496th MEETING OF THE HEALTH SERVICES COST REVIEW COMMISSION
March 6, 2013

EXECUTIVE SESSION
12:00 p.m.

1. **Comfort Order – MedStar Health**
2. **Waiver Update**

PUBLIC SESSION OF THE
HEALTH SERVICES COST REVIEW COMMISSION
1:00 p.m.

1. **Review of the Minutes from the Executive Sessions of February 6, 14, and 21, 2013 and Public Meeting Minutes from February 6, 2013.**

2. **Executive Director's Report**

3. **Docket Status – Cases Closed**

    2168R – Garrett County Memorial Hospital
    2193R – Adventist Behavioral Health
    2200A – MedStar Health

4. **Docket Status – Cases Open**

    None

5. **Status Report on Development of Admission-Readmission Revenue (ARR) and One Day Stay Policy Recommendations**

6. **Status Report on ARR Interventions and Outcomes**

7. **Commission Discussion Regarding Potential Federal Sequestration**

8. **Legislative Report**

9. **Hearing and Meeting Schedule**

Status Report on Development of Admission-Readmission Revenue (ARR) and One Day Stay Policy Recommendations

Health Services Cost Review Commission

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Staff Report

March 6, 2013

Introduction

The purpose of this report is to describe for the Commission the status of staff work to revise the Admission Readmission Revenue (ARR) program, after our update during the February 6, 2013 Commission meeting. Due to scheduling conflicts among participants, additional workgroup meetings with the industry to discuss the current policy and potential enhancements have been delayed. The next workgroup meeting with hospitals and payers representatives will commence March 14, 2013 to include tentative modeling of ARR and one-day stay policy options.

HSCRC staff has initiated modeling of potential changes to the ARR program with much effort focused on potential methodological modifications to the current exclusion and outlier logic. The current outlier logic is complex and warrants review for methodology simplification. In addition, the potential reintroduction of one-day stays into ARR requires HSCRC staff to reassess the methodology pertaining to low and high charge/case exclusions (trim points).

Background

As noted in previous reports to the Commission, the ARR program requires redesign. Under the Affordable Care Act, 1814(b)(3) hospitals that are waived from the Inpatient Prospective Payment System are required to implement quality programs that meet or exceed those implemented by the Medicare Program. CMS has agreed to take a multi-year look at the existing program in Maryland, but certain differences stand out.

The HSCRC program is broader, applying to all-cause readmissions for all APR-DRGs. The CMS program applies only to Heart Attack, Heart Failure, and Pneumonia. The HSCRC program tracks only readmissions to the facility of the index admission, focusing on intra-hospital (and in some cases intra-system) readmission. There is currently no personal identifier in the HSCRC data; therefore, readmissions to unlinked facilities cannot be identified. Finally, the HSCRC program is constructed in a manner that converts existing admissions and readmissions into Charge per Episode (CPE) approved revenue on a revenue neutral basis, allowing hospitals to keep the profit when readmissions are eliminated. The Medicare counterpart penalizes hospitals for high readmission rates, resulting in a system payment reduction of 0.3% of inpatient revenue.

Current Structure

The current HSCRC's ARR program is structured in the following manner:

- All cause readmissions are included in the program.
- The period for readmission is for 30 days following an initial admission.
- While a patient is billed for services charged during a specific case, the revenue allowed under the regulatory system for an average case is determined for a 30 day episode of care. This average amount was developed from hospitals' actual experience and was calculated in a revenue neutral manner in converting from the Charge per Case (CPC) system.
- Hospitals have the opportunity to improve financial performance by reducing readmissions, thus eliminating costs while the revenue base has not been reduced.

- The policy was approved with the understanding that productivity expectations would be high for hospitals – profits would be generated by reducing costs through reduced readmissions, while annual inflationary updates would be lower.

The ARR program is in its second year. While CMS has indicated its willingness to examine the program's operation over multiple years, representatives have indicated discomfort with the revenue neutral approach. They have noted that this approach does not share savings with the public, and while reduced update factors can recapture some of those savings, they viewed the mechanism as indirect.

Options for Incorporating Shared Savings

During the January 2013 workgroup meetings, the staff discussed three options for sharing savings from reduced readmissions: scaling, the performance standard approach, and a continuous improvement approach.

- The scaling approach may be the most straightforward. This would require the ranking of hospitals on a standard definition of readmissions. The best performing hospitals would not be adjusted, but hospitals with higher readmission rates would receive some level of reduction to rates, with higher deductions occurring for higher readmission rates.
- The performance standard approach would follow the structure of the current system, but each hospital's target would be adjusted compared to a case mix adjusted readmissions standard. Hospitals below the performance standard would have no adjustment to their (CPE) target. Hospitals with high adjusted readmission rates would be adjusted downward to the required performance standard, generating lower rates to patients.
- United Healthcare representatives suggested a continuous improvement approach that would require improvement from each facility instead of a performance standard that implicitly requires no further reductions for some hospitals.

One Day Stays

In addition, the staff discussed the need to reincorporate short stay cases (0 or 1 day length of stay) into the CPE target. Short stay cases are currently excluded from the CPE methodology. These cases should be reincorporated into the model to prevent them from representing pass-through revenue to the system and to minimize their impact on the current waiver. Further, a consistent treatment of inpatient cases would make the existing model more straightforward.

Technically, bringing short stay cases back into the model is straightforward, with CPE targets and case mix weights reflecting the change when rebased at the beginning of the rate year. The policy concern is that attaching APR-DRG rate capacity to short stays could encourage an expansion of these cases and reverse the progress previously made on reducing short stays in Maryland. To the degree that these cases are denied as medically inappropriate, they would not generate rate capacity, but the staff believes that other mechanisms would be required to guarantee this result.

One possible solution is to monitor the increased number of short stays by hospital and adjust the hospital's revenue if the rise in short stay cases were substantial.

Other Exclusions to Existing Logic

The staff also raised the issue of the current logic for exclusions and outliers in the existing system. The outlier logic is complex, and this revision is an opportunity to make appropriate adjustments. These items will be modeled and discussed in future meetings.

FY2012 Adjustment for the Compositional Effect of One Day Stays

In the March 2012 Commission meeting, the Commission approved an emergency modification to the case mix policy that imposed a governor on case mix, including the one day stay cases. Because these cases have been excluded from the CPE and CPC logic in recent years, this modification was designed to reflect the effect of the one day stay policy on the State's waiver position.

Determining the impact of these cases on the case-mix index turned into a challenge, requiring detailed staff analysis and discussions with consultants and interested parties. The staff arrived at an estimate of the impact under the case mix governor of 0.31%.

As we looked to apply this adjustment to FY2013 rate orders, however, we noted that only a small number of hospitals would receive this adjustment. Because the one day stay policy has been addressed in different ways in different years, this result appeared to treat hospitals differently that had the same experience with one day stay reductions but with different timing. The Commission's action allowed the adjustment to be treated as a case mix governor adjustment for FY2012 only; therefore, the staff is seeking Commission approval to allow this adjustment to be applied based on a two-year look-back at one day stay performance for both FY2011 and FY2012. The adjustment would be made to permanent revenue in FY2014. No one time adjustment would be required, because as excluded cases, hospitals did not generate additional rate capacity for the one day stay cases.

Next Steps

The staff will continue to work with the hospital and payer work groups to model the policy options discussed above during March with a preliminary recommendation to the Commission at the April 2013 Commission meeting.

HSCRC Admission-Readmission Reduction Program Hospital Interventions

Year 1 Findings

MARCH 6, 2013

DRAFT REPORT

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Executive Summary

Background. Readmissions following an initial hospital episode are frequent, costly, and often preventable occurrences. In FY 2012, the Health Services Cost Review Commission (HSCRC) launched the Admission-Readmission Revenue Constraint program (ARR) to incentivize hospitals to reduce unnecessary readmissions to their facilities. Under the program, the HSCRC required the 31 participating hospitals to create intervention plans aimed at reducing readmissions and to develop and monitor at least two metrics to evaluate intervention effectiveness. During FY 2012, the HSCRC collected ARR hospitals' intervention plans. Beginning in December 2012, HSCRC staff collected hospitals' metric results and conducted a qualitative survey of hospital experiences in ARR Year 1. This paper discusses our findings.

Results: Interventions and Metrics. The most common types of interventions were discharge planning (24 hospitals), scheduling follow up appointments (21 hospitals), and telephone follow up (20 hospitals). While there were similarities across intervention strategies, the metrics used to monitor program effectiveness were diverse, which may be due to variation in hospitals' patient populations, internal systems, and staffing resources, among other factors. For example, 18 hospitals stated that they developed programs to improve medication management, but the metrics to monitor this intervention included medication reconciliation rates, medication error rates, proportion of medications received prior to discharge, and readmission rates. Most interventions were relevant to any admitted patient; however, some hospitals focused their interventions and/or metrics on known high-risk populations, such as individuals with heart failure, COPD, or diabetes with complications. The mean length of data collection for all metrics was 9.83 months, but the most common length of evaluation was 12 months.

Results: Hospital Experiences. All 31 ARR hospitals responded to HSCRC's qualitative experience survey. Overall, just over half of hospitals reported that it was either difficult or very difficult to implement their interventions and to monitor their metrics. Hospitals cited hiring and managing new staff, technical difficulty with measurement, and patient beliefs and behaviors as the primary barriers to successful intervention implementation. However, hospitals also reported that their new ARR measurement efforts helped them to understand the specific diagnostic categories of patients who were readmitted to their facilities, develop more thoughtful discharge planning and care coordination programs, and guide quality improvement efforts.

With regard to specific interventions, most hospitals reported success with risk assessment interventions and incorporation of multidisciplinary teams, such ED case management programs. Primary care physician (PCP) communication and appointment scheduling were frequently cited as challenging for hospitals to implement, particularly for patient populations without identified PCPs, such as the uninsured or underinsured. Several hospitals cited improved coordination with SNFs as a priority. Hospitals consistently cited a lack of dedicated personnel from the SNF to promote handoff communication as a barrier for interventions designed to improve care coordination.

For FY 2013, few hospitals expect to make changes to the interventions and metrics currently in place. However, 39.1 percent of hospitals reported that they plan to develop new interventions or new metrics to further reduce readmission in ARR Year 2.

Background to the Admission-Readmission Reduction (ARR) Program

Readmissions following an initial hospital episode are frequent, costly, and often preventable occurrences. Approximately 20 percent of Medicare beneficiaries are readmitted within 30 days of an initial hospitalization (*Jencks, 2009, NEJM*). These unplanned rehospitalizations were estimated to cost Medicare $17.4 billion dollars in 2004. Due to their cost and implications regarding quality of care, readmissions have become a key focus for payers and policymakers striving to control expenditures, improve clinical outcomes, and enhance care coordination.

