

Ischemic Heart Disease – Interventional Treatment

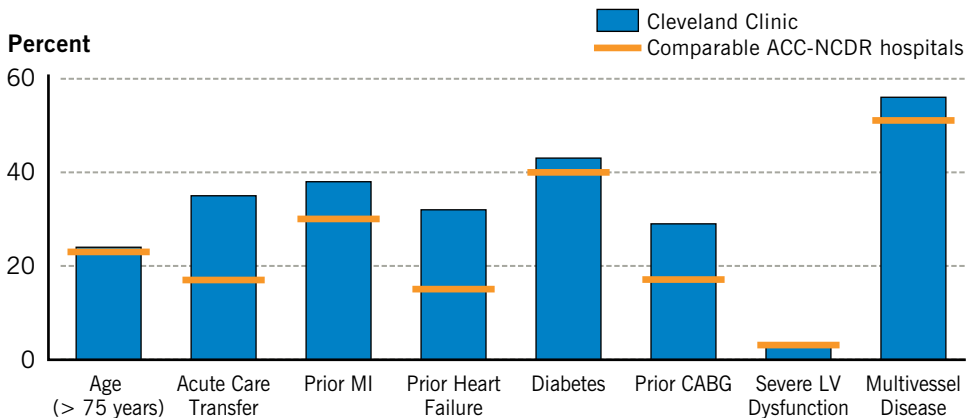
Cardiac Catheterization Laboratory Procedures (N = 8954)

Cleveland Clinic is a regional and national referral center for percutaneous coronary intervention (PCI). A total of 8954 cardiac catheterization procedures were done in 2016 to treat patients with simple and complex ischemic heart disease.

The data below demonstrate outcomes at Cleveland Clinic compared with those at hospitals included in the American College of Cardiology National Cardiovascular Data Registry (ACC-NCDR) CathPCI Registry® that perform more than 500 PCIs per year. Data are based on a 1-year rolling average; therefore, totals reported here may differ from those reported elsewhere in this book.

Medical Conditions Among Patients Undergoing PCI Procedures (N = 1552)

2016



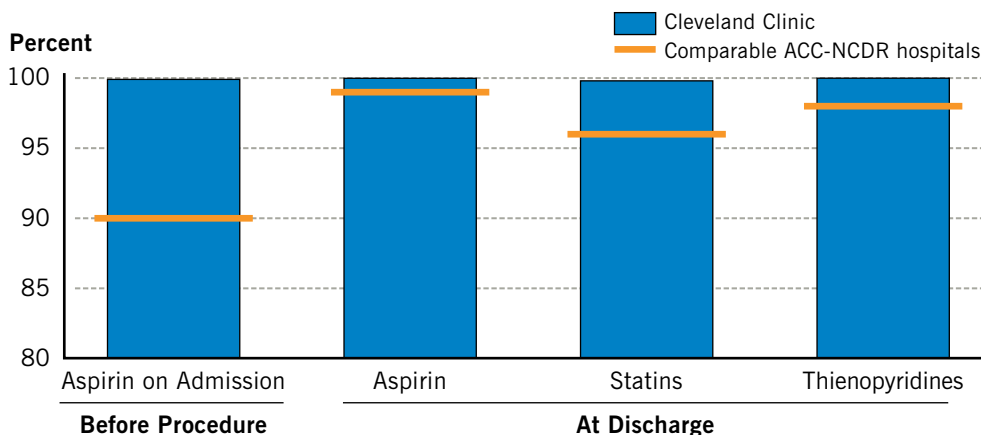
Patients with complex medical backgrounds present greater challenges for PCI procedures. In 2016, patients who had PCI at Cleveland Clinic had more complex backgrounds than patients at comparable hospitals.

