

# HSCRC Quality Initiatives: Maryland Hospital Acquired Conditions Program

July 23, 2009

Dianne Feeney, HSCRC

# Differences in National vs. HSCRC Programs

## HSCRC

- Maryland focused
- All payers
- All acute hospitals
- HSCRC mission
- APR DRGS
- Leverages existing data collection

## Other Programs

- ▶ National/Generic
- ▶ Single payer
- ▶ Network hospitals
- ▶ Contractually driven
- ▶ Limited or lack of risk adjustment
- ▶ New data demands

# Categories of Measures Considered

- Structure—Infrastructure
- Process including prevention/screening
- **Outcome- including hospital complications and adverse events**
- Productivity or Utilization
- Patient experience of care
- Patient Safety
- Safety Culture

# Maryland Hospital Acquired Conditions Overview

- Initially modeled after CMS HACs with 85% payment decrement for cases that occurred for 11 conditions.
- The initiative is now broadened to include measurement of a proposed set of 52 Potentially Preventable Complications (PPCs)- Approved by the Commission at its June 3, 2009 meeting.
  - To be Implemented July 1, 2009
  - Risk adjusted rate based methodology – actual vs. expected
  - Complications as they are specified right now, in the system, account for \$521 million if they were completely eliminated (HSCRC does not believe they are completely preventable)
  - Undetermined magnitude revenue at risk (revenue neutral implementation)

# Potentially Preventable Complications

- Potentially Preventable Complications (PPCs)
  - Harmful events (accidental laceration during a procedure) or negative outcomes (hospital acquired pneumonia) that may result from the process of care and treatment rather than from a natural progression of underlying disease

# MHACs: Initially Built on Medicare HAC Approach but with “Refinements”

- Maryland POA coding looked very good (enabled us to model the results)
- HSCRC initially selected “**most highly preventable**” complications - not necessarily 100% preventable
- Utilized 3M’s set of 64 Potentially Preventable Condition (PPC) categories to select group of 11 highly preventable PPCs
- Adjusted “Payment” Methodology to better reflect actual level of preventability (85% payment decrement)
- Approach also provided incentives to code secondary diagnosis (complication)

# MHAC Discussions with Industry

- Even with these improvements over CMS approach – met strong opposition from industry
- **Case-specific approach proved highly problematic**
- Clinicians believed they were being held to 0% complication rate (even with 85% payment decrement)
- Worried about “false positives” and cases where “despite the best efforts of clinicians – still had a complication”
- When held to this standard – believed there would be unintended consequences (e.g., OB Laceration PPCs would result in increased number of C Sections)

# What HSCRC Learned

- **Case-Specific Approach** proved untenable to industry
- Setting a specific threshold of preventability for the CMS HACs (100% preventable) and the MHACs (85% preventable was viewed as problematic)
- Because of these two limitations – focused on **“rate-based” approach** (broader number PPCs: actual vs. expected)
- We have concurrently developed a method of indexing hospital performance based on regression to estimate resources used or averted that associated with the rate of PPC occurrences



# Revised MHAC Approach Based on Regression Analysis

- Regression performed for 64 PPCs based on Maryland Charge data
- Also performed on California data - Similar relative result
- Not all PPCs incurred a statistically significant cost change with the PPC occurring (12 PPCs didn't meet this test)
- Result is an estimation of extra resource use (or averted resource use) for presence (or absence) of a PPC (see Table 1)
- Used as basis of developing a Measurement Index

