ConsumerReports

Hospital Ratings Heart Surgery

The data come from the Society of Thoracic Surgeons for hospitals that have agreed to share their data with us.

BYPASS SURGERY RATINGS Reflects a hospital's performance in isolated coronary artery bypass graft surgery, including the open-heart approach and less invasive versions. Overall score is a composite of four measures: survival (percentage of patients who leave the hospital and survive at least 30 days after surgery), complications (percentage of patients who avoid the most serious complications, including needing a second operation, developing a deep chest infection, suffering a stroke or kidney failure, and requiring prolonged ventilation), best surgical technique (percentage of patients who receive at least one graft from an internal mammary artery, located under the breastbone, which improves survival), and right drugs (percentage of patients who receive beta-blockers before and after surgery to control blood pressure and heart rhythm, aspirin to prevent blood clots, and a drug after surgery to lower LDL (bad) cholesterol).

VALVE REPLACEMENT RATINGS Reflects a hospital's performance in surgical aortic valve replacement. Does not include data for transcatheter aortic valve replacement, though the STS has started to collect it. Overall score is a composite of two measures: survival (percentage of patients who leave the hospital and survive at least 30 days after surgery) and complications (percentage of patients who avoid the most serious complications, which are the same as for bypass).

All data were adjusted based on the health of patients. Still, limitations of such adjustments can make direct comparisons difficult.

MORE INFORMATION For details on our methodology, go to www.ConsumerReports.org/cro/howweratehospitals. For our complete hospital Ratings, subscribers to our website can go to www.ConsumerReports.org/hospitalratings.

			AGE ABOVE AVERAGE
HOSPITAL	CITY	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
ALABAMA			
East Alabama Medical Center	Opelika	0	—
Providence Hospital	Mobile	0	—
ARIZONA			
Banner Boswell Medical Center	Sun City	0	—
Chandler Regional Medical Center	Chandler	0	0
Flagstaff Medical Center	Flagstaff	0	0
Havasu Regional Medical Center	Lake Havasu City	0	—
Scottsdale Healthcare Shea Medical Center	Scottsdale	0	—
Scottsdale Healthcare - Osborn Medical Center	Scottsdale	0	—
University of Arizona Medical Center - University Campus	Tucson	0	0
Yuma Regional Medical Center	Yuma	0	_
ARKANSAS			
NEA Baptist Memorial Hospital	Jonesboro	—	0
St. Bernards Medical Center	Jonesboro	0	<u> </u>

		BELOW AVERAGE AVE	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
CALIFORNIA			
Alta Bates Summit Medical Center - Summit Campus	Oakland	0	—
California Pacific Medical Center	San Francisco	0	0
Community Memorial Health System	Ventura	0	0
Desert Regional Medical Center	Palm Springs	0	0
Glendale Adventist Medical Center	Glendale	0	0
Glendale Memorial Hospital and Health Center	Glendale	0	—
Good Samaritan Hospital	Los Angeles	0	—
Hoag Memorial Hospital Presbyterian	Newport Beach	0	—
Huntington Memorial Hospital	Pasadena	0	—
John Muir Medical Center, Concord	Concord	0	0
Kaiser Permanente San Francisco Medical Center	San Francisco	0	—
Kaiser Permanente Santa Clara Medical Center	Santa Clara	0	—
Long Beach Memorial Medical Center	Long Beach		0
Marin General Hospital	Greenbrae	0	—
Mercy Medical Center Redding	Redding	0	0
Mills-Peninsula Health Services	Burlingame	0	0
Mission Hospital	Mission Viejo	0	0
NorthBay Medical Center	Fairfield	0	—
Pomona Valley Hospital Medical Center	Pomona	0	—
Presbyterian Intercommunity Hospital	Whittier	0	—
Providence Holy Cross Medical Center	Mission Hills	0	—
Providence Little Company of Mary Medical Center	Torrance	•	—
Providence Saint Joseph Medical Center	Burbank	0	—
Providence Tarzana Medical Center	Tarzana	0	—
Queen of the Valley Medical Center	Napa		—
Ronald Reagan University of California Los Angeles Medical Center	Los Angeles	0	0
Saddleback Memorial Medical Center	Laguna Hills	0	—
Salinas Valley Memorial Healthcare System	Salinas	0	0
San Ramon Regional Medical Center	San Ramon	0	—
Santa Rosa Memorial Hospital	Santa Rosa	0	—

		-	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
CALIFORNIA (continued)			
Sequoia Hospital	Redwood City	0	0
Sharp Chula Vista Medical Center	Chula Vista	0	0
Sharp Grossmont Hospital	La Mesa	0	0
Sharp Memorial Hospital	San Diego	0	0
St. John's Regional Medical Center	Oxnard	0	—
St. Joseph Hospital	Orange	0	0
St. Joseph's Medical Center	Stockton	0	0
St. Jude Medical Center	Fullerton	0	—
Stanford Hospital and Clinics	Palo Alto	0	0
Torrance Memorial Medical Center	Torrance	0	—
University of California, Davis Medical Center	Sacramento	0	—
Washington Hospital Healthcare System	Fremont	0	—
COLORADO			
Exempla Lutheran Medical Center	Wheat Ridge	0	0
Exempla Saint Joseph Hospital	Denver	0	0
Medical Center of the Rockies	Loveland	0	—
Memorial Health System	Colorado Springs	0	0
North Colorado Medical Center	Greeley	0	0
Penrose-St. Francis Health Services	Colorado Springs	0	0
University of Colorado Hospital	Aurora	0	0
DELAWARE			
Bayhealth Medical Center	Dover	0	0
Beebe Medical Center	Lewes	0	—
Christiana Care Health System	Newark	0	0
DISTRICT OF COLUMBIA			
George Washington University Hospital	Washington	0	—
MedStar Washington Hospital Center	Washington	0	_
FLORIDA			
Cleveland Clinic Florida	Weston	0	0
Delray Medical Center	Delray Beach	0	0

HOSPITAL CITY CORONARY ARTERY BYPASS SURGERY RATING AORTIC VALVE REPLACEMENT SURGERY RATING FLORIDA (continued) F Continued) F Continued) Holy Crass Repital Fort Laudertale O O Indian River Medical Center Lakeland O - Lakeland Regional Medical Center Lakeland O - Lesburg Regional Medical Center Lesburg O - Mernonal Regional Medical Center Lesburg O - Murroe Regional Medical Center Cola O - Murroe Regional Medical Center Cola O - Nurroe Regional Medical Center Orlando O - Nurroe Regional Medical Center Orlando O - St Jaseph's Hospital Surasota O - - Writer Haven Hospital Surasota O - - Writer Haven Hospital Tampa O - - St Jaseph's Hospital Center O - -				RAGE ABOVE AVERAGE
Holy Cross Hospital Fort Lauderdale O Indian River Medical Center Lakeland	HOSPITAL	СІТҮ	ARTERY BYPASS	REPLACEMENT
Indian River Medical CenterVero BeachImage: Content of the set of	FLORIDA (continued)			
Lakeland Regional Medical CenterLakelandOLeesburg Regional Medical CenterLeesburg●●Memorial Regional Medical CenterOcala●●Murroe Regional Medical CenterOcala●●NCH Downtown Naples Hospital (Naples Community Hospital)Naples●●Orlando Regional Medical CenterOrlando●●Sarasota Memorial HospitalSarasota●●St. Joseph's HospitalTampa●●Venice Regional Medical CenterVenice●●Venice Regional Medical CenterAttenta●●Piedmont HospitalAtlanta●●●Saint Joseph's HospitalAtlanta●●●St. Francis Hospitalof AtlantaAtlanta●●St. Francis HospitalMarietta●●●HAWAII●−●●Footenal Medical CenterPiocatello●●●HOTAWI●●●●HotaWI●●●●●St. Francis HospitalMarietta●●●HOTAWI●●●●●HotaWI●●● </td <td>Holy Cross Hospital</td> <td>Fort Lauderdale</td> <td>0</td> <td>0</td>	Holy Cross Hospital	Fort Lauderdale	0	0
Leesburg Image: Control of the sector of the s	Indian River Medical Center	Vero Beach	0	_
Memorial Regional Hospital Hollywood O Morton Plant Hospital Clearwater O Munroe Regional Medical Center Ocala	Lakeland Regional Medical Center	Lakeland	0	—
Morton Plant Hospital Clearwater O Munroe Regional Medical Center Ocala Image: Community Hospital) NCH Downtown Naples Hospital (Naples Community Hospital) Naples Image: Community Hospital) Orlando Regional Medical Center Orlando Image: Community Hospital) Sarasota Memorial Hospital Sarasota Image: Community Hospital) Sarasota Memorial Hospital Sarasota Image: Community Hospital) Sarasota Memorial Hospital Sarasota Image: Community Hospital) Venice Regional Medical Center Venice Image: Community Hospital) Winter Haven Hospital Winter Haven Image: Community Hospital) Winter Haven Hospital Winter Haven Image: Community Hospital) GEORGIA Image: Community Hospital Image: Community Hospital) Athens Regional Medical Center Athens Image: Community Hospital) Athens Regional Medical Center Athens Image: Community Hospital) Saint Joseph's Hospital Columbus Image: Community Hospital) WeilStar Kennestone Hospital Marietta Image: Community Hospital) Straub Clinic & Hospital Honolulu Image: Community Hospital) Straub Clinic & Hospital Coeur Dalene Image: Community Hospital) Forcter Pocatello <td>Leesburg Regional Medical Center</td> <td>Leesburg</td> <td>•</td> <td>—</td>	Leesburg Regional Medical Center	Leesburg	•	—
Munroe Regional Medical Center Ocala - NCH Downtown Naples Hospital (Naples Community Hospital) Naples - Orlando Regional Medical Center Orlando O Sarasota Memorial Hospital Sarasota O O St. Joseph's Hospital Tampa - - Venice Regional Medical Center Venice O O Winter Haven Hospital Winter Haven O O GEORGIA Attens - - Attens Regional Medical Center Attens O - Piedmont Hospital Atlanta O - - Saint Joseph's Hospital of Atlanta Atlanta - - - St. Francis Hospital Columbus - - - - WellStar Kennestone Hospital Marietta -	Memorial Regional Hospital	Hollywood	•	0
NCH Downtown Naples Hospital (Naples Community Hospital) Naples — Orlando O O Sarasota Memorial Hospital Sarasota O O St. Joseph's Hospital Tampa — O St. Joseph's Hospital Tampa O O Venice Regional Medical Center Venice O O Winter Haven Hospital Winter Haven O O GEORGIA Catentr Athens — O GEIORGIA Athens O — O Saint Joseph's Hospital of Atlanta Atlanta O — O Saint Joseph's Hospital of Atlanta Atlanta O — O St. Francis Hospital Atlanta O — — VellStar Kennestone Hospital Marietta O — — HAWAII — — — — IDAHO — O — _ Verties Regional Medical Center Pocatello O O _ _ IDAHO	Morton Plant Hospital	Clearwater	0	0
Orlando Regional Medical Center Orlando O Sarasota Memorial Hospital Sarasota O St. Joseph's Hospital Tampa O Venice Regional Medical Center Venice O Winter Haven Hospital Winter Haven O GEORGIA Athens Regional Medical Center Athens O Fiedmont Hospital Athens O Saint Joseph's Hospital of Atlanta Atlanta O St. Francis Hospital Columbus O HAWAII Straub Clinic & Hospital Marietta Straub Clinic & Hospital Honolulu HAHO Saint Joseph's Hospital O Kootenai Medical Center Coeur D'alene O HAHO O HAHO O O Straub Clinic & Hospital Boise O IDAHO O O O Kootenai Medical Center Boise O St. Luke's Regional Medical Center Boise O St. Luke's Regional Medical Center Boise	Munroe Regional Medical Center	Ocala	•	—
Sarasota Memorial HospitalSarasotaOOSt. Joseph's HospitalTampaO	NCH Downtown Naples Hospital (Naples Community Hospital)	Naples	0	—
St. Joseph's Hospital Tampa Image Image Venice Regional Medical Center Venice Image Image Winter Haven Hospital Winter Haven Image Image GEORGIA Image Image Image Image Athens Regional Medical Center Athens Image Image Image Piedmont Hospital Atlanta Image Image Image Image Saint Joseph's Hospital of Atlanta Atlanta Image Image <td< td=""><td>Orlando Regional Medical Center</td><td>Orlando</td><td>0</td><td>0</td></td<>	Orlando Regional Medical Center	Orlando	0	0
Venice Regional Medical CenterVeniceOWinter Haven HospitalWinter HavenOGEORGIAAthens Regional Medical CenterAthens-Piedmont HospitalAtlantaO-Saint Joseph's Hospital of AtlantaAtlantaO-St. Francis HospitalColumbusWellStar Kennestone HospitalMariettaO-HAWAIIStraub Clinic & HospitalHonoluluDAHOKootenai Medical CenterCoeur D'aleneO-Portneuf Medical CenterBoise-OSt. Luke's Regional Medical CenterBoiseO-St. Luke's Regional Medical CenterBoiseOOSt. Luke's Regional Medical CenterBoiseOOAdventist Hinsdale HospitalHinsdaleOOLLINOISLa GrangeOOOAdventist La Grange Memorial HospitalLa GrangeOO	Sarasota Memorial Hospital	Sarasota	0	0
Winter Haven HospitalWinter HavenImage: Control of the second seco	St. Joseph's Hospital	Tampa	•	—
GEORGIAAthens Regional Medical CenterAthensPiedmont HospitalAtlantaSaint Joseph's Hospital of AtlantaAtlantaSaint Joseph's Hospital of AtlantaColumbusSt. Francis HospitalColumbusWellStar Kennestone HospitalMariettaHAWAII </td <td>Venice Regional Medical Center</td> <td>Venice</td> <td>0</td> <td>0</td>	Venice Regional Medical Center	Venice	0	0
Athens Regional Medical CenterAthensPiedmont HospitalAtlantaSaint Joseph's Hospital of AtlantaAtlantaSt. Francis HospitalColumbusWellStar Kennestone HospitalMariettaWellStar Kennestone HospitalMariettaHAWAII </td <td>Winter Haven Hospital</td> <td>Winter Haven</td> <td>•</td> <td>0</td>	Winter Haven Hospital	Winter Haven	•	0
Piedmont HospitalAtlantaOSaint Joseph's Hospital of AtlantaAtlanta-Saint Joseph's Hospital of AtlantaColumbus-St. Francis HospitalColumbus-WellStar Kennestone HospitalMarietta-HAWAIIStraub Clinic & HospitalHonolulu-TDAHOKootenai Medical CenterCoeur D'aleneOPortneuf Medical CenterPocatelloOSaint Alphonsus Regional Medical CenterBoise-St. Luke's Regional Medical CenterBoiseOILLINOIS-Court DialeneOAdventist Hinsdale HospitalHinsdaleOAdventist La Grange Memorial HospitalLa GrangeO	GEORGIA			
Saint Joseph's Hospital of AtlantaAtlantaOSt. Francis HospitalColumbusOWellStar Kennestone HospitalMariettaImage: ColumbusImage: ColumbusHAWAIIImage: ColumbusImage: ColumbusStraub Clinic & HospitalHonoluluImage: ColumbusIDAHOImage: ColumbusImage: ColumbusKootenai Medical CenterCoeur D'aleneImage: ColumbusImage: ColumbusPortneuf Medical CenterPocatelloImage: ColumbusImage: ColumbusSt. Luke's Regional Medical CenterBoiseImage: ColumbusImage: ColumbusSt. Luke's Regional Medical CenterBoiseImage: ColumbusImage: ColumbusAdventist Hinsdale HospitalHinsdaleImage: ColumbusImage: ColumbusAdventist La Grange Memorial HospitalLa GrangeImage: ColumbusImage: Columbus	Athens Regional Medical Center	Athens	0	—
St. Francis HospitalColumbusWellStar Kennestone HospitalMarietta•HAWAII••Straub Clinic & HospitalHonolulu•Straub Clinic & HospitalHonolulu•IDAHO••Kootenai Medical CenterCoeur D'alene•Portneuf Medical CenterPocatello•St. Luke's Regional Medical CenterBoise•St. Luke's Regional Medical CenterBoise•Adventist Hinsdale HospitalHinsdale•Adventist La Grange Memorial HospitalLa Grange•	Piedmont Hospital	Atlanta	0	0
WellStar Kennestone HospitalMariettaImage: Constraint of the spitalHAWAIIStraub Clinic & HospitalHonoluluImage: Constraint of the spitalStraub Clinic & HospitalHonoluluImage: Constraint of the spitalIDAHOKootenai Medical CenterCoeur D'aleneImage: Constraint of the spitalPortneuf Medical CenterPocatelloImage: Constraint of the spitalSaint Alphonsus Regional Medical CenterBoiseImage: Constraint of the spitalSt. Luke's Regional Medical CenterBoiseImage: Constraint of the spitalAdventist Hinsdale HospitalHinsdaleImage: Constraint of the spitalAdventist La Grange Memorial HospitalLa GrangeImage: Constraint of the spital	Saint Joseph's Hospital of Atlanta	Atlanta	0	—
HAWAIIStraub Clinic & HospitalHonoluluStraub Clinic & HospitalHonoluluIDAHOKootenai Medical CenterCoeur D'alenePortneuf Medical CenterPocatelloSaint Alphonsus Regional Medical CenterBoiseSt. Luke's Regional Medical CenterBoiseILLINOISAdventist Hinsdale HospitalHinsdaleAdventist La Grange Memorial HospitalLa Grange	St. Francis Hospital	Columbus	0	—
Straub Clinic & HospitalHonoluluO—IDAHOKootenai Medical CenterCoeur D'aleneOOPortneuf Medical CenterPocatelloOOSaint Alphonsus Regional Medical CenterBoise—OSt. Luke's Regional Medical CenterBoiseOOILLINOISHinsdale HospitalHinsdaleOOAdventist La Grange Memorial HospitalLa GrangeOO	WellStar Kennestone Hospital	Marietta	0	—
IDAHOKootenai Medical CenterCoeur D'aleneOOPortneuf Medical CenterPocatelloOOSaint Alphonsus Regional Medical CenterBoiseOSt. Luke's Regional Medical CenterBoiseOOILLINOISHinsdaleOOAdventist Hinsdale HospitalHinsdaleOOLa GrangeOOO	HAWAII			
Kootenai Medical CenterCoeur D'aleneOOPortneuf Medical CenterPocatelloOOSaint Alphonsus Regional Medical CenterBoise—OSt. Luke's Regional Medical CenterBoiseOOSt. Luke's Regional Medical CenterBoiseOOILLINOISHinsdale HospitalOOAdventist Hinsdale HospitalLa GrangeOO	Straub Clinic & Hospital	Honolulu	0	—
Portneuf Medical CenterPocatelloOOSaint Alphonsus Regional Medical CenterBoise—OSt. Luke's Regional Medical CenterBoiseOOILLINOISAdventist Hinsdale HospitalHinsdaleOOAdventist La Grange Memorial HospitalLa GrangeOO	IDAHO			
Saint Alphonsus Regional Medical CenterBoise—OSt. Luke's Regional Medical CenterBoiseOOILLINOISAdventist Hinsdale HospitalHinsdaleOOAdventist La Grange Memorial HospitalLa GrangeOO	Kootenai Medical Center	Coeur D'alene	0	0
St. Luke's Regional Medical CenterBoiseOILLINOISAdventist Hinsdale HospitalHinsdaleOOAdventist La Grange Memorial HospitalLa GrangeOO	Portneuf Medical Center	Pocatello	0	0
ILLINOIS Adventist Hinsdale Hospital Hinsdale O O Adventist La Grange Memorial Hospital La Grange O O	Saint Alphonsus Regional Medical Center	Boise	—	0
Adventist Hinsdale HospitalHinsdaleOOAdventist La Grange Memorial HospitalLa GrangeOO	St. Luke's Regional Medical Center	Boise	0	0
Adventist La Grange Memorial Hospital La Grange O	ILLINOIS			
	Adventist Hinsdale Hospital	Hinsdale	0	0
Advocate BroMenn Medical Center Normal O O	Adventist La Grange Memorial Hospital	La Grange	0	0
	Advocate BroMenn Medical Center	Normal	0	0

			RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
ILLINOIS (continued)			
Advocate Christ Medical Center	Oak Lawn	0	0
Advocate Condell Medical Center	Libertyville	0	0
Advocate Good Samaritan Hospital	Downers Grove	0	0
Advocate Good Shepherd Hospital	Barrington	0	0
Advocate Illinois Masonic Medical Center	Chicago	0	0
Advocate Lutheran General Hospital	Park Ridge	0	0
Advocate Sherman Hospital	Elgin	0	0
Central DuPage Hospital	Winfield	0	—
Edward Hospital	Naperville	0	0
Elmhurst Memorial Hospital	Elmhurst	0	0
Memorial Medical Center	Springfield	0	—
MetroSouth Medical Center	Blue Island	0	0
Northwestern Memorial Hospital	Chicago	0	_
OSF Saint Anthony Medical Center	Rockford	0	
OSF Saint Francis Medical Center	Peoria	0	—
Palos Community Hospital	Palos Heights	0	—
Presence Covenant Medical Center	Urbana	0	—
Presence Mercy Medical Center	Aurora	0	—
Presence Resurrection Medical Center	Chicago	0	_
Presence Saint Joseph Hospital	Chicago	0	0
Presence Saint Joseph Hospital	Elgin	0	—
Presence Saints Mary & Elizabeth Medical Center	Chicago	0	—
Rockford Memorial Hospital	Rockford	0	—
St. John's Hospital (Prairie Heart Institute)	Springfield	0	0
Swedish Covenant Hospital	Chicago	0	—
SwedishAmerican Hospital	Rockford	•	—
University of Chicago Medical Center	Chicago	—	0
INDIANA			
Community Heart and Vascular Hospital (The Indiana Heart Hospital)	Indianapolis	•	—
Elkhart General Healthcare System	Elkhart	0	—

		BELOW AVERAGE AVE	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
INDIANA (continued)			
Franciscan St. Anthony Health - Crown Point	Crown Point	0	—
Franciscan St. Anthony Health - Michigan City	Michigan City	0	—
Franciscan St. Elizabeth Health - Lafayette East	Lafayette	0	—
Franciscan St. Francis Health - Indianapolis	Indianapolis	0	0
Indiana University Health Arnett Hospital	Lafayette	0	—
Indiana University Health Ball Memorial Hospital	Muncie	0	0
Indiana University Health Bloomington Hospital	Bloomington	0	0
Indiana University Health La Porte Hospital	La Porte	0	—
Indiana University Health University Hospital	Indianapolis	0	0
Lutheran Hospital of Indiana	Fort Wayne	0	0
Memorial Hospital of South Bend	South Bend	0	—
Parkview Regional Medical Center (Parkview Heart Institute)	Fort Wayne	0	0
St. Vincent Heart Center of Indiana	Indianapolis	0	•
St. Vincent Indianapolis Hospital	Indianapolis	0	0
IOWA			
Mercy Iowa City	Iowa City	0	0
Mercy Medical Center - Des Moines	Des Moines	0	
Mercy Medical Center - Dubuque	Dubuque	0	
Mercy Medical Center - North Iowa	Mason City	0	0
UnityPoint Health - Allen Hospital	Waterloo	0	0
UnityPoint Health - Iowa Methodist Medical Center	Des Moines	0	0
KANSAS			
Olathe Medical Center	Olathe	0	—
Salina Regional Health Center	Salina	0	—
Stormont-Vail HealthCare	Topeka	0	—
KENTUCKY			
Baptist Health Lexington	Lexington	0	—
Baptist Health Madisonville	Madisonville	0	—
Baptist Health Paducah	Paducah	0	—
Jewish Hospital	Louisville	•	•

	•	ABOVE AVERAGE
HOSPITAL	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
KENTUCKY (continued)		
King's Daughters Medical Center Ashlan	d O	—
Lourdes Hospital Paduca	ah O	0
Norton Audubon Hospital Louisvi	lle O	0
Norton Hospital Louisvi	lle O	0
LOUISIANA		
Baton Rouge General Medical Center Baton	Rouge O	0
CHRISTUS St. Patrick Hospital of Lake Charles Lake C	harles	0
Glenwood Regional Medical Center West M	Ionroe O	0
Heart Hospital of Lafayette Lafayet	tte O	-
Ochsner Medical Center - Baton Rouge Baton	Rouge O	0
Our Lady of the Lake Regional Medical Center Baton	Rouge O	-
MARYLAND		
MedStar Union Memorial Hospital Baltime	ore O	0
Suburban Hospital Bethes	da O	—
Washington Adventist Hospital Takoma	a Park 📀	_
MASSACHUSETTS		
Baystate Medical Center Spring	field O	0
Beth Israel Deaconess Medical Center Boston	0	0
Boston Medical Center Boston	0	—
Brigham and Women's Hospital Boston	0	0
Cape Cod Hospital Hyanni	s O	0
Lahey Hospital & Medical Center, Burlington Burling	iton 📀	0
Massachusetts General Hospital Boston	0	0
Mount Auburn Hospital Cambr	idge O	0
North Shore Medical Center Salem	0	0
Saint Vincent Hospital Worces	ster O	0
Southcoast Hospitals Group Fall Riv	ver O	0
Tufts Medical Center Boston	0	0
UMass Memorial Medical Center Worces	ster 📀	0

		BELOW AVERAGE AVE	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
MICHIGAN			
Allegiance Health	Jackson	0	0
Beaumont Hospital - Royal Oak	Royal Oak	0	0
Beaumont Hospital - Troy	Troy	0	0
Borgess Medical Center	Kalamazoo	0	•
Bronson Methodist Hospital	Kalamazoo	0	0
Covenant Medical Center	Saginaw	0	0
Crittenton Hospital Medical Center	Rochester	0	0
Genesys Regional Medical Center	Grand Blanc	0	0
Henry Ford Hospital	Detroit	0	0
Henry Ford Macomb Hospitals	Clinton Township	0	0
Lakeland Regional Medical Center - St. Joseph	Saint Joseph	0	0
Marquette General Health System	Marquette	0	0
McLaren Bay Region	Bay City	0	—
McLaren Flint	Flint	0	0
McLaren Greater Lansing	Lansing	0	0
McLaren Macomb	Mount Clemens	0	0
McLaren Northern Michigan	Petoskey	0	0
Mercy Health Partners, Mercy Campus	Muskegon	0	—
MidMichigan Medical Center - Midland	Midland	0	—
Munson Medical Center	Traverse City	0	—
Oakwood Hospital & Medical Center - Dearborn	Dearborn	0	—
Port Huron Hospital	Port Huron	0	0
Providence Hospital	Southfield	0	0
Sinai-Grace Hospital	Detroit	0	0
Sparrow Hospital	Lansing	0	—
Spectrum Health - Grand Rapids (Meijer Heart Center)	Grand Rapids	•	0
St. John Hospital and Medical Center	Detroit	0	0
St. John Macomb - Oakland Hospital	Warren	•	0
St. Joseph Mercy Hospital	Ypsilanti	0	0
St. Joseph Mercy Oakland	Pontiac	0	—

			RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
MICHIGAN (continued)			
St. Mary's of Michigan	Saginaw	0	0
University of Michigan Hospitals and Health Centers	Ann Arbor	0	0
MINNESOTA			
Abbott Northwestern Hospital	Minneapolis	0	0
Essentia Health St. Mary's Medical Center	Duluth	0	0
Fairview Southdale Hospital	Edina	•	0
Hennepin County Medical Center	Minneapolis	0	0
Mercy Hospital	Coon Rapids	0	0
North Memorial Medical Center	Robbinsdale		0
Park Nicollet Methodist Hospital	Saint Louis Park	0	0
Regions Hospital	Saint Paul	0	0
St. Cloud Hospital	Saint Cloud	•	—
St. Joseph's Hospital	Saint Paul	0	0
United Hospital	Saint Paul	0	0
University of Minnesota Medical Center, Fairview	Minneapolis	0	0
MISSISSIPPI			
Mississippi Baptist Medical Center	Jackson	0	0
University Hospitals and Health System, University of Mississippi Medical Center	Jackson	0	_
MISSOURI			
Boone Hospital Center	Columbia	0	0
Heartland Regional Medical Center	Saint Joseph	0	—
Mercy Hospital Joplin	Joplin	0	—
Missouri Baptist Medical Center	Saint Louis	0	0
Poplar Bluff Regional Medical Center	Poplar Bluff		0
Saint Francis Medical Center	Cape Girardeau	0	0
Saint Luke's Hospital of Kansas City	Kansas City	0	
MONTANA			
Billings Clinic	Billings	0	0
St. Patrick Hospital	Missoula	0	0

			RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
NEBRASKA		U.	
Alegent Creighton Health Bergan Mercy Medical Center	Omaha	0	0
Alegent Creighton Health - Creighton University Medical Center	Omaha	0	0
Bryan Medical Center	Lincoln	0	0
Good Samaritan Hospital	Kearney	0	_
Nebraska Heart Hospital	Lincoln	•	0
Nebraska Medical Center	Omaha	0	—
Nebraska Methodist Hospital	Omaha	0	0
NEVADA			
Desert Springs Hospital Medical Center	Las Vegas		
MountainView Hospital	Las Vegas	0	0
Summerlin Hospital Medical Center	Las Vegas	0	—
University Medical Center	Las Vegas	0	0
Valley Hospital Medical Center	Las Vegas	0	0
NEW HAMPSHIRE			
Catholic Medical Center	Manchester	•	0
NEW JERSEY			
AtlantiCare Regional Medical Center	Atlantic City	0	—
Englewood Hospital and Medical Center	Englewood	0	0
Jersey Shore University Medical Center	Neptune	0	0
Morristown Medical Center	Morristown	0	0
Valley Hospital	Ridgewood	•	0
NEW MEXICO			
Presbyterian Hospital	Albuquerque	•	—
NEW YORK			
Albany Medical Center	Albany	0	0
Ellis Hospital	Schenectady	0	0
Good Samaritan Hospital	Suffern	0	0
Kaleida Health (Gates Vascular Institute at Buffalo General Medical Center)	Buffalo	0	•
Lenox Hill Hospital	New York	0	—

NEW YORK (continued)	CITY Buffalo	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
	Buffalo		
Mercy Hospital	Buffalo		
		0	0
Montefiore Medical Center E	Bronx	0	0
NYU Langone Medical Center	New York	0	0
Rochester General Hospital	Rochester	0	0
St. Elizabeth Medical Center	Utica	0	0
St. Joseph's Hospital Health Center S	Syracuse	0	0
St. Peter's Hospital	Albany	0	0
Strong Memorial Hospital of the University of Rochester	Rochester	0	0
Upstate University Hospital S	Syracuse	0	—
Westchester Medical Center	Valhalla	0	_
NORTH CAROLINA			
Carolinas Medical Center	Charlotte	0	0
Cone Health G	Greensboro	0	0
Duke University Hospital	Durham	0	0
FirstHealth Moore Regional Hospital	Pinehurst	0	—
High Point Regional Health System	High Point	0	—
Mission Hospital A	Asheville	0	—
Novant Health Forsyth Medical Center	Winston-Salem	0	0
Novant Health Presbyterian Medical Center	Charlotte	0	0
University of North Carolina Hospitals	Chapel Hill	0	—
Wake Forest Baptist Medical Center V	Winston-Salem	0	0
WakeMed Raleigh Campus	Raleigh	0	—
NORTH DAKOTA			
Altru Health System	Grand Forks	0	0
Essentia Health Fargo (Essentia West - Innovis Health)	Fargo	0	0
Sanford Bismarck E	Bismarck	0	0
St. Alexius Medical Center	Bismarck	0	0
оню			
Adena Medical Center C	Chillicothe	0	—
Affinity Medical Center	Massillon	0	0

		BELOW AVERAGE AVE	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
OHIO (continued)			
Akron General Medical Center	Akron	0	—
Aultman Hospital	Canton	0	0
Blanchard Valley Hospital	Findlay	0	_
Cleveland Clinic	Cleveland	0	•
Fairfield Medical Center	Lancaster	0	—
Lake Health	Concord Township	0	0
Lima Memorial Health System	Lima	0	—
Mercy Health - Anderson Hospital	Cincinnati	0	—
Mercy St. Vincent Medical Center	Toledo	0	—
Mount Carmel East Hospital	Columbus	0	0
Mount Carmel West Hospital	Columbus	0	0
Northside Medical Center	Youngstown	0	—
Ohio State University Wexner Medical Center	Columbus	0	0
OhioHealth Doctors Hospital	Columbus	0	—
OhioHealth Marion General Hospital	Marion	0	—
ProMedica Toledo Hospital	Toledo	0	0
The University of Toledo Medical Center	Toledo	0	0
OKLAHOMA			
Comanche County Memorial Hospital	Lawton	0	—
Integris Baptist Medical Center	Oklahoma City		—
Integris Bass Baptist Health Center	Enid	0	—
Norman Regional Health System	Norman		—
Oklahoma Heart Hospital	Oklahoma City	0	—
Oklahoma Heart Hospital South Campus	Oklahoma City	0	—
OREGON			
Kaiser Permanente Sunnyside Medical Center	Clackamas	•	•
Legacy Emanuel Hospital and Health Center	Portland	0	_
Legacy Good Samaritan Hospital and Medical Center	Portland	0	0
McKenzie-Willamette Medical Center	Springfield	0	0
OHSU Hospital	Portland	•	—

		•	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
OREGON (continued)			
Providence Portland Medical Center	Portland	0	0
Providence St. Vincent Medical Center	Portland	0	0
Rogue Valley Medical Center	Medford	0	0
Tuality Healthcare	Hillsboro	0	_
PENNSYLVANIA			
Bryn Mawr Hospital	Bryn Mawr	0	—
Butler Health System	Butler	0	0
Chester County Hospital	West Chester	0	—
Conemaugh Memorial Medical Center	Johnstown	0	—
Doylestown Hospital	Doylestown	0	—
DuBois Regional Medical Center	Du Bois	0	—
Excela Health Westmoreland Hospital	Greensburg	0	0
Forbes Regional Hospital	Monroeville	0	0
Geisinger Medical Center	Danville	0	—
Geisinger Wyoming Valley Medical Center	Wilkes Barre	0	—
Geisinger - Community Medical Center	Scranton	0	0
Heritage Valley Beaver	Beaver	0	
Lancaster General Health	Lancaster	0	0
Lankenau Medical Center	Wynnewood	0	0
Lehigh Valley Hospital	Allentown	0	0
Lehigh Valley Hospital - Muhlenberg	Bethlehem	0	0
Paoli Hospital	Paoli	0	-
Pinnacle Health System	Harrisburg	0	—
Pocono Medical Center	East Stroudsburg	0	—
Reading Hospital and Medical Center	West Reading	0	0
Saint Vincent Hospital	Erie	0	—
St. Clair Memorial Hospital	Pittsburgh	0	0
St. Luke's University Hospital - Bethlehem Campus	Bethlehem	0	0
Temple University Hospital	Philadelphia	—	0
The Good Samaritan Hospital	Lebanon	0	0