CABG = coronary artery bypass graft, LV = left ventricular, MI = myocardial infarction

Source: ACC-NCDR database

Use of Appropriate Process Measures: Medications (N = 1552)

2016



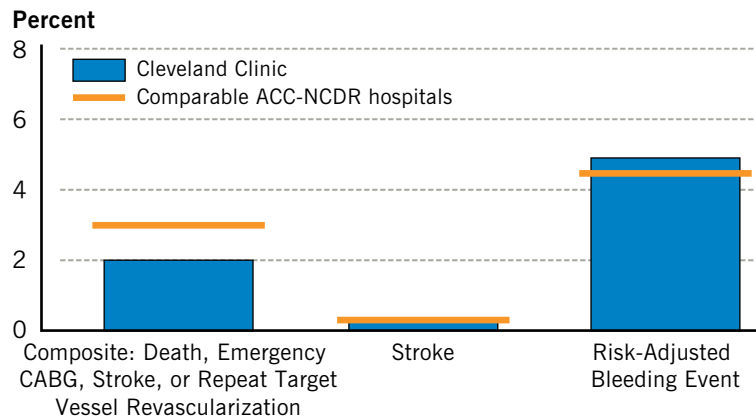
One of the ACC-NCDR key performance measures is the use of appropriate adjunctive medications before and after PCI. Cleveland Clinic achieved 100% use for all medication categories, which exceeds rates at comparable hospitals.

Source: ACC-NCDR database

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Complications (N = 1551)

2016

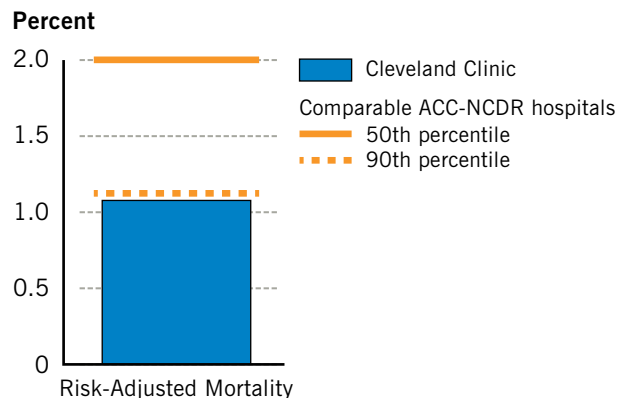


CABG = coronary artery bypass graft
Source: ACC-NCDR database

In 2016, the rates of major vascular complications and stroke associated with PCI procedures at Cleveland Clinic were better than the rates at comparable hospitals. The rate of risk-adjusted bleeding events was slightly higher due to the use of hybrid procedures, such as valve replacement plus PCI, that are performed less frequently at other hospitals. Cleveland Clinic is continuously striving to achieve the best possible outcomes for patients.

In-Hospital Mortality (N = 1551)

2016

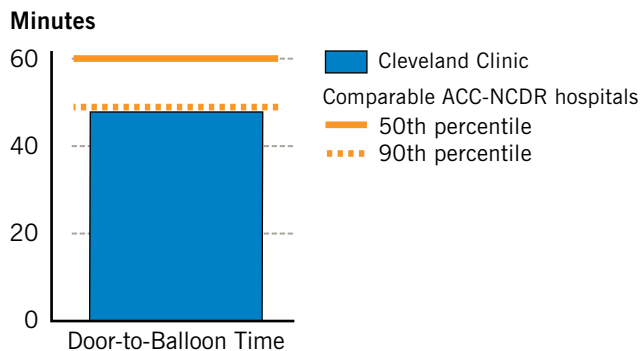


Source: ACC-NCDR database

The rate of in-hospital mortality among patients who had PCI procedures at Cleveland Clinic in 2016 was lower than rates at comparable hospitals.

Door-to-Balloon Time (N = 76)^a

2016



The American College of Cardiology/American Heart Association (ACC/AHA) guideline for PCI inflation for patients who come to the emergency department with ST-elevation myocardial infarction (STEMI) is 90 minutes. Cleveland Clinic continues to improve door-to-balloon time to reduce the risk of mortality and morbidity. In 2016, the median time at Cleveland Clinic was 48 minutes.

