

ABSTRACT: 2016 ELAM Institutional Action Project Symposium

Project Title: Towards a Cardiovascular Center of Excellence

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Background, Challenge or Opportunity: Clinical Centers of Excellence are a key part of the Mount Sinai Health System strategy of increasing access to high quality healthcare, and promoting education and research missions. In 2014 a newly affiliated hospital was identified as a potential site for a new Cardiovascular Center of Excellence. Long-term site challenges included declining clinical and academic activity; a depleted workforce; and aging infrastructure.

Purpose/Objectives: To build an academic cardiac surgery team delivering excellent clinical outcomes and growth.

Methods/Approach: During 2015, in parallel with a strategic program of cardiology practice development, we recruited and trained a multidisciplinary cardiovascular surgery team, developed guideline-based care pathways, and integrated existing teaching and research programs. We analyzed data on patient characteristics and clinical outcomes harvested by independent data managers for the Society of Thoracic Surgeons to inform systematic performance improvement. This allowed us to drive performance and growth by tracking our outcomes relative to Health System and national benchmarks; and by sharing these results with our community of referring clinicians, patients, hospital staff and leadership to help inform practice and resource allocation.

Outcomes and Evaluation Strategy: Between 2014 and 2015 cardiac surgery case volume increased by 30%; observed : expected (O:E) mortality decreased to 0.67, versus 1.0 nationally; and complications decreased (Figures 1-3). Core quality and efficiency measures, and patient satisfaction improved, despite the high-risk case mix (Table 1). We secured accreditation of new fellowship and CME programs; and published research in JAMA. These productivity metrics, nationally benchmarked clinical outcomes, and core quality and efficiency measures will be used to evaluate and improve the clinical performance of the cardiovascular surgery program as it expands.

Figure 1: Increased annual case volume 2015

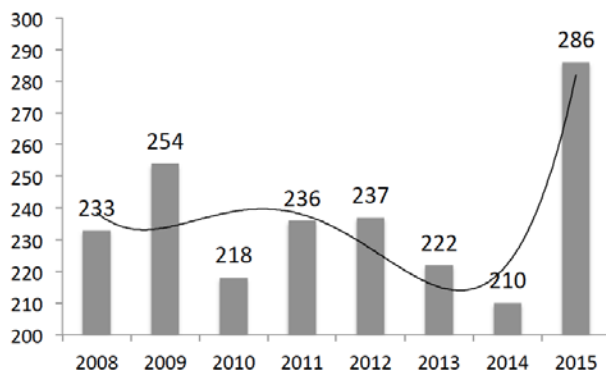


Figure 2: Improved O:E mortality in 2015

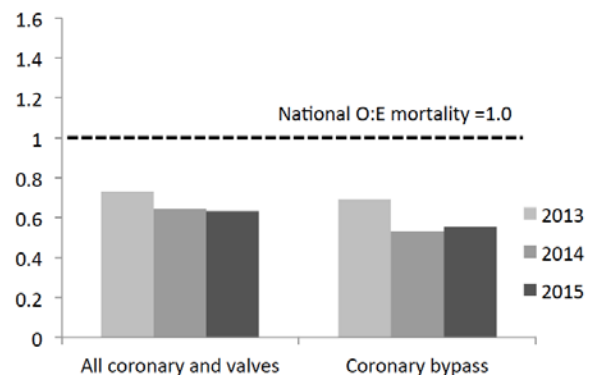
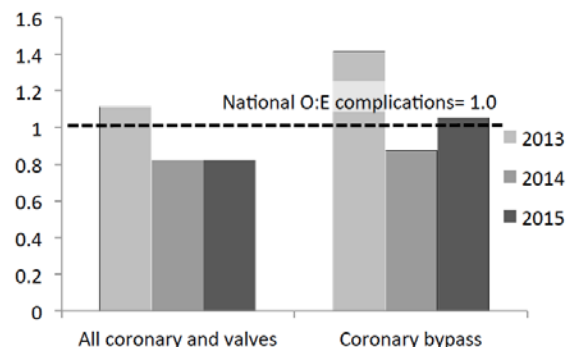
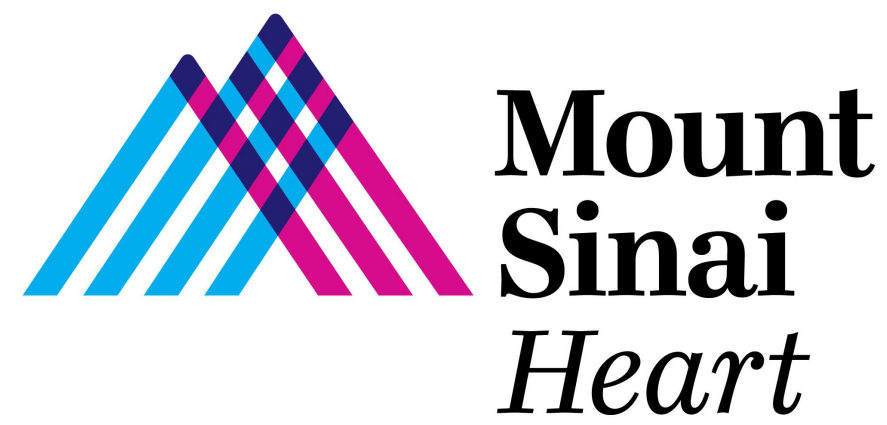