		-	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
PENNSYLVANIA (continued)			
UPMC Hamot	Erie	0	0
Washington Hospital	Washington	0	—
Wilkes-Barre General Hospital	Wilkes-Barre	0	—
Williamsport Regional Medical Center	Williamsport	0	—
York Hospital	York	0	—
SOUTH CAROLINA			
AnMed Health Medical Center	Anderson	0	0
Greenville Memorial Hospital	Greenville	0	—
Hilton Head Hospital	Hilton Head Island	0	—
McLeod Regional Medical Center	Florence	0	—
Providence Hospital	Columbia	0	•
Roper Hospital	Charleston	0	—
SOUTH DAKOTA			
Sanford USD Medical Center	Sioux Falls	0	0
TENNESSEE			
Fort Sanders Regional Medical Center	Knoxville	0	0
Jackson-Madison County General Hospital	Jackson	0	—
Johnson City Medical Center	Johnson City	•	0
Methodist Medical Center of Oak Ridge	Oak Ridge	0	0
Parkwest Medical Center	Knoxville	0	0
Saint Thomas Midtown Hospital	Nashville	0	0
Saint Thomas West Hospital	Nashville	0	0
Tristar Centennial Medical Center	Nashville	0	0
University of Tennessee Medical Center	Knoxville	0	0
Wellmont Bristol Regional Medical Center	Bristol	0	0
Wellmont Holston Valley Medical Center	Kingsport	0	0
TEXAS			
Baylor All Saints Medical Center at Fort Worth	Fort Worth	0	—
Baylor Medical Center at Garland	Garland	0	—
Baylor Medical Center at Irving	Irving	0	—

		BELOW AVERAGE AVE	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
TEXAS (continued)			
Baylor Regional Medical Center at Grapevine	Grapevine	0	0
Baylor University Medical Center	Dallas	0	0
Covenant Medical Center	Lubbock	0	—
Cypress Fairbanks Medical Center	Houston	0	—
Doctor's Hospital at Renaissance	Edinburg	0	0
Lake Pointe Medical Center	Rowlett	0	—
Las Palmas/Del Sol Medical Center	El Paso	•	—
Midland Memorial Hospital	Midland	0	_
Mother Frances Hospital - Tyler	Tyler	0	•
St. Joseph Regional Health Center	Bryan	0	0
St. Luke's Episcopal Hospital	Houston	_	0
St. Luke's The Woodlands Hospital	The Woodlands	•	0
Texas Health Heart & Vascular Hospital Arlington	Arlington	0	—
The Heart Hospital Baylor Plano	Plano	0	•
University Medical Center	Lubbock		—
University of Texas Southwestern Medical Center (Saint Paul)	Dallas	0	0
UTAH			
Dixie Regional Medical Center	Saint George	0	0
Intermountain Medical Center	Murray	0	0
McKay-Dee Hospital Center	Ogden	0	_
Utah Valley Regional Medical Center	Provo	0	0
VIRGINIA			
Carilion Medical Center	Roanoke	0	—
Centra Lynchburg General Hospital	Lynchburg	0	0
Inova Alexandria Hospital	Alexandria	0	_
Inova Fairfax Hospital	Falls Church	0	—
Mary Washington Hospital	Fredericksburg	0	0
Sentara Virginia Beach General Hospital	Virginia Beach	0	0
University of Virginia Medical Center	Charlottesville	0	0
Winchester Medical Center	Winchester	0	0

		-	RAGE ABOVE AVERAGE
HOSPITAL	СІТҮ	CORONARY ARTERY BYPASS SURGERY RATING	AORTIC VALVE REPLACEMENT SURGERY RATING
WASHINGTON			
Harrison Medical Center	Bremerton	0	—
PeaceHealth St. Joseph Medical Center	Bellingham	0	0
Providence Regional Medical Center Everett	Everett	0	0
Providence Sacred Heart Medical Center & Children's Hospital	Spokane	0	—
Providence St. Peter Hospital	Olympia	0	0
St. Joseph Medical Center	Тасота	0	0
Swedish Medical Center - Cherry Hill Campus	Seattle	0	0
University of Washington Medical Center	Seattle	0	0
WEST VIRGINIA			
Camden Clark Medical Center	Parkersburg	0	0
Monongalia General Hospital	Morgantown	•	—
West Virginia University Hospitals	Morgantown	0	—
WISCONSIN			
Aspirus Wausau Hospital	Wausau	0	0
Aurora BayCare Medical Center	Green Bay	0	—
Bellin Memorial Hospital	Green Bay	0	0
Columbia St. Mary's Hospital Milwaukee	Milwaukee	0	—
Columbia St. Mary's Ozaukee Hospital	Mequon	0	—
Community Memorial Hospital	Menomonee Falls	0	0
Froedtert Memorial Lutheran Hospital	Milwaukee	0	—
Gundersen Lutheran Medical Center	La Crosse	0	0
St. Mary's Hospital	Madison	0	—
University of Wisconsin Hospital and Clinics	Madison	0	0
Waukesha Memorial Hospital	Waukesha	0	—
WYOMING			
Cheyenne Regional Medical Center	Cheyenne	0	0



Where should you go for heart surgery?

Our new Ratings of more than 400 hospitals can help you find the right one

AST SPRINC, when Zvi Frankel's grandfather learned that a valve in his heart needed to be replaced, he turned to his grandson for help.

The grandfather, who lives in New York City, had to choose between the standard open-heart surgery and a less invasive, hightech version. The new option, called transcatheter aortic valve replacement, was appealing. He wouldn't have to be placed on a heart-lung machine or have his heart temporarily stopped.

But Frankel and his grandfather wanted to know more. Which worked best long term? Which was safer? And most important, which hospitals and surgeons had the best results? "Doesn't everyone want to know that when they face something as serious as heart surgery?" Frankel asks.

Well, most people probably do want that information. But, as Frankel found out, getting it is far from easy. In fact, Frankel embarked on what turned into a long quest, ending with him writing an article in JAMA Internal Medicine on how difficult it was for consumers to find needed information. Along the way he found that many hospitals were eager to talk about the benefits of the new procedure, which involves inserting an artificial valve through an incision in the groin and threading it up an artery to the heart. Several hospitals even promoted it in ads or website videos, such as one we found from New York-Presbyterian hospital in New York City narrated by Mehmet Oz, M.D., director of the hospital's Cardiovascular Institute.

But the hospitals and surgeons could not or would not tell Frankel what he most wanted to know. It took weeks poring over medical journals to learn that the limited research to date suggests that although the procedure can be the only option for some very sick people, it may be more likely than the traditional approach to cause some serious complications. He found that those increased risks included the need for a pacemaker and death from aortic regurgitation, triggered when blood leaks around the new valve and back into the heart.

Most difficult was learning how well particular doctors and hospitals performed. In fact, he ended up filing a Freedom of Information Act request with New York state to get success rates for the doctors and hospitals they were considering. Ultimately, his grandfather chose the traditional approach, performed by a surgeon with a good track record at Weill Cornell Medical Center in New York City, according to the data from the state registry. The surgery was a success.

"It shouldn't be so hard," says John Santa, M.D., medical director of Consumer Reports Health, who helped Frankel publish his article. "Not everyone has a grandson like Zvi to act as a full-time medical detective. Hospitals and doctors should make the information accessible and understandable, so families can make informed choices when they make life and death decisions."

Our first ever Ratings of hospitals for heart surgery (see page 34) are an attempt to help you do just that.

Opening up heart data

We rate hospitals on two heart surgeries: surgical aortic valve replacement, the kind chosen by Frankel's grandfather; and coronary artery bypass graft surgery, an equally serious operation done to treat blocked coronary arteries.

The Ratings are based on the gold standard in tracking hospital performance: data from patients' medical records showing whether patients survived the procedure and how they fared on other important measures, including complications. To create a level playing field, the data are adjusted for the health of patients because certain hospitals treat more older, sicker patients than others.

The information comes from the Society of Thoracic Surgeons, which represents physicians who operate on the heart and other organs in the chest. The STS has collected the data for several decades. More than 1,000 U.S. hospitals report to the STS, but only about 400 allowed the organization to share the data with us.

"All hospitals know this information,"

Santa says. "Those that have agreed to share, especially those with low scores, should be applauded for their commitment to transparency. Those that haven't shared should make it available-otherwise, it seems like they have something to hide."

What we found

Here are some of our main findings:

• Certain famous hospitals are missing. They aren't in our Ratings because they don't share data with us, the STS, or both. That includes two hospitals Frankel's grandfather considered, Columbia-Presbyterian and Weill Cornell, Also on that list: Cedars-Sinai Medical Center in Los Angeles, Johns Hopkins Hospital in Baltimore, and the Mayo Clinic in Rochester, Minn.

• Top hospitals are in surprising places. Only 15 hospitals in our Ratings earned top scores in heart-valve and bypass surgeries. Although the well-known Cleveland Clinic

6 questions to help you find a heart hospital

1. Isn't heart surgery an emergency, so do I have time to research hospitals? If you are having a heart attack, emergency bypass surgery is sometimes necessary. But in most cases heart disease can be stabilized with drugs or simpler procedures, giving you, or a friend or family member, time. Ask your doctor how serious your condition is and how soon you'll need surgery. Valve disease is serious but rarely an emergency, so you will almost always have time.

2. What should I do if my hospital

isn't rated? There's a good chance of that happening, because many hospitals did not share data with us. But almost every hospital reports to the Society of Thoracic Surgeons even if the information is not public. Some that do report to the STS give similar data to state registries. So ask your surgeon about the hospital's survival and complication rates. If he or she can't-or won't-share it, consider looking elsewhere.

3. What should I do if no top hospi-

tals are in my community? First, don't panic. A hospital that gets an average rating still provides good care. If all hospitals in your area get low scores or won't share their data, you could travel elsewhere. But check with your insurance to make sure the procedure will be covered at the out-of-town hospital. And realize that you might not have as much support from family and friends. If you choose a lower-rated hospital, discuss your concerns about its score

with your surgeon. That can be reassuring and help you prepare for your stay.

4. Do I need to go to a famous hospital or one in a large city to get good care? No. We found top hospitals in bypass and valve surgery in out-of-theway places. And high-scoring hospitals in one or the other procedure are in all regions of the country.

5. What if my insurer won't cover the

hospital I want? If you have original Medicare, you should have no problem. because almost all hospitals accept it. With managed care, including Medicare Advantage, you must use providers in the plan's network or you're likely to pay all or most of the costs out of your own pocket. If the surgery can be postponed for several months, you could consider switching plans for 2015. That may not be possible if you're covered through a job, but if you have Medicare Advantage or a plan you bought through a state marketplace, you can switch plans during the annual fall open enrollment period.

6. What if I also want information

about my heart surgeon? That can be difficult to find. Subscribers to our website can see Ratings for heart surgery groups (go to ConsumerReports.org/ heartsurgerygroups) but not individual doctors. A few states maintain registries for surgeons. (Contact your state's department of health.) But you probably will need to ask your surgeon for the information you want. If he or she won't tell you, consider going elsewhere.

made the list, so did some less familiar hospitals, such as Borgess Medical Center in Kalamazoo, Mich., and Mother Frances Hospital-Tyler in Tyler, Texas. Some are major medical centers; others are smaller. "It's not name or location or ad budget that matters; it's a commitment to quality, and that can happen anywhere," Santa says.

• Performance varies widely, even at neighboring hospitals. We found four metropolitan areas—Indianapolis, Los Angeles,

Top-scoring hospitals

Only 15 of the hospitals that share their data with us earned top marks in bypass and valve surgeries (listed alphabetically):

- Baystate Medical Center, Springfield, Mass.
- Borgess Medical Center, Kalamazoo, Mich.
- Cleveland Clinic, Cleveland
- Kaiser Permanente Sunnyside Medical Center, Clackamas, Ore.
- Kaleida Health (Gates Vascular Institute at Buffalo General Medical Center), Buffalo, N.Y.
- Mother Frances Hospital-Tyler, Tyler, Texas
- Sequoia Hospital, Redwood City, Calif. • Spectrum Health - Grand Rapids (Meijer Heart Center), Grand Rapids, Mich.
- St. Joseph Mercy Hospital, Ypsilanti, Mich.
- St. Joseph's Hospital Health Center,
- Syracuse, N.Y.
- St. Vincent Heart Center of Indiana, Indianapolis
- Swedish Medical Center-Cherry Hill Campus. Seattle
- The Heart Hospital Baylor Plano, Plano, Texas
- UMass Memorial Medical Center, Worcester Mass.
- Valley Hospital, Ridgewood, N.J.



Cleveland Clinic, Cleveland



Mother Frances Hospital-Tyler, Tyler, Texas

Oklahoma City, and Portland, Ore.—where there are top- and low-scoring hospitals, sometimes just miles apart. "In those communities, the hospital you choose can really make a difference," Santa says.

• Many hospitals do a good job. Of the hospitals that shared their bypass data with us, 20 percent (83) were above average, 75 percent (310) were average, and 4 percent (18) were below average. The STS has high standards, so hospitals with average scores still do a very good job, says Robbin Cohen, M.D., an associate professor of cardiothoracic surgery at the Keck School of Medicine at the University of Southern California and a member of the STS. Of the 247 hospitals with data on valve surgery, 10 percent (25) got a top score, 87 percent (216) a middle score, and 2 percent (6) the lowest one.

The risks of heart surgery

No one undergoes heart surgery lightly.

Bypass is usually reserved for people with multiple coronary arteries blocked with plaque, which increases the risk of heart attack and causes chest pain and shortness of breath. During the procedure, the surgeon opens the chest, removes part of a healthy vein or artery from another part of the body, and grafts one end of it below the clog and the other end above it, allowing blood flow to bypass the blockage.

Aortic valve replacement is mostly done when the valve in the heart's left chamber accumulates calcium deposits, obstructing blood flow. Over time, the heart fails as it struggles to keep blood pumping.

Even in the hands of skilled surgeons at good hospitals, the procedures can sometimes lead to heart attack, kidney failure, or other problems. After surgery, patients are put on a ventilator, which increases the risk of complications, including pneumonia and other infections.

"No surgeon and no hospital can do heart surgery with zero complications and zero deaths," Cohen says. "Patients undergo heart surgery because the benefits outweigh the risks." But as our Ratings show, results vary among hospitals. So which hospital you choose matters.

Frankel ultimately got enough information to make a decision, but he says that efforts such as our new heart Ratings would have helped. When confronting surgery, people need to know they are making a decision based on facts, Frankel says. "You can choose the best doctor and best hospital, and you still may not have positive results," he says. "But people should be able to know they did everything they possibly could."

Ratings Hospitals for heart surgery

Hospitals in our Ratings that earned a top score in either bypass or heart-valve surgery. In alphabetical order, within state and region.