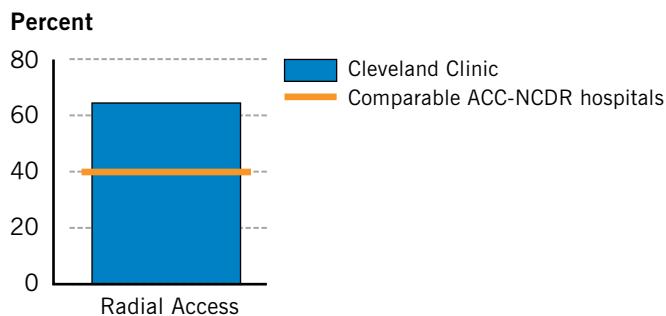
^aA total of 76 patients treated for myocardial infarction at Cleveland Clinic's emergency department met the ACC-NCDR reporting criteria for a primary diagnosis of STEMI. Among these patients, median time to reperfusion was 48 minutes.

Source: ACC-NCDR database

Use of Radial Access (N = 715)

2016

In 2016, Cleveland Clinic performed more PCI procedures using radial access than did comparable hospitals. The use of radial access is associated with reductions in bleeding complications, readmission rates, infection, and recovery time compared with PCI procedures done using a femoral approach.



Source: ACC-NCDR database

Ischemic Heart Disease — Surgical Treatment

Surgical Treatment for Ischemic Heart Disease

CABG Volume (N = 1561)

2016

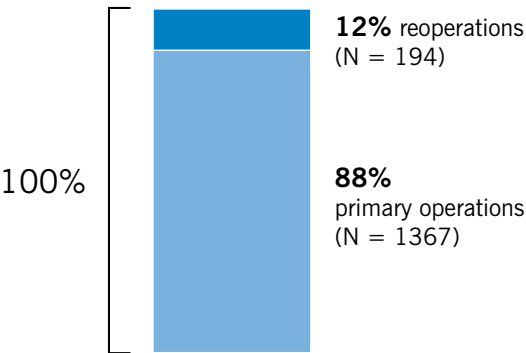
Cleveland Clinic surgeons performed 1561 coronary artery bypass graft (CABG) procedures in 2016. A total of 751 were in combination with another procedure, and 810 were isolated procedures, including reoperations.

Procedure	Volume
Isolated	810
CABG + other	751

CABG Volume, Primary and Reoperations (N = 1561)

2016

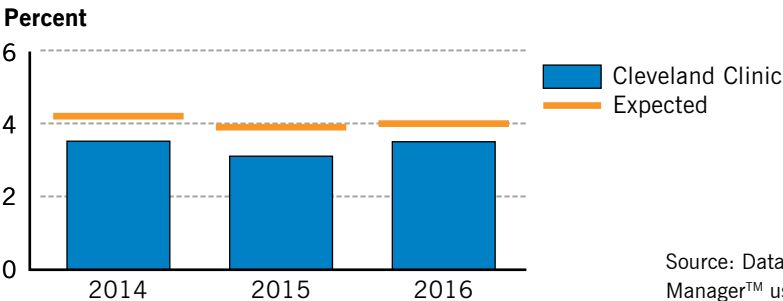
Cleveland Clinic surgeons perform more CABG reoperations than other hospitals. Despite the increased complexity of these procedures, outcomes remain excellent for these and primary (first-time) CABG surgery.



CABG Plus Other Procedure, In-Hospital Mortality (N = 751)

2014 – 2016

In-hospital mortality rates among patients who had CABG surgery plus another procedure at Cleveland Clinic in 2016 (primary and reoperations) were lower than expected.



