussion and Strategic Direction Pertaining to the Bundling of Hospital and non-Hospital Services**

The HSCRC staff believes that the current, proposed, and future bundled payment structures hold great potential to generate significant changes to Maryland’s hospital delivery system and result in considerable improvements in hospital efficiency and quality of care (enhance value of care). However, expanding these efforts by incorporating mechanisms that better align the financial incentives of all hospital and non-hospital providers (to be more in-line with the interests of patients and the public at large) will surely double or triple these potential benefits.

Moving beyond GIR, TPR, and ARR hospital-based payment structures will require the development of a broader approach and strategic direction by the Commission. The staff believes that the Commission should direct staff to develop an outline for process that will better inform the Commission as to how to proceed in the development of much broader payment bundles. This broader effort should be aligned with current efforts on the part of the HSCRC, Secretary of Health, hospitals, and payers to “Modernize” Maryland’s All-Payer waiver.

This broader process should include the development of a policy framework to enable: 1) the establishment of long-term goals and performance metrics; 2) a mechanism to allow input from key stakeholders; and 3) the development of priorities and principles that allow for future selection and design of bundled payment initiatives that include both hospital and non-hospital services. For instance, the process could result in an establishment of a goal, such as, Maryland will target hospital spending of \_\_\_\_\_ per risk adjusted population (absolute amount relative to U.S., or percentage change over time, etc.).

A framework for evaluating options, should include (but not be limited) to the following: 1) how much impact does the option have on achieving the goal? (potential bias toward fewer initiatives with greater impact); 2) how simple is the option to implement? (potential bias toward using existing legislation, toward lower administrative complexity and cost, and toward fewer “moving parts”); and 3) what is the appropriate timeline for implementation? (potential bias toward a mix with enough interventions front

loaded to balance longer-term, possibly more impactful initiatives). Participation in the process must be specified, whether there is a formal committee or work group structure or not, it must accommodate broad representation while including a clear timetable for completion.

While we are working toward creating a framework for approval of new methods of payment for healthcare services within the rate setting system, we should begin the waiver discussion on a parallel track. That discussion would profit from deliberating on the following: 1) how it should relate to our overarching goals for our payment and delivery system; 2) what the waiver should measure and why, and 3) what are the most appropriate mechanics and process for moving forward with waiver revisions. An approach of this nature will help the Commissions establish and clarify its long term focus and goals which will be crucial to our ability to find a working consensus.

## Recommendations

Staff believes however that because of the urgency to establish strong incentives to reduce unnecessary hospital readmissions (given impending federal action and the unacceptably high rate of preventable readmissions in the State), the HSCRC should move forward at this time with an approval of the recommendations regarding the implementation of ARR pilots in Maryland.

Consistent with current Commission policy regarding voluntary episode-based payment pilots previously approved by the HSCRC (such as the GIR and TPR pilot programs), the Commission approved the following provisions related to the HSCRC's Admission-Readmission Revenue pilot payment programs:

1. ARR pilots apply only to HSCRC regulated acute care hospital services;
2. ARR pilots should be available to any non-TPR acute care hospital on a voluntary basis;
4. ARR hospital must agree to comply with the prescribed terms and conditions described in Appendix I to this recommendation;
3. ARR pilots must be subject to the execution of an ARR-Agreement with the Commission (shown in Appendix III to this recommendation);
4. The Commission should modify its volume adjustment policy to be net of any change in readmissions by ARR hospitals in a given year. The current 15% fixed cost adjustment then will be applied to volume changes (up or down) net of any change in volumes due to changes in an ARR hospital's included readmissions;
5. HSCRC staff should make necessary adjustments to the ARR target hospital's ROC or case mix calculation;
6. ARR hospitals should be provided up-fronting funding in rates of up to a maximum of 0.5% of inpatient revenue on a one-time basis over the first two years of the ARR program, and that these amounts be "paid back" to the public through commensurate one-time reductions to rates in subsequent years. The upfront funding will not be treated as "system slippage" for the purposes the annual update factor;

7. Staff may negotiate ARR arrangements that do not place the hospital at 100% risk for changes in readmissions. The upfront funding may be adjusted depending on the risk assumed by the hospital. The template under Appendix II will be altered to reflect such arrangements.

7. Additionally, the Commission should direct staff to report back to the Commission on any ARR arrangements negotiated with individual hospitals in public at a subsequent public meeting of the HSCRC;

8. Finally, the Commission direct staff to outline a process for the establishment of a broader approach and strategic direction pertaining to the potential establishment of bundled payments that may include both hospital and non-hospital services. This process should take into consideration and be complementary to the parallel efforts now in place to “modernize” Maryland’s All-Payer Waiver. Staff should solicit input from the hospitals, payers and other providers in constructing this broader policy process and should report back to the Commission on its proposed framework no later than the March, 2011 Commission public meeting.

## Appendix I – Prescribed Terms and Conditions

Any non-TPR acute care hospital in Maryland may seek to enter into a voluntary Admission-Readmission Revenue agreement with the Health Services Cost Review Commission commencing with Rate Year 2012. Hospitals seeking to establish such an arrangement must at a minimum agree to the following Commission approved terms and conditions:

**1. Term:** ARR Hospitals must agree to that the ARR pilot will be in effect for a term of three years, beginning effective March 1, 2011 and ending March 31, 2014.

**2. Cases Included in the ARR Hospital’s Charge per Episode:** This agreement shall pertain to “all-cause” hospital readmissions to the target ARR hospital (or ARR Entity, where a hospital system is a signatory to this agreement) over a 30 day readmission window.<sup>24</sup>

**4. Exclusions:** Zero and one day length of stay cases, planned readmissions, categorical exclusions and outlier trim revenue should be excluded from the development of the target hospital’s Charge per Episode constraint.

**5. Exemptions:** The target ARR hospital shall be exempt from any State-wide mandated readmission policy (such as the Maryland Hospital Preventable Readmission initiative) during the term of this pilot;

**6. Provision of Transitional Funding:** The target ARR hospital shall be eligible for a transitional funding advance of up to 0.5% percent of its approved inpatient revenue in rates in addition to the annual update factor as seed money. These funds will be provided as a temporary adjustment to rates for the first two years of the agreement and shall be paid back to the public through future and commensurate one-time rate reductions

**7. Hospital Reporting Requirements:** The target ARR hospital should be required to report to the Commission on the following:

a) a description of how transitional seed funding provided by the HSCRC will be used including a list of major planned clinical interventions and all budgeted costs associated with the development of their coordinated care infrastructure.

b) for ARR hospitals that are part of larger health systems, the tracking and reporting of patients who are admitted and readmitted to other system facilities in addition to a mechanism for monitoring all readmissions (both intra- and inter-hospital);

c) a report back to the Commission on any changes in physician workflow requirements resulting from the implementation of the ARR pilots.