In 2010, Maryland had the highest readmission rates in the United States among Medicare eligible patients (21.6 percent versus 18.2 percent nationally) (*Health Services Cost Review Commission, 2012)*. To incentivize hospitals to more effectively coordinate care and reduce unnecessary readmissions to their facilities, the HSCRC launched the Admission-Readmission Revenue Constraint program (ARR) in 2011 (*Health Services Cost Review Commission, 2011*).

HSCRC Admission-Readmission Reduction (ARR) Program

The ARR program developed by the HSCRC provides financial incentives for Maryland hospitals to reduce unnecessary readmissions by establishing an Admission-Readmission Revenue constraint. This structure builds upon each hospital's HSCRC approved inpatient unit rates by imposing a case mix adjusted standard bundled Admission-Readmission Charge Per Episode (ARR-CPE) target for each ARR hospital. The target applies to inpatient admissions and subsequent readmissions within 30 days of the initial discharge.

HSCRC's bundled ARR-CPE targets motivate efficient use of services by transferring financial risk from the case level (single admission) to the bundled episode. ARR is designed to provide a single CPE target that includes combined revenue for the initial admission (all DRGs) and all subsequent readmissions (all cause) within 30-days of the initial admission's discharge. The ARR program provides hospitals with a strong incentive to coordinate the provision of services during the hospitalization, discharge, and the post-discharge care continuum.

HSCRC's readmissions bundling approach is consistent with national efforts to link payments to episodes of care rather than providing separate payments for multiple services (*Center for Medicare and Medicaid Services, 2013*). In addition, a recent analysis of Medicare claims data found that quality improvement initiatives focused on care transitions led to reductions in both all-cause 30-day readmissions and all-cause admissions; however, no declines were observed for all-cause readmissions as a percentage of discharges (*Brock, JAMA, 2013*). These data suggest that a bundled payment incorporating both admissions and readmissions may be an appropriate policy to incentivize reductions in rehospitalizations.

At a national level, the Center for Medicare and Medicaid Services (CMS) developed Medicare's Hospital Readmissions Reduction Program as authorized under Section 3025 of the Affordable Care Act (ACA). The program does not approach readmissions reduction efforts through a bundling approach, and instead, imposes a scaled penalty for hospitals with 30-day excess readmissions in the Medicare population associated with three diagnostic-related groups (DRGs): acute myocardial infarction, heart failure, and pneumonia (see Appendix I) (*Centers for Medicare and Medicaid Services. August 2012*). Beginning in October 2012, CMS implemented the scaled penalty with a maximum of 1 percent reductions across all DRG payments in hospitals with high readmission rates. CMS exempted Maryland hospitals from the Medicare scaled penalties for federal fiscal year 2013.

Results

Overview of Intervention Plans

To participate in ARR, the HSCRC required hospitals to develop and implement intervention plans to reduce readmissions at their facilities. The HSCRC required hospitals to submit documentation of the interventions with a rationale for their strategies and develop at least two metrics for measuring the effectiveness of the interventions. Figure 1 below provides an overview of stages in the care delivery process where hospitals may intervene to prevent rehospitalizations, as defined in a report published by the Health Research & Educational Trust (*Jencks et al, Health Research & Educational Trust, 2010*). It also lists the types of interventions and metrics used by participating Maryland hospitals to lower readmissions along the care continuum. While the table below helps to identify specific time points when hospitals might intervene to improve care transitions, many of the strategies employed by Maryland hospitals and many of the metrics for assessment of these strategies span multiple stages of care.

Figure 1. Overview of Interventions and Metrics Used by Hospitals in ARR Year 1

	Categories of Intervention Strategies*	Examples of Metrics Developed by Maryland Hospitals to Evaluate Interventions	Hospitals Implementing Initiatives
Hospitalization Phase	Risk screen patients and tailor care	• Number of risk assessments performed on COPD and HF patients • Number of adult medical/surgical patients screened • % early risk screens performed • % positive early risk screens	• Anne Arundel Medical Center • Baltimore/Washington Medical Center • Frederick Memorial • Hopkins✗ • Life Bridge • Peninsula • Saint Joseph's • Shady Grove Adventist • Washington Adventist
	Establish communication with PCP and home care	• % patients with a discharge summary faxed to PCP • # of discharge summaries/problem list sent to PCP's office within 48 hours of discharge	• Anne Arundel Medical Center • Maryland General Hospital • Mercy • Upper Chesapeake Health
	Use "teach back" or other methods to educate patient, family, and/or caregivers	• % completion of staff education • % educational sessions using the teach back methodology provided to HF and COPD population • Readmission rate for patients receiving education • % of patients completing HCAHPS survey • Number of educational packets given to high-risk patients • % patients receiving education at discharge • Patient satisfactions with "teach back" method using HCAHPS survey	• Baltimore/Washington Medical Center • Bon Secours • Doctors Community Hospital • Greater Baltimore Medical Center • Maryland General Hospital • Mercy • Saint Joseph's • Upper Chesapeake Health
	Use multidisciplinary clinical teams to coordinate patient care	• % multiple readmissions among high-risk patients (sickle cell anemia, end stage renal disease, and malignancy) within 30 days after initial discharge • Readmission rates (overall and by specific conditions) • % of patients receiving case management services	• Anne Arundel Medical Center • Holy Cross • Hopkins✗ • James Kernan • Life Bridge • Shady Grove Adventist • Upper Chesapeake Health

			• Washington Adventist
	Discuss end-of-life treatment wishes	• # of patients evaluated by palliative care medical director	• Upper Chesapeake Health
At Discharge	Comprehensive discharge planning	• % patients receiving SMART discharge protocol • Number readmitted patients discharged without follow-up resources arranged • % of readmitted patients who kept PCP follow up appointment • Readmission rates (overall and by target population [HF, COPD, sickle cell anemia]). • % of patients slated for moderate or intense interventions upon discharge • % of discharged patients with referrals to other facilities • % of patients presenting to the emergency department who receive a Care Manager Assessment • Number of referrals to support/community services • % patients provided comprehensive discharge planning • % of patients discharged with subsidized resources other than medications, such as durable medical equipment and doctor's appointments	• Anne Arundel Medical Center • Civista • Doctors Community Hospital • Franklin square • Good Samaritan • Greater Baltimore Medical Center • Harbor • Holy Cross • Hopkins✕ • Life Bridge • Maryland General Hospital • Mercy • Montgomery • Peninsula Regional Medical Center • Saint Agnes • Saint Mary's • Shady Grove Adventist Hospital • University of Maryland Medical Center • Union • Upper Chesapeake Health • Washington Adventist
	Schedule and prepare follow up appointment(s)	• % patients with physician appointments scheduled prior to discharge • % patients with PCP information captured prior to discharge • % medical/surgical patients discharged with a follow up appointment within 7 days of discharge • Number of medical/surgical patients who kept the follow up medical appointment scheduled for them after discharge	• Anne Arundel Medical Center • Baltimore/Washington Medical Center • Bon Secours • Doctors Community Hospital • Franklin square • Frederick Memorial • Greater Baltimore Medical Center

		• % high-risk patients with a PCP identified at discharge • % of patients with visit their PCP within 2 weeks of discharge • # of follow-up appointments made within 10 days of discharge • # of follow-up appointments attended • # of physician appointments made and attended within 7 days of discharge	• Good Samaritan • Harbor • Holy Cross • Hopkins✗ • Life Bridge • Mercy • Montgomery • Saint Joseph's • Saint Mary's • University of Maryland Medical Center • Union
	Help patient manage medications	• % high-risk patients who receive a pharmacist completed medication history and/or consultative services • % patients who had their medications reconciled in their home within 72 hours of discharge • Number of high-risk patients consulted by pharmacist • % patients with medication discrepancies and reconciliation errors identified throughout the inpatient, discharge, and 30 day outpatient continuum • % medication errors classified as intermediate or severe • % of patients discharged with subsidized medication • % of patients receiving medications before discharge • Number of documented medication reconciliations by pharmacist	• Anne Arundel Medical Center • Franklin square • Frederick Memorial • Good Samaritan • Greater Baltimore Medical Center • Harbor • Hopkins✗ • Montgomery • Peninsula Regional Medical Center • Saint Joseph's • Saint Mary's • Shady Grove Adventist Hospital • Union • University of Maryland Medical Center • Washington Adventist
	Facilitate discharge to nursing homes with detailed instructions and partnerships	• % patients transferred to partner SNFs with medication reconciliation documented at time of discharge • Readmission rate for patients discharged to partner SNFs • Development of post-acute transitions protocols with local SNF providers for patients with HF • % patients admitted to nursing facilities with	• Bon Secours • Frederick Memorial • Holy Cross • Life Bridge • Montgomery • Saint Agnes • Saint Joseph's

		documented collaboration between the "Nurse Navigator"/social work team and the nursing facility staff to provide a completed patient discharge record	
Post-discharge	Conduct patient home visit	• % of discharged patients receiving home care referrals • % patients who have a home/SNF visit 48-72 hours post discharge • 30-day readmissions rates for patients with a primary diagnosis of HF, COPD, or Type II Diabetes both with a Home/SNF Visit and those who do not have a post discharge visit	• Franklin Square • Good Samaritan • Harbor • Hopkins× • Life Bridge • Montgomery • Shady Grove Adventist • Saint Joseph's • Saint Mary's • Union • Washington Adventist
	Telephone follow up	• Number of targeted patients receiving phone call within 24 - 48 hours after discharge • % of insured medical/surgical patients discharged to home with complete follow-up phone calls • % of uninsured medical/surgical patients discharged to home with complete follow-up phone calls • Readmission rates among those with telephone follow up vs. those without telephone follow up • % of patients receiving follow up phone calls • % of patients receiving follow up phone calls from the pharmacy • % of HF patients enrolled in Heartline, a remote Tel-Assurance program to track changes in clinical status • # of telephone calls made within 72 hrs of discharge • # of successful (reached patient/family member) phone calls	• Anne Arundel Medical Center • Baltimore/Washington Medical Center • Franklin Square • Good Samaritan • Harbor • Holy Cross • Hopkins× • Life Bridge • Mercy • Montgomery • Peninsula Regional Medical Center • Shady Grove Adventist • Saint Mary's • University of Maryland Medical Center • Union • Upper Chesapeake Health • Washington Adventist

Abbreviations: COPD=chronic obstructive pulmonary disease; HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems; HF=Heart Failure; PCP=Primary Care Physician; SMART = **S**igns, **M**edications, **A**ppointments, **R**esults, **T**alk; SNF=Skilled-nursing Facility

*Intervention strategies as described in Osei-Anto A, Joshi M, Audet AM, Berman A, Jencks A. *Health Care Leader Action Guide to Reduce Avoidable Readmissions*. Health Research & Educational Trust. Chicago, IL. January, 2010.