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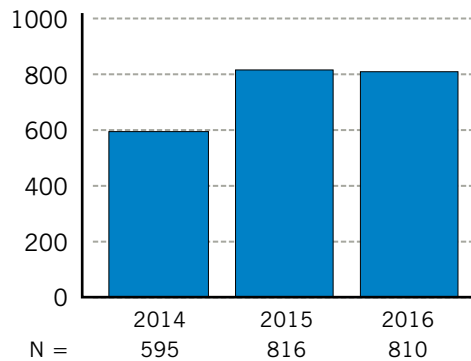
Isolated CABG Procedures

In-Hospital Mortality (N = 2221)

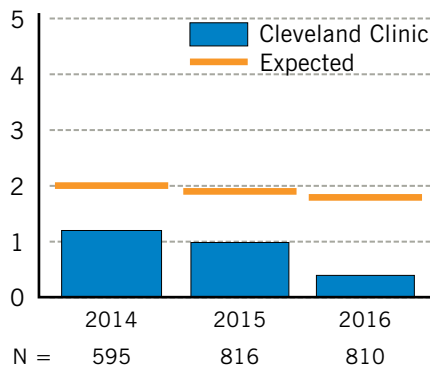
2014 – 2016

Cleveland Clinic surgeons performed 810 isolated CABG procedures in 2016. The overall in-hospital mortality rate was 0.4%, which was lower than the expected rate of 1.8%.

Volume



Percent



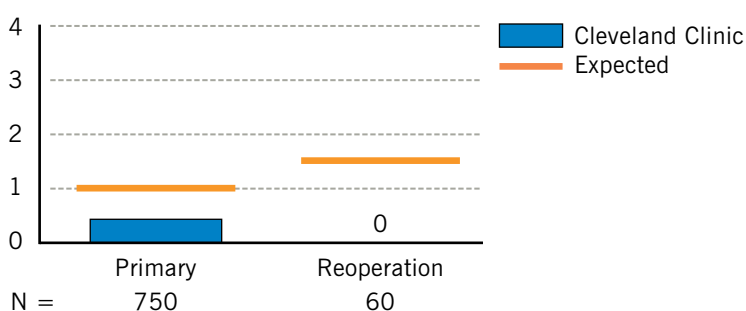
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In-Hospital Mortality, Primary and Reoperation (N = 810)

2016

Many patients who have CABG reoperations at Cleveland Clinic have very complex medical histories, which creates a higher risk of death. Despite these increased risks, the in-hospital mortality rates for primary operations and reoperations were lower than expected (0.4% and 0%, respectively).

Percent



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STS CABG Quality Ratings



Overall

Approximately 12% to 15% of US hospitals received the STS “3 star” rating for CABG surgery. This denotes the highest category of quality. In the current analysis of national data covering the period from Jan. 1, 2016, through Dec. 31, 2016, the CABG surgery performance at Cleveland Clinic was found to lie in this highest quality tier, thereby earning the STS 3-star rating.

Source: Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database 2016

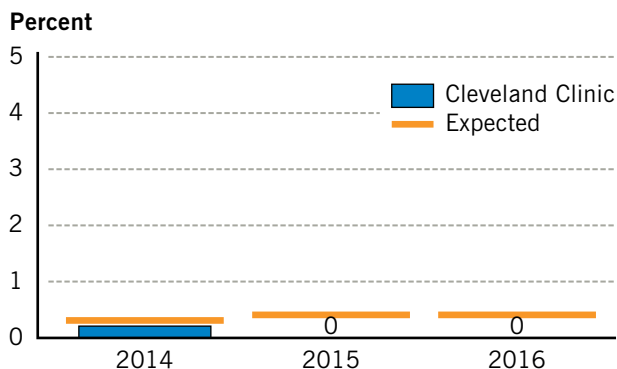
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Deep Sternal Wound Infection

2014 – 2016

The rate of deep sternal wound infection after CABG surgery was lower than expected at Cleveland Clinic in 2016. The rate at Cleveland Clinic was 0%, compared with the expected rate of 0.4%. The overall risk of deep sternal wound infection at Cleveland Clinic has been 1 in 1000 for the last 4 years.

