

OPEN HEART SURGERY & RATE OF MORBIDITY



FOCUS: STATE OF MICHIGAN

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Prepared by the Economic Alliance for Michigan

Open Heart Surgery and Rate of Morbidity

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BACKGROUND

In continuing efforts of the Economic Alliance for Michigan's (EAM) mission in reducing health care costs in Michigan, this study investigates a common major heart surgery and how hospitals in Michigan are performing in regards to major surgical complications. A surgery with major postoperative complications can produce up to five times more in costs than the same surgery with no postoperative complications.¹

Currently, Michigan has 33 hospitals offering open heart surgery services. Coronary artery bypass grafting (CABG), commonly referred to as heart bypass surgery, is the most commonly performed heart operation in the United States.

The goal of this study is to determine whether or not hospitals in Michigan, performing CABG, have a high rate of morbidity (complications) that may be contributing to increases in health care costs.

METHOD

The research was conducted by using data gathered by the Society of Thoracic Surgeons (STS). Hospitals across the country voluntarily report outcomes of their cardiac departments to STS. With the data collected, STS creates star-ratings for various cardiac procedures. Hospitals are assigned three-stars (the best), two-stars or one-star (the worse). Currently, the STS website publicly has two data cycles available: July 2014 – June 2015 and July 2015 – June 2016.

According to STS, the morbidity rate "is the percentage of patients undergoing heart surgery, who experienced at least one of the five most serious complications of cardiac surgery: reoperation, stroke, kidney failure, infection of the chest wound, or prolonged need to be supported by a breathing machine or ventilator."²

To determine trends and rate of morbidity in Michigan, the research for this study focuses on the CABG Absence of Major Morbidity star-ratings from the July 2015 – June 2016 data cycle and uses both available data cycles to create a year-to-year trend analysis of CABG Absence of Major Morbidity.

FINDINGS

From July 2015 to June 2016, 512 hospitals in the United States reported CABG Absence of Major Morbidity to STS. Of those 512, only 13 received a one-star rating. Michigan had 30 of the 33 open heart surgery hospitals report their outcomes with two hospitals receiving three-stars and two hospitals scoring one-star. The two three-star hospitals were Borgess Medical Center in Kalamazoo and Henry Ford Macomb Hospital in Mount Clemens. The two one-star hospitals were Beaumont Health Dearborn and Beaumont Health Royal Oak.

¹ Ren Vonlanthen, MD; Ksenija Slankamenac, MD; Stefan Breitenstein, MD; Milo A. Puhan, MD, PhD; Markus K. Muller, MD; Dieter Hahnloser, MD; Dimitri Hauri; Rolf Graf, PhD; and Pierre-Alain Clavien, MD, PhD, FACS, FRCS, "The Impact of Complications on Costs of Major Surgical Procedures," *Annals of Surgery*, 2011;254(6):907-913.

² Society of Thoracic Surgeons, STS Public Reporting Online, data obtained February 8th, 2017. <http://www.sts.org>.

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Overall, year-to-year, the average of all hospitals Michigan remained flat, 88.4 percent between July 2014 to June 2015 to 88.6 percent between July 2015 to June 2016 – equivalent to a two-star rating. Three hospitals had notable improvements: DMC Harper University Hospital in Detroit improved by an impressive 7.4 percent, St. Joseph Mercy Oakland in Pontiac improved by 5.9 percent, and Mercy Health in Muskegon improved by 5.2 percent. Three hospitals had notable decreases in morbidity rates: Beaumont Health in Dearborn decreased by -3.7 percent, Saint Mary's of Michigan in Saginaw decreased by -3.6 percent, and McLaren Port Huron decreased by -3.5 percent.

Three hospitals either did not report sufficient data to STS or declined to participate in the July 2015 to June 2016 cycle: Covenant Healthcare in Saginaw, DMC Sinai-Grace in Detroit and Sparrow Hospital in Lansing.