×Includes the Hopkins Downtown Hospital, Hopkins Bayview, Howard County General Hospital, and Suburban Hospital

Most hospitals focused on similar types of interventions to reduce readmissions such as programs to improve discharge planning, facilitate follow-up appointments after discharge, assist patients with medication management, and monitor patient status through telephone follow up (Figure 2). The most common target populations for interventions were patients admitted with heart failure or COPD.

Figure 2. Frequency of Types of Interventions Instituted by ARR Hospitals
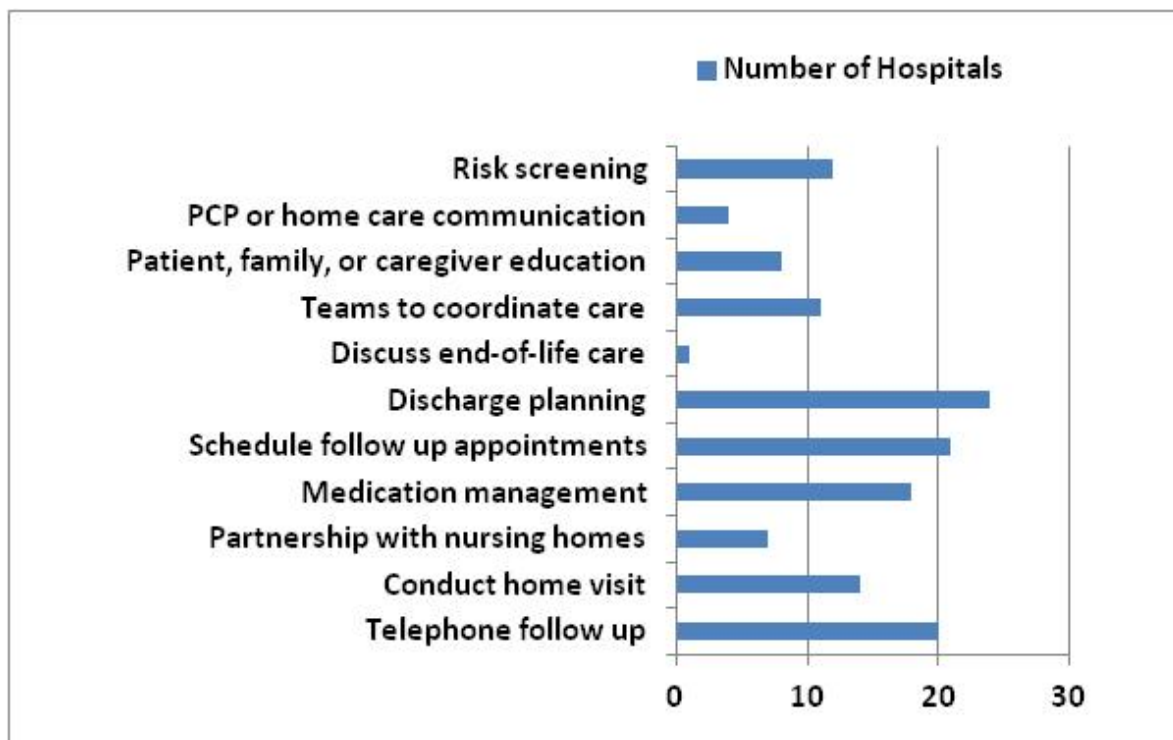
Note: Facilities within a hospital system were counted as individual entities. Hospitals may have multiple interventions within a category.

While there were similarities across intervention strategies, the metrics used to monitor program effectiveness were diverse. For example, 18 hospitals stated that they developed interventions to improve medication management, but hospitals used a range of metrics to monitor this intervention, for example:

- the percent of high-risk patients who received a pharmacist completed medication history and/or consultative services,
- the number of documented medication reconciliations by pharmacist, and
- the percent of medication errors classified as intermediate or severe.

Variation in both the interventions and metrics used by different hospitals are contingent upon the hospitals' patient populations, internal systems, and staffing resources, among other factors.

Most hospitals provided data for metrics that had been monitored over a 12-month period (Figure 3). The mean length of data collection for all metrics was 9.83 months. The time period for data collection was not provided for twelve metrics, which may indicate that they are newly in development.

Figure 3. Metrics' Data Collection Length of Time
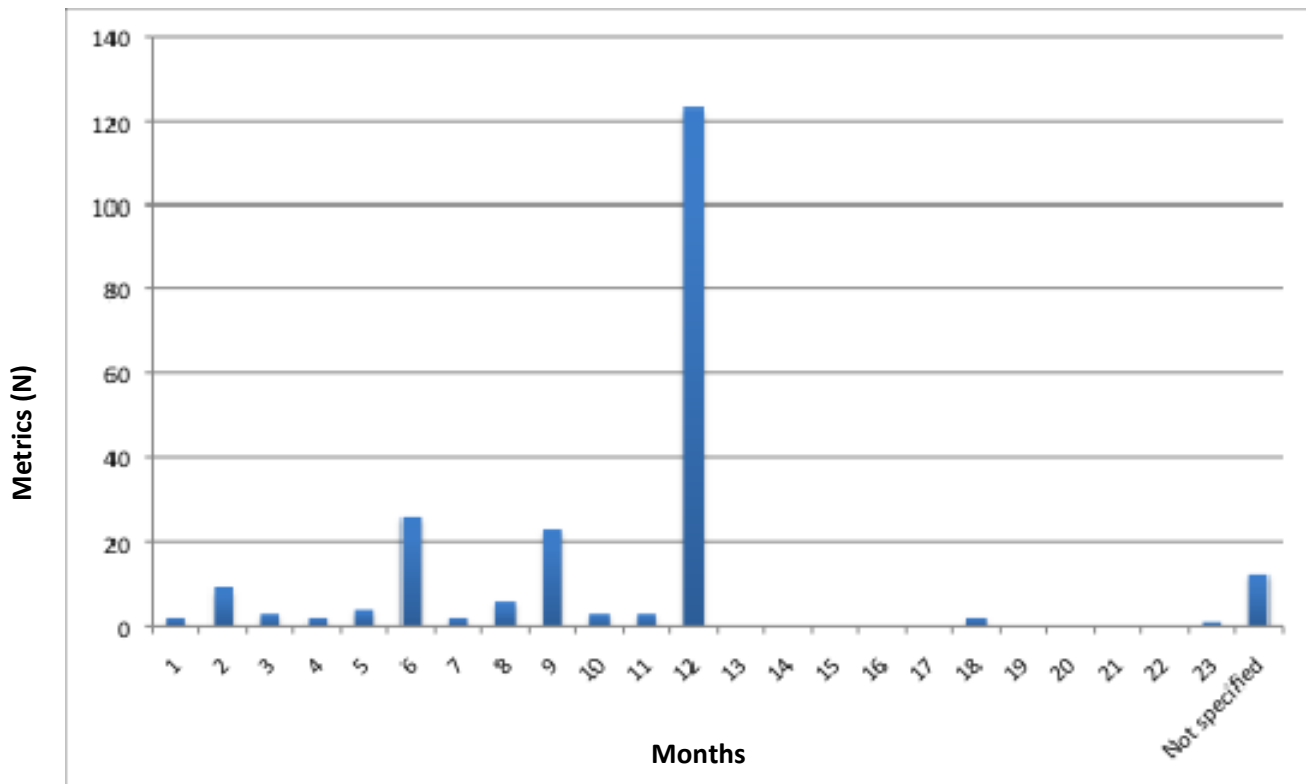
Quantitative Metrics Results

Per request of the HSCRC, hospitals provided descriptive information about their ARR intervention plans and quantitative results (numerator and denominator) for the metrics hospitals monitored in Year 1. The HSCRC required hospitals to list their metrics, the corresponding intervention(s) for that metric, the result, and the timeframe for data collection of the metric. While some metrics used by hospitals were similar (e.g., readmission rate), the specific numerator and denominator definitions were not comparable across facilities. Below we provide the findings of this analysis organized according to the type of interventions.

Risk Screening

Figure 4 displays the process and outcome metrics used to evaluate risk screening interventions. The sole process metric used to track and monitor risk assessment interventions was the proportion of risk assessments performed on the target population. While most hospitals performed screening

assessments in the overall population, several hospitals focused screening efforts on high-risk populations, such as those with a prior readmission or individuals with health failure, COPD, or diabetes with complications.

Outcome metrics for risk screening interventions included readmission rates and the percentage of patients who screened positive during the assessment. One hospital used readmission rates to assess the effectiveness of the Tool for Addressing Risk: A Geriatric Evaluation for Transitions (TARGET) tool in preventing readmissions among patients with COPD, health failure, or type II diabetes. Readmissions were 11.67 percent higher in patients who were identified as "high risk" with the TARGET tool relative to those patients that were not categorized as "high risk" with the assessment.

Figure 4. Risk Assessment Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Risk assessment rate	11/12	8.95 (0.5-12)	Process
% positive screens	5/5	12 (12-12)	Outcome
Readmission rate	1/1	9 (N/A)	Outcome
Readmission rate HF	1/1	10 (N/A)	Outcome
Readmission rate COPD	1/1	10 (N/A)	Outcome

PCP or Home Care Communication

Figure 5 displays the process and outcome metrics used to evaluate PCP or home care communication interventions. Four hospitals developed process metrics to track their progress implementing interventions to improve communication with PCPs. Most metrics focused on the hospital's ability to fax discharge summaries to PCPs, but only one hospital included a time frame for sharing the summary (i.e., fax patient summary within 48 hour of discharge). More common interventions and metrics for tracking coordination with PCPs following discharge included follow up appointment scheduling and PCP appointment attendance rates (see Figure 10).

There is substantial overlap between the metrics used to evaluate the success of PCP or home care communication interventions and the success of discharge planning interventions (see Figure 9), as PCP contact is an important component of transitioning care to the outpatient setting after discharge.

Only one hospital used an outcome metric (readmission rates) to evaluate improvements in PCP communication.

Figure 5. PCP or Home Care Communication Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Discharge summary to PCP rate	3/3	12 (N/A)	Process
PCP identification rate	1/1	Not specified	Process
Readmission rate	1/1	12 (N/A)	Outcome

Patient, Family, or Caregiver Education

Figure 6 displays the process and outcome metrics used to evaluate patient, family, or caregiver education interventions. Seven hospitals created process metrics to evaluate the role of patient, caregiver, or health care professional education in lowering readmissions. One hospital monitored both patient and staff education rates.

Four hospitals used readmission rates to evaluate the impact of educational interventions. These rates were captured for several different populations (Figure 6). In addition, one hospital used a patient-satisfaction measure (i.e., the number of patients reporting that nurses "always" explained things in a way that they could understand) to assess the effectiveness of a staff Teachback program.