Table 1: Higher risk patient case-mix than other units

2013-2015 coronary bypass	Our site	National	P value
Demographics and pre-operative risk factors			
Elective	5.2%	38.1%	<0.001
Congestive heart failure	21.1%	14.4%	<0.001
Left ventricular dysfunction	33.8%	16.4%	<0.001
Dialysis	6.1%	2.9%	<0.001
Chronic lung disease	10.1%	10.1%	0.99
Prior myocardial infarction	52%	52%	0.99
Cerebrovascular disease	17.3%	16.7%	0.75
Vascular disease	115.3%	14.3%	0.59

Figure 3: Improved O:E complications in 2015



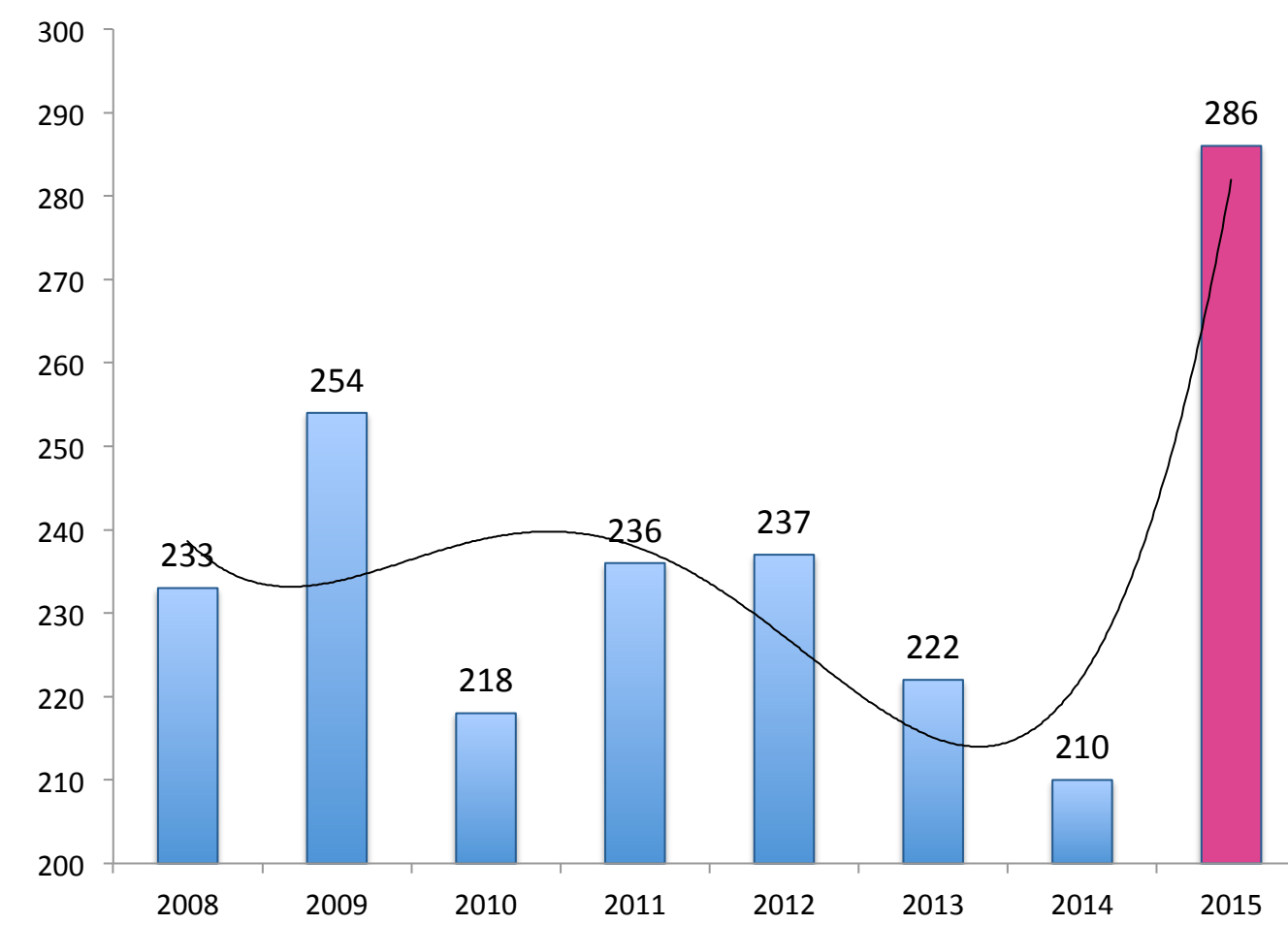


Towards a Cardiovascular Center of Excellence

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Collaborators: Arthur Gianelli MBA, MPH; Jagat Narula MD, DM, PhD, FACC; Sandhya Balaram MD, PhD; Julie Swain MD; Ken McCardle MS; Karan Omidvari MD; Guy Courbois MBA, MPH; David H. Adams MD; Dennis Charney MD. Presented at the 2016 ELAM® Leaders' forum.

Overview: We revitalized an academic cardiac surgery program in Manhattan. In 2015 clinical volume and revenue increased by >30%, and outcomes improved compared to national benchmarks, despite the significantly higher-risk case-mix. Systematic use of clinical outcomes data was a key element of strategy supporting performance improvement, program growth, and metrics for continued program evaluation.



