

FACTFILE

AMI Trends: Incidence, Detection, and Treatment

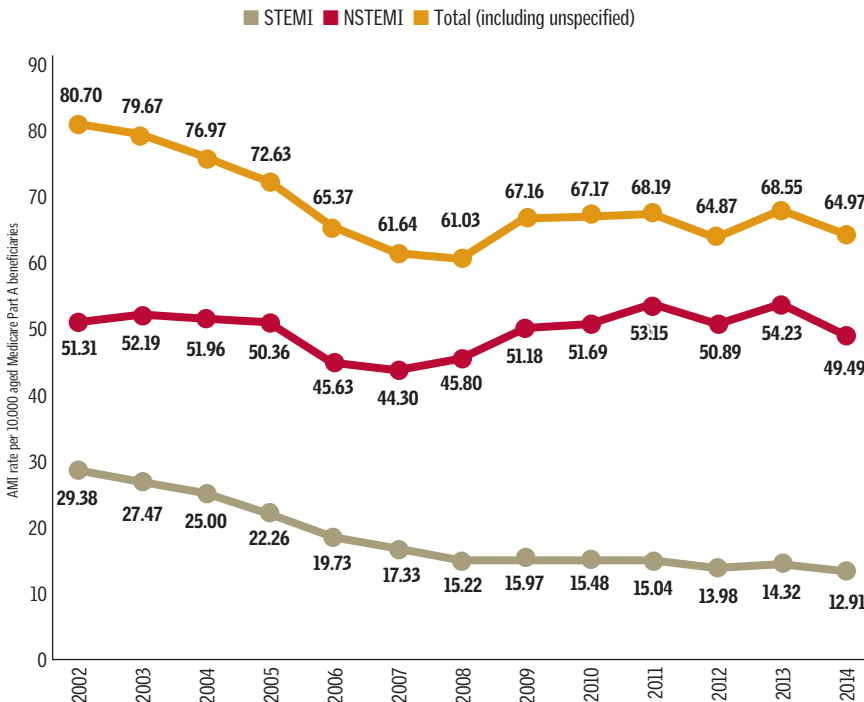
This Fact File examines trends in the detection and treatment of acute myocardial infarctions, or heart attacks, in two distinct groups:

- **STEMI**—ST segment elevation myocardial infarction, with the ST segment referring to a specific part of an electrocardiogram tracing. In STEMI, the coronary artery is completely blocked and cardiac muscle dies.
- **NSTEMI**—Non-ST segment elevation myocardial infarction. In NSTEMI, a coronary artery is partially blocked. ☒

OVERALL RATE OF AMI CONTINUES TO DECREASE

Among aged Medicare Part A beneficiaries (not disabled), the overall rate of STEMI has decreased approximately 55%, from 29 per 10,000 in 2002 to 13 per 10,000 in 2014. Improved awareness of coronary risk factors and related interventions appear to be associated with the decline. Those factors include patient lifestyle changes, use of statins, and elective interventions, such as percutaneous coronary intervention and coronary artery bypass grafting for patients at risk for AMI.

The NSTEMI trend is more difficult to interpret due to changes in lab testing. Traditionally, AMI has been identified by a combination of lab tests for cardiac biomarkers (creatinine phosphokinase, or CPK) and EKG findings. During the time period examined, CPK has largely been replaced with measurement of troponin, which is more sensitive as well as more specific for AMI. Due to this increase in sensitivity, the American College of Cardiology Foundation estimates that 30%–40% of patients who would have been diagnosed with unstable angina based on CPK results are now diagnosed with NSTEMI. Thus, changes in incidence of NSTEMI during this time frame are due to actual changes as well as impact of troponin-based identification of AMIs.



SOURCE: Truven Health Analytics.

PCI Use Varies by Region

Treatment of aged Medicare Part A beneficiaries varies based on U.S. Census Regions and Divisions, and by STEMI vs. NSTEMI acute myocardial infarction. An increased use of percutaneous coronary interventions in certain areas could be due to practice pattern differences and regional efforts to improve access to PCI.