NORTHEAST Baystate Medical Center Springfield O Massachusetts Brigham and Women's Kospital Boston O Lahey Hospital & Medical Burlington O O Massachusetts Berrariant Mospital Cambridge O O Massachusetts General Mospital Cambridge O O Massachusetts General Mospital Cambridge O O New Hampshire Catholic Medical Center Manchester O O New York Albany Medical Center Albany O O O New York Albany Medical Center Buffalo O O O Mortefiore Medical Center Buffalo O O O O Mortefiore Medical Center Burlabany O O O O Rochester General Hospital Albentown O O O O Pennsylvania Lanenau Medical Center Wymewood O O O O <td< th=""><th></th><th>Hospital name</th><th>City</th><th>Heart bypass surgery</th><th>Aortic valve replacement surgery</th></td<>		Hospital name	City	Heart bypass surgery	Aortic valve replacement surgery
Massachusetts Baystate Medical Center Springfield O O Brigham and Women's Hospital Boston O O O Massachusetts General Hospital Boston O O O Massachusetts General Hospital Cambridge O O O Mew Hampshire Catholic Medical Center Worcester O O O New Vork Masachusettal Center Morristown Medical Center Manchester O O New York Albany Medical Center Albany Medical Center Manchester O O New York Albany Medical Center Bronx O O O New York Albany Medical Center Bronx O O O Rochester General Megical Center Bronx O O O O Pennsylvania Excela Health Westmoreland Hospital Rochester General Hospital Allentown O O Vince Sara Ceneral Hospital Allentown O O O O O	NORTHEAST				5015017
Brigha and Women's Hospital Boston O Image: Context Surgers of Surger		Baystate Medical Center	Springfield	0	0
Center, Burlington Dultington O Massachusetts General Hospital Boston O Mount Auburn Hospital Cambridge O New Hampshire Catholic Medical Center Worcester O New Hampshire Catholic Medical Center Morristown Medical Center Morristown Medical Center Morristown Medical Center New York Albary Medical Center Morristown Medical Center Buffalo O Nevry Nospital Buffalo O O Morristown Medical Center Bornx O Nevry Nospital Buffalo O O O O O Morteflore Medical Center Bronx O<				0	0
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Rochester General Hospital Rochester O St. Joseph's Hospital Health Center Syracuse O Pennsylvania Excela Health Westmoreland Hospital Greensburg O Lankenau Medical Center Wynnewood O Lehigh Valley Hospital Allentown O Pinnacle Health System Harrisburg - The Good Samaritan Hospital Lebanon O Wilkes-Barre General Hospital Lebanon O Wilkes-Barre General Hospital Wilkes-Barre - The Good Samaritan Hospital Center Washington - SOUTH Memorial Regional Hospital Center Washington - Solumbia MedStar Washington Hospital Center Vork - South Munroe Regional Medical Center Vorice O Sarasota Memorial Regional Hospital Sarasota O - Supph's Hospital Tampa - - St. Joseph's Hospital Warker Haven O - Kentucky Baptist Health Paducah Patiest Haven		Mercy Hospital	Buffalo	0	0
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Pennsylvania Excela Health Westmoreland Hospital Greensburg O Lankenau Medical Center Wynnewood O Lehigh Valley Hospital Allentown O Pinnacle Health System Harrisburg - The Good Samaritan Hospital Lebanon O Wilkes-Barre General Hospital Wilkes-Barre - York Hospital York - SOUTH District of Columbia MedStar Washington Hospital Center Washington - Florida Memorial Regional Hospital Hollywood O - Florida Memorial Regional Hospital Sarasota O - Munroe Regional Hospital Sarasota O - - Venice Regional Medical Center Venice O - - Winter Haven Hospital Marietta - - - Kentucky Baptist Health Paducah Paducah - - Maryland Washington Adventist Hospital Marietta - - Maryland		Rochester General Hospital	Rochester	0	0
Lankenau Medical CenterWynnewoodOLehigh Valley HospitalAllentownOPinnacle Health SystemHarrisburg-The Good Samaritan HospitalLebanonOWilkes-Barre General HospitalWilkes-Barre-Vork HospitalYorkO-SOUTHVork HospitalYorkODistrict of ColumbiaMedStar Washington Hospital CenterWashington-FloridaMemorial Regional HospitalHollywoodOMunroe Regional Medical CenterOcala-Sarasota Memorial HospitalSarasotaOSt. Joseph's HospitalTampa-Venice Regional Medical CenterVeniceOWellStar Kennestone HospitalMarietta-KentuckyBaptist Health PaducahPaducah-MarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotteODuku University HospitalDurhamOOOklahomaOklahoma Health SystemHigh Point-Mission HospitalAshevilleSouth CarolinaProvidence HospitalAsheville-Misoin HospitalColumbiaO-Itage Saint Thomas West HospitalNashwilleO-Parkwest Medical CenterJohnson CityO-TennesseeJohnson City Medical CenterJohnson City-South CarolinaPorvidence HospitalNashville<		St. Joseph's Hospital Health Center	Syracuse	0	0
Lehigh Valley Hospital Allentown O O Pinnacle Health System Harrisburg - - The Good Samaritan Hospital Lebanon O O Wilkes-Barre General Hospital Wilkes-Barre - - York Hospital York O - SOUTH York O - District of Columbia MedStar Washington Hospital Center Washington - - Florida Memorial Regional Medical Center Ocala - - St. Joseph's Hospital Tampa - - - Venice Regional Medical Center Venice O - - Kentucky Baptist Health Paducah Paducah - - - Kentucky Baptist Health Paducah Paducah - - - - Muroe Regional Medical Center Charlotte O - - - - - - - - - - - - -	Pennsylvania	Excela Health Westmoreland Hospital	Greensburg	0	0
Pinnacle Health System Harrisburg - The Good Samaritan Hospital Lebanon O Wilkes-Barre General Hospital Wilkes-Barre - York Hospital York - SOUTH - - District of Columbia MedStar Washington Hospital Center Washington - Florida Memorial Regional Medical Center Ocala - Sarasota Memorial Hospital Sarasota O - Venice Regional Medical Center Venice O - St. Joseph's Hospital Sarasota O - Winter Haven Hospital Winter Haven O - Weilstar Kennestone Hospital Marietta - - Kentucky Baptist Health Paducah Paducah - King's Daughters Medical Center Ashland - - North Carolina Carolinas Medical Center Ashland - - Maryland Washington Adventist Hospital Takoma Park - - North Carolina		Lankenau Medical Center	Wynnewood	0	0
The Good Samaritan Hospital Lebanon O Wilkes-Barre General Hospital Wilkes-Barre - York Hospital York - SOUTH District of Columbia MedStar Washington Hospital Center Washington - Florida Memorial Regional Hospital Center Washington - - Source Memorial Regional Medical Center Ocala - - Sarasota Memorial Hospital Sarasota O O - Yenice Regional Medical Center Venice O O - Venice Regional Medical Center Venice O O - Kentucky Baptist Health Paducah Paducah - - Kentucky Baptist Health Paducah Paducah - - Maryland Washington Adventist Hospital Takoma Park - - North Carolina Carolinas Medical Center Charlotte O O Duke University Hospital Durham O - - Oklahoma		Lehigh Valley Hospital	Allentown	0	0
Wilkes-Barre General Hospital Wilkes-Barre O York Hospital York O - SOUTH Pistrict of Columbia MedStar Washington Hospital Center Washington O - Pistrict of Columbia Memorial Regional Hospital Center Washington O - Florida Memorial Regional Hospital Hollywood O O Munroe Regional Medical Center Ocala O - Sarasota Memorial Hospital Sarasota O O St. Joseph's Hospital Tampa - - Venice Regional Medical Center Venice O O Winter Haven Hospital Winter Haven O O Kentucky Baptist Health Paducah Paducah - King's Daughters Medical Center Charlotte O O North Carolina Carolinas Medical Center Charlotte O O Duke University Hospital Durham O O O O South Carolina Providence Hospital		Pinnacle Health System	Harrisburg	0	-
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SOUTH MedStar Washington Hospital Center Washington - District of Columbia Meemorial Regional Hospital Center Washington - - Florida Memorial Regional Medical Center Ocala - - Sarasota Memorial Hospital Sarasota O - - Sarasota Memorial Hospital Sarasota O - - Venice Regional Medical Center Venice O O - Venice Regional Medical Center Venice O O - Winter Haven Hospital Winter Haven O O - - Kentucky Baptist Health Paducah Paducah - - - - Maryland Washington Adventist Hospital Takoma Park - <td< td=""><td></td><td>Wilkes-Barre General Hospital</td><td>Wilkes-Barre</td><td>0</td><td>-</td></td<>		Wilkes-Barre General Hospital	Wilkes-Barre	0	-
District of Columbia MedStar Washington Hospital Center Washington - Florida Memorial Regional Hospital Hollywood O Munroe Regional Medical Center Ocala - Sarasota Memorial Hospital Sarasota O Sarasota Memorial Hospital Sarasota O Venice Regional Medical Center Venice O Venice Regional Medical Center Venice O Winter Haven Hospital Marietta - Kentucky Baptist Health Paducah Paducah - Kentucky Baptist Health Paducah Paducah - Maryland Washington Adventist Hospital Takoma Park - North Carolina Carolinas Medical Center Charlotte O Oklahoma Oklahoma Heart Hospital Durham O Vission Hospital Asheville - - South Carolina Providence Hospital Columbia O Vission Hospital Asheville O - Duke University Hospital Durham </td <td></td> <td>York Hospital</td> <td>York</td> <td>0</td> <td>-</td>		York Hospital	York	0	-
Columbia Medical washington Hospital Center Washington - Florida Memorial Regional Hospital Hollywood O Munroe Regional Medical Center Ocala - Sarasota Memorial Hospital Sarasota O St. Joseph's Hospital Tampa - Venice Regional Medical Center Venice O Winter Haven Hospital Winter Haven O Georgia WellStar Kennestone Hospital Marietta - Kentucky Baptist Health Paducah Paducah - Kentucki Baptist Hospital Takoma Park - Maryland Washington Adventist Hospital Takoma Park - North Carolina Carolinas Medical Center Charlotte O Oklahoma Oklahoma Heart Hospital Durham O - Mission Hospital Asheville - - - South Carolina Providence Hospital Columbia O - Mission Hospital Asheville O - - <td>SOUTH</td> <td></td> <td></td> <td></td> <td></td>	SOUTH				
Munroe Regional Medical CenterOcala-Sarasota Memorial HospitalSarasotaOSt. Joseph's HospitalTampa-Venice Regional Medical CenterVeniceOWinter Haven HospitalWinter HavenOGeorgiaWellStar Kennestone HospitalMarietta-KentuckyBaptist Health PaducahPaducah-KarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotteODuke University HospitalDurhamOODuke University HospitalOklahoma City-Mission HospitalOklahoma City-South CarolinaProvidence HospitalOklahoma City-Venienee HospitalOklahoma CityO-TennesseeJohnson City Medical CenterKnoxvilleOVirginiaIntora Frances HospitalNashvilleOVirginiaInova Fairfax HospitalNashvilleOVirginiaInova Fairfax HospitalFails Church-		MedStar Washington Hospital Center	Washington	0	-
Sarasota Memorial HospitalSarasotaOSt. Joseph's HospitalTampa-Venice Regional Medical CenterVeniceOWinter Haven HospitalWinter HavenOGeorgiaWellStar Kennestone HospitalMarietta-KentuckyBaptist Health PaducahPaducah-King's Daughters Medical CenterAshland-MarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotteODuke University HospitalDurhamO-High Point Regional Health SystemHigh PointMission HospitalAshevilleSouth CarolinaProvidence HospitalOklahoma City-OklahomaOklahoma Heart HospitalOklahoma City-TennesseeJohnson City Medical CenterJohnson CityOParkwest Medical CenterKnoxvilleO-Saint Thomas West HospitalNashvilleO-TexasMother Frances Hospital-TylerTylerOOVirginiaInova Fairfax HospitalFalls ChurchMary Washington HospitalFredericksburgO-		Memorial Regional Hospital	Hollywood	0	0
St. Joseph's Hospital Tampa - Venice Regional Medical Center Venice O Winter Haven Hospital Winter Haven O Georgia WellStar Kennestone Hospital Marietta - Kentucky Baptist Health Paducah Paducah - King's Daughters Medical Center Ashland - Maryland Washington Adventist Hospital Takoma Park - North Carolina Carolinas Medical Center Charlotte O Duke University Hospital Durham O O Duke University Hospital Durham - - Mission Hospital Asheville - - Konthama Oklahoma Heart Hospital Oklahoma City - - South Carolina Providence Hospital Columbia O - Tennessee Johnson City Medical Center Knoxville O - Vellmont Bristol Regional Medical Center Mashville O - - Tennessee Johnson City Medical Center Knoxville O - Wellmont Bristol Regional Med		Munroe Regional Medical Center	Ocala	0	_
Venice Regional Medical CenterVeniceOWinter Haven HospitalWinter HavenOGeorgiaWellStar Kennestone HospitalMarietta-KentuckyBaptist Health PaducahPaducah-King's Daughters Medical CenterAshland-MarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotteOOklahomaCarolinas Medical CenterCharlotteODuke University HospitalDurhamOODuke University HospitalDurham-Mission HospitalAsheville-South CarolinaProvidence HospitalColumbia-North CarolinaProvidence HospitalColumbia-Duke University HospitalDurhamO-Mission HospitalAshevilleSouth CarolinaProvidence HospitalColumbia-TennesseeJohnson City Medical CenterKnoxvilleOSaint Thomas West HospitalNashvilleO-Wellmont Bristol Regional Medical CenterBristolOTexasMother Frances Hospital-TylerTylerOVirginiaInova Fairfax HospitalFalls Church-Mary Washington HospitalFredericksburgO-		Sarasota Memorial Hospital	Sarasota	0	0
Vinter Haven HospitalWinter HavenOGeorgiaWellStar Kennestone HospitalMariettaOKentuckyBaptist Health PaducahPaducah-King's Daughters Medical CenterAshlandOMarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotteOOuke University HospitalDurhamOODuke University HospitalDurhamOODuke University HospitalDurhamOONorth CarolinaKingison HospitalAsheville-North CarolinaOklahoma Heart HospitalOklahoma City-OklahomaOklahoma Heart HospitalOklahoma City-South CarolinaProvidence HospitalColumbiaOTennesseeJohnson City Medical CenterKnoxvilleOParkwest Medical CenterKnoxvilleOOSaint Thomas West HospitalNashvilleOOTexasMother Frances Hospital-TylerTylerOOVirginiaInova Fairfax HospitalFalls ChurchMary Washington HospitalFredericksburgOO-		St. Joseph's Hospital	Tampa	0	_
GeorgiaWellStar Kennestone HospitalMarietta•KentuckyBaptist Health PaducahPaducah-King's Daughters Medical CenterAshland•MarylandWashington Adventist HospitalTakoma Park•MarylandWashington Adventist HospitalTakoma Park•North CarolinaCarolinas Medical CenterCharlotte•Oke University HospitalDurham••Duke University HospitalDurham••Mission HospitalAsheville•-Mission HospitalOklahoma City•-South CarolinaProvidence HospitalColumbia••TennesseeJohnson City Medical CenterJohnson City••Parkwest Medical CenterKnoxville•••South CarolinaProvidence HospitalNashville••TennesseeJohnson City Medical CenterJohnson City••Parkwest Medical CenterKnoxville•••TexasMother Frances Hospital-TylerTyler••VirginiaInova Fairfax HospitalFalls Church•-Mary Washington HospitalFredericksburg•••		Venice Regional Medical Center	Venice	0	0
KentuckyBaptist Health PaducahPaducah•King's Daughters Medical CenterAshland-MarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotteOCone HealthGreensboroOODuke University HospitalDurhamOOHigh Point Regional Health SystemHigh PointMission HospitalOklahoma CityOklahomaOklahoma Heart HospitalOklahoma City-South CarolinaProvidence HospitalColumbiaOParkwest Medical CenterJohnson CityOParkwest Medical CenterKnoxvilleOSaint Thomas West HospitalNashvilleOTexasMother Frances Hospital-TylerTylerOVirginiaInova Fairfax HospitalFalls Church-Mary Washington HospitalFredericksburgO		Winter Haven Hospital	Winter Haven	0	0
King's Daughters Medical CenterAshland•MarylandWashington Adventist HospitalTakoma Park-North CarolinaCarolinas Medical CenterCharlotte•Cone HealthGreensboro••Duke University HospitalDurham••High Point Regional Health SystemHigh Point•-Mission HospitalAsheville•-OklahomaOklahoma Heart HospitalOklahoma City•-South CarolinaProvidence HospitalColumbia••TennesseeJohnson City Medical CenterJohnson City••Parkwest Medical CenterKnoxville•••Saint Thomas West HospitalNashville•••TexasMother Frances Hospital-TylerTyler••VirginiaInova Fairfax HospitalFalls Church•-Mary Washington HospitalFredericksburg•••OkiahomaInova Fairfax HospitalFalls Church••OkiahomaFredericksburg••••OkiahomaInova Fairfax HospitalFalls Church••Mary Washington HospitalFredericksburg•••OkiahomaInova Fairfax HospitalFalls Church••OkiahomaInova Fairfax HospitalFalls Church••OkiahomaInova Fairfax HospitalFalls Church••Okiahoma	Georgia	WellStar Kennestone Hospital	Marietta	0	-
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North Carolina Carolinas Medical Center Charlotte O Cone Health Greensboro O Duke University Hospital Durham O High Point Regional Health System High Point - Mission Hospital Asheville - Oklahoma Oklahoma Heart Hospital Oklahoma City - South Carolina Providence Hospital Columbia O Tennessee Johnson City Medical Center Johnson City O Parkwest Medical Center Knoxville O O Viellmont Bristol Regional Medical Center Bristol O O Texas Mother Frances Hospital-Tyler Tyler O O Virginia Inova Fairfax Hospital Falls Church - - Mary Washington Hospital Fredericksburg O O -		King's Daughters Medical Center	Ashland	0	-
Cone HealthGreensboroODuke University HospitalDurhamOHigh Point Regional Health SystemHigh Point-Mission HospitalAsheville-OklahomaOklahoma Heart HospitalOklahoma City-OklahomaOklahoma Heart HospitalOklahoma City-South CarolinaProvidence HospitalColumbiaOTennesseeJohnson City Medical CenterJohnson CityOParkwest Medical CenterKnoxvilleOSaint Thomas West HospitalNashvilleOWellmont Bristol Regional Medical CenterBristolOTexasMother Frances Hospital-TylerTylerOVirginiaInova Fairfax HospitalFalls Church-Mary Washington HospitalFredericksburgOO	Maryland	Washington Adventist Hospital	Takoma Park	0	_
Duke University HospitalDurhamOImage: Constraint of the systemHigh Point Regional Health SystemHigh Point-Mission HospitalAsheville-OklahomaOklahoma Heart HospitalOklahoma City-South CarolinaProvidence HospitalColumbiaImage: Constraint of the systemTennesseeJohnson City Medical CenterJohnson CityImage: Constraint of the systemTennesseeJohnson City Medical CenterKnoxvilleImage: Constraint of the systemTexasMother Frances Hospital-TylerTylerImage: Constraint of the systemTexasInova Fairfax HospitalFalls Church-Mother Frances HospitalFalls ChurchMary Washington HospitalFredericksburgImage: Constraint of the systemImage: Constraint of the system	North Carolina	Carolinas Medical Center	Charlotte	0	0
High Point Regional Health SystemHigh Point•Mission HospitalAsheville-OklahomaOklahoma Heart HospitalOklahoma City-South CarolinaProvidence HospitalColumbia•TennesseeJohnson City Medical CenterJohnson City•Parkwest Medical CenterKnoxville••Saint Thomas West HospitalNashville••Wellmont Bristol Regional Medical CenterBristol••TexasMother Frances Hospital-TylerTyler••VirginiaInova Fairfax HospitalFalls Church•-Mary Washington HospitalFredericksburg•••		Cone Health	Greensboro	0	0
Mission Hospital Asheville - Oklahoma Oklahoma Heart Hospital Oklahoma City - South Carolina Providence Hospital Columbia • Tennessee Johnson City Medical Center Johnson City • Parkwest Medical Center Knoxville • • Saint Thomas West Hospital Nashville • • Wellmont Bristol Regional Medical Center Bristol • • Texas Mother Frances Hospital-Tyler Tyler • • Virginia Inova Fairfax Hospital Falls Church • - Mary Washington Hospital Fredericksburg • •		Duke University Hospital	Durham	0	0
Oklahoma Oklahoma Heart Hospital Oklahoma City - South Carolina Providence Hospital Columbia • Tennessee Johnson City Medical Center Johnson City • Parkwest Medical Center Johnson City • • Saint Thomas West Hospital Nashville • • Wellmont Bristol Regional Medical Center Bristol • • Texas Mother Frances Hospital-Tyler Tyler • • Virginia Inova Fairfax Hospital Falls Church • - Mary Washington Hospital Fredericksburg • •		High Point Regional Health System	High Point	0	_
South Carolina Providence Hospital Columbia Image: Columbi		Mission Hospital	Asheville	0	_
Tennessee Johnson City Medical Center Johnson City O Parkwest Medical Center Knoxville O Saint Thomas West Hospital Nashville O Wellmont Bristol Regional Medical Center Bristol O Texas Mother Frances Hospital-Tyler Tyler O The Heart Hospital Baylor Plano Plano O Virginia Inova Fairfax Hospital Falls Church - Mary Washington Hospital Fredericksburg O O	Oklahoma	Oklahoma Heart Hospital	Oklahoma City	0	-
Parkwest Medical Center Knoxville O Saint Thomas West Hospital Nashville O Saint Thomas West Hospital Nashville O Wellmont Bristol Regional Medical Center Bristol O Texas Mother Frances Hospital-Tyler Tyler O The Heart Hospital Baylor Plano Plano O Virginia Inova Fairfax Hospital Falls Church - Mary Washington Hospital Fredericksburg O O	South Carolina	Providence Hospital	Columbia	0	•
Saint Thomas West Hospital Nashville O Wellmont Bristol Regional Medical Center Bristol O Texas Mother Frances Hospital-Tyler Tyler O The Heart Hospital Baylor Plano Plano O Virginia Inova Fairfax Hospital Falls Church - Mary Washington Hospital Fredericksburg O	Tennessee	Johnson City Medical Center	Johnson City	0	0
Wellmont Bristol Regional Medical CenterBristolOTexasMother Frances Hospital-TylerTylerOThe Heart Hospital Baylor PlanoPlanoOVirginiaInova Fairfax HospitalFalls Church-Mary Washington HospitalFredericksburgO		Parkwest Medical Center	Knoxville	0	0
Medical CenterBristonOTexasMother Frances Hospital-TylerTylerOThe Heart Hospital Baylor PlanoPlanoOVirginiaInova Fairfax HospitalFalls Church-Mary Washington HospitalFredericksburgO		Saint Thomas West Hospital	Nashville	0	0
The Heart Hospital Baylor Plano Plano O Virginia Inova Fairfax Hospital Falls Church - Mary Washington Hospital Fredericksburg O			Bristol	•	0
Virginia Inova Fairfax Hospital Falls Church • - Mary Washington Hospital Fredericksburg • •	Texas		Tyler	0	0
Mary Washington Hospital Fredericksburg O		The Heart Hospital Baylor Plano		0	0
Mary Washington Hospital Fredericksburg O	Virginia	Inova Fairfax Hospital	Falls Church	0	-
	-	· · · · · · · · · · · · · · · · · · ·		0	0
		University of Virginia Medical Center	Charlottesville		