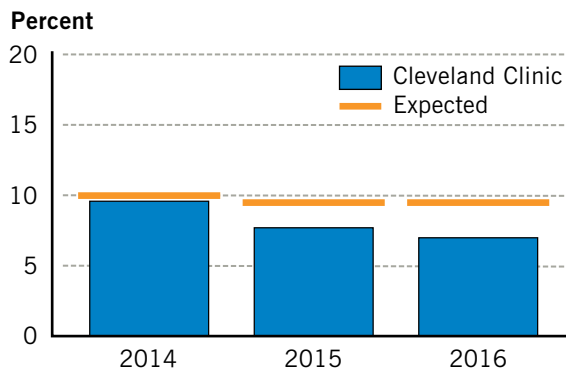


Source: Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database 2016

Ventilator Time > 24 Hours

2014 – 2016

A total of 7% of patients who had isolated CABG surgery at Cleveland Clinic in 2016 spent more than 24 hours on a ventilator. This is lower than the expected rate of 9.5%.

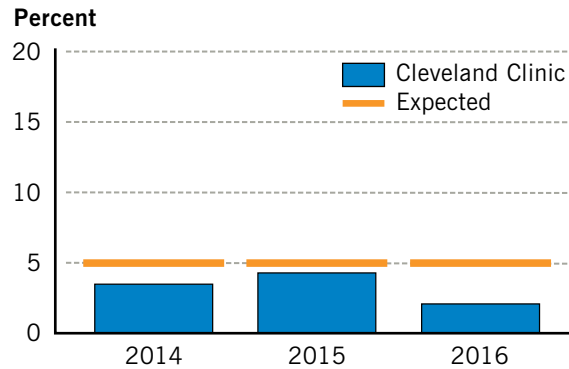


Source: Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database 2016

In-Hospital Reoperation

2014 – 2016

The rate of in-hospital reoperation after isolated CABG surgery was lower than expected at Cleveland Clinic in 2016.

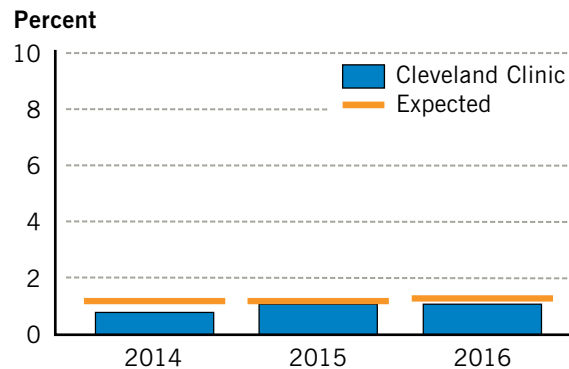


Source: Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database 2016

Postoperative Stroke

2014 – 2016

The expected rate of postoperative stroke after isolated CABG surgery was 1.3% in 2016. The rate was slightly lower (1.1%) at Cleveland Clinic.



Source: Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database 2016

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100%

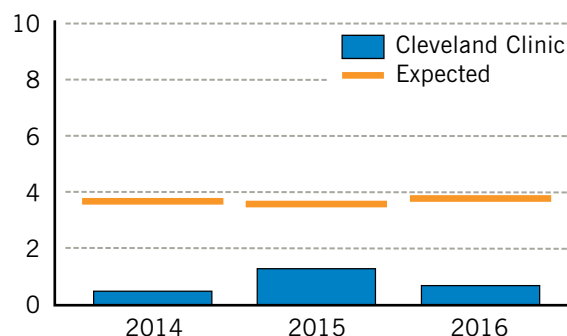
Cleveland Clinic was 100% compliant with all Society of Thoracic Surgeons' process measures in 2016. Measures include use of a perioperative beta blocker; use of a beta blocker, statin, and aspirin at discharge; and use of an internal mammary artery during isolated CABG surgery.