Lower use of PCIs in other areas may reflect less access to facilities performing PCI—due to fewer facilities performing PCI, greater geographic distance to hospitals performing PCI, or lower transfer rates from hospitals that do not perform PCI to those that are PCI-capable. Differences could also reflect patient factors that would influence treatment choice. Interestingly, PCI rates are highest in West North Central and Mountain, and lowest in New England, which would seem to contradict geographic distance as a reason for differences.

Location	STEMI	NSTEMI
New England	69.76%	26.97%
Middle Atlantic	70.61%	29.68%
South Atlantic	77.83%	33.54%
East North Central	77.97%	33.57%
East South Central	76.72%	34.17%
West North Central	79.40%	40.57%
West South Central	78.28%	35.04%
Mountain	81.22%	42.01%
Pacific	72.36%	31.00%

NOTE: New England states are Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; Middle Atlantic states are New Jersey, New York, and Pennsylvania; South Atlantic states are Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia; East North Central states are Illinois, Indiana, Michigan, Ohio, and Wisconsin; East South Central states are Alabama, Kentucky, Mississippi, and Tennessee; West North Central states are Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota; West South Central states are Arkansas, Louisiana, Oklahoma, and Texas; Mountain states are Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, and Wyoming; and Pacific states are Alaska, California, Hawaii, Oregon, and Washington.

SOURCES: Truven Health Analytics; U.S. Census Bureau, *Census Regions and Divisions of the United States*, http://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf.

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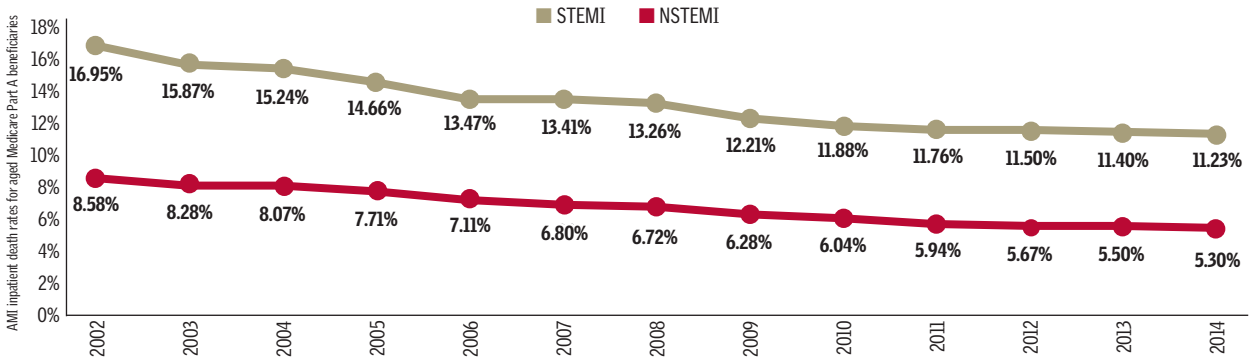
www.truvenhealth.com

ABOUT THE DATA: The study is based on an analysis of Medicare Provider Analysis and Review (MEDPAR) data between 2002 and 2014.

For more information email info@truvenhealth.com; call 1-800-525-9083, option 4; or visit www.truvenhealth.com.

