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Date: October 26, 2011

TO: HSCRC Commissioners

From: Dianne Feeney, Associate Director, Quality Initiatives
Sule Calikoglu, Chief, Quality Analysis

Re: Quality Based Reimbursement Initiative (QBR) and Maryland Hospital Acquired Conditions (MHAC) Measurement Trends and Results

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As Commissioner Colmers requested at the October 12, 2011 Commission meeting, this memorandum summarizes staff's analysis and measurement findings of the QBR and MHAC programs as of the beginning of FY 2012.

Evaluations of two HSCRC quality payment program results show improvement and tremendous promise. Figure 1 below illustrates how all of the clinical process of care measures included in the QBR initiative have improved since the program was launched in 2008. In addition, as shown in Figure 2 the number of complications included in MHAC program declined by 20% in two years, resulting in cost savings of $105.4 million, after adjusting for changes in patient characteristics.

Figure 1. Changes in QBR Measures from Calendar Year 2008 to 2010

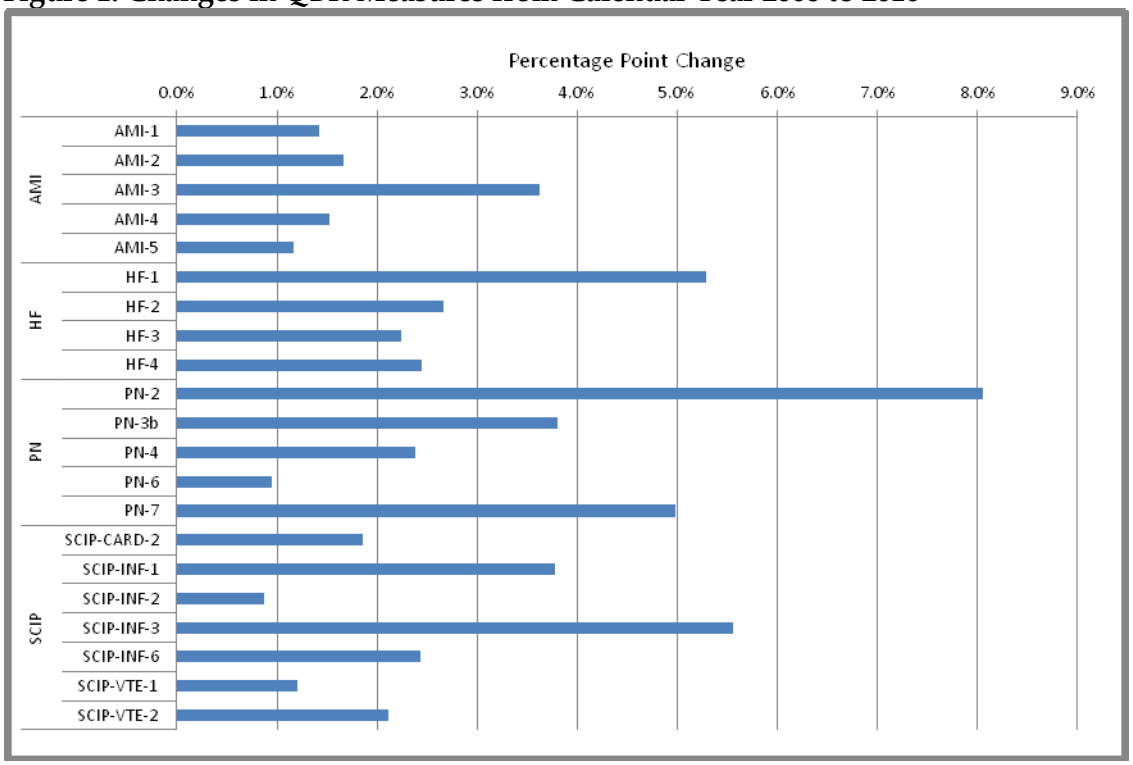
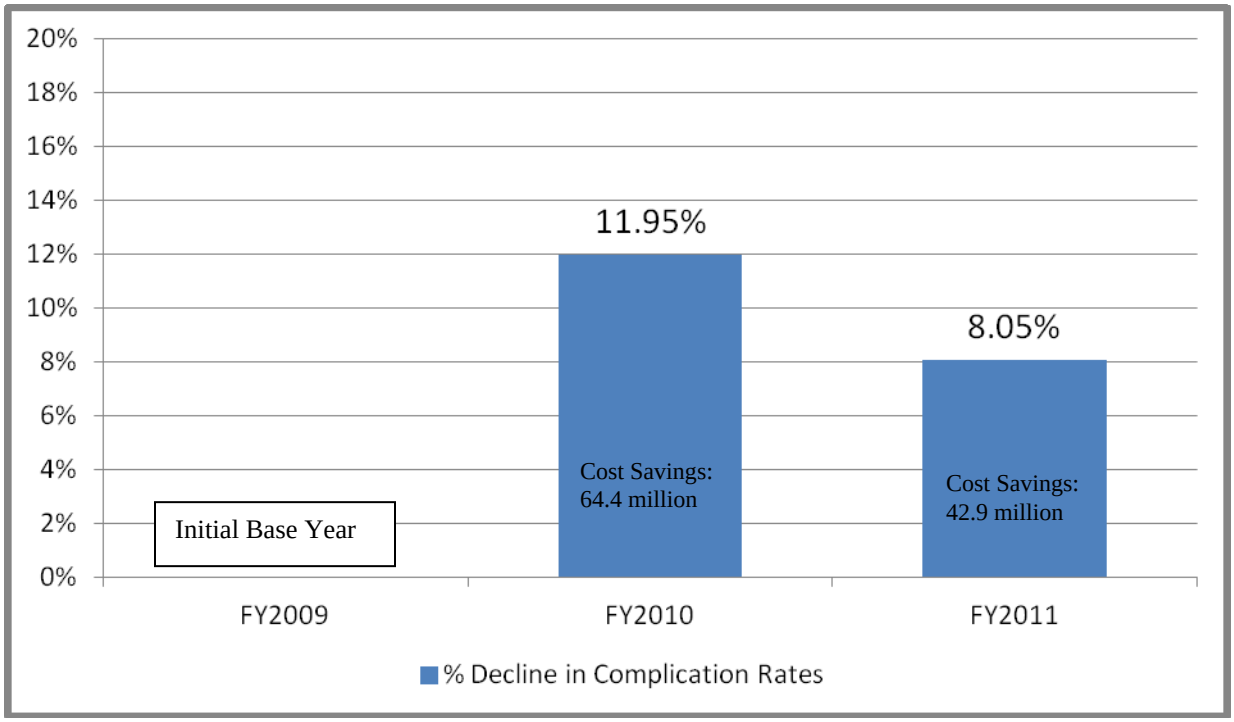