Figure 6. Patient, Family, or Caregiver Education Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Patient education rate	7/7	9.75 (5-12)	Process
Staff education rate	1/1	12 (N/A)	Process
Readmission rate	2/2	10.5 (9-12)	Outcome
Readmission rate HF	1/1	12 (N/A)	Outcome
Readmission rate COPD	2/2	11 (10-12)	Outcome
Readmission rate sickle cell anemia	1/1	12 (N/A)	Outcome
High patient satisfaction	1/1	12 (N/A)	Outcome

Using Multidisciplinary Clinical Teams to Coordinate Patient Care

Figure 7 displays the process and outcome metrics used to evaluate multidisciplinary team coordination interventions. Metrics used to evaluate the use of interdisciplinary management teams included referral rates to other health system facilities, enrollment in a Healthy Heart program, and the frequency at which patients were linked to a case manager. In addition, one hospital reported the proportion of patients included in multidisciplinary team rounds as a process metric.

The most common outcome metric for assessing the effectiveness of interdisciplinary teams was readmission rates, which varied widely across facilities and patient populations. In addition, one health system used a patient satisfaction metric to determine the success of interdisciplinary teams. The hospital measured satisfaction according to patient responses to questions about the clinical team's communication regarding discharge procedures and medications.

Figure 7. Multidisciplinary Teams to Coordinate Care Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Referral rates	5/5	10.2 (3-12)	Process
Proportion of patients in rounds	1/1	6 (N/A)	Process
Healthy Heart enrollment rate	2/2	1 (N/A)	Process
Case management provision rate	2/2	5 (4-6)	Process
Readmission rate	5/5	12.47 (7-18)	Outcome
Psychiatry readmission rate	1/1	12 (N/A)	Outcome
Mean length of stay (days)	4/4	12 (N/A)	Outcome
Patient satisfaction	4/4	12 (N/A)	Outcome

Discuss End-of-life Treatment Wishes

Only one hospital developed interventions to address planning for terminal illness and palliative care (Figure 8). This medical center tracked the number of patients evaluated by a palliative care medical director in order to improve end-of-life care preparedness and care delivery. The hospital did not develop associated outcome metrics to assess the success of end-of-life care interventions.

Figure 8. Discuss End-of-life Care Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Palliative care consult rate	1/1	11 (N/A)	Process

Comprehensive Discharge Planning

Figure 9 displays the process and outcome metrics used to evaluate discharge planning interventions. Process metrics used to access the effectiveness of discharge planning interventions were diverse, which may relate to the variety of strategies that can be employed in the hospital or immediately after discharge to manage patient care.

There is substantial overlap between the metrics used to evaluate the success of discharge planning intervention and the metrics used to evaluate the success of PCP communication (see Figure 5), as PCP contact is an important component of transitioning care to the outpatient setting after discharge. However, the metrics listed below were specifically linked to interventions focused on transitions after discharge.

The most common metric used to evaluate the success of discharge planning interventions was readmission rate. Fourteen hospitals captured readmissions rates for patients admitted to their facilities. Other outcome metrics included mean length of stay, PCP visit attendance rate, patient satisfaction, and readmission rates in specific populations.

Figure 9. Discharge Planning Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Charity care provision rate	3/3	9 (6-12)	Process
Discharge summary to PCP rate	3/8	6.5 (2-12)	Process
Electronic discharge summary generation rate	1/1	4 (N/A)	Process
Patient management program referral rates	5/5	10.8 (6-12)	Process
Receipt of discharge protocol	2/3	11.5 (11-12)	Process
Risk assessment rate	1/1	Not specified	Process
Personal health record utilization rate	1/1	9 (N/A)	Process
Readmission rate	14/14	10.9 (3.5-12)	Outcome
Readmission rate HF	3/3	9 (6-12)	Outcome
Readmission rate COPD	2/2	12 (N/A)	Outcome
Readmission rate psychiatric	1/1	12 (N/A)	Outcome
Readmission rate high-risk patients	1/1	5 (N/A)	Outcome
Readmission rate sickle cell anemia	1/1	12 (N/A)	Outcome
Mean length of stay (days)	4/4	12 (N/A)	Outcome
PCP visit attendance rate	2/2	12 (N/A)	Outcome
Patient satisfaction	4/4	12 (N/A)	Outcome

Schedule Follow up Appointments

Figure 10 displays the process and outcome metrics used to evaluate schedule follow up appointment interventions. Numerous hospitals included PCP appointment scheduling rate as a metric for their intervention program. Rates of success varied widely across hospitals. Several hospitals evaluated the success of PCP scheduling with outcome metrics, including readmission rates and the frequency at which patients attended their scheduled primary care visits.

Figure 10. Schedule Follow up Appointment Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
PCP appointment scheduling rate	10/16	7.6 (4.5-12)	Process
PCP visit attendance rate	3/4	11 (9-12)	Outcome
Readmission rate	4/6	11.25 (9-12)	Outcome
Readmission rate HF	2/2	10-12	Outcome
Readmission rate COPD	1/1	10-12	Outcome
Readmission rate sickle cell anemia	1/1	12 (N/A)	Outcome

Medication Management

Figure 11 displays the process and outcome metrics used to evaluate medication management interventions. The primary process metric chosen by hospitals to evaluate the success of medication management interventions was medication reconciliation. However, only four of the ten hospitals had collected results for this metric by the end of ARR Year 1. The mean length of implementation time was just 6 months, suggesting that it either took longer for hospitals to develop metrics for medication management or it took hospitals longer to implement interventions associated with medication management activities.

The two outcome metrics collected to evaluate medication management interventions were readmission rate and medication error rate.

Figure 11. Medication Management Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Medication reconciliation rate	4/10	6.11 (2-12)	Process
Medication received prior to discharge	1/1	12 (N/A)	Process
Charity care provision rate	2/2	9 (12-6)	Process
Readmission rate	2/2	12 (N/A)	Outcome
Medication error rate	3/3	9 (N/A)	Outcome

Partnerships with Nursing Homes

Figure 12 displays the process and outcome metrics used to evaluate partnership with SNFs interventions. Several hospitals are developing process metrics to determine the success of procedures to improve coordination between inpatient care and SNFs. Only two hospitals reported results for ARR Year 1. ARR Year 2 should provide additional information regarding the impact of interventions aimed at improving care transitions between the hospital and SNFs.

Four hospitals used overall readmissions rates as a metric for evaluating programs to improve partnerships with SNFs. The mean length of data collection for these metrics was 14 months.

Figure 12. Partnership with Nursing Homes Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Medication reconciliation rate at time of transfer to SNF	0/1	N/A	Process
Number of protocols developed with SNF for managing HF patients	0/1	N/A	Process
Percentage of patients in the program who utilize partner SNF	1/1	9 (N/A)	Process
Discharge summary to SNF rate	1/1	11 (N/A)	Process
Readmission rate	4/4	14 (9-23)	Outcome

Conduct Patient Home Visit

Figure 13 displays the process and outcome metrics used to evaluate home visit interventions. Ten hospitals collected data on home care assessments or home care referrals over 12 months to evaluated the success of home visit interventions. Outcome metrics for the effectiveness of interventions designed to improve home care included rates of home visits and readmission rates.

Figure 13. Conduct Patient Home Visit Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Home visit assessment rate	6/6	12 (N/A)	Process
Home visit referral rate	4/4	12 (N/A)	Process
Home visit rate	3/3	9 (6-12)	Outcome
Home visit or telephone follow up rate	4/4	12 (N/A)	Outcome
Readmission rate	2/2	6.75 (4.5-9)	Outcome

Telephone Follow up

Figure 14 displays the process and outcome metrics used to evaluate telephone follow up interventions. The rate of telephone follow up was a common metric used by hospitals in the ARR program. In addition, three hospitals captured the rate of complete telephone follow up (i.e., phone calls in which the health care professional connected with the patient or caregiver).

Several hospitals used readmission rates as a metric to evaluate the success of telephone follow up programs. Two hospitals specifically captured readmission rates in patients who were reached by the health care professional during telephone follow up. Four facilities monitored readmission rates among specific populations.

Figure 14. Telephone Follow up Intervention Metrics

Types of Metrics	Number of hospitals reporting results/Number of hospitals using the metric	Mean length of implementation, months (range)	Process or outcome measure
Heartline program enrollment rate	1/1	6 (N/A)	Process
Telephone follow up rate	14/16	7.13 (2-12)	Process
Home visit or telephone follow up rate	4/4	12 (N/A)	Process
Telephone follow up completion rate	3/3	11 (9-12)	Process
Readmission rate	5/5	11.2 (8-12)	Outcome
Readmission rate HF	2/2	8 (6-10)	Outcome
Readmission rate COPD	1/1	10 (N/A)	Outcome
Readmission rate in contacted patients	2/2	9.5 (7-12)	Outcome
Readmission rate in high-risk patients	1/1	9 (N/A)	Outcome

Qualitative Metrics Results

HSCRC staff developed a qualitative survey to ascertain the hospitals' experiences implementing and measuring interventions to reduce readmissions during Year 1 of the ARR program. The goal of the questionnaire was to understand the challenges and successes of the intervention strategies and potential changes to programs for ARR Year 2. All 31 ARR hospitals responded to the survey. In the section that follows, we describe the reported challenges and successes associated with the each type of intervention and its associated metrics, proposed changes for Year 2, and overall trends and patterns for monitoring interventions for reducing admissions and readmissions.

General Findings

Overall, 52.2 percent of hospitals reported that it was either difficult or very difficult to implement their interventions (Figure 15). Only 4.3 percent of sampled hospitals responded that it was easy to implement their interventions. Similarly, 56.5 percent of hospitals reported that it was either difficult or very difficult to monitor their metrics (Figure 16).