**8. Commission Monitoring Requirements:** The HSCRC staff will be responsible for monitoring on the following metrics relating to the target ARR hospital:

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<sup>24</sup> ARR Hospitals may petition staff for two potential modifications to these provisions (i.e., limit the definition of readmissions to Potentially Preventable Readmissions and/or applying to a readmission window of 15 days). Staff may adjust other provisions of the agreement to reflect the diminished level of financial risk associated with these modifications.

- a) rates of both intra-hospital and inter-hospital readmissions over time;
- b) emergency room visits and observation cases (with particular focus on any changes in the rates of so-called preventable emergency visits and observation cases and visits and cases occurring within the first 15 days after discharge);
- c) overall hospital admission rates with particular focus on changes in the rate of admission of ambulatory sensitive cases; and
- d) quarter-by-quarter monitoring of rates of hospital acquired complication rates.

**9. Completion of an ARR Agreement with the Commission:** Implementation of an ARR pilot is contingent on the execution of an ARR Agreement with the Commission.

## **Appendix II – Draft Template/Agreement**

### **AGREEMENT BETWEEN THE HEALTH SERVICES COST REVIEW COMMISSION AND \_\_\_\_\_ HOSPITAL REGARDING THE ADOPTION OF THE HSCRC’s ADMISSION-READMISSION REVENUE (ARR) SYSTEM**

This Agreement made this \_\_\_\_ day of \_\_\_\_\_, 2011, between \_\_\_\_\_ HOSPITAL (the “Hospital”) and the HEALTH SERVICES COST REVIEW COMMISSION (the “Commission,” or “HSCRC”) is subject to the following provisions:

#### **I. General Description**

The Commission’s Admission-Readmission Revenue (“ARR”) arrangement is a voluntary revenue constraint program developed by the Maryland Health Services Cost Review Commission which provides hospitals with a financial incentive to more effectively coordinate care and reduce unnecessary readmissions to their facility. ARR arrangements apply to regulated hospital inpatient services and charges only. The methodology results in the establishment of a Charge per Episode (“CPE”) constraint, which builds upon the hospital’s HSCRC approved inpatient unit rates. The CPE imposes a case mix adjusted standard Charge per Episode target for a facility, which applies to inpatient admissions and readmissions and subsequent readmissions up to a maximum of three readmissions. An inpatient case is considered a readmission to the hospital if the patient is admitted to the same facility within 30 days of the most recent previous discharge of that patient.

ARR arrangements are available to any hospital currently under the Commission’s Charge per Case (“CPC”) constraint system, and this agreement will supersede a CPC agreement.

#### **II. Methodology**

##### **A. Cases Covered by the Agreement and Contract Period**

The ARR arrangement shall be applicable to inpatient admissions and readmissions as defined in section V of this document. The program will be in effect for three years, beginning March 1, 2011 and ending March 31, 2014, unless extended by written mutual agreement between the Hospital and the HSCRC. The cases to be included in this agreement are cases included in the Commission’s CPC methodology. Categorical exclusions from the CPC methodology will be removed prior to grouping the data to determine readmissions, along with cases excluded as 0 and 1 day length of stay. Outlier cases will have their charges to the trim-point. The hospital and the HSCRC will also work to identify other appropriate exclusions (such as planned readmissions) from the development of the hospital’s CPE.

For purposes of the ARR methodology, the hospital’s revenue base will be established for the upcoming fiscal year as the permanent revenue available to the hospital at the end of the previous fiscal year, after accounting for one-time adjustments and compliance with the Commission’s regulatory price and charging targets. Each year’s revenue will be set to current experience, with 100 percent of savings or losses permanently rolled into the hospital’s revenue base during the course of this agreement. The Hospital’s unit rates and approved revenue will be increased by the annual update factors approved by the Commission during the next three fiscal years.

Under the CPC system, permanent included revenue is divided among total included discharges to generate the charge per case target. Under this ARR agreement, the permanent included revenue will be redefined as Charge per Episode of care, where an episode includes any “only admission” (admissions without any accompanying readmission within 30 days) and an initial admission along with up to three readmissions, each occurring within 30 days of the last discharge. The hospitals current CPC target would then be restated as a Charge per Episode target, and if hospitals can successfully reduce readmissions, the payment per episode remains unchanged. The hospital can generate productivity gains and associated savings if it keeps its existing revenue (as authorized under its approved CPE) and eliminates the costs associated with intra-hospital readmissions.

## **B. Risk Adjustment**

Expected (or predicted) levels of readmissions will be based on the All Patient Refined Diagnosis Related Group Severity of Illness categories (APR-DRG/SOI). To calculate expected levels of readmissions, statewide weights will be applied to hospital specific experience. Under this methodology, weights will be established for an episode of care, which would include an initial admission along with subsequent related readmissions, up to a maximum of three readmissions. Because even at the state level a number of APR-DRG/SOI cells may not have sufficient information to construct reliable weights, rules may need to be established governing the establishment of monotonically increasing weights across severity of illness categories or a combination of such categories.

Because the staff’s research has demonstrated that expected readmission rates are not adequately captured by APR-DRG/SOI for certain types of cases, other factors will be monitored. Specifically, substantial changes in the proportion of elderly cases, Medicaid cases, and cases with mental health as a secondary diagnosis merit adjustment because they are factors associated with higher readmission rates.

## **C. Compliance Monitoring Under the ARR**

For purposes of regulatory compliance under the HSCRC’s CPC and unit rate restrictions, a five percent (5%) corridor around the target will be established for CPE compliance and interim price compliance for 100 percent inpatient rate centers will be waived. This limit can be extended to 10% at the discretion of the Commission staff upon presentation of evidence by the Hospital that it would otherwise not achieve the approved total revenue for the year. Similarly, there will also be a 5% corridor on undercharging. This corridor may also be expanded to 10% if the Hospital can substantiate that its revenue constraint will be exceeded without this flexibility.