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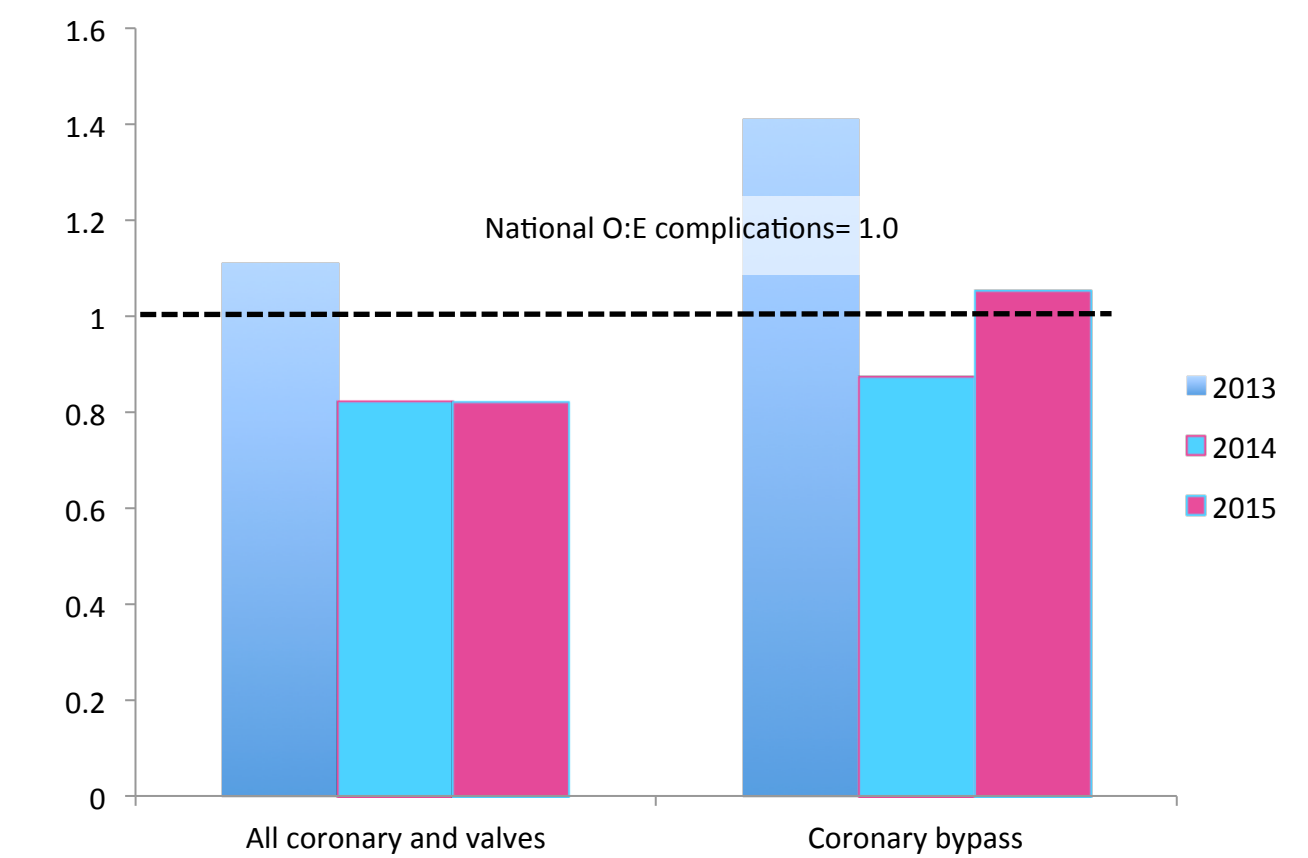
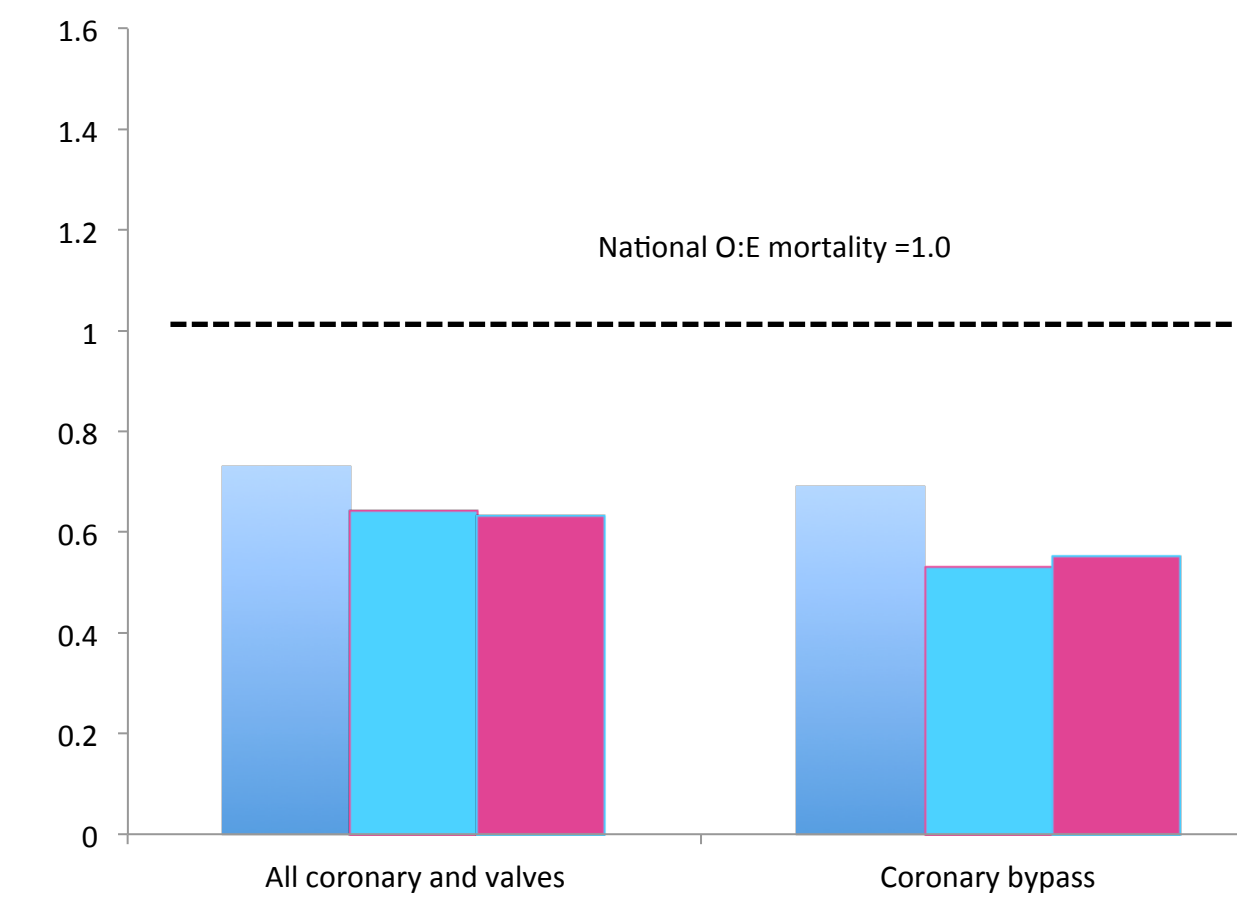