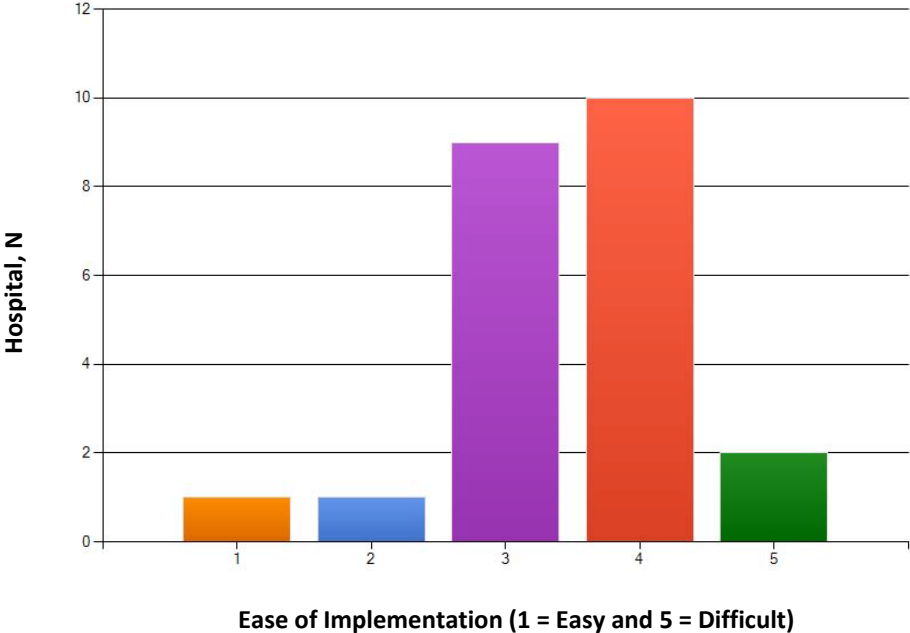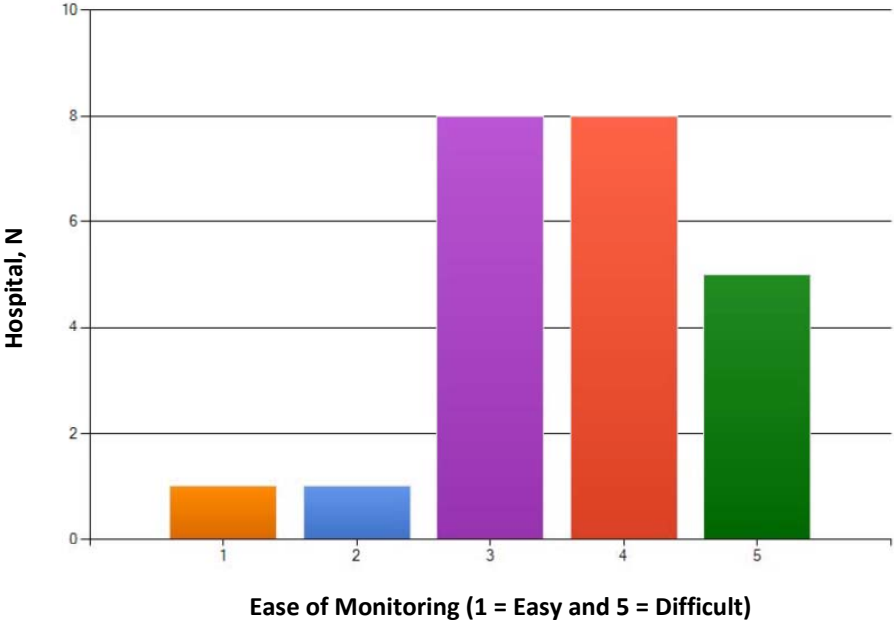**Figure 15. Hospital Rating of Intervention Implementation Ease**

Ease of Implementation (1 = Easy and 5 = Difficult)

Figure 16. Hospital Rating of Metric Monitoring Ease

Ease of Monitoring (1 = Easy and 5 = Difficult)

Hospitals reported variability in the ease of integrating interventions into other quality improvement or cost containment initiatives. Overall, about one third of hospitals believed that it was neither easy nor difficult to integrate ARR interventions into other quality improvement initiatives, while one third indicated relative ease and one third relative difficulty with integration (Figure 17).. No hospitals reported that this question was "not applicable," indicating that all health systems had ongoing quality improvement programs in place in their facilities.

Figure 17. Hospital Rating of Ease of Integration of Interventions into Quality Improvement or Cost Containment Initiatives

Ease of Integration (1 = Easy and 5 = Difficult)
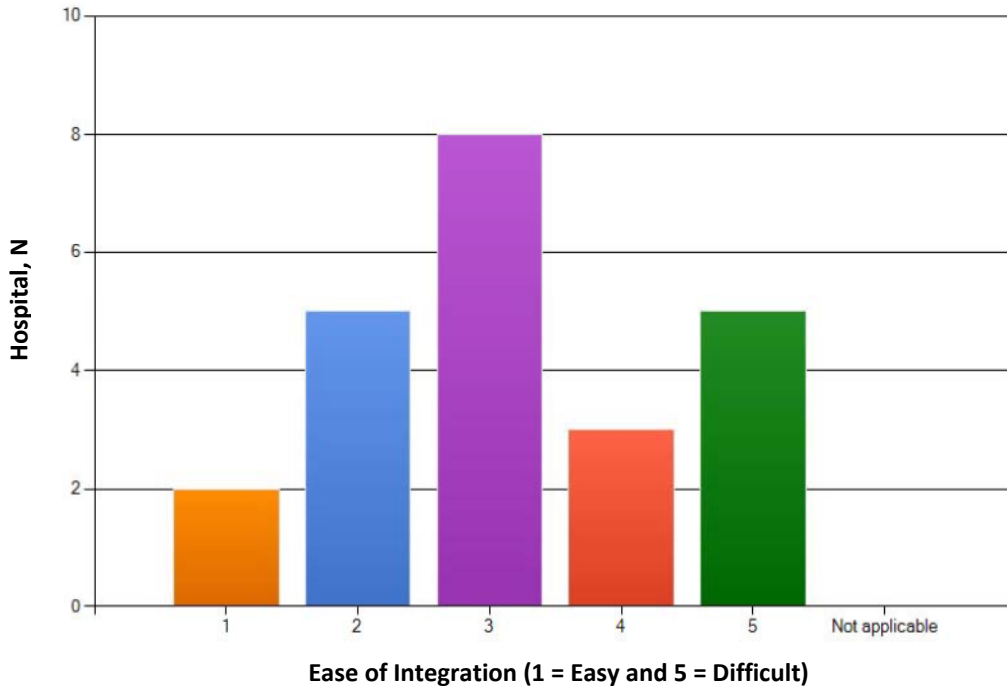
In general, the hospitals reported that readmissions metrics helped them to understand the specific diagnostic categories of patients who were readmitted to their facilities, develop more thoughtful discharge planning and care coordination programs, and guide quality improvement efforts.

Hospitals cited managing new staff, technical difficulty measuring metrics, and patient beliefs and behaviors as the primary challenges to successful intervention implementation. Many interventions necessitated new staff, and several hospitals found it challenging to hire, train, and retain new employees. Other hospitals reported difficulty with resource allocation among existing staff early in the program. Two hospitals did not have personnel dedicated for data entry, and thus, they found it difficult to obtain resources to support data analysis in a timely and routine manner.

Hospitals found that it took time to get electronic systems in place to appropriately capture the metrics. Many hospitals did not have electronic systems to collect metric data, and thus, monitoring the metrics was slow and cumbersome for staff. Even once data was collected, several hospitals encountered problems standardizing the data and validating the data for internal external reporting.

Lastly, hospitals reported that an important component impacting project success was patients' and families' values, beliefs and preferences about the role of care coordination/management programs. For example, one hospital reported "while we have identified patients who would benefit by a Transitions Guide or even Skilled Home Care, many patients refuse the intervention." Patient attitudes and compliance to interventions will remain a challenge for hospitals. Training staff in cultural competency and tailoring programs to different population segments will be critical in overcoming these barriers.

Risk Screening

Most hospitals reported success in using risk assessment tools to identify patients with a high probability for readmissions. Several hospitals reported that risk assessment programs helped staff understand the risks for rehospitalizations in patient populations that were not originally targeted in Year 1 programs. In addition, hospitals found that sound risk screening programs were important for the success of subsequent interventions because they helped staff respond early to patient needs for physical therapy, nutritional interventions, social work, etc., and appropriately tailor care.

Hospitals found it challenging to appropriately define high-risk patient populations. One facility focused on patients with more severe DRGs; other hospitals chose to focus on individuals with known high-risk conditions, such as heart failure, COPD, or diabetes with complications. Hospitals also noted that it was unclear whether success in identifying high-risk patients using screening tools translated to lower admissions and readmission rates. For example, one hospital found that patients with a positive risk screen were more likely to be readmitted than those without a positive risk screen. However, readmission rates were 3 percent lower in high-risk patients who were subsequently linked to a "care transitions guide" relative to high-risk patients who did not receive these services. This finding suggests that risk assessments paired with subsequent interventions can improve care along the continuum.

Patient, Family, or Caregiver Education

Several hospitals found that educational interventions enabled patients to better identify signs that their condition is worsening and to become more knowledgeable about when to call their physician or transition coach. Hospitals cited health literacy and patient "limitations" as barriers to educating patients about self management. One hospital emphasized the importance of involving the caregiver because severely-ill patients often could not learn the risks associated with certain symptoms. Another hospital system described piloting new technology for patient/caregiver education that uses interactive computer tablets that account for healthcare literacy and language differences.

Using Multidisciplinary Clinical Teams to Coordinate Patient Care

Hospitals cited high patient and provider satisfaction as a benefit to instituting multidisciplinary teams to help coordinate patient care. The patient feedback associated with coordinated teams was consistently positive. In addition, hospitals remarked on the genuine desire among staff to create change through use of interdisciplinary teams and believed that team coordination maximized workforce synergies and increased accountability for outcomes. Physicians were enthusiastic about having additional resources to help coordinate care across both inpatient and outpatient settings.

Hospitals found that including care management in rounding allowed for earlier identification of barriers to treatment and patient needs.

Multiple hospitals cited success with ED case management programs. They found that these programs helped to identify individuals returning to the ED with a previous visit or previous hospitalization within 30 days (i.e., "high utilizers"), to improve access to community resources for ED patients, and to proactively provide appropriate medical follow-up for frequent ED users.

While the general response to use of multidisciplinary teams was positive, one hospital reported difficulty in attaining consistent interdisciplinary participation and preparation for rounding. Two hospitals had difficulty designing rounding forms supportive of data extraction needs for a broader team and reported concerns with the quality of documentation during rounds. Finally, several hospitals experienced difficulties getting patents to accept outpatient case management because the patients believed it was an intrusion into their lives.

Discuss End-of-life Treatment Wishes

Few hospitals instituted interventions to improve end-of-life care. However, one hospital found that hiring a dedicated palliative care medical director allowed for more informative discussions with patients and families, hospice placements, and positive feedback from the families.

Comprehensive Discharge Planning

Hospitals reported that staff was enthusiastic about improving discharge planning protocols. Hospitals cited the lack of coordinated electronic health records and the inability to share patient information through a single database platform as the key barriers to successful discharge planning interventions.

PCP Communication and Schedule Follow up Appointments

PCP communication and appointment scheduling were common interventions used by hospitals to lower readmissions, but they also were frequently cited as challenging for hospitals to implement. The most widely cited barrier to the success of these interventions was that some patients that did not have a PCP. This problem was particularly challenging for hospitals serving populations with a large proportion of uninsured or underinsured patients. These issues also hindered efforts to improve communication with PCPs, as hospitals were unable to share discharge summaries or medication lists with outpatient providers if the patient did not have an identified PCP or had recently changed practices.

