Using Quality to Drive Cost/Case in Surgical DRGs

Claire Raab, MD, *CEO Temple Faculty Practice Plan*; **Daniel del Portal, MD, MBA,** *Chief Clinical Officer*
Presenters: **Byron Glasgow, MBA,** *Director of Business Intelligence*; **Nicole Patlakh,** *Performance Excellence Management Engineer*
Temple University Hospital, Philadelphia, PA
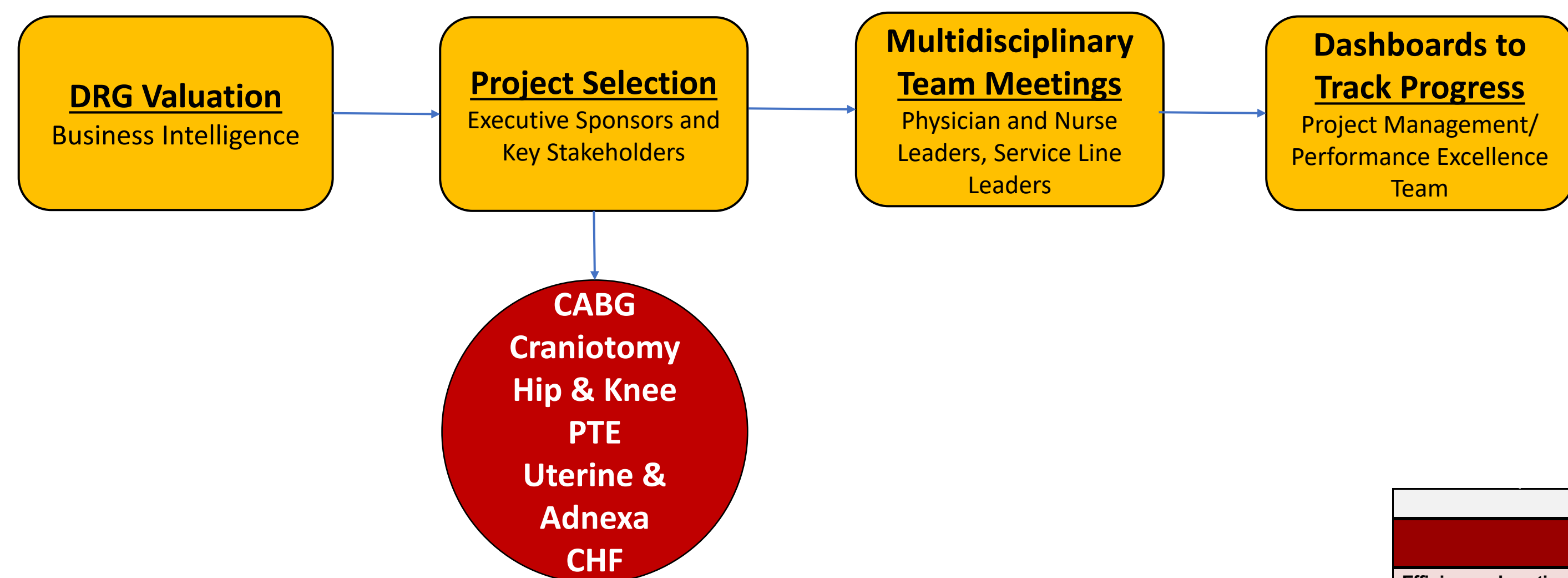
Learning Objectives:

- Describe how to design dashboards that represent quality metrics and overall costs that are meaningful to physicians.
- Summarize how to pull from dashboards business intelligence data that is clinically significant to practice.
- Illustrate how to make a significant impact on the bottom line with a straightforward process that is easily reproducible.

Overview:

Temple University Hospital is a large-scale academic medical center focused on patient excellence. To improve our quality metrics, we convened focused teams around different diagnosis-related groups (DRGs) to streamline clinical milestones and pathways for these similar patients.