## **D. Volume and Price Adjustment**

A combined volume and price adjustment will be performed for the Hospital each rate year. If the gross revenue charged by the Hospital exceeds the approved revenue, the difference between the gross revenue charged and the approved revenue will be subtracted from the revenue that would otherwise have been approved for the Hospital for the subsequent year. Conversely, if the gross revenue charged is less than the approved revenue, the difference will be added to the revenue for the subsequent year, except that undercharges below the corridor specified in subparagraph C above will not be so included. A volume adjustment consistent with approved Commission policy that recognizes volume changes net of changes in a hospital’s readmission volume, will also be applied.

## **E. Annual Update Adjustments**

The following adjustments shall be made to arrive at the Hospital's approved Charge per Episode for the subsequent year:

- 1) Adjustment for the annual update factor approved by the Commission for this facility;
- 2) Reversal of any previous retroactive adjustments;
- 3) Changes to the Hospital's markup due to changes in mix of payers or changes in approved differential amounts and approved bad debt provision;
- 4) Volume and price adjustments as specified in subparagraph D above.

## **F. Calculation of an ARR Hospital's CPE**

An approved Charge per Episode will be calculated per the following steps:

1. Calculate case mix weights using statewide data for the base year, as normally done.
2. Drop categorical exclusions, readmissions after the third in a chain, one day stays, and charges above the outlier threshold.
3. Calculate the case mix weight of included initial admissions for the hospital for the base year using the weights developed in step 1.
4. Calculate the total charges for included cases and charges for the hospital for the base year. These included charges can be calculated using the approved rates for the rate year times the included units from the base year, if so desired.
5. The standard charge per episode will be the total charges developed in step 4 divided by the total of the included case mix weights in step 3. Call this C.
6. The base year standard charge, C, will be increased by the update factor to price level it to the rate year (unless the units rates used in step 4 already are increased by the update factor). Let the result be C'.
7. Calculate compliance after the end of the rate year:
  - a. Drop categorical exclusions, one day stays, and readmissions after the third readmission.
  - b. Trim outlier cases at the outlier charge threshold.
  - c. Calculate remaining actual included revenue, R, and the total case mix weight for the initial admissions incurred during the rate year, D.
  - d. Calculate the approved included revenue, C' x D, and compare with R.
  - e. The difference between R and C' x D is the ARR compliance adjustment, to be added to (or subtracted from) any compliance adjustment due for price variance.
8. The subsequent year approved charge per episode will be C', increased by the update factor for that year, and adjusted further by any compliance and other appropriate adjustments.

## **III. Other Terms**

### **A. Special Provision for Transition**

To facilitate the development of improved discharge planning and a care coordination infrastructure, the Commission will allow the hospital up to an additional 0.5% percent of inpatient revenue in rates in

addition to the annual update factor as seed money. These funds will be provided as a temporary adjustment to rates for the first two years of the agreement and shall be paid back to the public through future and commensurate one-time rate reductions.

## **B. Monitoring and Reporting Requirements**

The ARR hospital must supply the HSCRC with data on a number of utilization and quality metrics on a quarterly basis. These metrics should include, but not be limited to the following: 1) rates of intra-hospital readmissions; 2) for ARR hospitals that are part of larger health systems, the tracking and reporting of patients who are admitted and readmitted to other system facilities in addition to a mechanism for monitoring all readmissions (both intra- and inter-hospital); 3) emergency room visits and observation cases (with particular focus on any changes in the rates of so-called preventable emergency visits and observation cases, and on ED visits soon after an inpatient discharge); 4) admission rates and the rates of admission of ambulatory sensitive conditions; 5) quarter-by-quarter monitoring of rates of hospital acquired complications; and 6) additional metrics or data as deemed appropriate by the Commission.

## **C. Exclusions and other Modifications**

Categorical exclusions from the CPC methodology will be removed prior to grouping the data to determine readmissions, along with cases excluded as 0 and 1 day length of stay. Outlier cases will have their charges reduced to the trim-point for compliance calculations for the rate year.

*Modifications to the ROC Calculation:* Because this agreement substantially alters the measurements upon which hospitals are compared for relative efficiency within the State, the Commission shall develop an adjustment to the Hospital's Charge per Case to account for the impact on the charge per case of any reduction in readmissions after adjusting for the applicable variable cost factor.

*Modifications to the Case mix calculation:* Staff will devise a methodology to minimize negative impacts associated with the hospitals' ARR initiative from the hospital's case mix calculation so the hospital is not treated unfairly for purposes of the application of the case mix governor.

## **D. Other requirements**

Under this agreement, the Hospital must continue to charge HSCRC approved unit rates for facility services rendered.

System hospitals will be treated as one entity for tracking of Intra-hospital readmissions. This will necessitate that hospitals who belong to the same health system in Maryland develop a method for tracking readmissions between system hospitals.

# **IV. Potential Modifications, Evaluation and Cancellation Provisions**

## **A. Possible Modifications to Allow for Better Alignment of Incentives**

Under healthcare reform, a number of approaches have been mentioned to contain healthcare costs. For example, bundling services under a single payment have been identified prominently as one method for aligning incentives for the efficient delivery of healthcare services. The methodology outlined within this document is a first step in bundling by providing a single payment for an episode of care, regardless of additional readmissions that occur after the initial admission into a hospital. Because healthcare reform

efforts are progressing rapidly, the parties to this agreement may mutually agree to modify its terms to expand the services included within the methodology. Potential changes include, but are not limited to, the inclusion of hospital outpatient and emergency department services; post-acute care services; additional days within the readmission window; and gain-sharing with physicians.

## **B. Program Evaluation**

After the first year of operation the staff will undertake an evaluation of the success of the ARR program and report back to the Commission. Success will be evaluated in the context of how well the pilot contributed to the goal of improving the overall value of care provided at the hospital (lower cost and better clinical effectiveness/quality) at both the institution and system level. Particular focus will be applied to an analysis of utilization trends post-ARR implementation (the utilization metrics discussed in section III, subsection B). Staff will report the results of this evaluation to the Commission and the hospital and discuss any appropriate mid-course modifications to the hospital (if any) at that time.

## **E. Cancellation**

This Agreement may be cancelled by the Hospital at the end of the three year term of this Agreement by providing the Commission with 60 days written notice of intent to cancel with or without cause. The Commission reserves the right to cancel this Agreement, with cause, at any time.