			Below average	Average Above average
	Hospital name	City	Heart bypass surgery	Aortic valve replacement
MIDWEST				surgery
Illinois	Advocate Christ Medical Center	Oak Lawn	0	0
	Advocate Condell Medical Center	Libertyville	0	0
	Advocate Good Samaritan Hospital	Downers Grove	0	0
	Advocate Sherman Hospital	Elgin	0	0
	Central DuPage Hospital	Winfield	0	-
	SwedishAmerican Hospital	Rockford	0	-
Indiana	Franciscan St. Francis Health-Indianapolis	Indianapolis	٥	0
	Indiana University Health Bloomington Hospital	Bloomington	0	0
	Parkview Regional Medical Center (Parkview Heart Institute)	Fort Wayne	0	0
	St. Vincent Heart Center of Indiana	Indianapolis	0	0
Kansas	Stormont-Vail HealthCare	Topeka	0	-
Michigan	Borgess Medical Center	Kalamazoo	0	0
	Crittenton Hospital Medical Center	Rochester	0	0
	Genesys Regional Medical Center	Grand Blanc	•	0
	Henry Ford Hospital	Detroit	0	0
	Henry Ford Macomb Hospitals	Clinton Township	0	0
	McLaren Bay Region	Bay City	0	-
	McLaren Northern Michigan	Petoskey	0	0
	Spectrum Health - Grand Rapids (Meijer Heart Center)	Grand Rapids	0	0
	St. John Macomb-Oakland Hospital	Warren	0	0
	St. Joseph Mercy Hospital	Ypsilanti	0	0
	University of Michigan Hospitals and Health Centers	Ann Arbor	0	0
Minnesota	St. Cloud Hospital	Saint Cloud	0	-
Missouri	Boone Hospital Center	Columbia	0	0
	Missouri Baptist Medical Center	Saint Louis	0	0
Nebraska	Bryan Medical Center	Lincoln	0	0
	Nebraska Heart Hospital	Lincoln	0	0
Ohio	Aultman Hospital	Canton	0	0
	Cleveland Clinic	Cleveland	0	0
	Mount Carmel East	Columbus	0	0
Wisconsin WEST	Gundersen Lutheran Medical Center	La Crosse	0	0
	University of Arizona Medical			6
Arizona	Center-University Campus	Tucson	0	0
California	Mercy Medical Center Redding	Redding	0	0
	Mission Hospital	Mission Viejo	0	0
	Ronald Reagan University of California Los Angeles Medical Center	Los Angeles	0	0
	Sequoia Hospital	Redwood City	0	0
	St. Joseph's Medical Center	Stockton	0	0
	St. Jude Medical Center	Fullerton	0	-
	Stanford Hospital and Clinics	Palo Alto	0	0
New Mexico	Presbyterian Hospital	Albuquerque	0	-
Oregon	Kaiser Permanente Sunnyside Medical Center	Clackamas	•	•
Utah	McKay-Dee Hospital Center	Ogden	0	-
	Utah Valley Regional Medical Center	Provo	0	0
Washington	Swedish Medical Center- Cherry Hill Campus	Seattle	0	0

How we rate hospitals on heart surgery

The data come from the Society of Thoracic Surgeons for hospitals that have agreed to share their data with us.

BYPASS SURGERY RATINGS Reflects a hospital's performance in isolated coronary artery bypass graft surgery, including the open-heart approach and less invasive versions. Overall score is a composite of four measures: survival (percentage of patients who leave the hospital and survive at least 30 days after surgery), complications (percentage of patients who avoid the most serious complications, including needing a second operation, developing a deep chest infection, suffering a stroke or kidney failure, and requiring prolonged ventilation), best surgical technique (percentage of patients who receive at least one graft from an internal mammary artery, located under the breastbone, which improves survival), and right drugs (percentage of patients who receive beta-blockers before and after surgery to control blood pressure and heart rhythm, aspirin to prevent blood clots, and a drug after surgery to lower LDL (bad) cholesterol).

VALVE REPLACEMENT RATINGS Reflects a hospital's performance in surgical aortic valve replacement. Does not include data for transcatheter aortic valve replacement, though the STS has started to collect it. Overall score is a composite of two measures: survival (percentage of patients who leave the hospital and survive at least 30 days after surgery) and complications (percentage of patients who avoid the most serious complications, which are the same as for bypass).

All data were adjusted based on the health of patients. Still, limitations of such adjustments can make direct comparisons difficult.

MORE INFORMATION For details on our methodology, go to *ConsumerReports.org/cro/ howweratehospitals*. For our complete hospital Ratings, subscribers to our website can go to *ConsumerReports.org/hospitalratings*.

GET INVOLVED

If your hospital is not in our Ratings, you can help change that. Contact your surgeon, the head of the hospital's cardiac department, and the hospital's CEO. Say that they should report their heart data to the Society of Thoracic Surgeons and that they should let the STS share the data with us. In addition, join our Safe Patient Project (*safepatientproject. org*), which uses the power of thousands of patient advocates to push for safer hospitals and transparent medical information.

DATA ANALYSES OF THE SOCIETY OF THORACIC SURGEONS NATIONAL ADULT CARDIAC SURGERY DATABASE



REVISED May 2014

Period Ending 12/31/2013





April 2014

Dear Society of Thoracic Surgeons (STS) Adult Cardiac Surgery Database Participant:

We are pleased to provide the enclosed *Data Analyses of The Society of Thoracic Surgeons National Adult Cardiac Surgery Database* for the time period ending 12/31/2013. Congratulations are in order as we have for the very first time surpassed the mark of 1000 participants successfully submitting a file for harvest. One thousand nine (1009) participants submitted analyzable files to the Data Warehouse during the STS 2014 Harvest 1. We thank all participants that contributed data to this harvest. Growth in the Adult Cardiac Surgery Database continues, and there are currently 1071 active Participants. The number of international participants continues to grow as we now have surgeons from Brazil, Israel, Turkey and Jordan.

The Data Quality Reports (DQR) that you receive during the data submission window for the harvest provide you with valuable information about your data quality. By examining these reports and addressing problem areas, you will substantially improve the quality of the data that you submit for analysis. Particular attention should be addressed to those fields with missing data that may impact your Star Ratings and NQF Measure results. In addition, STS continues an external audit program, using direct review of source materials, to assess the accuracy and completeness of submitted data. Such audits provide valuable information about the integrity of the data in the Adult Cardiac Surgery Database, and they facilitate interventions to constantly improve data quality. These audits will be increasingly important as the Database is used for various pay-for-performance and public reporting initiatives.

The meeting for users of the Adult Cardiac Surgery Database took place during the Advances in Quality & Outcomes: A Data Managers Meeting, held September 26-28, 2013, in Boston, Massachusetts. An important topic covered was the next specification upgrade that will be mandatory as of July 1, 2014. You should contact your vendor directly to discuss their timeline for upgrading your facility to the latest version of the data specifications. All data managers are always encouraged to attend this annual event as it is a valuable educational opportunity. The meeting for 2014 is scheduled to be held **October 8-10, 2014, at the Palmer House Hilton in Chicago, IL.** Make plans now to attend. Look for more information about this event on the STS website. Data managers are also encouraged to view the Data Manager Training Module.

On behalf of The Society of Thoracic Surgeons and the Workforce on National Databases, we applaud your dedication, efforts, and enthusiasm in support of the STS Adult Cardiac Surgery Database. You are participating in one of the most highly regarded databases in all of health care. The STS Adult Cardiac Surgery Database has provided the basis for valuable research that improves patient care, and it has also positioned STS to play an increasingly important role in national policy deliberations regarding provider performance measurement and healthcare quality improvement.



STS CABG Composite Quality Rating

U Duke Clinical Research Institute

Participant 11103 STS Period Ending 12/31/2013

Quality Domain	Participant Score (98% Cl)	STS Mean Participant Score	Participant Rating ¹	Distribution of Participant Scores • = STS Mean
Jan 2013 - Dec 2013 Overall	97.9% (97.0 , 98.6)	96.5%	***	Min 10th 86.7 80th Min 86.7 87.9 86.9
Jan 2013 - Dec 2013 Absence of Mortality	98.3% (97.0 , 99.2)	97.9%	**	Min Soth Set Constant
Jan 2013 - Dec 2013 Absence of Morbidity ²	91.8% (87.8 , 94.9)	87.5%	***	Min 10th 82,0 80,1 90th Max
Jan 2013 - Dec 2013 Use of IMA ²	99.0% (97.0 , 99.8)	98.2%	**	Participant M 60.0 60.0 60.1 00 7 100
Jan 2013 - Dec 2013 Medications ²	Jan 2013 - Dec 2013 Medications ² (94.4, 99.2) 90.0%	%0.08	***	Min 20.8 80.0 80.0 Max

STS CABG Composite Quality Rating - 1

* = Participant performance is significantly lower than the STS mean based on 99% Bayesian probability * * = Participant performance is not significantly different than the STS mean based on 99% Bayesian probability * * * = Participant performance is significantly higher than the STS mean based on 99% Bayesian probability ²Please refer to Report Overview - STS Composite Quality Rating and NQF-Endorsed Measures for full details

U Duke Clinical Research Institute

STS CABG Composite Quality Rating

Domain Details

Participant 11103 STS Period Ending 12/31/2013

Ouslity Domain	Eligible			Percent of
	Procedures	Detail	Count	Morbidity/Failure ¹
Jan 2013 - Dec 2013 Absence of Mortality	213	Mortality	2	
Jan 2013 - Dec 2013 Absence of Morbidity ²	213	Any Morbidity	17	
		Reoperation only ³	03	17.6% 0.0 %
		Deep Sternal Infection/Mediastinitis only	ဝစ	0.0% 47.1%
		Cerebrovascular Accident only	5 -	5.9 % 29.4%
Jan 2013 - Dec 2013 Use of IMA ⁵	206	IMA Failures	2	
Jan 2013 - Dec 2013 Medications ⁶	213	Failed to Prescribe all eligible NQF-Endorsed Medications	5	
		Only Failed to Prescribe Preoperative Beta Blockade Only Failed to Prescribe Discharge Beta Blockade ⁷	~ ~	20.0% 20.0%
		Only Failed to Prescribe Discharge Anti-Lipids ⁷	ωc	60.0%
		Failed to Prescribe Multiple Medications	0	%0.0 %0.0
Percentages represent the proportion that for these 'all/any or none' bundles. This ir	the specific morbidity formation is intended	Percentages represent the proportion that the specific morbidity or process non-compliance contributed to the total number of patients for whom credit was not received for these 'all/any or none' bundles. This information is intended to facilitate and focus process and quality improvement initiatives by movidere.	n credit was no	treceived

process and quality improvement initiatives by providers.

²Includes Reoperations, Renal Failure, Deep Sternal Infection/Mediastinitis, Prolonged Ventilation, and CVA

³Includes Reoperations for Bleeding/Tamponade, Valvular Dysfunction, Graft Occlusion, and Other Cardiac Problems

⁴Excludes patients with preop Renal Failure or Last Creatinine > 4.

⁶Includes Preoperative Beta Blockade, Discharge Beta Blockade, Discharge Anti-Lipids, and Discharge Anti-Platelets. Excludes contraindicated / not indicated records. ^bExcludes patients with prior CABG surgery and contraindications for IMA. Refer to Report Overview for definitions.