We found that decreased clinical variability within a DRG leads to improved patient outcomes while also achieving a significant savings of $25 million in the project's first 2 years.
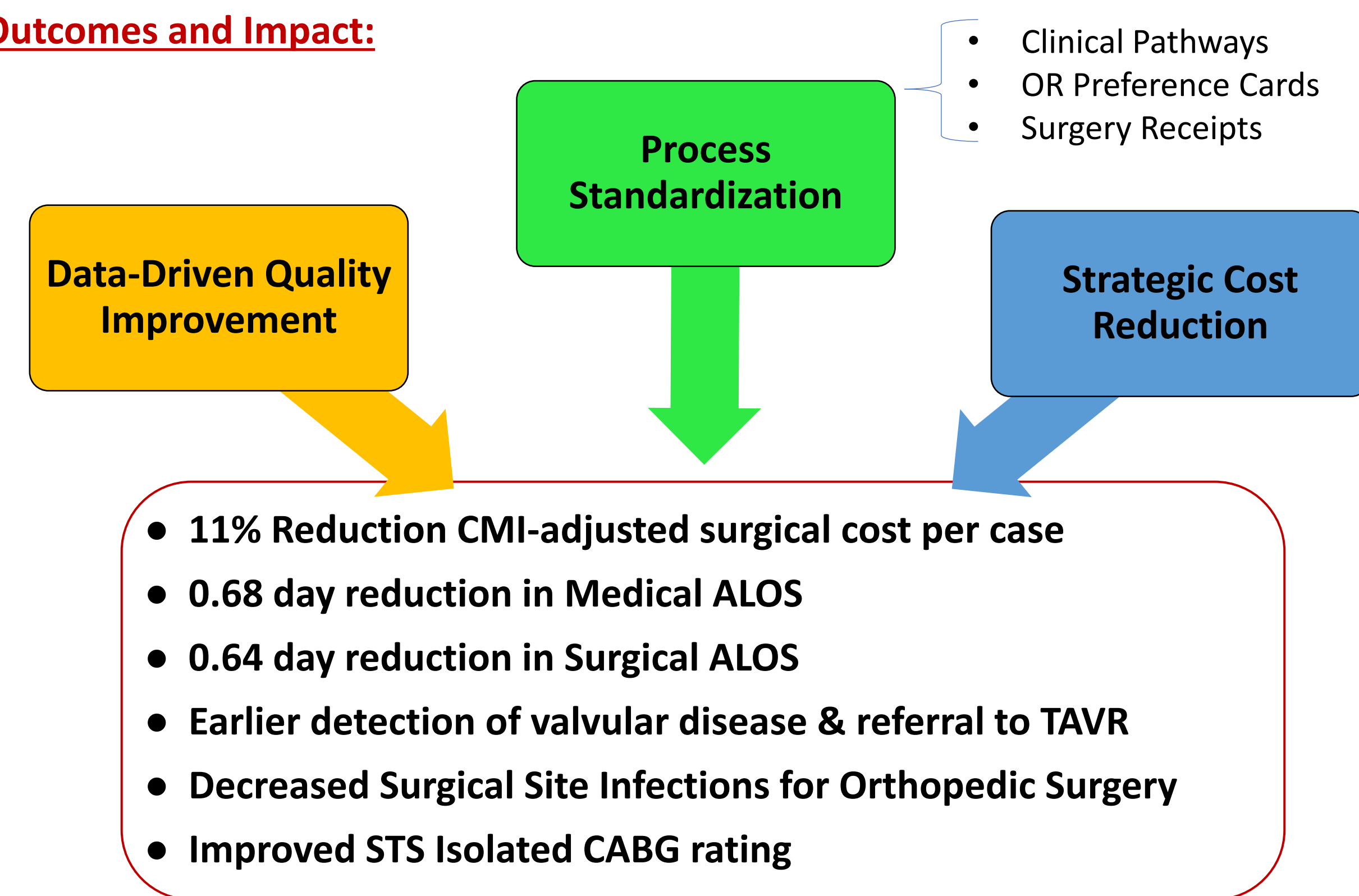
Intervention:

DRG Valuation
Business Intelligence

Project Selection
Executive Sponsors and Key Stakeholders

Multidisciplinary Team Meetings
Physician and Nurse Leaders, Service Line Leaders

Dashboards to Track Progress
Project Management/ Performance Excellence Team

CABG
Craniotomy
Hip & Knee
PTE
Uterine & Adnexa
CHF

Important to Note:

- Vizient Expected LOS was initially used as the primary metric of opportunity
- A multidisciplinary approach was taken when involving Stakeholders
- Dashboards were key in tracking the progress & success of projects
- Value is found at the intersection of Cost & Quality

Outcomes and Impact:

- Clinical Pathways
- OR Preference Cards
- Surgery Receipts

Process Standardization

Data-Driven Quality Improvement

Strategic Cost Reduction

- **11% Reduction CMI-adjusted surgical cost per case**
- **0.68 day reduction in Medical ALOS**
- **0.64 day reduction in Surgical ALOS**
- **Earlier detection of valvular disease & referral to TAVR**
- **Decreased Surgical Site Infections for Orthopedic Surgery**
- **Improved STS Isolated CABG rating**

Key Takeaways:

- A focus on quality will engage clinical teams and align with institutional goals.
- Clinical champions will lead projects that reduce variation and cut cost.
- Data from Performance Excellence and Business Intelligence teams is key to identifying greatest opportunities and to tracking progress.

CABG Surgery

Metrics		FY19	FY20	FY21	FY22 Goal	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	FY22 YTD
Efficiency: Inpatient Volume & LOS (DRG - Vizient)																		
Inpatient Volume *(Discharge Month)*		158	179	195		14	12	11	15	10	9	8	13	10				102
Observed LOS		11.6	9.9	10.8	10.8	7.9	12.8	13.4	13.8	18.4	10.8	13.5	10.1	9.5				12.1
Expected LOS		11.1	11.0	11.6		10.7	12.0	12.6	10.9	11.1	10.1	13.0	10.5	9.7				11.1
Median LOS		10	9	9		8	12	13	11	12	9	8	8	9				10
Pre-Op LOS for Non-Elective Cases			4.0	4.5		2.3	4.0	5.1	6.3	7.6	5.6	6.6	3.3	3.3				5.0
Mortality																		
# of Deaths *(in hospital)*		5	1	3	0	0	0	0	0	0	0	0	0	0				0
% Mortality *(in hospital)*	Vizient (DRG)	3.2%	0.6%	1.5%	0	0%	0%	0%	0%	0%	0%	0%	0%	0%				0.0%
Transfer Mortality *(in hospital)*		0 (n=32)	1	1	0	0	0	0	0	0	0	0	0	0				0
# of Deaths *(30-days post-surgery)*	STS*	10	7	9	0	0	0	0	0	1	1	1	0	1				4
% Mortality *(30-days post-surgery)*		5.6%	4.2%	4.6%	0	0.0%	0.0%	0.0%	0.0%	14.3%	9.1%	10.0%	0.0%	8.3%				3.4%
Infection Prevention (Cases)																		
SSI Rate per 100 procedures (NHSN)		1.0%	0.6%	0.4%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				0.0
# of actual cases with SSI (NHSN)		2	1	1	0	0	0	0	0	0	0	0	0	0				0
# of surgeries *(Surgery Month)*		203	212	227		18	14	20	17	9	14	11	16	15				134