## **V. Definition of Terms**

**Readmission:** Readmissions covered by this agreement will be based on intra-hospital readmissions (readmissions to the same facility).

**At-Risk Entity:** For this purpose, the \_\_\_\_\_ and the \_\_\_\_\_ hospitals will be treated as a single unit as business plans call for an increasing interrelationship between the two facilities. The \_\_\_\_ staff will develop a mapping process to identify readmissions between \_\_\_\_\_ and \_\_\_\_\_, subject to HSCRC staff review.

**Intra-hospital readmissions:** Cases originally treated at the target ARR hospital and subsequently readmitted

**Inter-hospital readmissions:** Cases originally treated at the target ARR hospital but later readmitted to another facility.

**Readmission Window:** The period over which rehospitalizations will be counted for purposes of the ARR pilots or a defined time period between initial admission and rehospitalization. It is contemplated that ARR agreements will utilize a 30 day readmission window.

**Base Period:** The rate year immediately preceding the first year of the ARR pilot program (or in this case the base period is anticipated to cover the period from March 1, 2010 through March 31, 2011).

**Initial Admission:** The initial admission that starts a chain of subsequent readmissions or an admission that is not followed by any included readmission within the readmission window.

**Charge per Episode:** An ARR hospital's approved revenue constraint that includes revenues associated with both index admissions and readmissions.

**Ambulatory Sensitive Conditions:** Ambulatory care-sensitive conditions are those "for which good outpatient care can potentially prevent the need for hospitalization, or for which early intervention can prevent complications or more severe disease" (AHRQ 2004). Although hospitalization rates are influenced by socioeconomic factors such as poverty (Blustein et al. 1998), high or increasing rates of potentially preventable hospitalizations might indicate inadequate access to high-quality ambulatory care, including preventive and disease management services (Bindman et al. 1995).

**Price Compliance and Volume Adjustments:** Application of the Commission's normal one-time price and volume adjustments (after accounting for the impact of readmission volume changes).

**Annual Update:** The annual increase to Maryland hospital rate for the upcoming HSCRC rate year as approved by the Commission including all applicable adjustments to rates.

**Maryland Hospital Acquired Conditions Initiative:** The HSCRC's Hospital Acquired Condition ("HACs") measurement methodology that compares a hospital's risk-adjusted actual rate of HACs to an expected or predicted rate of HACs based on State-wide experience.

**Quality-Based Reimbursement:** The HSCRC's Pay-for-Performance (P4P) initiative that links hospital performance (both relative and year-to-year) on a list of 19 processes of care measures related to Acute Myocardial Infarction, Pneumonia, Heart Failure, and Surgical Infection Prevention.

In Witness Whereof, the Parties have executed this Agreement and have this date caused their respective signatures to be affixed hereto:

Attest: \_\_\_\_\_ by \_\_\_\_\_

(Date)

Chief Executive Officer  
\_\_\_\_\_ Hospital

Attest: \_\_\_\_\_ by \_\_\_\_\_

(Date)

Robert Murray  
Executive Director  
Health Services Cost Review Commission

Editorial – December 2010

## Defragmenting Care

1. [Stephen F. Jencks](#), MD, MPH

### ± Author Affiliations

1. *From Baltimore, MD 21210.*

Rehospitalizations that occur soon after hospital discharge are drawing increasing attention. About 2.5 million Medicare beneficiaries and about 2 million other patients are rehospitalized within 30 days of discharge, with total hospital costs (not including physician services) of about \$44 billion (1; Steiner C, Jiang J. Personal communication). From the perspectives of payers, purchasers, and policymakers, avoidable rehospitalizations represent massive and remediable waste. However, most rehospitalization is the result of clinical deterioration, occurs emergently, and is often necessary by the time the patient reaches the emergency department. Some emergency department visits might be prevented from turning into hospitalizations. However, compelling evidence from a series of controlled studies (2–4), in which interventions to improve the transition from hospital to posthospital care have reduced rehospitalizations by 30% to 50%, suggests that the rehospitalization problem represents a failure of those transitions rather than willful overuse of hospital services. It is a symptom of fragmented care.

Most clinicians easily see how these failures happen. When I ask clinicians to grade the discharge that followed the last hospitalization of a friend or family member, they give few As. My colleagues and I reported (1) that half of Medicare patients who were rehospitalized within 30 days of a medical discharge to the community had not seen a physician between discharge and rehospitalization, a finding that most clinicians find plausible. Ongoing studies provide further evidence that practitioners see rehospitalization as a clinical rather than a utilization issue. For example, almost 1000 hospitals have signed up for the Society of Hospital Medicine's Project BOOST (5) and the American College of Cardiology's Hospital-to-Home (6) project, hospital-based programs that are intended to reduce rehospitalizations. Such enthusiasm would be unlikely if clinicians saw these programs as utilization control.

The Patient Protection and Affordable Care Act (7) creates Medicare payment penalties, starting in 2012, for hospitals with higher-than-expected rates of rehospitalization among patients they discharge. Although federal rules will determine the final shape of this penalty, the legislation has clearly energized attention to rehospitalizations. Hospitals are, however, only 1 component of a fragmented system that must pull together to control rehospitalization. For years, poor in-hospital care was the assumed culprit in preventable rehospitalization, and the Medicare Peer Review Organizations were mandated to review the medical records of index hospitalizations that were followed by early rehospitalization. This process did not prove fruitful, and Weissman and colleagues (8) later showed that rehospitalization was an unreliable indicator of inpatient quality problems.

Read in this context, Kind and colleagues' report in this issue (9) is a story about a fragmented system. Their study compares hospitals whose rehospitalized patients returned to the discharging hospital with those whose patients went elsewhere. Data from fragmented systems are inherently challenging to interpret because of the noise that fragmentation superimposes on whatever underlying patterns may exist. Kind and colleagues found that patients discharged from investor-owned hospitals were more likely to be rehospitalized elsewhere than those discharged from nonprofit hospitals, and they speculate on possible profit motives. However, this speculation suggests a degree of coherent, planned behavior that would be remarkable in such a chaotic system. In addition, because the predominant reasons for rehospitalization were medical, patients probably presented to emergency departments in acute distress. Although planned diversions of undesired emergency patients can occur, a filled bed generally represents positive cash flow, particularly because all study patients had Medicare. Diverting them would not have

been a good business decision for the hospital, particularly because the penalties for excessive rehospitalizations were only a rumor when the study patients received care. A simpler explanation is that patients in acute distress go to the nearest hospital, which is often not the discharging hospital. Data available to the authors do not allow a confident determination of whether profit motives or geography drove these findings.