Figure 1: Over a decade of declining cardiac surgery volume was reversed in 2015

Table 1: Our case mix remains significantly sicker than the national case mix

Figure 2: Observed : expected (O:E) mortality rates are better than national benchmarks (dotted line)

Figure 3: O:E complication rates decreased below national benchmarks (dotted line).

Background

- Clinical Centers of Excellence are a key part of the Mount Sinai Health System strategy of increasing access to high quality healthcare, and promoting education and research.
- In 2014 the newly affiliated St. Luke's hospital in Harlem was identified as a potential site for a new Cardiovascular Center of Excellence.
- Historic site challenges were declining academic and clinical activity particularly in cardiac surgery (Figure 1); a depleted workforce; and aging infrastructure.

Objectives

- Our goal was to deliver excellent clinical outcomes and growth in the new Department of Cardiovascular Surgery at Mount Sinai St. Luke's, New York.

Methods

- During 2015, in parallel with a strategic program of cardiology practice development, we recruited and trained a multidisciplinary cardiovascular surgery team, developed guideline-based care pathways and a systematic performance improvement strategy.
- We continuously audited longitudinal data on patient mix and clinical outcomes harvested by independent data managers for the Society of Thoracic Surgeons.
- This allowed us to drive clinical performance and program growth by tracking our outcomes relative to Health System and national benchmarks.
- Importantly, we were able to share these results with our community of referring clinicians, patients, hospital staff and leadership to enhance teamwork, inform clinical practice and program development.

Outcomes and Evaluation Strategy

- Our clinical outcomes are shown above, compared against national benchmarks, where the reference national average = 1.0. Values less than 1.0 (below the dotted line) represent performance better than predicted by national outcomes.
- Our case mix is significantly sicker than reported nationally (Table 1).
- In 2015 cardiac surgery case volume increased by 30% (Figure 1), observed : expected (O:E) mortality decreased to 0.67, versus 1.0 nationally (Figure 2); and complications decreased (Figure 3).
- Quality, efficiency and patient satisfaction metrics improved; new cardiac fellowship and CME programs were accredited, and we published research in JAMA.

Discussion

- Over 12 months our new team achieved increased case volume and revenue; excellent clinical outcomes; and improved efficiency and patient satisfaction.
- This was despite a high-risk case-mix, a largely novice team, and a challenging healthcare environment.
- Clinical outcomes analysis was a powerful tool for performance improvement, practice development, teambuilding, research, education, and change.

Summary

- We built a strong cardiac surgery program supporting a new Cardiovascular Center of Excellence. Clinical outcomes analysis helped establish a culture of teamwork, academic success and clinical excellence; and metrics for future program improvement.

Right: This cardiac operating room team includes many new learners. **Middle:** A clinical report for our referring physicians, and one of our JAMA clinical outcomes papers. **Far right:** The whole team reviews our clinical outcomes, conferencing with teams across the Health System for the first time.