DATA

OHS Hospital	City	CABG Absence of Major Morbidity Rate/Stars			
		# of Stars (July 2015 - June 2016 period)	July 2014 - June 2015	July 2015 - June 2016	Year-to-Year Diff
Allegiance Health	Jackson	2	90.8	88.2	-2.6
Beaumont Health - Dearborn	Dearborn	1	86.1	82.4	-3.7
Beaumont Health - Royal Oak	Royal Oak	1	83.3	81.8	-1.5
Beaumont Health - Troy	Troy	2	85.9	89.4	3.5
Borgess Medical Center	Kalamazoo	3	90.4	92.8	2.4
Bronson Medical Center	Kalamazoo	2	87.0	88.1	1.1
Covenant Healthcare	Saginaw	NA	88.1	NA	NA
Crittenton Hospital	Rochester	2	NA	88.0	NA
DMC Sinai-Grace	Detroit	NA	88.3	NA	NA
DMC Harper University	Detroit	2	76.2	83.6	7.4
Genesys Regional Medical Center	Grand Blanc	2	91.3	90.3	-1.0
Henry Ford Hospital	Detroit	2	86.2	86.5	0.3
Henry Ford Macomb	Clinton Township	3	88.1	93.0	4.9
Lakeland Healthcare	St. Joseph	2	92.1	89.9	-2.2
McLaren Bay Region	Bay City	2	89.8	89.2	-0.6
McLaren Greater Lansing	Lansing	2	85.8	86.5	0.7
McLaren Macomb	Mount Clemens	2	90.7	89.7	-1.0
McLaren Northern Michigan	Petoskey	2	93.5	91.4	-2.1
McLaren Port Huron	Port Huron	2	92.3	88.8	-3.5
McLaren Flint	Flint	2	85.6	88.0	2.4
Mercy Health - Muskegon	Muskegon	2	85.0	90.2	5.2
MidMichigan Medical Center	Midland	2	90.8	91.8	1.0
Munson Medical Center	Traverse City	2	86.5	85.2	-1.3
Providence Hospital	Southfield	2	90.9	89.8	-1.1
Saint Mary's of Michigan	Saginaw	2	88.6	85.0	-3.6
Sparrow Hospital	Lansing	NA	NA	NA	NA
Spectrum Health	Grand Rapids	2	89.4	88.8	-0.6
St. John Hospital	Detroit	2	91.4	91.8	0.4
St. John Hospital Macomb-Oakland	Warren	2	91.2	90.4	-0.8
St. Joseph Mercy Hospital	Ann Arbor	2	92.4	90.5	-1.9
St. Joseph Mercy Oakland	Pontiac	2	85.2	91.1	5.9
University of Michigan Health System	Ann Arbor	2	91.0	88.6	-2.4
UP Health System	Marquette	2	86.5	87.4	0.9
State Average of Reporting Hospitals			88.4	88.6	0.2

Data Source: The Society of Thoracic Surgeons, STS Public Reporting Online, Adult Cardiac Surgery Database Public Reporting, Isolated CABG, Absence of Major Morbidity, July 2014 – June 2015 & July 2015 – June 2016, State of Michigan, data obtained February 8th, 2017.
<http://www.sts.org/quality-research-patient-safety/sts-public-reporting-online>.

CONCLUSIONS

The American Heart Association issued data in 2011 claiming the average charge of heart bypass surgery was \$117,094, not including doctor fees.³ If a major complication occurs the cost can increase to \$250,000 or more. With improvements in morbidity remaining flat, plus 26 hospitals obtaining a two-star rating and two hospitals receiving only one-star for CABG Absence of Major Morbidity between July 2015 to June 2016, hospitals in Michigan have room for improvement. Hospitals and medical staff need to implement practices that help reduce complications for patients undergoing and recovering from CABG surgeries. If every hospital in Michigan improves by preventing one additional patient from having a major complication, potentially over \$4.4 million can be saved in health care costs.⁴

ABOUT THE ECONOMIC ALLIANCE FOR MICHIGAN (EAM)

Founded in 1982, the EAM is comprised of businesses and unions working together with one clear objective – continued growth of Michigan’s economy by inspiring job growth and strengthen Michigan’s competitiveness for attracting companies and talent. A main objective of the EAM is bringing attention to lawmakers and the public about the rising health care costs and its effect on the economy. The EAM is the Michigan Regional Leader for The Leapfrog Group. Learn more about the EAM at www.eamonline.org.

³ AHA Statistical Update, Heart Disease and Stroke Statistics—2011 Update. <http://circ.ahajournals.org/content/circulationaha/123/4/e18.full.pdf>.

⁴ Estimated cost of CABG with major complication \$250,000 minus the average CABG cost \$117,094 equals \$133,000 rounded up. Thirty-three Michigan CABG hospitals improving by one patient. \$133,000 x 33 = \$4.4 million rounded up.