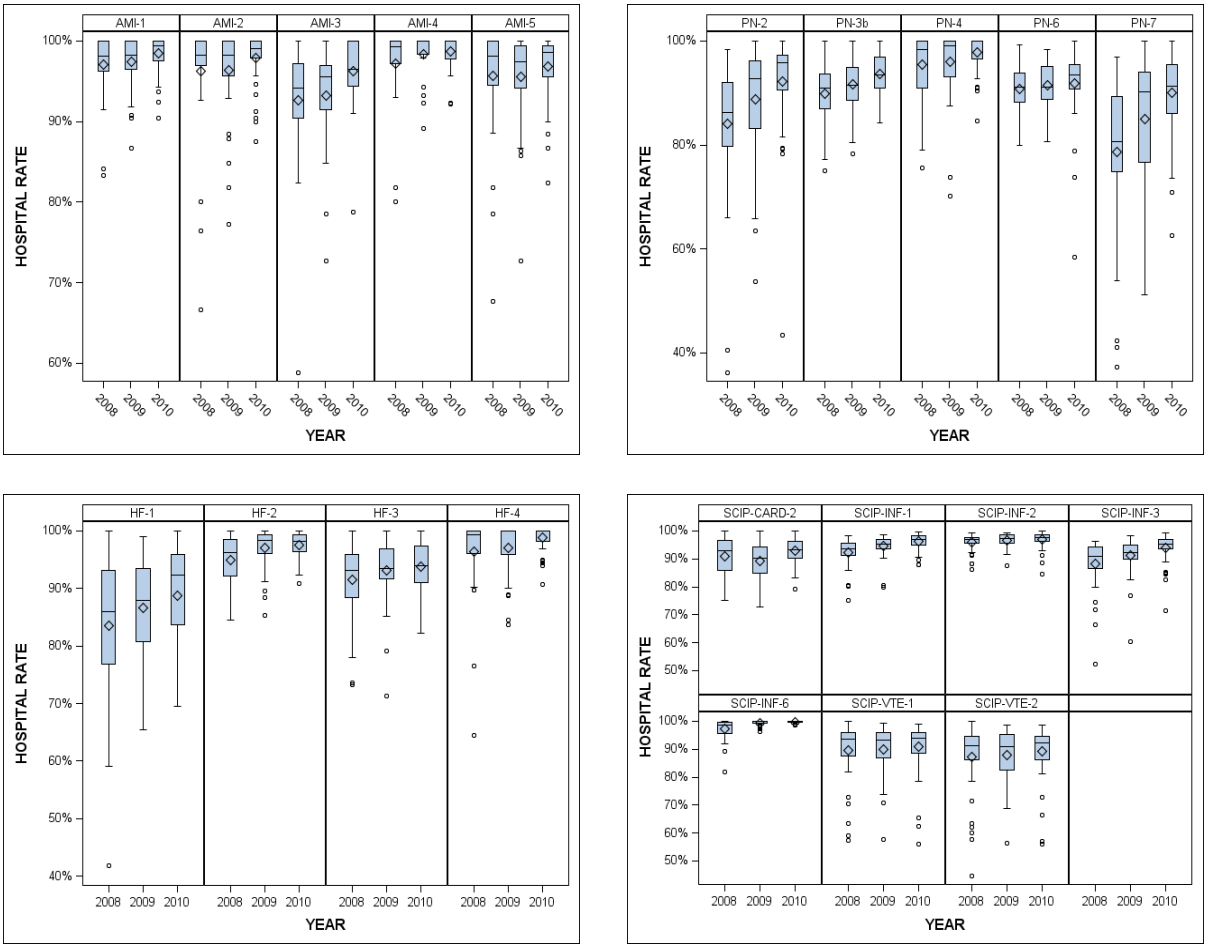
Figure 2: Percent Annual Rate Decline in Complications in MHAC