7Excludes in-hospital mortalities

⁸Anti-platelet use includes Aspirin and ADP Inhibitors, and excludes in-hospital mortalities

STS CABG Composite Quality Rating - 2



Participant 11103 STS Period Ending 12/31/2013

U Duke Clinical Research Institute

	Gender, Female	50.0%	40.0%	eðne 25	30.0% 27.2%	24.4% 25.0% 25.4%	Percel		10.0%		0.0%				Obesity (BMI 30+)		50.0%	43.75 43.65	_		Patienta 30 33	To tr	Percei		10.0%			Particinant 11hn 978	2	¹ Data presented in the report represent the individual response rates for each race category	shown; summing the individual non-caucasian categories will not result in the same rates as	shown in the graph since non-caucasian, as defined for the graph, does not include races or	asian	
A 65	C0 =< 80	75.0%	60.0% 54.3% 55.4% 55.4% 54.7% 54.4%		45.0%	o tru	90.0%		15.0%		0.0% 2011 2012 2013 2013 2013			Been New Contraction	race, non-caucasian		75.0%		60.0%		1 45.0% 47.8% 41.3%	int of	80.0% 30.0%	14.0%	15.0% The second s		0.0%			¹ Data presented in the report represent the in	shown; summing the individual non-caucasia	shown in the graph since non-caucasian, as	ethnicities reported in combination with caucasian ² BMI = Weight(kg) / Height(m) ²	
STS	2013	145,934		65.1	66.0	58.0	73.0	54.4%	1	25.4%	0.0.0		85.0%	7.5%	2.9%	0.8%	0.4%	3.3%	1.0%	1.3%	6.2%	0.4%		0.7%	18.7%	30.9%	14 20/2/02	6 1%	0.1%	0.0%				21
Like Group	2013	42,833		65.2	66.0	58.0	73.0	54.7%		25.6%	× > . >		87.3%	6.3%	2.4%	1.1%	0.4%	2.0%	1.0%	1.5%	5.3%	0.1%		0.7%	18.4%	31.U%	11 3%	6.2%	%700	%0.0				CAB-2
	2013	213		65.4	66.0	59.0	73.0	55.4%		24.4%	0.0.0		58.7%	20.2%	14.6%	0.5%	%0.0	0.0%	0.0%	6.1%	6.6%	0.0%		0.5%	23.5% 36.6%	20.0%	8 0%	8.5%	0.0%	0.0%				
Participant 11103	2012	233		65.5	66.0	58.0	73.0	55.4%	200.00	30.9%	2000		56.7%	24.5%	13.3%	0.0%	0.9%	6.9%	3.0%	0.9%	4.7%	0.0%		0.9%	24.0% 36.6%	30.3%	11.2%	1.7%	0.0%	0.0%				
1 1	2011	254		65.4	65.0 roo	0.86	72.0	54.3%	100 20	0%2.12 0 0%	2000		53.5%	30.3%	13.0%	0.0%	0.0%	4.7%	1.6%	0.0%	4.3%	0.0%		0.0%	26.0% 35.0%	24.0%	9.8%	5.1%	%0.0	0.0%				
		Number of Cases	Demographics Age (years)	Mean	Median		/o Percentile	Age >= 65 years old	Gander Female	Missing		Race ¹	Caucasian	DIACK	Asian	Native American	Native Hawalian/Pacific Islander	Wultishe Desce	Missing		Hispanic or Latino Ethnicity	MISSING	Body Mass Index ²	Underweight (BMI < 18.5)	Normal (BMI 18.5 - 24.9)	Obese I (BMI 30.0 - 34.9)	-	Morbid Obesity (BMI 40.0+)	Missing Height	Missing Weight				

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Participant 11103 STS Period Ending 12/31/2013

	Hypertension	100.0% 86.3% 86.3%	80.1%	80.0%			80.0%	ant c	Perce 40.0%		20.0%		0.0% 2011 2012 2013 2013 2013	Participant Like STS		Congestive Heart Failure		25.0%		20.0%		E 15.0% (13.8% 14.2%	10.3%	80.22 80.22 90		90°9			13 2013	Participant Like STS	b CHF	oth CHF and the indicated NYHA class		
	Diabetes, Insulin Dependent	25.0%		20.0%	18.0%	15 ANK	200	ent 114%	0.0%		5.0%		2011 2012 2013 2013	Participant Like STS		Chronic Lung Disease, Any		50.0%	40.2%	40.04		0 30.07%				e con		0.0%		Participant Like STS	¹ NYHA Class is only collected for patients with CHE	% represents proportion of cases that had both CHF and the indicated NYHA class		
STS	2013		45.7%	2.8%	21.3%	0.4%	0.1%	0.2%	0.1%	88.0%	0.1%	87 3%	0.1%	00.00	26.6% 0.4%	0.4.0	32.0%	0.2%		13.7%	6.2%	4.4%	200	18.1%	1.6%	5.0%	6.6%	4.3%	3.2%	0.2%	14 1%	0.2%		
Like Group	2013		45.8%	2.8%	21.6%	0.070	%1.0	%1.0	0.1%	88.1%	0.0%	87 R%	0.0%	101 10	24.5%	200	31.9%	0.0%		14.4%	5.7%	0.1%	2.0	16.7%	1.6%	4.4%	0.1%	4.3%	%0.7	0.1%	14.1%	0.0%		
03	2013		51.6%	1.4%	24.9%	0 13.1 70	%C.0	%0.0	0.0%	95.3%	0.0%	89 2%	0.0%	/00.01	0.0%	200	20.2%	0.0%		23.9%	6.6%	%C.0	200	10.3%	0.0%	2.8%	4.3%	4.1%	4.076	0.0%	12.2%	0.0%		
Participant 11103	2012		48.9%	0.0%	19.7%	0.0.0	% 0.0 0	%0.0	%n.n	90.1%	0.0%	92.7%	0.0%	17 60/	%0.71 0.0%		39.1%	0.0%		16.7%	8.6%	0.0%		14.2%	0.4%	2.1%	4.3%	0.0%	%0.0	0.0%	14.6%	0.0%		
Ра	2011		44.9%	20.0%	11 4%	7000	200	%0.0	%.0.0	95.3%	0.0%	94.9%	0.0%	100 50	%7°C7 0.0%		43.7%	0.0%		19.7%	0.6%	%0.0 0.0%		13.8%	0.0%	1.0%	4.1.%	%0.0	2000	%0.0	15.0%	0.0%		
		Comorbidities	Diat Control		: <u>-</u>	Other Control	Missing Control	Missing		Hypertension	Missing	Dyslipidemia	Missing	Family History of CAD	Missing		Current/Recent Cigarette Smoker		Chronic Lung Disease	Mild	Noderate	Missing				CHF / NYHA Class III	CHF / NYHA Clase IV	CHF / Missing Class	Miseina	Buiccia	Peripheral Arterial Disease	Missing		

CAB - 22

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Participant 11103 STS Period Ending 12/31/2013

	Dialysis	5.0%	4.0% 33%	2.5% 2.5% 2.5% 2.5% 2.5%	А 1.0%	013 2013	Participant Like STS	LTEVIOUS CAB	4.0%	26% 2.7%	Percent of 20% 2.0%		0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	>75% for v2.61 and >79% for v2.73 AB, valve, or other cardiac surgery			
	Cerebrovascular Disease	25.0%	20.0% 15.5% 15.5% 14.0%		2°0%	2043	rarocijam. Uko sis set Creatinina Droon > 4 0		4.0%	aineita9 h S S S	Percent of 20% 2.0% 2.0% 2.0% 2.0% 2.0%	1.0%	0.0% 2011 2012 2013 2013 2013 Participant Like STS	¹ Defined as occlusion of either carotid artery >75% for v2.61 and >79% for v2.73 $^2\mathrm{Previous}$ cardiac surgery reflects any prior CAB, valve, or other cardiac surgery			
STS	2013	14.3% 0.1%	0.2% 0.6%	4.2% 0.2%	2.6% 0.6%	3.8% 0.2%	7.2% 0.2%	2.8% 0.2%	c 7	0.1	1.2 0.3% 2.3%	2.7% 0.2%	5.0% 4.9%	2.7%	1.0%	2.0%	23
Like Group	2013	14.9% 0.0%	0.2% 0.5%	4.6% 0.1%	2.6% 0.6%	3.8% 0.1%	7.2% 0.0%	2.5% 0.1%	1 2	1.0 0.8 0.8	0.1% 2.1%	2.6% 0.0%	4.8% 4.6%	2.8%	1.0%	2.1%	CAB-2
03	2013	15.5% 0.0%	0.5% 0.0%	3.8% 0.0%	3.3% 0.0%	3.3% 0.0%	8.0% 0.0%	3.3% 0.0%	4 6	3253	0.0% 1.9%	3.8% 0.0%	1.9% 1.9%	1.4%	3.8%	4.7%	
Participant 11103	2012	18.5% 0.0%	0.0% 0.0%	7.3% 0.0%	2.6% 0.0%	2.6% 0.0%	9.0% %0.0	4.7% 0.0%	14	<u></u>	0.0% 3.9%	4.3% 0.0%	0.9% 0.9%	0.0%	1.7%	1.3%	
	2011	15.4% 0.0%	0.0% 0.0%	3.5% 0.0%	3.9% 0.0%	2.4% 0.0%	8.7% 0.0%	2.4% 0.0%	13	0.0	0.0% 2.0%	2.8% 0.0%	3.1% 3.1%	2.0%	0.4%	2.0%	
		Cerebrovascular Disease	Coma/Nonresponsive State	CVD TIA	Carotid Stenosis ¹	CVD Prior Carotid Surgery	Cerebrovascular Accident	Dialysis-Dependent	Last Creatinine Preop Mean	Median 25 th Percentile 75 th Percentile	Missing Value > 4.0 mg/dL	Immunosuppressive Treatment	Previous Interventions Previous Cardiac Surgery ²	Previous CAB	Previous AICD	Previous Pacemaker	

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Participant 11103 STS Period Ending 12/31/2013

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	Prior MI		/5.0%		60.0% 53.1% 53.7% 54.0%	47.0%	0.00%	d	15.0%			5	rendspent Like 618	Condisconia Shaal	Cardiogenic Shock		5.0%	4.0%	នាំពទ	10% 28% 28%	6 2.0% 1.7% 1.8%	1.4%	1.0%			113	ranocipam Like SIS					
	Emergent or Salvage Status		4.7%		398.	of Patients 30%	осоон о 2.0% 1.7%		1.0%			Participant 11k STS	}	MI within 7 days	MI MININI / COAS		50.0%	40.0%	81.18	23.0% 27.2% 28.0% 28.0%	20.0%		10.0%			2011 2012 2013 2013 2013 Particinant 116 272	2					
CTC	2013	70C OC	1.1%	28.1%	0.3%	85.7%		38.3%	57.0%	4.5%	0.1%	0.1%	51.9%	29.0%	4.6%	18.2%	0.1%		0.2%	0.8%	0.2%		11.9%	2.1%	17.1%	38.2%	24.0%	%8.C	? t.o			-
l ike Group	2013	101 00	1.1%	28.3%	0.1%	85.7%		35.9%	59.3%	4.7%	0.1%	0.0%	52.7%	29.6%	4.6%	18.4%	0.0%	707. *	0.0%	0.6%	%0.0		11.3%	1.8%	15.4%	40.5%	20.1%	0.1%	R		CAB - 24	1
	2013	70 207	1.4%	32.9%	0.0%	66.6%		22.1%	74.2%	3.8%	0.0%	0.0%	66.7%	34.7%	7.5%	24.4%	0.0%	1 40/	0.0%	0.5%	%0.0		13.6%	0.0%	9.4%	37.6%	7 50/	%0.0	2000			
Particinant 11103	2012	20 G%	0.0%	20.6%	0.0%	89.6%		29.2%	69.1%	1.7%	0.0%	%0.0	47.6%	23.6%	4.3%	19.7%	0.0%	1 70/	%0.0	0.4%	%0.0		16.7%	1.7%	18.9%	35.2%	A 70/	4.1.% 0.0%	200	 (495)		
Ба	2011	26.4%	1.6%	24.8%	0.0%	85.1%		26.4%	68.9%	4.3%	0.4%	%0.0	53.1%	27.2%	3.9%	%0.77 0.0%	0.0%	2 8%	%0.0	1.2%	0.0%		22.8%	0.8%	14.2%	31.5%	0 10/	0.0%				
		Previous PCI	<= 6 hours prior to surgery	surgery .	MISSING timing	Previous PCI Stent	Status Surriery Status	Elective	Urgent	Emergent	Emergent Salvage		IM	<pre><= / days prior to surgery</pre>	221 days prior to surgery	Missing timing	Missing	Cardiogenic Shock	Missing	Resuscitation	Missing	Cardiac Pres. on Admission	No Symptoms or Angina	Stable Andres Unlikely to be Ischemia	Instable Angina	Non-ST Elevation MI (Non-STEMI)	ST Flevation MI (STEMI)	Missing				



Participant 11103 STS Period Ending 12/31/2013

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32.7% 2013 STS 2013 STS 2.5% ²For v2.73 data, the time frame for arrhythmias was changed from 2 weeks to 30 days Left Main Disease 31.5% 2013 Z013 2.0% **Aortic Stenosis** ⁴PA mean pressure > 30mmHg (v2.61) or PA systolic pressure > 35mmHg (v2.73) 30.6% 2013 2011 2012 2013 Participant Participant 2011 2012 33.9% 33.9% 1.1 ¹For v2.73 data, preoperative arrhythmia is split into recent and remote 13% 50.0% 40.0% 30.0% 20.0% 5.0% 10.0% 0.0% 4.0% 3.0% 2.0% 1.0% %0.0 511 Percent of Path SIL Percent of Pati 75.7% ⁵For v2.73 data, the N/A option was deleted 2013 STS 16.8% 2013 STS Ejection Fraction <40% **Triple Vessel Disease** 78.4% 2013 Like 18.1% 2013 ³Among patients with measured EF 11.0% 2011 2012 2013 16.9% 16.6% 2011 2012 2013 Participant Participant 89.6% 76.8% 19.9% 80.0% 100.0% 60.0% 40.0% 20.0% 25.0% 0.0% 20.0% 10.0% 15.0% 5.0% 0.0% Percent of Patients Hercent 12.9% 9.5% 3.4% 0.4% 4.1% 19.7% 75.7% 0.2% 32.7% 0.3% 65.2% STS 2013 15.8% 37.1% 2.6% 0.3% 0.4% 6.7% 0.2% 51.6 55.0 45.0 60.0 2.9% 2.5% - 2.6% Like Group 2013 4.3% 19.9% 75.4% 31.5% 0.1% 16.1% 63.9% 13.2% 9.4% 3.8% 0.4% 35.8% 2.4% 6.7% 0.1% 0.1% 51.5 55.0 45.0 60.0 2.1% 0.4% 2.6% 3.4% 2013 10.8% 8.5% 2.3% 0.0% 1.9% 21.1% 77.0% 0.0% 30.5% 0.0% 16.6% 57.3% 3.3% 49.7 50.0 40.0 60.0 0.9% 0.5% 6.1% 0.0% 7.7% 4.2% 1.4% 1 Participant 11103 4.3% 26.2% 69.5% 0.0% 33.9% 0.0% 2012 9.4% 8.2% 1.3% 0.0% 2.6% 0.0% 0.4% 4.7% 0.0% 50.2 55.0 43.0 60.0 16.9% 21.6% 84.1% %6.0 1.7% 0.0% ı 3.5% 19.7% 76.8% 0.0% 33.9% 0.0% 19.9% 20.0% 96.1% 9.1% 4.7% 0.4% 0.0% 4.3% 46.7% 0.0% 2011 3.1% 0.0% 0.0% 6.3% 0.0% 50.0 53.0 40.0 60.0 Recent Remote Missing -----••••••• Missing ***** One Mean Missing Missing Two Left Main Disease (>50% Stenosis) Median Three Missing Number of Diseased Coronary Vessels Hemodynamics and Catheterization Ventricular Tachycardia/Fibrillation² PA mean/systolic pressure missing or not measured Atrial Fibrillation/Flutter² 3rd degree Heart Block² Pulmonary Hypertension⁴ Missing Ejection Fraction Any Arrhythmia¹ EF <40%³ Missing

CAB - 25

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82.8% 2013 STS Preoperative ACE Inhibitors 44.0% 2013 STS Preoperative Aspirin 82.3% 2013 13.8% 79.8% 26.8% 2011 2012 2013 2011 2012 2013 Participant Participant 89.8% ²For v2.73 data, the Contraindicated/Not Indicated option was deleted 84.6% 36.2% 100.0% 20.0% 50.0% 40.0% 80.0% 80.0% 40.0% 0.0% 30.0% 20.0% 10.0% 0.0% 501 Percent of Path 83U Percent of Path ¹For v2.73 data, the N/A option was deleted 22.0% 2013 STS MC.M 2013 STS Preoperative Beta Blocker Mitral Insufficiency, Mild+ 86.4% 24.1% 2013 Z013 31.0% 100.0% 97.8% 98.6% 99.5% 2011 2012 2013 2011 2012 2013 Participant Participant 18.0% atnetina V Patients S S S S S S S S S S S 50.0% 40.0% 10.0% 80.0% 60.09 40.0% 20.0% 0.0% 0.0% etnetise to theories 15.8% 17.5% 5.0% 82.8% 82.8% 89.2% 94.3% 4.8% 10.9% 44.6% 44.6% 0.0% 0.2% STS 2013 0.4% 0.2% 0.0% 1.4% 1.4% 0.0% 0.6% 0.1% 2.7% 2.7% 0.0% 0.6% 0.0% ī Like Group 15.9% 18.5% 5.3% 0.3% 82.3% 82.3% 0.0% 0.0% 91.2% 96.4% 4.7% 0.0% 11.0% 11.0% 0.0% 0.1% 2013 43.8% 43.8% 0.4% 1.3% 1.3% 0.0% 0.0% 2.5% 2.5% 0.0% 0.0% ı 2013 39.9% 24.4% 5.2% 1.4% 79.8% 79.8% 0.0% 0.0% 89.7% 99.5% 9.4% 0.0% 10.3% 10.3% 0.0% 0.0% 26.8% 26.8% 0.0% 0.0% 1.4% 1.4% 0.0% 0.0% 0.0% 1.4% 1.4% 0.0% 0.0% Participant 11103 4.7% 12.4% 4.7% 0.9% 88.8% 88.8% 90.6% 98.6% 8.2% 0.0% 2012 0.0% 0.0% 2.6% 2.6% 0.0% 0.0% 11.2% 11.2% 38.6% 38.6% 0.0% 0.0% 2.6% 2.6% 0.0% 0.0% 1 6.7% 15.7% 8.7% 1.2% 47.4% 0.0% 84.3% 84.6% 0.4% 0.0% 88.6% 97.8% 7.9% 0.0% 17.4% 17.3% 34.6% 35.2% 1.6% 0.0% 2011 2.8% 2.8% 0.0% 0.0% 3.1% 3.1% 0.0% 0.4% Mild Severe Aspirin Beta Blockers Steroids Missing Among Eligible Cases Missing Missing Missing Missing Missing Missing Contraindicated / Not Indicated² Contraindicated / Not Indicated² Contraindicated / Not Indicated² Contraindicated / Not Indicated² Contraindicated / Not Indicated **Preoperative Medications** Among Eligible Cases Among Eligible Cases Among Eligible Cases rrivial Mitral Insufficiency Moderate Nitrates IV Inotropics N/A

CAB - 26

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Participant 11103 STS Period Ending 12/31/2013