TEMPLE HEALTH

CABG Surgery

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STS Quality Metrics*																		
Star Rating		⭐		⭐⭐														
Beta Blocker Pre-Op (within 24 hours)		141/179	146/176	161/177	100%	16/16	12/12	12/14	15/15	7/7	10/10	9/9	16/16	12/12				109/111
		78.8%	83.0%	91.0%		100.0%	100.0%	85.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%				98.2%
Extubation <24hr		124/179	144/180	169/194	87%	15/16	7/13	12/15	13/17	6/7	8/11	9/10	15/16	10/12				95/117
		69.3%	80.0%	87.1%		93.8%	53.8%	80.0%	76.5%	85.7%	72.7%	90.0%	93.8%	83.3%				81.2%
Extubation Time = 0			59/194			4/16	3/13	2/15	3/17	0/7	3/11	4/10	4/16	2/12				25/117
			30.4%			25.0%	23.1%	13.3%	17.6%	0.0%	27.3%	40.0%	25.0%	16.7%				21.4%
Mean Ventilation Hours			20.7		< 24	14.0	21.5*	14.1*	21.8	33.0	27.2	18.7	9.8	18.3				18.6*
STS Morbidity Metrics*																		
Stroke/CVA			1/172	3/194	0%	0/16	0/13	0/15	0/17	0/7	0/11	0/10	0/16	1/12				1/117
			0.01%	1.55%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%				0.9%
Surgial Re-Exploration			4/172	6/194	0%	1/16	0/13	0/15	1/17	1/7	0/11	1/10	0/16	0/12				4/117
			2.33%	3.09%		6.3%	0.0%	0.0%	5.9%	14.3%	0.0%	10.0%	0.0%	0.0%				3.4%
Deep Sternal Wound Infection Rate			3/172	1/194	0%	0/16	0/13	0/15	0/17	0/7	0/11	0/10	0/16	0/12				0/117
			1.74%	0.52%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				0.0%
Postoperative Renal Failure			8/172	5/194	0%	0/16	0/13	2/15	0/17	0/7	1/11	0/10	0/16	1/12				4/117
			4.65%	2.58%		0.0%	0.0%	13.3%	0.0%	0.0%	9.1%	0.0%	0.0%	8.3%				3.4%
Prolonged Ventilation			28/172	25/194	13%	1/16	6/13	3/15	4/17	1/7	3/11	1/10	1/16	2/12				22/117
				12.9%		6.3%	46.2%	20.0%	23.5%	14.3%	27.3%	10.0%	6.3%	16.7%				18.8%
Other Metrics (Cases)																		
Pathway Compliance			84%	92%	100%	86%	83%	73%	87%	70%	89%	75%	85%	80%				81%

*STS Metrics are non-risk adjusted

SURGEON PANEL1	# SURGERIES	ON PREF CARD (Y)	NOT ON PREF CARD (N)	TOTAL	% PREF CARD COMPLIANT
Surgeon A	1	16	1	17	94%
Surgeon B	1	16		16	100%
Surgeon C	1	25	7	32	78%
Surgeon D	3	69	10	79	87%
GRAND TOTAL	6	69	10	79	87%

Crani-Hematoma Average Cost FY'21 May

Surgeon	# SURGERIES	Max. Cost	Median Cost	Average Cost	Min Cost
GRAND TOTAL	6	$3,273	$1,627	$1,916	$1,239

Crani-Hematoma Average Cost FY'21 May

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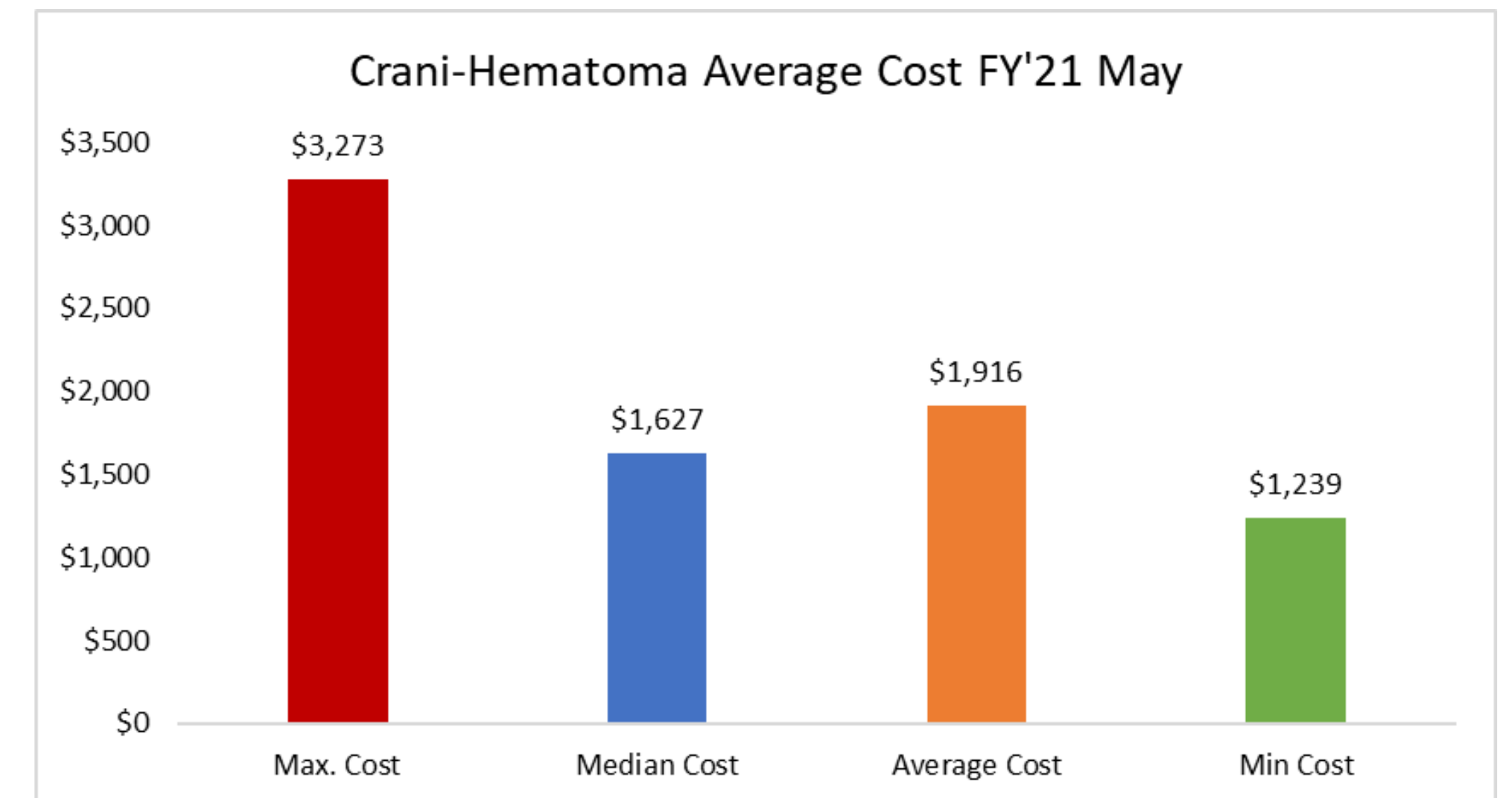
ALOS Cost to Treat CABG with Cardiac Cath