Rehospitalization may be better viewed as a health care system problem than a hospital problem, because care fragmentation is a property of the whole system. Focusing on the hospital is reasonable, because steps to prevent rehospitalization should begin during the index hospitalization and the hospital has more leverage on the overall system than do other system components. However, almost every institution and individual involved in a patient's care can contribute to preventing rehospitalizations. In the 3 studies mentioned, Jack and colleagues (4) focused on re-engineering the discharge process, Coleman and colleagues (2) focused on coaching patients, and Naylor and colleagues (3) focused on having advanced practice nurses provide care as the patient settled back into the community. The Centers for Medicare & Medicaid Services has developed their Home Health Quality Improvement program to increase accountability of Home Health Agencies for hospitalizations of their patients (10). Recently, community-oriented programs have been launched by both the Centers for Medicare & Medicaid Services (11) and the Institute for Healthcare Improvement (12) to improve transitions and reduce rehospitalizations. These community-oriented efforts focus on promoting efficient communications between hospital and posthospital providers.

To overcome an imperfect hospital system and poor communication between hospital and posthospital providers, a straightforward—but not easy—4-step approach may be effective. First, establish a standardized discharge process, supported by a checklist (13), because improving an undefined and nonstandardized system is almost impossible. This checklist should include, at a minimum, a reconciled medication list, a plan to obtain medications, instruction about when to seek help and who to contact, and a prompt follow-up appointment. Instructions should include written materials, and the instructors should ensure that the patient or caregiver can explain the instructions (teach-back).

Second, ask patients who are rehospitalized, their caregivers, and downstream providers to report how the system failed to meet their needs. These 3 groups have just been part of the system and its discontinuities, and their experience is invaluable in improving both the system and individual care.

Third, create effective communications between the hospital and discharging physician on one side and patients, caregivers, posthospital providers, and posthospital institutions on the other. Communication should include involving primary care physicians when their patients are being discharged and securing a follow-up appointment. The discharge summary should lay out a plan to meet the patient's needs, not just recount the hospital course.

Finally, we must empower patients and their caregivers, through coaching and system redesign, to navigate the health care system and make appropriate demands for service. These steps are only a framework; to achieve optimal outcomes for individual patients in a particular community, the process will almost always require modifications and adjustments to match local resources. Addressing such issues as fall prevention or poverty will require substantial extensions of this model.

Defragmenting health care can seem hopelessly ambitious, working against institutions, culture, and payment systems, but reducing rehospitalization is one of those magical occasions in which better care can both save money and improve outcomes (14). Is a national movement to reduce avoidable rehospitalizations possible? It may be, for several reasons: Medicare is implementing payment incentives, hospital and community engagement is growing rapidly, rehospitalization rates are being measured and published, the Patient Protection and Affordable Care Act provides \$500 million over the next 5 years (15) to assist this effort, medical homes and accountable care organizations are emerging and spreading, and a growing number of hospitals are providing systematic discharge coaching for patients. National leadership has been substantial but, thus far, as fragmented as health care itself. This is an opportunity for medical leadership at the local, state, and national levels to join other leaders in changing the system. If such national leadership coalesces, fixing rehospitalization could become a dramatic prototype for fixing our health care system.

Stephen F. Jencks, MD, MPH  
Baltimore, MD 21210

## References

1. 1. [↵](#)

**Steiner C, Barrett M, Hunter K.** Hospital Readmissions and Multiple Emergency Department Visits, in Selected States, 2006–2007. HCUP Statistical Brief #90. Rockville, MD: Agency for Healthcare Research and Quality; 2010. Accessed at [www.hcup-us.ahrq.gov/reports/statbriefs/sb90.pdf](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb90.pdf) on 25 October 2010.

2. 2. [↵](#)

1. Coleman EA,
2. Parry C,
3. Chalmers S,
4. Min SJ

The care transitions intervention: results of a randomized controlled trial. *Arch Intern Med* 2006;166:1822-8. PMID: 17000937

**Coleman EA, Parry C, Chalmers S, Min SJ.** *The care transitions intervention: results of a randomized controlled trial. Arch Intern Med. 2006;166:1822-8. [PMID: 17000937]*

[Abstract/FREE Full Text](#)

3. 3. [↵](#)

1. Naylor MD,
2. Brooten DA,
3. Campbell RL,
4. Maislin G,
5. McCauley KM,
6. Schwartz JS

Transitional care of older adults hospitalized with heart failure: a randomized, controlled trial. *J Am Geriatr Soc* 2004;52:675-84. PMID: 15086645

**Naylor MD, Brooten DA, Campbell RL, Maislin G, McCauley KM, Schwartz JS.** *Transitional care of older adults hospitalized with heart failure: a randomized, controlled trial. J Am Geriatr Soc. 2004;52:675-84. [PMID: 15086645]*

[CrossRefMedlineWeb of Science](#)

4. 4. [↵](#)

1. Jack BW,
2. Chetty VK,
3. Anthony D,
4. Greenwald JL,
5. Sanchez GM,
6. Johnson AE

et al. A reengineered hospital discharge program to decrease rehospitalization: a randomized trial. *Ann Intern Med* 2009;150:178-87. PMID: 19189907

**Jack BW, Chetty VK, Anthony D, Greenwald JL, Sanchez GM, Johnson AE, et al.** *A reengineered hospital discharge program to decrease rehospitalization: a randomized trial. Ann Intern Med. 2009;150:178-87. [PMID: 19189907]*

[Abstract/FREE Full Text](#)

5. 5. [↗](#)

**Society of Hospital Medicine.** Project BOOST Mentoring Program. 2008. Accessed at [www.hospitalmedicine.org/BOOST](http://www.hospitalmedicine.org/BOOST) on 1 November 2010.

6. 6. [↗](#)

**American College of Cardiology, Institute for Healthcare Improvement.** Hospital to Home (H2H) national quality improvement initiative. 2010. Accessed at [www.h2hquality.org](http://www.h2hquality.org) on 1 November 2010.

7. 7. [↗](#)

Patient Protection and Affordable Care Act of 2010. Pub. L. No. 111-148, 24 Stat. 119 §3025.