Specific Patient Quality Outcome and Cost Results

As stated above, analysis of trends in the clinical process of care measures that are included in the QBR Program are promising. Figure 3 illustrates box-plots of each measure by clinical domain-- Heart Attack (AMI), Heart Failure (HF), Pneumonia (PN) and Surgical Care Improvement (SCIP). See Appendix A for list containing the title of each measure. As previously illustrated in Figure 1, all measures are improved from 2008 to 2010, and most importantly, variation among hospitals decreased quite substantially in almost all measures as well. The highest improvement occurred in PN-2 Pneumococcal Vaccination measure, which had a state-wide average of 84.2% in 2008 and increased to 92.2% in 2010. SCIP VTE-1 and SCIP VTE-2 show smaller improvements compared to other measures; however, they were added to the program only in FY2011. SCIP CARD-2, SCIP INF-6 were also added this year. Average percentage point increase in the state-wide average of all measures is 2.9%.

Figure 3: Box Plots of Clinical Process of Care Measures by Year



In the MHAC program, staff has noted improvements in patient outcomes and costs that have been sustained based on the data from the initial two years as shown in Figure 4. The summary of the results are as follows

- Complication rates declined by 20% in the first two years of the program.
- Of the 49 PPCs used in the MHAC program:
    - 37 PPCs decreased in both years (75%);
    - 3 had declines in FY2010 with an average of 16%, and small increases in FY2011 (average increase was 6%);
    - 6 PPCs increased in FY2010 (average increase was 5%) and declined in FY2011 (average decrease was 8%); and
    - 3 PPCs showed increases in both years with an average annual increase of 11%.
- Estimated total cost savings due to reductions in complication rates in the initial two years were $105.4 million.

Figure 4: State-wide Changes in Complications Rates and Cost Savings in MHAC Program