Some hospitals sought to address these problems through the provision of charity care, but cited that those programs were difficult to maintain in the long-term. Several hospitals reported success using "bridge clinics" to see patients without a PCP, but others found that this approach resulted in appointments scheduled several weeks beyond the desired timeframe.

Even among patients with an identified PCP or with insurance, it could be challenging to schedule patient appointments soon after discharge because many PCPs did not have appointment availability

within a short time frame. Hospitals cited linking patients to a PCP as a challenge for patients with Medicare and Medicaid, as some PCPs are not accepting new Medicare or Medicaid patients. Furthermore, certain patients were resistant to appointment scheduling before discharge because they would want to check with their family or caregiver prior to committing to a date and time. One hospital noted that some patients did not know the name of their PCP upon admission, which made it difficult to share records or set up appointments.

Hospitals reported difficulties tracking attendance at PCP visits after discharge because patients did not return phone calls and primary care practices were reluctant to share the information due to HIPAA concerns. One hospital cited a lack of reliable and affordable transportation as a barrier to patients keeping follow-up appointments with post-acute medical providers.

Medication Management

Medication management programs were common strategy used in ARR Year 1 to lower readmissions. Hospitals found that involving pharmacists in medication management helped physicians optimize regimens and reduce medication errors. In one hospital's program, the pharmacist collaborated with the physician to ensure accuracy of the discharge medication list and helped develop a medication regimen that mitigated non-adherence. Another hospital described a pilot project to deploy pharmacists to the home for high-risk patients to help identify barriers to patient compliance with their medications.

Despite these successes, some hospitals reported challenges streamlining communication between the physician and pharmacist and general "workflow issues" as impediments to program success. For example, one hospital developed an intervention to provide patients with their medications before discharge but found it was difficult to finalize the medication list with enough time to fill the scripts prior to discharge. Providers frequently made adjustments to the medication regimen within hours to minutes of discharge, and patients did not want to wait longer in the hospital to receive their medications.

Several hospitals cited patient behaviors as barriers to successful medication management and adherence. One hospital reported that follow up calls for medication reconciliation were unsuccessful when the pharmacist calling was not the pharmacist from whom the patient received their medications. Intervention effectiveness was hindered when patients did not return phone calls inquiring about medication adherence. In addition, some hospitals found that a lack of affordability for medications was a key barrier preventing patient adherence to treatment regimens.

Partnerships with Nursing Homes

Several hospitals cited improved coordination with SNFs as a priority for reducing readmissions to their facilities. However, hospitals consistently cited a lack of dedicated personnel from the SNF to promote handover communication as a barrier in interventions designed to improve care coordination. Two hospitals had begun to establish protocols for SNF care after discharge, including medication management, transportation, and physician follow up. One hospital created a transfer form to use when transitioning a patient from the inpatient setting to post-acute facilities. The form will be tested to

identify opportunities to improve communication and handover after discharge. Establishing a consistent mechanism for data transfer could help hospitals overcome a frequently cited challenge in SNF coordination—the lack of a single database platform through which to share information.

Conduct Patient Home Visit

Few hospitals qualitatively reported on the successes or challenges of home visits. Two hospitals found that home visiting programs were helpful in identifying both medical (e.g., medication, medical equipment) and non-medical (e.g., social, environmental) factors influencing the patient's health.

Telephone Follow up

Several hospitals reported that patients valued telephone follow up and appreciated having a health care professional contact them about their condition. Other hospitals found that reaching patients over the phone proved challenging because many patients rely on cell phones with limited minutes, and thus, these patients do not answer the phone or return phone calls. If the patient was reached, some hospitals questioned the accuracy of the information provided during the follow-up phone call. Even when potential problems were discussed during telephone follow up, some hospitals lacked programs to effectively handle the issues after their identification.

Proposed Changes or Modifications to Interventions for ARR Year 2

Few hospitals expect to make changes to interventions and metrics currently in place (Figures 18 and 19). However, 39.1 percent of hospitals reported that they plan to develop new interventions or new metrics to further promote readmission reductions in ARR Year 2.

Figure 18. Hospital Changes to Interventions in ARR Year 2

Expected Level of Change (1 being no change and 5 being large changes)
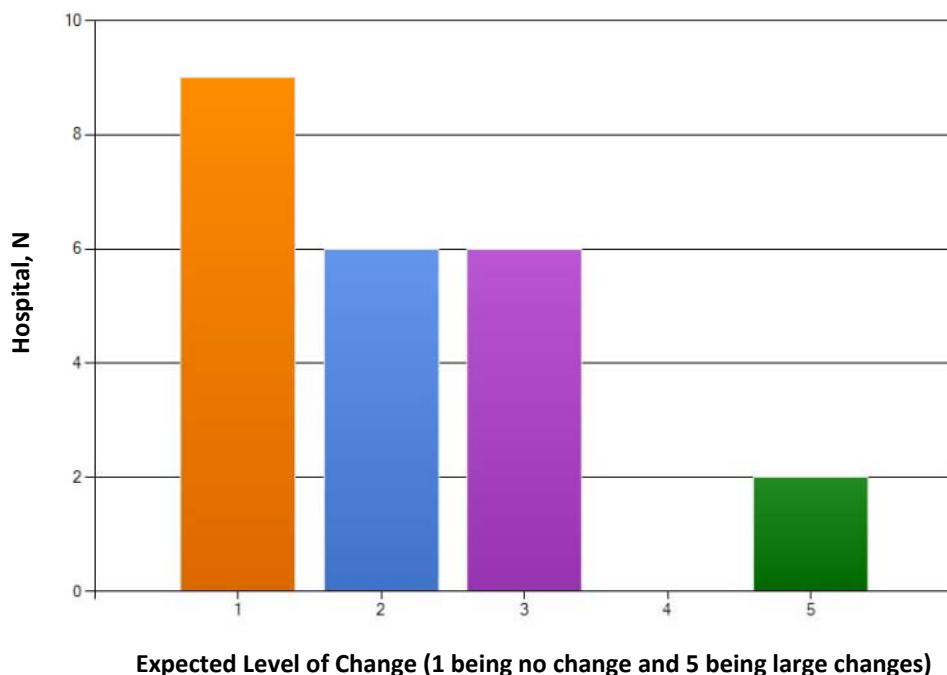
Figure 19. Hospital Changes to Metrics in ARR Year 2

Expected Level of Change (1 being no change and 5 being large changes)
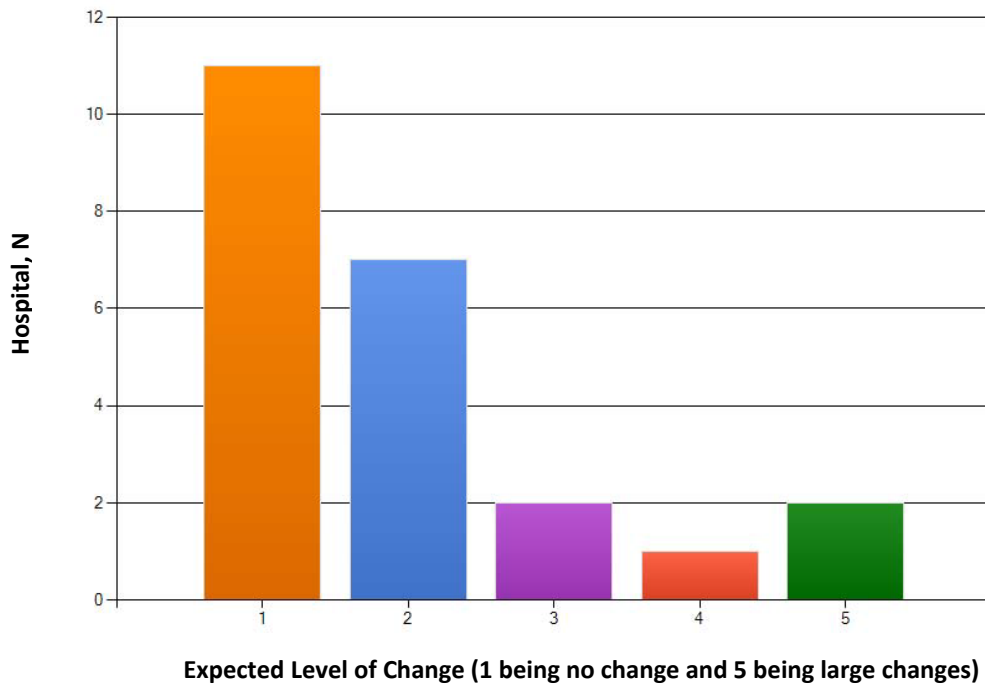
Proposals for new interventions and metrics were diverse and spanned the care continuum.

Potential plans for new interventions included the following:

- Broaden risk assessments all-cause admissions
- Expanding Teachback population to include all units and diagnoses
- Examining whether a Care Coordinator's presence at the follow-up visit impacts the patient's ability to attend his or her first follow-up appointment
- Promote and expand palliative care consults
- Establish community and provider partnerships for resources for uninsured and underinsured patients
- Create processes for assuring provider accuracy in linkage to post-acute care
- Develop processes for scheduling post-discharge appointments
- Contract with an outpatient pharmacy to assist with medication management
- Develop partnerships with SNFs that serve the surrounding community to improve communication and to enhance the SNFs' abilities to manage complex patient symptoms without returning patients to the ED
- Improve discharge planning for patients leaving SNFs

Potential plans for new metrics included the following:

- Number of medication errors corrected by the pharmacist
- Proportion of patients who returned to the ED within 72 hours after discharge
- Inpatient discharges for patients that returned to the ED within 72 hours

- ED utilization 30-days post discharge
- Percentage of patients with post-acute follow up or referral made at discharge
- Readmission rates at 60- and 90-days post discharge
- Readmission rates by provider
- Relative percent increase or decrease in readmissions at the unit level
- Clinical review of readmitted patients
- Refine metrics to capture differences by DRG groups

Trends in Admission-Readmission Reduction Interventions

The qualitative survey asked hospitals to discuss the effectiveness of their interventions for 1) different conditions, 2) by practitioners, 3) by readmission source, and 4) at different time frames.[1] While most hospitals did not collect or analyze their data at this level of detail during Year 1, the following sections summarize preliminary responses provided by the hospitals regarding these trends.

Different Conditions

While not carefully tracked across ARR metrics, several hospitals reported differences in the effectiveness of interventions across medical, surgical, transplant, and oncology populations at risk for readmission. Mental health and substance abuse were thought to be important factors triggering admissions and readmissions within the medical population. For surgical patients, the extent of the surgery and the likelihood of complications had an important role in readmissions. Across all populations, the patient's underlying functional status and health literacy played a key part in intervention success.