8. 8. [↗](#)

1. Weissman JS,
2. Ayanian JZ,
3. Chasan-Taber S,
4. Sherwood MJ,
5. Roth C,
6. Epstein AM

Hospital readmissions and quality of care. *Med Care* 1999;37:490-501 pmid:10335751

**Weissman JS, Ayanian JZ, Chasan-Taber S, Sherwood MJ, Roth C, Epstein AM.** Hospital readmissions and quality of care. *Med Care.* 1999;37:490-501. [PMID: 10335751]

[CrossRefMedlineWeb of Science](#)

9. 9. [↗](#)

1. Kind AJ,
2. Bartels C,
3. Mell MW,
4. Mullahy J,
5. Smith M

For-profit hospital status and rehospitalizations at different hospitals: an analysis of Medicare data. *Ann Intern Med* 2010;153:718-27

**Kind AJ, Bartels C, Mell MW, Mullahy J, Smith M.** For-profit hospital status and rehospitalizations at different hospitals: an analysis of Medicare data. *Ann Intern Med.* 2010;153:718-27.

[Abstract/FREE Full Text](#)

10. 10. [↗](#)

**Centers for Medicare & Medicaid Services.** Home Health Quality Improvement (HHQI) National Campaign. 2010. Accessed at [www.homehealthquality.org/hh/default.aspx](http://www.homehealthquality.org/hh/default.aspx) on 1 November 2010.

11. 11. [↗](#)

**Colorado Foundation for Medical Care.** Care Transitions Quality Improvement Organization Support Center. 2010. Accessed at [www.cfmc.org/caretransitions](http://www.cfmc.org/caretransitions) on 1 November 2010.

12. 12. [↗](#)

**Institute for Healthcare Improvement.** State Action on Avoidable Rehospitalizations (STAAR) initiative. 2009. Accessed at <http://ihi.org/IHI/Programs/StrategicInitiatives/STateActiononAvoidableRehospitalizationsSTAAR.htm> on 1 November 2010.

13. [13.4](#)

1. Gawande A

The Checklist Manifesto. New York: Metropolitan Books; 2009

**Gawande A.** *The Checklist Manifesto.* New York: Metropolitan Books; 2009.

14. [14.4](#)

1. Epstein AM

Revisiting readmissions—changing the incentives for shared accountability [Editorial]. *N Engl J Med* 2009;360:1457-9. [PMID: 19339727]

**Epstein AM.** *Revisiting readmissions—changing the incentives for shared accountability [Editorial]. N Engl J Med.* 2009;360:1457-9. [PMID: 19339727]

[CrossRef Medline Web of Science](#)

15. [15.4](#)

Patient Protection and Affordable Care Act of 2010. Pub. L. No. 111-148, 24 Stat. 119 §3026.

## **Appendix IV – Operational Steps in Calculating Charge per Episode for ARR Hospitals**

### **ARR implementation steps**

1. Calculate case mix weights using statewide data for the base year, as normally done.
2. Drop categorical exclusions, readmissions after the third in a chain, one day stays, and charges above the outlier threshold.
3. Calculate the case mix weight of included initial admissions for the hospital for the base year using the weights developed in step 1.
4. Calculate the total charges for included cases and charges for the hospital for the base year. These included charges can be calculated using the approved rates for the rate year times the included units from the base year, if so desired.
5. The standard charge per episode will be the total charges developed in step 4 divided by the total of the included case mix weights in step 3. Call this C.
6. The base year standard charge, C, will be increased by the update factor to price level it to the rate year (unless the units rates used in step 4 already are increased by the update factor). Let the result be C'.
7. Calculate compliance after the end of the rate year:
  - a. Drop categorical exclusions, one day stays, and readmissions after the third readmission.
  - b. Trim outlier cases at the outlier charge threshold.
  - c. Calculate remaining actual included revenue, R, and the total case mix weight for the initial admissions incurred during the rate year, D.
  - d. Calculate the approved included revenue, C' x D, and compare with R.
  - e. The difference between R and C' x D is the ARR compliance adjustment, to be added to (or subtracted from) any compliance adjustment due for price variance.
8. The subsequent year approved charge per episode will be C', increased by the update factor for that year, and adjusted further by any compliance and other appropriate adjustments.

## **Appendix V – Comment Letters**



MHA  
6820 Deerpath Road  
Elkridge, Maryland 21075-6234  
Tel: 410-379-6200  
Fax: 410-379-8239

January 3, 2011

Robert Murray  
Executive Director  
Health Services Cost Review Commission  
4160 Patterson Avenue  
Baltimore, Maryland 21215-2299

Dear Mr. Murray:

On behalf of the 66 members of the Maryland Hospital Association (MHA), I am writing to support, with one caveat, your draft recommendation, a *Template for Review and Negotiation of an Admission-Readmission Revenue (ARR) Hospital Payment Constraint Program*. We are pleased that the Health Services Cost Review Commission (HSCRC) is providing hospitals an opportunity to voluntarily modify their reimbursement structures in a way that recognizes the investment needed to reduce preventable readmissions. The draft recommendation moves Maryland's hospital payment system one step closer to a reimbursement structure that supports our shared mission of delivering the right care, at the right time, in the right setting. The voluntary aspect recognizes that most hospitals are already beginning to integrate with primary care physicians and other providers in the community, and developing the information technology infrastructure necessary to support clinical integration.

We appreciate that the HSCRC's draft recommendation provides advance funding, and thereby recognizes the investment hospitals will need to make to expand discharge planning services and care coordination as patients transition from hospital care to the community. We oppose, however, treating the advance funding as "slippage" that reduces revenues to all hospitals by the amount of the up-front funding. We expect that the Maryland payment system, as well as the primary payors of health care, will recover that up-front funding and more, through reductions in hospital visits that are not measured--readmissions after a one-day stay, readmissions to other hospitals, return visits to the emergency department, and to other outpatient hospital settings.

We appreciate the opportunity to comment on your recommendation. Please contact me with any questions.

Sincerely,

A handwritten signature in black ink that reads 'Michael B. Robbins'.

Michael B. Robbins  
Senior Vice President, Financial Policy

**Hal Cohen, Inc.**  
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January 5, 2011

Re: Admission-Readmission Revenue (ARR)  
Hospital Payment Constraint Program

Robert Murray

Via e-mail

Dear Bob:

This letter, written on behalf of CareFirst BlueCross BlueShield and Kaiser Permanente, offers our comments on the proposal entitled “Draft Staff Recommendation: Template for Review and Negotiation of an Admission-Readmission Revenue (ARR) Hospital Payment Constraint Program” as distributed at the December 8, 2010 Commission meeting.