		PERCENT ANNUAL RATE CHANGE		2 YEAR TOTAL RATE CHANGE	2 YEAR TOTAL COST CHANGE
PPC NUMBER/ NAME		FY2010	FY2011		
.	MD TOTAL	-11.95%	-8.32%	-20.27%	-$105,464,576
13	Other Cardiac Complications	-26.61%	-18.73%	-45.34%	-$364,816
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	-27.74%	-15.80%	-43.54%	-$2,127,790
15	Peripheral Vascular Complications Except Venous Thrombosis	-20.79%	-22.58%	-43.37%	-$1,402,442
35	Septicemia & Severe Infections	-20.97%	-20.53%	-41.50%	-$16,564,123
22	Urinary Tract Infection	-27.40%	-12.30%	-39.70%	-$17,254,363
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	-6.46%	-32.15%	-38.61%	-$448,209
36	Acute Mental Health Changes	-23.57%	-12.11%	-35.68%	-$258,851
10	Congestive Heart Failure	-15.40%	-20.13%	-35.53%	-$2,636,381
44	Other Surgical Complication - Moderate	-18.44%	-16.96%	-35.40%	-$1,600,777
54	Infections due to Central Venous Catheters	-20.97%	-12.84%	-33.81%	-$2,664,024
34	Moderate Infectious	-13.73%	-18.43%	-32.16%	-$1,626,652
23	GU Complications Except UTI	-10.96%	-20.63%	-31.59%	-$468,867
28	In-Hospital Trauma and Fractures	-8.67%	-19.06%	-27.73%	-$266,330
31	Decubitus Ulcer	-25.06%	-0.84%	-25.90%	-$5,554,086
11	Acute Myocardial Infarction	-14.67%	-10.93%	-25.60%	-$2,332,141
40	Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Proc	-11.30%	-13.64%	-24.94%	-$4,154,100
17	Major Gastrointestinal Complications without Transfusion or Significant Bleeding	-23.79%	-1.13%	-24.92%	-$2,641,854
5	Pneumonia & Other Lung Infections	-12.62%	-10.73%	-23.35%	-$10,286,330

PPC NUMBER/ NAME		PERCENT ANNUAL RATE CHANGE		2 YEAR TOTAL RATE CHANGE	2 YEAR TOTAL COST CHANGE
		FY2010	FY2011		
33	Cellulitis	-18.82%	-3.70%	-22.52%	-$798,443
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	-12.00%	-9.87%	-21.87%	-$1,956,314
25	Renal Failure with Dialysis	-3.16%	-17.72%	-20.88%	-$461,888
42	Accidental Puncture/Laceration During Invasive Procedure	-16.22%	-4.49%	-20.71%	-$1,254,462
2	Extreme CNS Complications	-10.53%	-9.90%	-20.43%	-$968,065
16	Venous Thrombosis	-19.63%	0.69%	-18.94%	-$2,414,286
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	-5.88%	-11.67%	-17.55%	-$992,140
14	Ventricular Fibrillation/Cardiac Arrest	-13.96%	-3.51%	-17.47%	-$5,566,386
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	-5.25%	-10.08%	-15.33%	-$4,739,899
8	Other Pulmonary Complications	-9.93%	-4.97%	-14.90%	-$1,466,468
50	Mechanical Complication of Device, Implant & Graft	-4.03%	-10.10%	-14.13%	-$780,030
51	Gastrointestinal Ostomy Complications	-5.40%	-7.06%	-12.46%	-$484,861
47	Encephalopathy	-11.78%	-0.58%	-12.36%	-$1,543,462
9	Shock	1.21%	-13.48%	-12.27%	-$3,654,322
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	-3.27%	-8.42%	-11.69%	-$2,231,164
7	Pulmonary Embolism	-14.20%	2.61%	-11.59%	-$357,218
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	-2.12%	-9.00%	-11.12%	-$608,184
6	Aspiration Pneumonia	-6.74%	-2.48%	-9.22%	-$2,052,555
19	Major Liver Complications	-5.37%	-3.17%	-8.54%	-$338,033
24	Renal Failure without Dialysis	-3.68%	-2.04%	-5.72%	-$1,905,890
12	Cardiac Arrythmias & Conduction Disturbances	-3.97%	-0.15%	-4.12%	-$44,424
43	Accidental Cut or Hemorrhage During Other Medical Care	6.03%	-10.14%	-4.11%	$29,824
1	Stroke & Intracranial Hemorrhage	-1.47%	-2.09%	-3.56%	-$250,565
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	6.88%	-9.65%	-2.77%	-$156,734
20	Other Gastrointestinal Complications without Transfusion or Significant Bleeding	2.00%	-4.25%	-2.25%	$107,935
26	Diabetic Ketoacidosis & Coma	3.69%	-4.86%	-1.17%	$35,470
48	Other Complications of Medical Care	-12.98%	13.97%	0.99%	-$216,874
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Proc	0.71%	2.33%	3.04%	$134,742
49	Iatrogenic Pneumothrax	11.69%	-8.10%	3.59%	$83,125

		PERCENT ANNUAL RATE CHANGE		2 YEAR TOTAL RATE CHANGE	2 YEAR TOTAL COST CHANGE
PPC NUMBER/ NAME		FY2010	FY2011		
56	Obstetrical Hemorrhage with Transfusion	4.68%	7.84%	12.52%	$189,077
39	Reopening Surgical Site	46.51%	6.98%	53.49%	$1,850,051

Note: Changes are adjusted for differences in patient mix over the years. The average cost of each PPC may differ in FY2010 and FY2011, resulting in cost increases despite reductions in rates or vice versa in some cases.