Several hospitals that originally focused only on subpopulations (HF, COPD) are planning to broaden the scope of their target populations by adding specific DRGs to the "high risk" classification. Specific examples include interventions for patients with renal disease, sickle cell anemia, and surgical site infections.

Some hospitals learned that their interventions could be applied to any vulnerable patient group because successful programs were primarily related to enhancing overall self-management skills and establishing goals of care that resonated with the patient and family.

Practitioner

Most hospitals did not examine the impact of interventions by practitioner. Of those that did track this information, most did not notice differences in metric results by type of provider. One hospital reported that interventions were more difficult to implement in patients cared for by residents or faculty in

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[1] Readmission rates for different conditions refer to examining readmission rates by diagnosis, severity of illness, and/or comorbidities. Readmission rates by practitioner refer to examining rates by physician to determine if patterns of readmissions are different by individual or specialty. Readmission rates by source refer to evaluating rehospitalization rates according to the location from which patients are readmitted (home, nursing home, etc.). Readmission rates at different times refer to examining rehospitalization rates within different time frames, such as 30 days, 60 days, or 90 days (*Osei-Anto, 2010*).

teaching hospitals. Another hospital indicated that psychiatrists had more difficulty communicating with patients after discharge than other providers.

While few hospitals captured readmission rates by practitioner in Year 1, several hospitals are beginning track this information for Year 2. One hospitalist service has begun to do a formal "case review" on failed discharges (i.e., patients who return within 30 days). Another hospital noted that staff is currently evaluating practitioners with higher readmission rates.

Readmission Source

Most hospitals did not track or report differences in the effectiveness of interventions by readmission source. However, one hospital noted that it had begun to tailor interventions according to discharge location. Three hospitals indicated that there were higher readmission rates from patients in SNFs and noted challenges coordinating interventions with SNF staff. Patients residing in SNFs may also be more ill than patients discharged to home. Several hospitals reported developing interventions for patients discharged to home and expected the programs to be more effective in home settings.

Different Time Frames

Most hospitals did not capture readmission rates at time frames beyond 30 days and noted that they expected their interventions to be most useful in preventing rehospitalizations within 7-30 days. One hospital noted that its highest readmission rates are within 7 days and attributed this finding to time required post-discharge for certain interventions to take effect, such as appointment scheduling or telephone follow up. For example, if follow up phone calls or physician visits are scheduled to take place one week after discharge, the hospital may lose the window of opportunity to intervene.

Other Important Factors for Measuring Readmissions

The HSCRC is in an ongoing collaboration with the Chesapeake Regional Information System for Our Patients (CRISP), which is the State's designated health information exchange (HIE) organization, to create a unique patient identifier that will enable tracking patients across the hospitals in the State and monitoring the impact of ARR and Total Patient Revenue (TPR) in inter-hospital readmissions in almost real time.

As a means to extend the program to all readmissions, the Commission adopted regulations that required all acute hospitals to connect with CRISP by December 2011. These rules are critical in providing the foundation for ARR Phase II in which hospitals will be held accountable for inter-hospital readmissions.

Conclusions and Next Steps

Findings from Year 1 of the ARR program confirm that addressing admission-readmission is complex. It involves coordinating pharmacists, hospitalists, community physicians, mental health providers, ED case managers, social workers, and SNF personnel to identify and manage the host of clinical, environmental, and social factors influencing a patient's health before and after hospital discharge. Because preventing avoidable admissions requires a community approach with involvement from stakeholders along the care continuum, hospitals are challenged to incentivize payers, the community, and the patient to engage in health management activities. Ultimately, hospitals must find the appropriate balance between length of stay and improving care transitions to reduce unnecessary readmissions.

Findings from ARR Year 1 will help hospitals establish baseline levels for metrics so they can judge their relative improvement over time for their specific patient populations. A challenge for hospitals moving forward will be to identify the strategies that are most influential in lowering admissions and readmissions. When hospitals apply multiple interventions at one time, it is challenging to sort out what "worked" to prevent certain admissions or readmissions. It may be difficult to disentangle the teaching, the follow-up phone call, the assistance scheduling an appointment, the home visit to review red flags, the palliative care consult, a family member taking charge, and/or better nutrition to determine what strategies are effective. However, while it is important for hospitals to monitor the success of different interventions, literature suggests that there is no single strategy to address the factors contributing to admissions and readmissions (*Williams, JAMA, 2013*). A recent analysis of data from the Medicare population found that readmissions after heart failure, myocardial infarction, or pneumonia occur frequently throughout the 30-day post-discharge period, and that only 10 to 35 percent of readmissions are due to the same cause as the original hospitalization (*Dharmarajan, JAMA, 2013*). These findings suggest that interventions adopting a holistic approach may be more effective in lowering admissions and readmissions than interventions targeted at one point in the care pathway or focused on preventing readmissions for a specific condition. Moving forward, hospitals must consider programs that support patients at risk for a variety of episodes throughout the 30, 60, and 90-day post-discharge period.

The results of this report should be considered in the context of measuring readmissions using electronic medical records linked with the State's health information exchange which will provide a benchmark for admissions and readmissions across ARR hospitals. Future analyses of patient records will allow hospitals and regulators to better understand trends in 30-day readmission rates and the ability to more comprehensively assess whether hospitals' interventions are effective. The HSCRC's collaboration with the Chesapeake Regional Information System for Our Patients (CRISP) (the State's designated health information exchange (HIE) organization) to create a unique patient identifier will enable the HSCRC to track readmissions between hospitals (see Appendix II). This partnership will help the State monitor the impact of ARR as well as Total Patient Revenue (TPR) and other future payment models on inter-hospital readmissions and support statewide accountable for inter-hospital readmissions.

In future modifications to ARR, HSCRC staff will recommend enhanced parameters regarding process and outcome metric development and reporting based, in part, on the findings from this analysis.

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Appendix I. Medicare Readmissions Reduction Program

As stipulated in the ACA, as of October 2012 CMS had developed 30-day risk-standardized excess readmission ratios for acute myocardial infarction, heart failure, and pneumonia. The excess readmission ratio measures a hospital's readmission performance relative to the national average for the hospital's set of patients with specific the three conditions. It is calculated by dividing the observed readmission rate for a hospital by the expected readmission rate if the hospital's patients were treated in an "average national hospital".

- **Excess readmission ratio =** risk-adjusted observed readmission rate/ risk-adjusted expected readmission rate

The readmission rate is defined as follows:

- **Denominator (index discharges) =** patients discharged after hospitalization for HF, AMI, or pneumonia, excluding persons who left against medical advice, who were transferred to another acute care facility, or who were discharged dead. A hospitalization that counts as an index case cannot also be a subsequent 30-day readmission.

- **Numerator (readmissions) =** rehospitalizations among index discharges within 30 days, excluding "planned" readmissions.

The excess readmission ratio is based on discharges during a three-year period of July 1, 2008 to June 30, 2011 and requires a minimum of 25 cases per condition. To allow for fair comparisons, readmission rates are risk adjusted based on differences in patient demographics, comorbidities, and patient frailty. The program excludes Medicare beneficiaries receiving services through Medicare Advantage plans.

At the beginning of 2013, hospitals were assessed a penalty of up to 1 percent of their Medicare revenue for the fiscal year. Penalty caps are slated to increase to 2 percent by 2014 and 3 percent by 2015 (*Kocher, JAMA, 2011*). Medicare will be expanding its policy to encompass additional conditions by 2015.

Appendix II: Collaboration with CRISP to Track Inter-hospital Readmissions

The HSCRC collaborated with the Chesapeake Regional Information System for Our Patients (CRISP) to create a unique patient identifier to track patients across the hospitals in the State of Maryland. The Commission adopted regulations that require all acute hospitals to connect with CRISP by December 2011.

Approach

CRISP uses multiple Admission-Discharge-Transfer (ADT) HL7 messages from hospitals to reconstruct a patient's visit. They create scripts to aggregate all messages from the same patient account to determine the visit's type (inpatient, ER, etc.) and admission and discharge times. Once a visit is created, CRISP uses a probabilistic matching algorithm to assigns a Master Patient Index (MPI) to each unique patient. The MPI will enable HSCRC to track patients across settings and providers of care.

Challenges

To date, significant progress has been made in the matching of CRISP and HSCRC data; yet there are still some challenges, particularly with creating the visits. There is a standard ADT definition; however, different hospitals and Electronic Medical Record (EMR) applications use different interpretations for the messages. The following are some of the common problem areas:

- Reconstruction of visits. Hospitals use their billing system to generate quarterly visit-level reports to HSCRC. CRISP receives ADT messages that come from the hospital's EMR system, which does not include the billing information. Using ADT messages is less accurate than using complete visits from the billing system, but it would require considerable time and resources for hospitals to transmit billing data in real-time and not all hospital billing and accounting systems have this capability.
- Inconsistent Patient Class (PTCLASS) Flags. The CRISP script requires the hospital to send standard Patient Class flags (ex. I for inpatient) in the ADT message in order process the messages properly. Some hospitals did not include these flags in the messages or they submitted non-standard PTCLASS flags. For Meritus Medical Center, CRISP did not receive PTCLASS flags until the end of July, and therefore the March – May comparison scores in Table 1 shows the hospital as having no matches. For hospitals that use non-standard PTCLASS flags, CRISP has to map the non-standard classes to the standard classes in order to process the messages properly. CRISP is working with individual hospitals on this issue.
- Observation Patients. This is one of the biggest challenges for CRISP because visits that appear to be inpatient according to the ADT message may actually be observation visits. Depending on the hospital, CRISP has to create special rules that use patient location, message sequence, or some other data field to convert these inpatient visits to observation visits.

- Other Visits Types. These visits are reported to HSCRC on a separate inpatient submissions (ex. chronic/rehab or psychiatric visits) or otherwise not reported to HSCRC because there were no charges incurred for the visit (ex. research patients). For these cases, CRISP has to work with hospitals individually to identify markers from the ADT message to exclude the visits from being reported as an inpatient visit.
- Diagnosis/Disposition Information. There are certain rules that are applied for reporting purposes that depend on the discharge diagnosis and/or patient disposition. CRISP is adjusting their framework to take these values into consideration but not all hospitals are transmitting these values on a regular basis. Furthermore, even if hospital sends this information, there is no standard rule to aggregate them into meaningful groups.
- Delayed Messages. In a few cases messages are delayed where one or more message(s) for a certain visit is not received until weeks or months after the initial message for the visit. This is not a common problem and only affects a few hospitals.
- Date Range for Processing Messages. A visit is mostly accurately constructed if CRISP processes ALL the messages for that visit and not just the most recent messages. While additional data improves comparison accuracy, it also adds to the processing time and storage requirements.
- Delays in Data Verification. For hospitals which are not engaged in working closely with CRISP to identify data issues, the data available from HSCRC for visit verification are at least 3 months delayed. If there are data issues which must be fixed by the hospital, it has taken some time for the change to be verified (as in the case of Meritus Medical Center).