To a large extent, this letter reiterates the comments I made at last month’s Commission meeting.

- Both CareFirst and Kaiser Permanente recognize the misincentives associated with fee-for-service (FFS) payment systems. CareFirst’s Primary Care Medical Home (PCMH) program is designed to improve upon those incentives. Kaiser Permanente’s commercial insurance business is capitated. The more hospital incentives complement the incentives in these programs the better for making health care more affordable and coordinated.
- CareFirst and Kaiser Permanente congratulate both the staff and the hospitals for significantly expanding the number of hospitals on the Total Patient Revenue (TPR) system. Having 100% of revenue at risk flips the incentives under FFS and requires hospitals, to be successful, to adopt a culture of volume control.
- CareFirst and Kaiser Permanente support all efforts to develop a process that will ultimately reduce total readmissions and bring Maryland in-line with the nation, however, we understand the data issues that constrain our ability to identify and track patient readmissions within and between hospitals. We urge the Commission to continue to move forward with a cost effective program focusing on Potentially Preventable Readmission (PPR) that will move the industry in this direction. Given the reasons noted above, CF and KP support the ARR initiatives as an interim step that will promote volume reductions at the hospital level. In respect to

relative importance, we urge the Commission to focus on expansion of the TPR program immediately second: development and implementation of the voluntary ARR program; and third: continued improvement to resolve all data issues associated with the mandatory PPR program. Incentives to hospitals should reflect this relative importance – that is, hospitals should see the revenue constraints under the TPR as more generous than under the ARR and those under the ARR as more generous than under the PPR.

- It is important to consider the relative importance of each program when designing the variable cost percentages that apply to each program and, in the case of a mandatory program, to the system as a whole.
- We understand that the mandatory readmission program introduced by the MHA at December's Commission meeting is a potential substitute for the PPR program. Since the PPR program is on hold, we also hold our comments on this new MHA proposal other than to note that, like the PPR program it is meant to replace, it is much less important than the ARR program for purposes of bending the cost curve, improving quality and appropriate incentives.
- All these programs will be helped by increasing the pipeline of Primary Care Physicians providing patient care in Maryland. Toward that end CareFirst and Kaiser Permanente have asked that during this year's ROC/ICC process, that the IME adjustment be reviewed as a means of improving the incentives for accomplishing this end.

More specifically, with regard to the ARR program:

- We understand the current emphasis on intra-hospital and intra-system readmissions, but need to move so that inter-hospital readmissions can be measured in the near future. In the interim, we believe the Intra-system approach should be utilized since it is imperative that Hospitals identify and track readmissions within their system and to ensure there is no incentive to encourage readmissions to other hospitals within the system.
- We strongly support the “template” approach. This delegation to staff and flexibility has worked well regarding the TPR and ARA programs. Again, staff did outstanding work regarding the extension of the TPR.
- When improvement in inter-hospital readmissions are definitively measurable, we would be willing to have a percentage of savings generated from reduced inter-hospital readmissions count toward the payback of any upfront money provided within the ARR program.
- We support allowing hospitals to keep 100% of the savings from reduced intra-hospital readmissions as placed at risk under the ARR for the initial three years, but that only makes sense within the context

of constrained update factors – that way the public generates savings as well.

- We remain concerned about the incentives to refill capacity created by reducing readmissions. We encourage support for a culture of volume control as a possible condition to get ARR approval. Providing incentives, such as we identified above for reduced inter-hospital readmissions as well as for reduced intra-hospital and intra- system readmissions will encourage that culture.
- It is important that the Commission support the staff recommendations regarding slippage and payback as they relate to upfront money for hospitals entering the ARR program.
- While the handout for the meeting did not include the technical appendix, I have now reviewed it. The technical appendix correctly handles questions regarding exclusions in developing the ARR revenue constraint. The technical appendix, in two places, refers to the annual increase being the update factor without explicit mention of scaling. CareFirst and Kaiser Permanente believe that it is important that ROC scaling be applied to these hospitals as well as some quality related scaling. It is not clear to us whether the term “update factor” includes these elements of scaling and the application of these scaling factors should be made explicit.
- I have also read the staff’s discussion of the issue of “backfill” of capacity freed up through a reduction in the readmission rate. It is important that hospitals not be paid twice for the use of this capacity, once as a reward under the ARR and once as payment for refilled beds. I believe that when, for example, \$2,000,000 in charges is removed due to reduced readmissions and backfilled by \$2,000,000 in additional volume, the hospital does not experience any additional variable cost – just the same cost as before, which is paid for under the ARR. Volume changes above or below the reduction in readmissions should generate additional payment for variable costs on the up side and financing of fixed costs on the down side.

Thank you for your consideration.

Yours truly,



Hal Cohen  
Consultant

Cc: Sule Calikoglu  
Graham Atkinson  
John Hamper  
Laurie Kuiper

# BARBARA MARX BROCATO & ASSOCIATES

November 8, 2010

Mr. Robert Murray  
Executive Director  
Health Services Cost Review Commission  
4160 Patterson Avenue  
Baltimore, MD 21215

## **Re: Discussion/Input Sessions Regarding Bundled Payment Structures**

Dear Bob,

We appreciate the opportunity to provide comments on the Health Services Cost Review Commission's (HSCRC) discussion series regarding the development of bundled payment structures. As you have stated, stakeholder participation is essential and we want to provide meaningful input throughout the process and have that input reflected throughout. The hospital physician community is very concerned with what the HSCRC develops as it will directly impact how care is delivered. The risk of unintended consequences is unsettling given Maryland's current health care delivery environment.

At the October 13<sup>th</sup> meeting of the HSCRC when your plans were first presented we arranged a panel from the hospital physician constituencies: emergency physicians representing the Maryland Chapter, American College of Emergency Physicians (MD ACEP) and anesthesiologists representing the Maryland Society of Anesthesiologists (MSA) and First Colonies Anesthesia Associates (FCAA), and Advanced Radiology. The focus of our testimony was to illustrate key concerns and questions that arise when new health care delivery models are being contemplated. Specifically our comments addressed:

- Concern about moving too quickly with new paradigm changing payment systems;
- The need for meaningful tort reform to offset newly acquired risk;
- The need to ease laws prohibiting physicians from sharing information and payment data for the purposes of negotiations with insurers and the creation of large groups;
- The need for fair reimbursement to enable the recruitment and retention of physicians; and
- The importance of a physician centric system.