**Table 1: PPC Regression**

PPC #	PPC Description	Adm \$	Adm T	Cases	Notes
			T Value<1.96		
1	Stroke & Intracranial Hemorrhage	\$13,066	38.603236	828	
2	Extreme CNS Complications	\$12,051	30.374969	644	
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	\$5,721	40.425129	5257	
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	\$20,064	60.367208	898	
5	Pneumonia & Other Lung Infections	\$13,561	93.165292	4850	
6	Aspiration Pneumonia	\$10,500	43.489609	1667	
7	Pulmonary Embolism	\$10,735	26.962321	601	
8	Other Pulmonary Complications	\$7,791	53.427777	4764	
9	Shock	\$11,109	42.074928	1512	
10	Congestive Heart Failure	\$3,895	19.431952	2386	
11	Acute Myocardial Infarction	\$5,643	20.335337	1232	
12	Cardiac Arrhythmias & Conduction Disturbances	\$2,418	6.8716698	1017	
13	Other Cardiac Complications	\$3,197	7.6846559	537	
14	Ventricular Fibrillation/Cardiac Arrest	\$15,459	41.038245	680	
15	Peripheral Vascular Complications Except Venous Thrombosis	\$12,992	24.113279	325	
16	Venous Thrombosis	\$10,758	44.449833	1670	
17	Major Gastrointestinal Complications without Transfusion or Significant Bleeding	\$11,231	34.432863	882	
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	\$14,354	23.898709	258	
19	Major Liver Complications	\$10,045	19.089809	341	
20	Other Gastrointestinal Complications without Transfusion or Significant Bleeding	\$8,672	19.123975	459	
21	Clostridium Difficile Colitis	\$16,495	61.368894	1323	
22	Urinary Tract Infection	\$6,462	55.126985	7186	
23	GU Complications Except UTI	\$4,692	11.488989	559	
24	Renal Failure without Dialysis	\$7,920	64.262455	6516	
25	Renal Failure with Dialysis	\$41,186	58.790771	191	
26	Diabetic Ketoacidosis & Coma	\$1,445	1.2998569	75	
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	\$4,256	14.864072	1151	
28	In-Hospital Trauma and Fractures	\$4,816	8.8928586	321	
29	Poisonings Except from Anesthesia	\$1,415	2.5293641	297	
30	Poisonings due to Anesthesia	-\$214	-0.044442	4	
31	Decubitus Ulcer	\$18,231	60.306088	1054	
32	Transfusion Incompatibility Reaction	\$48,575	13.275425	7	
33	Cellulitis	\$2,864	11.067491	1502	
34	Moderate Infectious	\$12,922	46.015837	1224	
35	Septicemia & Severe Infections	\$14,088	82.951889	3957	

**Table 1: PPC Regression**

PPC #	PPC Description	Adm \$	Adm T	Cases	Notes
			T Value<1.96		
36	Acute Mental Health Changes	\$3,631	13.302443	1252	
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	\$15,778	55.698834	1313	
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	\$30,875	24.884632	61	
39	Reopening Surgical Site	\$13,777	14.666669	106	
40	Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Proc	\$6,536	39.763252	3575	
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Proc	\$11,158	17.164797	222	
42	Accidental Puncture/Laceration During Invasive Procedure	\$3,836	16.569302	1858	
43	Accidental Cut or Hemorrhage During Other Medical Care	\$722	0.7864481	114	
44	Other Surgical Complication - Mod	\$12,509	28.382066	483	
45	Post-procedure Foreign Bodies	\$5,203	2.6470991	26	
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body	\$6,574	0.9290811	2	
47	Encephalopathy	\$10,182	38.081795	1343	
48	Other Complications of Medical Care	\$10,588	41.930328	1479	
49	Iatrogenic Pneumothrax	\$7,283	22.107326	900	
50	Mechanical Complication of Device, Implant & Graft	\$14,138	35.609177	593	
51	Gastrointestinal Ostomy Complications	\$20,608	40.248239	358	
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	\$8,776	31.270093	1214	
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	\$15,073	42.530628	770	
54	Infections due to Central Venous Catheters	\$22,295	40.356236	312	
55	Obstetrical Hemorrhage without Transfusion	\$159	0.9533953	3556	
56	Obstetrical Hemorrhage with Transfusion	\$2,137	4.2845441	385	
57	Obstetric Lacerations & Other Trauma Without Instrumentation	\$273	1.0950693	1532	
58	Obstetric Lacerations & Other Trauma With Instrumentation	\$646	1.6310622	597	
59	Medical & Anesthesia Obstetric Complications	\$487	1.2749917	654	
60	Major Puerperal Infection and Other Major Obstetric Complications	\$94	0.164819	289	
61	Other Complications of Obstetrical Surgical & Perineal Wounds	\$69	0.1035152	209	
62	Delivery with Placental Complications	\$525	0.8839125	265	
63	Post-Operative Respiratory Failure with Tracheostomy	\$115,361	91.791189	60	Removed from List
64	Other In-Hospital Adverse Events	\$2,147	6.0351379	739	