Inpatient Visit Validation

Table 1 illustrates the most current comparison scores between HSCRC and CRISP data for inpatient visits between March and May 2012. The matching score value ranges from -100 to 100; a score of 90 indicates an approximate 5% mismatch. The last column of Table 1 shows the weights used to adjust each hospital's comparison score to create the overall score. The weights reflect each hospital's relative inpatient visit volume.

Appendix Table 1: Comparison Scores by Hospital

Hospital ID	Hospital Code	Comparison Score	Weight
210010	UMMS_DRCHSTR	99.96	0.40
210037	UMMS_EASTON	99.70	1.37
210033	CHC	99.26	1.91
210030	UMMS_CHSTR	99.18	0.40
210043	UMMS_BWMC	98.94	2.79
210004	HCH	98.29	5.11
210016	ADVWAH	98.28	2.16
210038	UMMS_MGH	98.06	1.31
210034	MEDSTAR_HHC	97.39	1.63
210003	PGHC	97.30	1.92
210018	MGH	96.79	1.45
210061	AGH	96.64	0.43
210024	MEDSTAR_UMH	96.41	2.12
210015	MEDSTAR_FSH	96.06	3.49
210002	UMMS_UMMC	95.62	5.50
210028	STMH	94.89	1.23
210012	LBH_SHB	94.59	4.22
210060	FWMC	94.02	0.31
210057	ADVSGAH	93.15	3.73
210055	LRH	92.51	0.93
210007	SJMC	91.86	2.63
210019	PRMC	91.52	3.00
210013	BSB	90.99	0.94
210056	MEDSTAR_GSH	86.80	2.18
210054	SMH	77.45	2.54
210023	AAMC	77.15	4.87
210009	JHH	75.91	6.17
210040	LBH_NWH	74.18	2.04
210008	MHS	68.99	2.84
210058	UMMS_KERNAN	67.84	0.44
210039	CVMH	64.69	1.17
210017	GCMH	62.82	0.36
210048	HCGH	62.47	2.69
210005	FMH	61.90	3.11
210022	SUBURBAN	61.82	2.04
210035	CMC	56.31	1.12
210032	UHCC	51.07	1.00
210011	SAH	50.85	2.93
210051	DCH	48.71	1.67
210049	UCMC	48.12	2.12
210044	GBMC	45.84	3.13
210006	HARM	42.91	0.76
210027	WMHS	34.48	2.09
210029	JHH_BVIEW	32.59	3.20
210045	MCMH	19.15	0.06
210001	MMC	-100.00	2.52
	Overall Score	**74.36**	

Scoring Weights

Weights are assigned to different types matches to create the comparison score above for each hospital (Table 2). For example, if the medical record number, patient account number, and admission and discharge dates all match completely, then those visits are given a weight of 1. Complete mismatches are given a weight of -1. Partially matched visits are given a partial weight. The compare score for the hospital is the sum of the weights for all categories.

Appendix Table 2: Scoring Weights

Match Type	Weight
CRISP vs HSCRC IP:	
Medical Record #, Patient Account # & Dates match	1
Medical Record # & Patient Account # match; Dates do not match	0.667
Medical Record # & Dates match; Patient Account # do not match	0.667
Patient Account # & Dates match; Medical Record # do not match	0.667
Patient Account # match; Medical Record # & Dates do not match	0.333
CRISP vs HSCRC OP:	
Medical Record #, Patient Account # & Dates match	-1
Medical Record # & Patient Account # match; Dates do not match	-1
Medical Record # & Dates match; Patient Account # do not match	-1
Patient Account # & Dates match; Medical Record # do not match	-1
Patient Account # match; Medical Record # & Dates do not match	-1
Data in CRISP but not in HSCRC IP or OP	-1
Data in HSCRC but not in CRISP	-1

Next Steps

CRISP's new visits compilation framework is designed to enable the identification and compilation of ER visits. There is still considerable work that needs to be done to improve ER visit compilation before the reports become usable. CRISP intends to expand to other outpatient visits as well; however, they would have to work with hospitals to expand their data feeds to transmit ADT messages for outpatient visits.

Impact of Sequestration and Options for the HSCRC

March 6, 2013

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

This is a draft recommendation. No action is required.

Sequestration: What is it?

"Sequestration" is a process of automatic, largely across-the-board spending reductions under which budgetary resources are permanently canceled to enforce certain budget policy goals. It was first authorized by the Balanced Budget and Emergency Deficit Control Act of 1985 (BBEDCA, Title II of P.L. 99-177, commonly known as the Gramm-Rudman-Hollings Act). Recently, it was included as an enforcement tool in the Budget Control Act of 2011 (BCA, P.L. 112-25).

Two provisions were included in the BCA that results in automatic sequestration:

1. **Establishment of discretionary spending limits, or caps, for each of FY2012-FY2021.**
   If Congress appropriates more than allowed under these limits in any given year, sequestration would cancel the excess amount.

2. **Failure of Congress to enact legislation developed by a Joint Select Committee on Deficit Reduction ("Supercommittee"), by January 15, 2012, to reduce the deficit by at least $1.2 trillion.** The BCA provided that such failure would trigger a series of automatic spending reductions, including sequestration of mandatory spending in each of FY2013-FY2021, a one-year sequestration of discretionary spending for FY2013, and lower discretionary spending limits for each of FY2014-FY2021.

Because the Supercommittee failed to achieve its goal, the sequestration was scheduled to occur starting in January 2013 and to cover the period through 2021. (Center for Budget and Policy Priorities). Legislation was enacted on January 2, however, that delayed the effective date until March 1, 2013 (P.L. 112-240). Assuming that it occurs, the automatic spending reductions will affect both mandatory and discretionary spending, and will be equally divided between defense and nondefense spending (Congressional Research Service, 2013).

Sequestration Effect on Medicare

Medicare spending (excluding low-income and catastrophic subsidies for Part D and the qualifying individual program) is subject to sequestration, but the cut to Medicare providers and plans cannot exceed 2 percent (approximately $11 billion in 2013), and Medicare beneficiaries will not face any direct cut. The sequester cuts to certain other mandatory health programs, such as Indian Health, are also capped at 2 percent (bipartisianpolicy.org).

Effect of Medicare Payments Nationally

For payments made under Medicare Parts A and B, the percentage reductions are to be made to individual payments to providers for services (e.g., hospital and physician services). In the case of Parts C and D, reductions are to be made to the monthly payments to the private plans that administer these parts of Medicare. Reductions are to be made at a uniform rate and are not to exceed 2 percent. CBO estimates that Medicare benefit spending will be reduced by about $99.3 billion over the nine-year sequestration period (Congressional Research Service, 2013).

The budgetary baseline that must be used in implementing a sequestration has special implications with regard to Medicare. For direct spending, the baseline is to be calculated by assuming that the laws providing or creating direct spending will operate in the manner specified, and that funding for entitlement authority is adequate to make all required payments. Specifically, CBO's March 2012 projections of Medicare spending incorporated the assumption that Medicare spending would be constrained beginning in 2013 by the sustainable growth rate (SGR) mechanism used to calculate the fees

paid for physicians' services. Those fees were to have been reduced by about 27 percent beginning in January 2013 and by additional amounts in subsequent years. However, the American Taxpayer Relief Act of 2012 (P.L. 112-240) overrode the scheduled reduction for FY2013; thus, spending for Medicare will be greater than the amounts projected in the baseline. CBO estimated a 10-year cost of freezing payments at current levels at close to $300 billion for 2012-2021; if payments were increased by a medical inflation factor, the cost could be even higher (Congressional Research Service, 2013).

Effect of Medicare Payments in Maryland

The last sequestration, due to the BBEDCA of 1985, reduced Medicare payments to hospital providers 2.092 percent from October 1989 through December 1989. The intermediary was to reduce charges by the full amount of the Medicare beneficiary's co-insurance and deductible (15 percent) and pay the remaining charges less 2.092 percent.

To recognize the reduction in revenue to the hospitals as a result of the increase in the Medicaid differential, the Commission voted to increase all rates by .8 percent and apply this adjustment at the time of their next inflation adjustment as one-time money.

There are several options available to the Commission to address how the sequestration will affect Medicare charges in Maryland. The next section outlines three possible options.

Waiver Modeling

Staff calculated the increase to Medicare's differential to be about 2 percent. Staff modeled three possible options (Table 1) and its effect on the waiver cushion. The models below assume the following:

- 0% update for FY14
- .22% increase to CPC due to the TPR methodology
- .58% increase to CPC due to the ARR methodology
- .20% increase to CPC due to the full rate reviews and capital

Option 1: Hospitals held harmless

For this option, staff would increase the differential included in the mark-up by 2 percent (for a total differential of 8 percent), resulting in a .83 percent increase to all rates. If prices and volume remain constant, the resulting waiver cushion for YE J14 is forecasted to be 1.65 percent.

Option 2: 50/50 Split

For this option, staff would increase the differential included in the markup by 1 percent (for a total differential of 7 percent), resulting in a .41 percent increase to all rates. If prices and volume remain constant, the resulting waiver cushion for YE J14 is forecasted to be 2.08 percent.

Option 3: Payers held harmless

For this option, staff would not increase the differential, but allow hospitals to experience the full reduction to Medicare payments. If prices and volume remain constant, the resulting waiver cushion for YE J14 is forecasted to be 2.49 percent.

Table 1: Options to Address Sequestration in Rates

	Medicare Payment Reduction to be Included in Rates	Impact on Rates	Waiver Cushion
Option 1 : Hospitals held harmless	2.00%	0.83%	1.65%
Option 2: 50/50 split between payers and hospitals	1.00%	0.41%	2.08%
Option 3: Payers held harmless	0.0%	0.00%	2.49%

TO: Commissioners

FROM: Legal Department

DATE: February 27, 2013

RE: Hearing and Meeting Schedule

Public Session:

April 10, 2013   1:00 p.m., 4160 Patterson Avenue, HSCRC Conference Room
May 1, 2013   1:00 p.m., 4160 Patterson Avenue, HSCRC Conference Room

Please note, Commissioner Packets will be available in the Commission's office at 12:30 p.m.

The Agenda for the Executive and Public Sessions will be available for your review on the Thursday before the Commission meeting on the Commission's website.
 http://hscrc.maryland.gov/commissionMeetingSchedule2013.cfm

Post-meeting documents will be available on the Commission's website following the Commission meeting.