We recognize that these issues are not entirely under the jurisdiction or control of the HSCRC but they illustrate the environment in which hospital physicians exist: namely a low reimbursement state, with a statewide shortage of physician, an unfavorable tort environment and an impending influx of patients due to expanded insurance coverage.

We feel these issues need to be reflected in the previous and future materials developed by the HSCRC in this endeavor. The future success of any new health care delivery paradigm depends on these issues being addressed in a meaningful way. While we are not assuming that the HSCRC is able to address all of these issues, it is important that the HSCRC recognize the full scope of the healthcare landscape and the pressures facing those who will ultimately be providing the care.

At the November 4<sup>th</sup> discussion session we expressed our concerns about the need for additional resources and a solid infrastructure for patient care (patient follow up services, appropriate staffing: clinical and administrative, etc.) that will enable a bundled payment system to be successful. We hope that this can be reflected as well in the materials for the future discussion sessions.

We appreciate your candor and assurance that implementation will be incremental (albeit quick) and voluntary, but as this new ground is broken we must be thoughtful about the need for continuity of care in our delivery system. Many of the current relationships between physician groups and hospitals go back many years, and the physicians have become an important part of the community for the patients that come to the hospital for care.

We need to be cautious about interfering with a physician's ability to work autonomously and as private groups, and ultimately protect against adversarial relationships developing between physician groups, hospitals and the physician community at large.

To continue providing the quality patient care that Marylanders have come to rely on physicians must be a decision maker in the bundled payment system. Quality patient care is dependent on the best possible physician staff available, not just the group that helps meet the bottom line.

Attached as an addendum are some specific bullets about the current health care landscape in Maryland and where we think they could be incorporated in the "Overview" document prepared for the HSCRC commission meeting on October 13<sup>th</sup> and that was again made available for the November 4<sup>th</sup> discussion session.

We are glad to provide additional information on these issues and others and look forward to our continued participation in this process.

Sincerely,

Barbara Marx Brocato

## **ADDENDUM**

These comments could be included as an addendum to the document and also noted in the section titled “background” on the first page of that overview document.

- The health care delivery system in Maryland faces many challenges with a statewide physician shortage and its ranking as one of the lowest reimbursement states in the country which hinders the ability to recruit and retain physicians.
- There are barriers and disincentives both in federal and state law regarding physician’s abilities to form large practice groups and to share data for purposes of negotiation.

### **Recommendations:**

- Any delivery system changes should reassure patients that they will continue to have access to the quality healthcare they depend on.
- A bundled payment system should be designed so that cost is controlled through the efficiencies in the system and not by the constraints of those who hold the dollars.
- Physicians are in the best possible position to facilitate efficiencies and identify measures to advance quality patient care outcomes.
- Any health care delivery changes must allow the physician community input and direction.
- Maryland’s medical liability climate must be reformed to protect and advance patient care.

# **Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE**

## **Subtitle 37 HEALTH SERVICES COST REVIEW COMMISSION**

### **Chapter 01 Uniform Accounting and Reporting System for Hospitals and Related Institutions**

**Authority: Health-General Article, §§19-207, 19-211, 19-212, 19-212.1, 19-215, 19-216, 19-218, 19-220, 19-224, and 19-303, Annotated Code of Maryland**

The Health Services Cost Review Commission proposed to amend **Regulation .02** under **COMAR 10.37.01 Uniform Accounting and Reporting System for Hospitals and Related Institutions**. This action was considered and approved for promulgation by the Commission at a previously announced open meeting held on January 12, 2011, notice of which was given pursuant to State Government Article, § 10-506(c), Annotated Code of Maryland. If adopted, the proposed amendments will become effective on or about May 16, 2011.

#### **Statement of Purpose**

The purpose of this action is to update the Commission's manual entitled "Accounting and Budget Manual for Fiscal and Operating Management" (August, 1987), which has been incorporated by reference.

#### **Comparison of Federal Standards**

There is no corresponding federal standard to this proposed action.

#### **Estimate of Economic Impact**

The proposed action has no economic impact.

#### **Opportunity for Public Comment**

Comments may be sent to Diana Kemp, Regulations Coordinator, Health Services Cost Review Commission, 4160 Patterson Avenue, Baltimore, MD 21215, or call (410)764-2576, or email to [dkemp@hsr.state.md.us](mailto:dkemp@hsr.state.md.us). The Health Services Cost Review Commission will consider comments on the proposed amendments until March 28, 2011. A hearing may be held at the discretion of the Commission.

### **.02 Accounting System; Hospitals.**

A. The Accounting System.

(1) (text unchanged)

(2) The "Accounting and Reporting System for Hospitals", also known as the Accounting and Budget Manual for Fiscal and Operating Management (August, 1987), is incorporated by reference, including the following supplements:

(a) – (q) (text unchanged)

(r) Supplement 18 (April 6, 2009); [and]

(s) Supplement 19 (February 9, 2010)[.]; *and*

(t) *Supplement 20 (May 16, 2011).*

(3) – (5) (text unchanged)

B.-D. (text unchanged)

FREDERICK W. PUDDISTER

Chairman

Health Services Cost Review Commission

STATE OF MARYLAND  
DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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Joseph R. Antos, Ph.D.

George H. Bone, M.D.

C. James Lowthers

Herbert S. Wong, Ph.D.



Robert Murray  
Executive Director

Stephen Ports  
Principal Deputy Director  
Policy & Operations

Gerard J. Schmith  
Deputy Director  
Hospital Rate Setting

**HEALTH SERVICES COST REVIEW COMMISSION**

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**TO:** Commissioners

**FROM:** Legal Department

**DATE:** January 5, 2011

**RE:** Hearing and Meeting Schedule

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**Public Session:**

February 2, 2011      Time to be determined, 4160 Patterson Avenue, HSCRC Conference Room

March 2, 2011      Time to be determined, 4160 Patterson Avenue, HSCRC Conference Room

The Agenda for the Executive and Public Sessions will be available for your review on the Commission's Web Site on the Thursday before the Commission meeting. To review the Agenda, visit the Commission's web site at:

<http://www.hsrcr.state.md.us/commissionMeetingSchedule.cfm>.

Post-meeting documents will be available at the close of business on the Friday following the Commission meeting.