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Promotion Commenter		5.0%		4.0%	e e S S S S S S S S S S S S S S S S S S		700 6		1.0%	0.4% 0.5% 0.5%	0.0%	2011 2012 2013 2013 2013	Participent Like STS		Prennerative GD IIh-III's Inhibitan		10.04	80.5		80.0	etnel	51 Pat 6.0%		4.0% 3.4%	2.5% 2.5%	2.0%				Participant Like STS	ted option was deleted	5 Davs			
Preonerative Anticoaculante		50.0% 44.44	41.3% 41.7% 40.8%		atien 30.0%		2000		10.0%		0.0%	113 2013	Participant Like STS		Preoperative Lipid-Lowering Agent		100.0%					of Parts		60.7		20.0%			013 2013	Participant Like 373	¹ For v2.73 data. the Contraindicated/Not Indicated option was deleted	² Excludes patients not on ADP Inhibitors within 5 Davs			
STS	2013	40.8%	0.0%	0.2%	0.6%	0.6%	0.0%	0.3%	77 5%	77.5%	0.0%	0.2%		2.8%	2.8%	0.0%	0.0.0	11.6%	11.6%	0.0%	0.3%		16.0%	19.8%	18.0%	17.4%	17.7%	9.6%	1.6%	A 00/	4.8%	%0.0	0.3%		27
Like Group	2013	41.7%	0.0%	0.0%	0.5%	0.5%	0.0%	0.0%	76.0%	76.0%	0.0%	0.0%		2.5%	2.5%	%0.0 %0.0	80.0	12.2%	12.2%	0.0%	0.1%		17.7%	19.5%	17.6%	17.1%	18.3%	9.4%	0.4%	70C V	4.2%	0.0%	0.0%		CAB-2
	2013	41.3% 41.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	62.0%	62.0%	0.0%	0.0%		4.7%	%. 4. 7%	0.0% 0.0%	80.0	21.1%	21.1%	0.0%	%0.0		31.1%	8.9%	11.1%	31.1%	17.8%	%0.0	0.0%	0 50/	0.5%	0.0%	0.0%		
Participant 11103	2012	30.5% 30.5%	0.0%	0.0%	1.7%	1.7%	0.0%	0.0%	75.5%	75.5%	0.0%	0.0%	101 0	3.4%	0.4%	0.0% 0.0%	200	26.6%	26.6%	0.0%	%0.0		22.6%	12.9%	16.1%	12.9%	21.4%	0.1% 0.0%	0.0%	6 0%	6.0%	%0.0	0.0%		
Pa	2011	44.1% 44.1%	0.0%	0.0%	0.4%	0.4%	0.0%	0.0%	64.2%	64.9%	1.2%	0.0%	10 4 L	0.1% 7.1%	% - °C	%0.0	2	30.7%	30.7%	0.0%	%0.0		17.9%	15.4%	7.7%	14.1%	19.2%	%0.07	0.0%	0.4%	0.4%	0.0%	0.0%		
		Anticoagulants	Contraindicated / Not Indicated ¹	MISSING	Coumadin	Among Eligible Cases	Contraindicated / Not Indicated ¹	Missing	Lipid-Lowering agents	Among Eligible Cases	Not Ir	MISSIM	Glycomrotein IIb/IIIa Iabibitos	Among Flighha Casas	Contraindicated / Not Indicated ¹	Missing)	ADP Inhibitors within 5 Days	Among Eligible Cases	Vortrainaicated / Not Indicated	inissing	ADP Inhibitor Discontinuation ²	< 1 Day	1 Day	2 Days	J Doug	A Dave	Miseina		Antiplatelets within 5 Davs	Among Eligible Cases	Contraindicated / Not Indicated ¹	Missing		

The second s			Endovascular Veln Harvest Technique	100.0% 84.2% 84.5% 100.0%	80.0% 80.0%	Patient 60.0%	to imeone A Se		20.0%		2011 2012 2013 2013	Participant Like STS	Radial Artery Used		10.0%;	8.0%		of Pade 8.0%	4.0%		2.0% ^{2.0%} 0.0%	_	Melma	2	er of vein grafts both missing			
	3		Intraop Blood Products Used	50.0%	40.0% B	28.0%	eroent of 21,7% 22,1%		10.0%	0.0%	2011 2012 2013 2013 2013 Bandialand		Internal Mammary Artery Used		100.0% 87.8% 80.7% 80.0% 90.4%	80.0%	struct	t of Pat	40.0%	d	20.0%	0.0%	rticipant Lita		¹ Where number of arterial conduits and number of vein grafts both missing	² /Variable eliminated for v2.73 data ³ Where at least 1 vein was harvested	⁴ New option for v2.73 data ⁵ Excludes patients with prior CABG surgery	
rocedures mary	Participant 11103 STS Period Ending 12/31/2013	STS	2013	30.9%	6.6%	9.4% 3.3%	3.8% 8.4%	2.3%	0.1%		5.5%	17.6% 38.4%	27.7%	3.0% 1.0%		ï		84.8% 12.4%	1.9%	0.0% 0.8%		98.4% 02.7%	33.270 0 50/	4.7%	0.1%	4.2%	2.1%	28
Isolated CAB Procedures Data Summary	Participant 11103 eriod Ending 12/3	Like Group	2013	28.0%	6.2%	8.7% 3.0%	3.4% 6.5%	2.0%	0.1%		5.9%	17.4% 38.1%	27.9%	0.5%	,	ı		85.4% 11.6%	1.6%	0.0%		98.6% 02.7%	0.5%	4.4%	0.1%	5.4%	1.2%	CAB - 2
Isol	STS P	103	2013	22.1%	3.3%	6.1% 1.4%	1.4% 0.5%	0.5%	%0.0		2.8%	17.8% 34.3%	37.1% 8.0%	0.0%	,	ı		100.0% 0.0%	0.0%	0.0% 0.0%		99.0% 04 7%	0 5%	3.9%	0.0%	2.8%	0.0%	
		Participant 111	2012	17.2%	2.1%	4.7% 0.9%	0.9% 2.1%	0.4% 11 6%	%0.0		3.9%	15.0% 33.5%	34.3% 13.3%	0.0%	1	ı		99.5% 0.5%	0.0%	0.0% 0.0%		98.7% 94.4%	0.4%	3.9%	0.0%	0.9%	0.0%	
		Pa	2011	21.7%	6.7%	%0.0 %0.0	2.4%	3.5%	0.0%		4.7%	40.6%	31.9% 9.1%	0.0%	0.0%	0.0%		99.2% 0.8%	%0.0	0.0%		97.6% 94.3%	0.0%	3.2%	0.0%	2.0%	0.0%	
A COLOR OF THE ACTION	· · · · · · · · · · · · ·			Operative Information Blood Products Used		3 Red Blood Cell Units	4+ Kea Blood Cell Units 1+ Fresh Frozen Plasma Units	1+ Cryoprecipitate Units	Missing	Number of Distal Anastamoses, Total	- 1	ν κ	4 5+	Missing ¹	Anastomotic Device Used ²	Missing	Vein Harvest Technique ³	Eridovascular/Endoscopic	Both	diyopreserved	Internal Mammary Artery Used ⁵	Any Left	Right	Both	Missing	Radial Artery Used	Missing	



Participant 11103

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	Off-Pump Procedure	25.0%		20.0%		di 15.0% di 25.0%		P 10.0%	5.0%	5.0% 3.6%	%CZ	113 2013	Participant Like STS	CPB Time (min) Median + 25th/75th Percentiles	120		110 T	100	F	8 8		<u>م</u>		1		Number of the second seco				
	Preoperative IABP	10.0%	e./.0	8.0%		60% 62%		1994 2014		2.0%		013 2013 	Participant Like STS	Cross-Clamp Time (min) Median + 25th/75th Percentiles	06			¥		S nnīM			40 T	30	2011 2012 2013 2013 2013 Participent Line 878					_
STS	2013	%0 EE	60.2%	0.5%	5.4%	10.0%	7 8%	1 9%	0.4%	0.1%	0.2%	1.1%	1.4%	16.6%		68.4	64.0	47.0 85.0		95.4	90.0	09.0 115.0	0.1%	1.6%		28.9	14.0	3.0	50.0	29
Like Group	2013	38.5%	57.1%	0.6%	3.9%	%76	7.6%	1.6%	0.3%	0.1%	0.1%	1.5%	1.0%	17.0%		65.1	61.U	80.0		91.4	86.0 67.0	110.0	0.2%	0.8%		40.8	38.0	8.0	59.0	CAB-2
03	2013	33.3%	33.3%	0.0%	33.3%	7.5%	5.2%	1.9%	0.5%	0.0%	0.0%	0.0%	0.0%	2.3%		56.9	0.40	0.69		85.0	81.0 66.0	98.5	0.0%	0.0%			ı	ı	•	
Participant 11103	2012	0.0%	100.0%	0.0%	0.0%	6.9%	4.7%	1.3%	. 0.9%	%0.0	0.0%	0.0%	0.0%	5.6%		55.0 57.0	0.2C	65.0	4872744	80.0	78.5 64 5	92.5	0.0%	0.0%		ı	ı	ı	,	
Ра	2011	0.0%	100.0%	0.0%	0.0%	12.2%	8.7%	2.0%	1.6%	0.0%	0.0%	0.0%	0.0%	3.9%		52.3 50.0	38.0	62.0		81.5	6.0	94.5	0.0%	0.0%			1	ı		
		Radial Artery Harvest Technique	Direct Vision	Both	Missing	IABP Used	Preop	Intraop	Postop	Missing timing		Robotic Technology Assisted	filissini	Off-pump Procedure (see following section for detail)	Cross-Clamp Time (min)	Mean	25 th Percentile	75 th Percentile	Cardiopulmonary Bypass Time (min)	Mean		75 th Percentile	Circulatory Arrest	Missing	Circulatory Arrest Time (min)	Mean	Median	25" Percentile	75" Percentile	

2013 STS

16.6%

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Participant 11103 STS Period Ending 12/31/2013

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) OR Duration (min) Median + 25th/75th Permention	360	350	340 T	330	320	8 310 T T	1 300	280	¢	•	₹10	280	250 L	2401 2	2011 2012 2013 2013	sis Participant Line STS	d Intraon/Poston Products Used		TE NEL	80.0		60.0%	stnei	2 45.0% 38.0% 38.2% 38.0%		Pel 30.0%	15.0%			0.075 2011 2012 2013 2013 2013	Participant Like		ng patients without exclusions (v2.73 only)	srescribed/given prophylactically	8	48 hours	otinin, Epsilon Amino-Caproic Acid,		
	Skin Incision Duration (min) Median + 25th/75th Percentiles	280	270	280 T T	250	240 T	8 230	nui		210	200		-	001	•	2012 2013 2013		Postop Blood Products Used		60.0%			40.0%		6 ^년 30.0%		Per construction	10.0%		NOC	2011 2012 2013 2013 2013	Participant Like STS		¹ All antibiotic measures are calculated among patients without exclusions (v2.73 only)	² First or second generation cephalosporin prescribed/given prophylactically	³ Appropriate timing of prophylactic antibiotics	⁴ Prophylactic antibiotics discontinued within 48 hours	⁵ Includes one or more of the following: Aprotinin, Epsilon Amino-Caproic Acid,	Desmopressin, or Tranexamic Acid	
STS	2013		231.7	223.0	180.0	274.0		1010	310.1	300.0	250.0	359.0	101 00	36.4%	1.4%	1.2%	/00 00	30.270	1.2%	2 4	97.4%	1.4%	1.3%		78.0%	0/.0.0		34.4%	10.2%	11.5%	3.8%	6.1%	7.3%	3.0%	8.4%	0.2%				30
Like Group	2013		220.5	213.0	172.0	260.0		205 7	1.082	280.0	240.0	340.0	100 00	94.0%	%0.1	0.0%	/00 00	0 6%	0.7%	2	97.4%	1.2%	0.8%		77.3%	e		32.2%	9.2%	11.2%	3.4%	5.5%	6.3%	2.7%	7.7%	0.3%				CAB-3
03	2013		227.9	221.0	193.0	261.0		0 080	203.0	200.0	250.0	0.625	100 001	%0.001	%0.0	0.0%	00 5%	23.0 V	0.0%	2	100.0%	0.9%	0.0%		96.2% 0.0%	~~~~		26.3%	8.9%	11.3%	1.9%	3.8%	4.7%	1.9%	6.6%	0.0%				
Participant 11103	2012		219.8	216.0	192.0	244.0		781 G	0.102	0.612	244.0	308.0	00 60/	0/0/02	0.4% 00%	0.0.0	97 N%	%60	0.0%		99.6%	0.4%	0.0%		97.9% 0.0%	20.0		31.8%	9.9%	12.0%	2.6%	6.0%	5.6%	1.7%	5.6%	0.0%				
Ра	2011		221.3	215.0	186.0	247.0		280.4	1.002	0.002	240.0	0.010	200 200	20.0	%0.0	%,0.0	97 2%	0.0%	0.0%		99.2%	0.0%	0.0%	100 00	98.0% 0.0%	2000	101 10	31.1%	10.2%	11.0%	3.9%	5.1%	7.5%	2.0%	7.5%	0.0%				
		Skin Incision Duration (min)	Mean	Median		/ 2 Leicenule	OR Duration (min)	Mean	Median	25 th Derrentile			Antibiotic Selection ^{1, 2}	Fxdusione	Missing		Antibiotic Timina ^{1, 3}	Exclusions	Missing		Antibiotics Discontinued ^{1,4}	Exclusions	Missing	Cotting Accetob	Missing	2	Postoperative Information	Number of Blood Product Units Used	1 Red Blood Cell Unit	2 Red Blood Cell Units	3 Red Blood Cell Units	4+ Red Blood Cell Units	1+ Fresh Frozen Plasma Units	1+ Cryoprecipitate Units	1+ Platelet Units	INISSING				



Participant 11103 STS Period Ending 12/31/2013

45.7% 2013 STS 76.1% 2013 STS Initial Ventilation <6 Hrs Total ICU >24 hours 47.6% 2013 Like 75.6% 2013 Like 72.9% 2011 2012 2013 ST.78 2011 2012 2013 Participant Participant H.6% 86.8% 87.1% 80.0% 40.0% 100.0% 100.0% 0.0% 80.0% 20.0% 80.0% 60.0% 40.0% 20.0% 0.0% 511 Percent of Pati stu Percent of Patie 2013 STS 2.6% 2013 STS Total Ventilation Hours Median + 25th/75th Percentiles ¹Excludes patients extubated in the OR 2013 Extubated in OR 2013 27% ²Among patients reintubated 2.8% 2011 2012 2013 2013 Participant 30% Participant 2012 %8'O Ĩ 5.0% 4.0% 3.0% 1.0% 2.0% 0.0% 13 12 = 0 Percent of Patie 9.5% 6.2% 13.1% 13.9% 20.5% 0.1% 48.2% 45.7% STS 2013 139.5 18.9 6.5 4.3 12.4 13.9 2.6% 0.2% 3.5% 0.4% Like Group 2013 45.2% 8.9% 5.8% 11.8% 11.5% 4.4% 0.0% 47.6% 131.8 66.0 17.1 6.3 4.2 11.3 12.6 2.7% 0.0% 3.3% 0.5% 2013 38.0% 10.3% 9.9% 8.5% 1.9% 17% 0.0% 72.9% 175.9 59.5 17.6 5.1 3.8 6.4 10.0 5.1 2.8% 0.0% 4.2% Participant 11103 38.2% 9.4% 3.9% 8.6% 6.9% 2.1% 0.0% 64.6% 2012 28.6 5.5 4.2 9.4 15.9 5.5 220.5 68.8 3.0% 5.6% 39.0% 9.4% 5.5% 7.5% 11.0% 5.5% 18.1% 0.0% 55.2% 196.7 120.8 37.1 6.0 4.7 12.6 2011 25.4 5.9 0.8% 5.9% 4+ Red Blood Cell Units Total Number of Blood Product Units 1 Red Blood Cell Unit 1+ Fresh Frozen Plasma Units 1+ Cryoprecipitate Units 1+ Platelet Units Mean Mean Mean Missing Median 75th Percentile Median ******************************** Missing Missing Median Intraop/Postop Products Used Initial Ventilation <6 hours¹ Additional Ventilation Hours² Initial Ventilation Hours **Total Ventilation Hours** 25th Percentile Extubated in OR Reintubation Ventilation