Ongoing Data Monitoring, Program Evaluation and Provider Feedback Efforts

In addition to the quantitative data analysis HSCRC staff conducts, staff also undertakes several efforts and activities to ensure and validate the clinical and administrative data accuracy that serves as the basis for the QBR and MHAC initiatives, as well as to evaluate and update the program currency and relevancy. HSCRC also takes steps each year to provide timely data to hospitals which are useful and actionable in enhancing their quality improvement work. Examples of these activities are outlined below.

- HSCRC staff relies on the MHCC oversight of ongoing audit and validation activities for the chart abstracted core process measures to ensure their validity and reliability.
- HSCRC has established Present On Admission (POA) coding data thresholds for data accuracy and requires hospital data submissions to fit within the established thresholds, e.g., coding all diagnosis codes as POA is not permitted.
- We evaluate on an ongoing basis the accuracy of coding, especially POA, through hospital level screening tools (Michael Pine) and targeted chart reviews (Ingenix routine Audit) and audit false negative as well as false positive MHACs.
- HSCRC provides quarterly reports to each hospital with their total count of each PPC, ranking in the State, and case level information.
- Within the last year, HSCRC has contacted two hospitals with the highest complication rates and provided more detailed analysis to help them understand the data.
- Within the last year, another high complication rate hospital contacted us and provided information voluntarily about their efforts to reduce complications.
- We also intend to continue to contact high rate hospitals of concern on an ongoing basis, and revise the routine data reports to make them more useful.
- We have provided our analysis to State Health Department Office of Health Care Quality which augments the information they receive. This analysis helps the Office target the areas in their hospital quality reviews.
- Regarding public reporting, we published FY2010 rankings on our website in a more user-friendly format, which attracted some attention from the media and others.
- HSCRC updates the list of PPCs included in the MHAC program every two years based on the statistical significance of additional cost estimates for each PPC using a regression analysis.

Summary

As staff has reported to the Commission, the above analysis has been shared with the Centers for Medicare and Medicaid Services and HHS Secretary Sebelius as part of our request for a

Maryland exemption from the federal inpatient Value Based Purchasing Program. Staff anticipates that the request will be granted based on the information submitted.

Appendix A

QBR Measures Used for FY 2012

Clinical Process of Care Measures
AMI-1 Aspirin at Arrival
AMI-2 Aspirin prescribed at discharge
AMI-3 ACEI or ARB for LVSD
AMI-4 Adult smoking cessation advice/counseling
AMI-5 Beta blocker prescribed at discharge
HF-1 Discharge instructions
HF-2 Left ventricular systolic function (LVSF) assessment
HF-3 ACEI or ARB for LVSD
HF-4 Adult smoking cessation advice/counseling
PN-2 Pneumococcal vaccination
PN-3b Blood culture before first antibiotic – Pneumonia
PN-4 Adult smoking cessation advice/counseling
PN-6 Initial Antibiotic Selection for CAP in Immunocompetent Patient
PN-7 Influenza vaccination
SCIP CARD 2 Surgery Patients on Beta-Blocker Therapy Prior to Admission Who Received a Beta-Blocker During the Perioperative Period
SCIP INF 1- Antibiotic given within 1 hour prior to surgical incision
SCIP INF 2- Antibiotic selection
SCIP INF 3- Antibiotic discontinuance within appropriate time period postoperatively
SCIP INF 6- Surgery Patients with Appropriate Hair Removal
SCIP VTE 1- Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered
SCIP VTE 2 - Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Given 24 hours prior and after surgery
Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)
Cleanliness and Quietness of Hospital Environment
Communication About Medicines (Q16-Q17)
Communication With Doctors (Q5-Q7)
Communication With Nurses (Q1-Q3)
Discharge Information (Q19-Q20)
Overall Rating of this Hospital
Pain Management (Q13-Q14)
Responsiveness of Hospital Staff (Q4,Q11)