Source: Society of Thoracic Surgeons National Adult Cardiac Surgery Database 2016

Postoperative Renal Failure

2014 – 2016

Percent



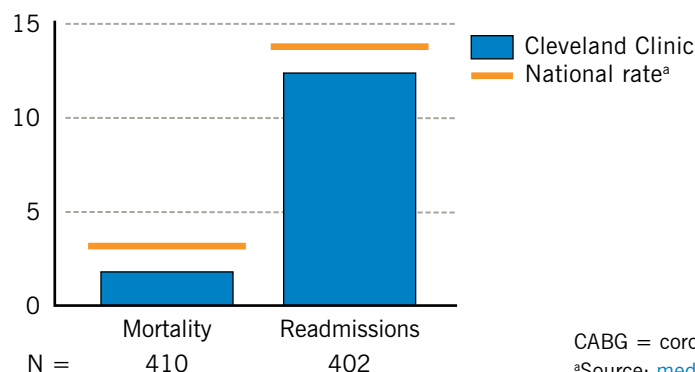
Postoperative renal failure occurred in 0.7% of patients who had isolated CABG surgery at Cleveland Clinic in 2016. This was lower than the expected rate of 3.8%.

Source: Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database 2016

CABG All-Cause 30-Day Mortality and All-Cause 30-Day Readmissions

July 2013 – June 2016

Percent



CABG = coronary artery bypass graft

^aSource: medicare.gov/hospitalcompare

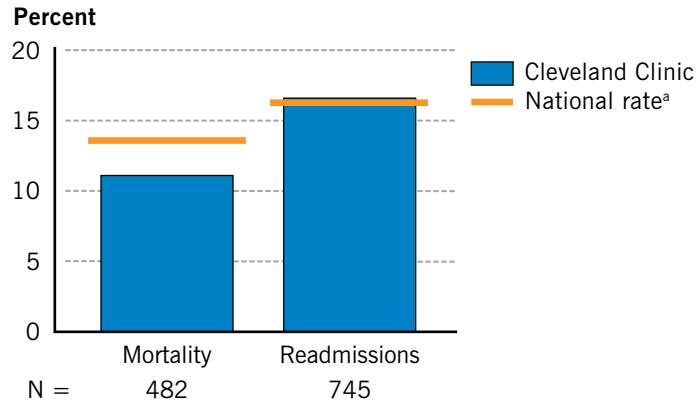
The Centers for Medicare & Medicaid Services (CMS) calculates 2 CABG outcomes measures based on Medicare claims and enrollment information. The most recent risk-adjusted data available from CMS are shown. Cleveland Clinic's CABG patient mortality rate is lower than the US national rate and CMS ranks Cleveland Clinic's performance as "better than" the US national rate. Although Cleveland Clinic's CABG readmissions rate is slightly lower than the US national rate, CMS ranks Cleveland Clinic's performance as "no different than" the US national rate. To further reduce avoidable readmissions, Cleveland Clinic is focused on optimizing transitions from hospital to home or postacute facility. Specific initiatives have been implemented to ensure effective communication, education, and follow-up.

Ischemic Heart Disease – AMI

Acute Myocardial Infarction (AMI)

All-Cause 30-Day Mortality and All-Cause 30-Day Readmissions

July 2013 – June 2016



^aSource: [medicare.gov/hospitalcompare](https://www.medicare.gov/hospitalcompare)

CMS calculates 2 AMI outcomes measures based on Medicare claims and enrollment information. The most recent risk-adjusted data available from CMS are shown. Although Cleveland Clinic's AMI patient mortality rate is lower than the US national rate, CMS ranks Cleveland Clinic's performance as "no different than" the US national rate. Cleveland Clinic's AMI readmissions rate is slightly higher than the US national rate and also ranked by CMS as "no different than" the US national rate. To further reduce avoidable readmissions, Cleveland Clinic is focused on optimizing transitions from hospital to home or postacute facility. Specific initiatives have been implemented to ensure effective communication, education, and follow-up.