Measure	FY 2018	FY 2019	FY 2020	FY 2020 Variance to FY 2019		Five Most Recent Months				
						May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020
Volume										
Discharged Cases	97	95	106			9	10	14	11	12
ALOS										
Med Surg ALOS	9.60	8.01	7.82	2.37%		7.22	7.40	6.86	7.09	8.25
ICU ALOS	4.60	4.58	3.75	18.12%		3.78	3.20	3.29	3.91	4.33
Total ALOS	14.20	12.59	11.57	8.10%		11.00	10.60	10.14	11.00	12.58
Vizient Expected ALOS	13.25	12.07	11.72			12.79	11.19	13.03	‡	‡
MC CMI										
MC CMI	6.87	6.77	6.78	0.15%		7.20	6.79	6.73	7.54	7.19
MC Complication Cases										
MCC	74	64	65			7	6	8	10	9
CC	‡	‡	‡			‡	‡	‡	‡	‡
None	23	31	41			2	4	6	1	3

This scorecard only includes DRG's 231, 232, 233, & 234. This scorecard excludes patients on ventilators. Other patients could have experienced these services but fell out of the targeted DRGs.

All DRGs

FY 19 ALOS Target Goal 6.0

ALOS: Jul 6.4, Aug 6.6, Sep 6.6, Oct 6.2, Nov 6.5, Dec 6.5, Jan19 6.7, Feb 6.6, Mar 5.9, Apr 5.8, May 5.5, June 5.5, Jul 5.9

Exp LOS: Jul 6.4, Aug 6.2, Sep 6.0, Oct 6.0, Nov 6.4, Dec 6.3, Jan19 6.7, Feb 6.4, Mar 6.4, Apr 6.6, May 6.4, June 6.8, Jul 7.1

LOS Index: Jul 1.00, Aug 1.08, Sep 1.09, Oct 1.04, Nov 1.01, Dec 1.03, Jan19 1.01, Feb 1.03, Mar 0.92, Apr 0.89, May 0.86, June 0.80, Jul 0.83

Volume: Jul 2,011, Aug 1,974, Sep 1,895, Oct 2,050, Nov 1,928, Dec 2,036, Jan19 2,117, Feb 1,944, Mar 2,206, Apr 2,054, May 2,077, June 1,956, Jul 2,165

Legend: • LOS Index ♦ ALOS — Exp LOS — LOS Index Trend