AMI-RELATED DEATHS CONTINUE TO DECLINE

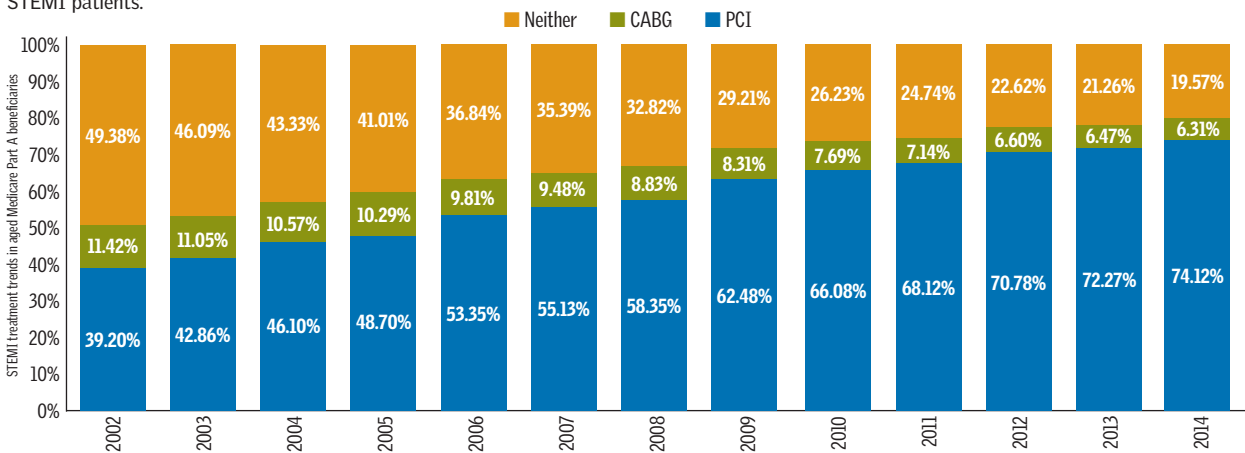
Inpatient STEMI- and NSTEMI-related death rates in Medicare Part A beneficiaries continue to decline, from nearly 17.0% to approximately 11.2% and from nearly 8.6% to 5.3%, respectively, over the past 13 years of data. A number of factors are driving down hospital death rates, including emphasis on faster "door-to-balloon time" for angioplasty procedures; better education of the population to receive immediate medical attention for signs of AMI; improved emergency medical service protocols; provider adherence to best-practice guidelines for the treatment of AMI patients; and better coordination of services when transferring patients to hospitals with reperfusion/revascularization capabilities. An important note is that the introduction of troponin testing changed the NSTEMI case mix to include patients with lower risks of death due to the test's increased sensitivity.



SOURCE: Truven Health Analytics.

STEMI TREATMENT TRENDS

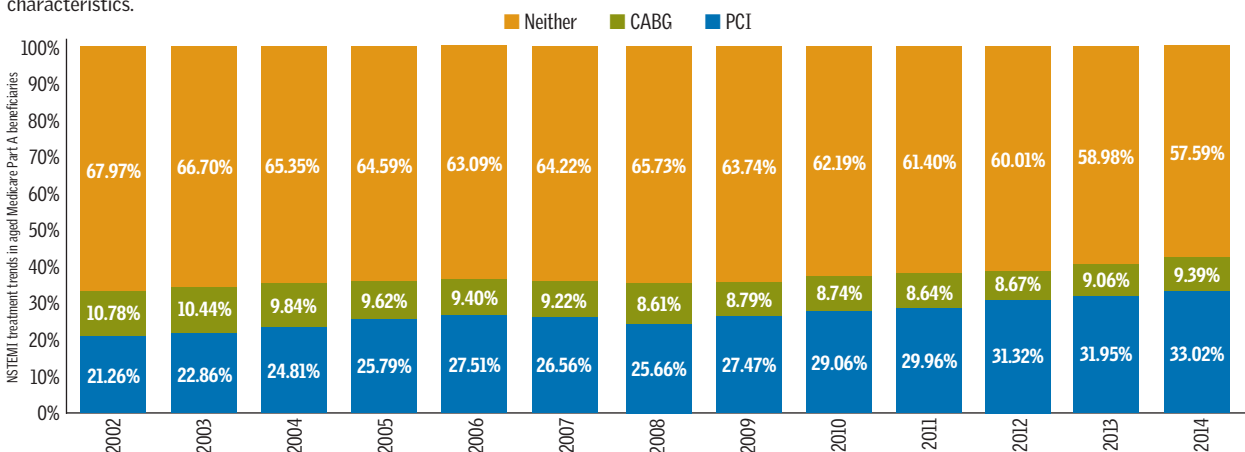
There has been a marked increase in the percent of STEMI patients receiving PCI during initial hospitalization (from, approximately, 39.2% in 2002 to 74.1% in 2014). Research studies have been conclusive in proving the success of performing immediate revascularization in the majority of STEMI patients.



SOURCE: Truven Health Analytics.

NSTEMI TREATMENT TRENDS

There has been a smaller increase in the percent of NSTEMI patients receiving PCI during initial hospitalization (from, approximately, 21.3% in 2002 to 33.0% in 2014). But both invasive and conservative best-practice approaches continue to exist for NSTEMI patients, depending on patient characteristics.



SOURCE: Truven Health Analytics.