Note: Shaded PPCs are excluded

# Application of Regression Result

- Data modeling calculated FY 08 impact on each hospital for 52 PPCs
- Compared actual value PPCs vs. expected value by PPC
- Expected value = number of complications a hospital would have experienced (given its mix of patients – per APR-DRG and severity level) if it had a rate identical to state-wide average (SWA) rate (or CMI=1)
- Hospitals exceeding the normative SWA rate by PPC then have higher than expected resource use (unfavorable) and vice-versa...
- Analysis sums each “difference” for each PPC to yield an overall impact for that hospital

# Indexing Methodology

Regression Result (value of extra resource use)

Sum results of all 52 PPCs 

	PPC 1 \$13,066				PPC 2 \$12,051	PPC 3 \$5,721	52 PPC Totals (Sum)	Percent of At Risk Rev. at-risk Rev.	
	Actual	Expected	Extra or (Avoided) Resource Use	Resource Use	Resource Use	Resource Use			
Hospital 1	24	18.5	5.48	\$13,066 x 5.48 = \$71,602	(\$49,769)	\$169,520	\$2,081,389	\$127,841,557	1.63%
Hospital 2	61	48.6	12.4	\$13,066 x 12.4 = \$162,018	\$77,124	(\$328,512)	\$11,615,023	\$530,562,602	2.19%
Hospital 3	8	10	-2	\$13,066 x -2 = (\$26,001)	\$100,984	(\$60,759)	\$9,348,013	\$126,865,954	7.37%
Hospital 4	13	20.4	-7.4	\$13,066 x -20.4 = (\$96,557)	(\$31,332)	(\$17,335)	\$1,233,967	\$233,562,653	0.53%
Hospital 5	23	18.3	4.7	\$13,066 x 18.4 = \$61,148	(\$14,340)	\$67,911	(\$1,447,123)	\$136,060,092	-1.06%

Used to Rank  
Hospitals

# Benefits of Revised MHAC Approach

- Moves away from case-specific approach where providers feel “targeted” to one that considers aggregate rates
- **Rate-based (risk adjusted) approach** compares hospital performance in aggregate on a relative basis
- Shift from a “punitive” model to one that rewards relative positive performance and penalizes relative negative performance (Revenue Neutral Implementation)
- Provides strong **incentives for coding** complications
- Using more PPCs – creates more balance and is fairer
- Basis for comparing hospitals on combination of efficiency and quality = value

# Reaction/Next Steps

- Provides an important and useful tool to measure relative performance
- Facilitates clinicians, coders and financial personnel to evaluate and discuss quality-related performance
- Report formats and access to hospital specific (case specific) data – working on reports to help hospitals target problem areas
- Linking of performance to actual payment implications (revenue neutral; but link to certain \$ at risk)
- Use of historical “expected values” as benchmarks/targets-
  - FY 09 data will serve as the base to calculate the statewide average PPCs for each APRDRG by SOI (1256 cells)
  - FY 10 data will be used for the initial performance year
  - Rates will be adjusted for FY 11 update factor
- **Currently working on replicating this methodology for potentially preventable readmissions**

# More Information on the Quality Initiatives/Activities:

[www.hscrc.state.md.us](http://www.hscrc.state.md.us)

Dianne Feeney- [dfeeney@hscrc.state.md.us](mailto:dfeeney@hscrc.state.md.us),  
410-764-2582