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	Operative Mortality	5.0%	4.0%		3.0%	Percent 2.0%	1.3%		0.0% 2011 2012 2013 2013 2013 Participant Like STS	Operative Mortality Risk-adjusted rate + 85% C	5.0%	4.0%	atnel Se Se				1.0%	-	ZUTI ZUTZ ZUT3 ZUT3 ZUT3 ZUT3 Participant Lata STS		on nsk-adjustment methodology riods of less than 6 months			
_	In-Hospital Mortality	5.0%	4.0%	atne	이 만 편 3.0%		1.002		0.0% 2011 2012 2013 2013 2013 Participant Like STS	In-Hospital Mortality Risk-adjusted rate + 95% CI	5.0%	4.0%	ຊາດສະ 3.0%	H of Par	P 2:0%;	•		0.0% ± 1	Participant	¹ Among patients readmitted to the ICU	Refer to the Keport Overview for information on risk-adjustment methodology Risk-adjustment is not performed on time periods of less than 6 months			
STS	2013		69.0	46.7 25.0	74.4	RE A	46.0	2.8%	126.7 68.8	1.6%	2.0%		1.00	, r		- 1.6%		1.00		1.00		2.0%	33	Z
Like Group	2013		66.2	46.0 25.0	72.6	670	45.3	2.9%	115.0 65.5	1.4%	1.8%		0.96 0.84	1.10	0.83	0.9/ 1.4%	8	1.02	1.14	0.91	0.98	1.8%		
03	2013		78.1	51.3 34.4	75.5	C 11	51.3	1.4%	66.1 64.0	0.5%	%6.0		0.71 0.34	1.49	0.01	0.4%		0.78	1.46	0.45	1.55	0.9%		
Participant 11103	2012		80.1	28.0 28.0	94.0	72.5	50.3	4.3%	177.5 122.0	0.9%	1.3%		0.74 0.38	1.43	0.07	0.7%		0.77	1.42	0.50	1.39	1.0%		
Pa	2011		89.3	27.7	73.7	86.8	48.0	3.1%	79.7 60.8	2.4%	3.1%		0.99 0.55	1.80	0.42	1.6%	ļ	1.07	1.84	1.11	2.04	2.2%		
		ICU Stay Total ICU Hours	Mean Median	25 th Percentile	75" Percentile	Initial ICU Hours Mean	Median	Readmitted to ICU	Mean Median	Mortality Summary In-hospital Mortality	Operative Mortality	Mortality Risk-Adjustment ^z In-hospital Mortality	Odds Ratio Lower 95% Confidence Limit	Upper 95% Confidence Limit	Lower 95% Confidence Limit	Risk-adjusted Rate	Operative Mortality	Lower 95% Confidence Limit	Confidence Limit	U/E Katio	Upper 95% Confidence Limit	Risk-adjusted Rate		



Participant 11103 STS Period Ending 12/31/2013

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2013 875 ⁴For v2.73 data, conduit harvest or cannulation site replaces the leg/arm infection categories 2013 STS 1.0 8.8% Prolonged Ventilation Any Reoperation Observed rate 2013 3.4% ¹Includes reoperations for bleeding/tamponade, valvular dysfunction, graft occlusion, Zota 7.9% 6.1% 3.3% 2011 2012 2013 2011 2012 2013 Participant Participant 12.0% 15.0% 10.0% 15.0% 8.0% 4.0% 2.0% 0.0% 10.0% 6.0% 5.0% 0.0% Percent of Pa etnetian to theorem Deep Sternal Infx/Mediastinitis 37.7% 2013 STS 3% 2013 STS ³Excludes patients with zero vein grafts Any Complication 37.1% ZO13 Z013 2% ²Variable eliminated for v2.73 data 27.2% New variable for v2.73 data and other cardiac problems. 2011 2012 2013 0.0% 0.0% 2011 2012 2013 Participant Participant 35.6% 43.3% 0.4% er 20.0% 50.0% 40.0% 30.0% 10.0% 0.0% 5.0% 1.0% 0.0% 4.0% 3.0% 2.0% Percent of Patie Naments 13.0% 37.7% STS 2013 3.7% 2.3% 0.0% 0.2% 1.5% 1.8% 0.3% 0.8% 0.3% 3.1% 1.9% 0.2% 0.2% 12.6% 8.8% 2.8% 3.4% i i Like Group 37.1% 11.8% 2013 11.5% 7.9% 2.5% 3.5% 3.4% 2.2% 0.0% 0.3% 0.3% 1.5% 0.2% 0.7% --0.3% 3.1% 1.9% 0.2% 0.1% 27.2% 2013 8.5% 2.8% 1.9% 0.0% 0.0% 3.3%2.3%1.9%0.0%0.9%0.9%1.4% **0.0%** 0.9% --0.5% 8.5% 6.1% 0.0% 2.3% Participant 11103 35.6% 17.6% 13.7% 12.0% 4.3% 0.0% 3.9% 2012 5.6% 3.9% 0.0% 0.4% 2.1% 2.1% 2.1% 0.0% 0.9% - -0.0% 4.7% 3.9% 1.3% 0.4% 1.3% 43.3% 18.1% 16.1% 15.0% 6.3% 0.0% 3.9% 0.4% 0.0% 0.0% 2011 7.1% 2.8% 0.0% 0.8% 0.8% 0.8% 5.5% 4.7% 0.4% 0.0% 0.0% Any Complications Mortality Any Reoperation Reoperation for Other Cardiac Septicemia/Sepsis Paralysis Pulmonary Embolism Reoperation for Graft Occlusion Any Infection Deep Sternal Infection/Mediastinitis Conduit Harvest or Cannulation Site^{3,4} Any Neurological Coma/Encephalopathy Permanent Stroke ******************* Prolonged Ventilation Pneumonia Any Major Complications / Operative Transient Ischemic Attack Neurological Complications **Complications Summary** Pulmonary Complications **Operative Complications** Infection Complications Perioperative MI² Any Pulmonary RIND²

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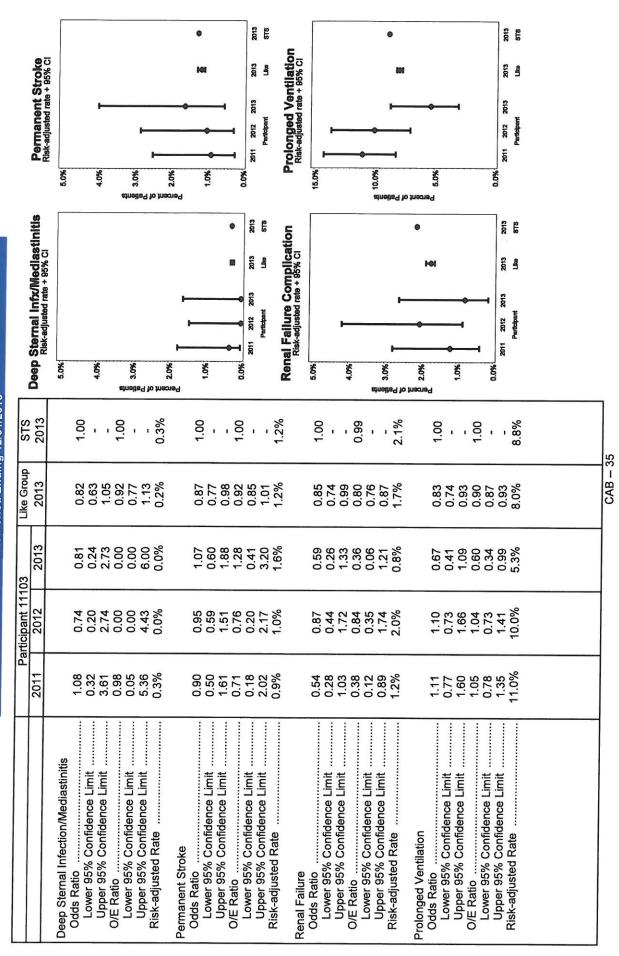
Participant 11103 STS Period Ending 12/31/2013

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2013 ST8 29.2% 2013 STS Any Other Complications Any Reoperation Risk-adjusted rate + 95% Cl Recent Recurrent AFib is among patients with history of recent afib (v2.73 data only) 29.3% 2013 Lites 2013 ⁵Refer to the Report Overview for information on risk-adjustment methodology 23.6% 2011 2012 2013 2013 Participant Risk-adjustment is not performed on time periods of less than 6 months Participent ²New Onset AFib is only among patients with no history of arrhythmias 2011 2012 ¹Excludes patients with preoperative dialysis or last creatinine > 4 40.0% 10.0% 30.0% 20.0% 50.0% 0.0% 10.0% 8.0% 2.0% 8.0% 0.0% 4.0% 81 Percent of Pat Major Complication or Mortality Risk-adjusted rate + 95% Cl 2013 6 Renal Failure Complication 2.1% 2013 STS 2013 Z013 1.7 ⁴Variable eliminated for v2.73 data 1.0% 2011 2012 2013 2011 2012 2013 Participant 10 5.0% 2.0% 1.0% 4.0% 3.0% 0.0% 25.0% 20.0% 10.0% 5.0% 0.0% 15.0% Percent of Patie etnetise to theorie 29.2% 23.0% 17.7% STS 2013 2.1% 0.3% 1.7% 0.6% 0.0% 2.0% 0.6% 1.00 13.0% 1.00 3.7% 1.0'' 1.00 CAB - 34 Like Group 29.3% 23.4% 18.0% 2013 1.6% 0.5% 0.0% 2.0% 0.5% 1.7% 0.3% 0.87 0.80 0.94 0.91 0.89 0.93 0.85 0.77 0.94 0.93 0.88 0.88 0.97 3.4% 1 23.5% 13.7% 7.7% 2013 1.0% -1.4% 0.0% 0.5% 0.0% 0.61 0.41 0.92 0.57 0.35 0.35 0.35 7.4% 0.91 0.52 0.58 0.80 0.35 0.35 2.9% Participant 11103 27.5% 15.6% 0.0% 2012 2.7% -4.7% 0.4% 3.4% 0.0% 0.4% 1.11 0.79 1.56 1.07 0.81 1.38 14.8% 1.24 0.76 2.02 1.26 0.71 2.08 33.5% 15.5% 0.0% 3.9% 3.9% 0.4% 0.4% 2011 1.6% 0.0% 0.93 0.67 1.29 0.93 0.72 1.17 1.29 0.84 1.98 1.35 0.84 2.06 5.6% Renal Failure¹ Any Vascular Acute Limb Ischemia Recent Recurrent Atrial Fibrillation³ Anticoagulant Complication Tamponade Odds Ratio Lower 95% Confidence Limit Upper 95% Confidence Limit O/E Ratio Lower 95% Confidence Limit Ódds Ratio O/E Ratio Gastro-Intestinal Complication Upper 95% Confidence Limit Multi-System Failure Major Complications or Op. Mortality Complications Risk-Adjustment⁵ Lower 95% Confidence Limit Upper 95% Confidence Limit Lower 95% Confidence Limit Upper 95% Confidence Limit Risk-adjusted Rate Vascular Complications **Risk-adjusted Rate** Renal Complications Other Complications Any Reoperation Cardiac Arrest Heart Block⁴



Participant 11103 STS Period Ending 12/31/2013



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Discharge Lipid-Lowering Agent 88.4% 2013 STS 97.6% 2013 STS **Discharge ACE Inhibitors** X6.0X 2013 Life 98.3% 2013 LIKe 47.8% 100.0% 88.3% 100.0% 88.6% 2013 2011 2012 2013 Participant Participant 38.6% 2011 2012 ²For v2.73 data, the Contraindicated/Not Indicated option was deleted 80.0% 73.5% 100.0% 80.0% 40.0% 20.0% 0.0% 0.0% 80.0% 80.0% 40.0% 20.0% Percent of Pat Percent of Patie 98.2% 88.4% 2013 STS STS **Discharge Beta Blocker Discharge Aspirin** 89.6% 2013 Like 88.0% 2013 Like ¹Excludes in-hospital mortalities 100.0% 88.0% 89.5% 100.0% 89.2% 100.0% 89.5% 2011 2012 2013 2011 2012 2013 Participant Participant 20.0% 80.0% 60.0% 40.0% 80.0% 60.0% 40.0% 20.0% 0.0% 0.0% gueger to th Perce Percent of Patients 80.2% 15.6% 0.7% 2.9% 0.3% 0.3% 96.8% 98.2% 88.4% 50.7% 5.7% STS 2013 1.4% 0.2% 43.6% 98.4% 95.2% 97.6% 94.8% 33.8% 33.8% 0.0% 0.2% 3.7% 0.2% 2.4% 0.2% Like Group 81.2% 0.6% 2.8% 0.2% 0.2% 2013 97.1% 98.6% 44.6% 88.9% 49.9% 95.4% 99.0% 96.0% 98.3% 1.5% 0.0% 31.7% 31.7% 5.5% 3.6% 2.4% 0.1% 0.0% 97.2% 99.5% 2013 63.7% 34.0% 0.0% 0.9% 0.9% 2.4% 0.0% 43.9% 47.9% 8.5% 47.6% 94.3% 99.5% 5.2% 0.0% 96.7% 98.6% 1.9% 0.0% 45.8% 45.8% 0.0% 0.0% Participant 11103 100.0% 97.0% 100.0% 3.0% 0.0% 63.6% 34.6% 0.4% 0.0% 0.0% 97.0% 51.5% 89.5% 42.4% 6.1% 93.5% 2012 13.9% 13.9% 0.0% 0.0% 2.6% 0.0% 6.5% %0.0 65.3% 33.1% 0.0% 0.0% 0.0% 97.2% 98.0% 56.0% 73.5% 23.8% 0.0% 99.2% 3.2% 0.0% 95.2% 98.3% 3.2% 0.0% 96.0% 17.3% 17.3% 0.0% 0.0% 0.8% 2011 Hospice Aspirin Nursing Home Other Missing ACE inhibitors -----..... Missing Beta blockers Lipid-Lowering agents Missing ADP Inhibitors Among Eligible Cases Missing -----Missing ***** Contraindicated / Not Indicated Contraindicated / Not Indicated² Contraindicated / Not Indicated Contraindicated / Not Indicated Contraindicated / Not Indicated Home Discharge Medications¹ Among Eligible Cases Among Eligible Cases Among Eligible Cases Among Eligible Cases Extended Care/TCU Discharge Location¹ Other Hospital Missing

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Participant 11103 STS Period Ending 12/31/2013

	Cardiac Rehabilitation Referral	100.0% 04.4% 04.4% 04.0%	Percent of Patients 60.0%		zori zoriz zoris zoris zoris Participant Liko STS	30-Day Readmission	15.0% 13.0%		attenda 9.4% 8.5%	ant of P	Perox 5.0%	13%K		0.0% 2011 2012 2013 2013 2013	T Clico		ited option was deleted	cable Records		
	Ulscharge Coumadin	15.0%	Percent of Patienta 10.0% 5.0% 6.7% 5.0% 6.7%		ani ani ani ani Participant Like STS	Smoking Cessation Counseling	100.0% 89.1% 81.3% 81.3%	80.0%	etnedts* 60.0%		Poro 40.0%	20.0%		0.0% 2011 2012 2013 2013 2013		ור	² Evolutions in homital modulated/Not Indicated option was deleted	Excludes in-hospital mortalities and Not Applicable Records	באמתקמ וייזיאלאנים ווילו מוווקס	
STS	2013	32.6% 32.6% 0.0%	9.7% 9.7% 0.0% 0.2%	89.0% 0.3%	91.3% 0.5%	9.5%	0.0%	0.1% 0.8%	1.0%	0.2%	1.5%	%0.0 0.0%	0.4%	0.1%	0.2%	%0.0	- 00	3.8%	3.1%	2
Like Group	2013	33.5% 33.5% 0.0% 0.1%	10.0% 10.0% 0.0% 0.1%	89.1% 0.1%	92.7% 0.3%	9.4%	0.0%	0.1% 0.8%	1.1%	0.2%	1.5%	%0.0 0.0%	0.3%	0.1%	0.2%	%0.0	- 00	3.6%	2.4%	CAB - 37
	2013	81.6% 81.6% 0.0% 0.0%	5.7% 5.7% 0.0% 0.0%	%0.0 %0.0	98.1% 0.0%	3.3%	0.0%	0.0% 0.5%	0.0% 0.5%	0.5%	0.5%	%0.0 0.0%	%0.0	0.0%	%0.0	0.0%	- 0%	1.4%	%0.0	
Participant 11103	2012	81.8% 81.8% 0.0% 0.0%	4.3% 0.0% 0.0%	98.4% 0.0%	87.5% 0.0%	8.2%	0.0%	0.0%	1.3% 1.3%	%0.0	%0.0 %0.0	%0.0	%0.0 0.0%	0.0%	0.4%	0.4%	%000	3.5%	0.0%	
	2011	76.2% 76.2% 0.0% 0.0%	4.0% 4.0% 0.0% 0.0%	98.9% 0.0%	90.9% 0.0%	12.9%	0.0%	0.0% 0.4%	0.8% 0.4%	0.0%	1.2% 0.8%	0.0%	0.4% 0.8%	0.4%	0.0%	0.4%	2	7.3%	0.0%	
		Antiarrhythmics	Coumadin	Discharge Referrals/Counseling ² Cardiac Rehabilitation Referral	Smoking Cessation Counseling	Readmission and Reason ³ Readmitted within 30 Days	Anticoagulation Complication Valvular	Arrhythmias/Heart Block	Congestive Heart Failure	Pericardial Effusion / Tamponade	Respiratory Complication Coronary Artery Dysfunction	Valve Dysfunction	Infection - Deep Sternum	Renal Failure	TIA / Permanent CVA	Acute Vascular Complication	VAD Complication	Other	Missing	

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Participant 11103 STS Period Ending 12/31/2013

	Postop Length of Stay	10 6		• • • • • • • • • • • • • • • • • • •		777	2		2011 2012 2013 2013 2013 Participant Liteo STS		Risk-adjusted rate + 95% Cl	10.0%	-	8:0%	attenta T				T (202		0.0% 2011 2012 2013 2013 2013	Participant Lika 878	r risk-adjustment methodology	ds of less than 6 months	
	Total Length of Stay Median + 25th/75th Percentiles	÷	10 ⁻			- 111.			2011 2012 2013 2013 2013 Partlopent Like STS	PLOS < 6 days	L	100.0%	T T		ameina 60.0%	سر مر P •	හෝස දී දී දී දී දී දී දී දී දී දී දී දී දී	20.00	P	- 700 0	2011 2012 2013 2013	Participant Like STS	Refer to the Report Overview for information on risk-adjustment methodology	wisk-adjustment is not performed on time periods of less than 6 months	
STS	2013	9.1	8.0 9.0	11.0	6.8	6.0	7.0	48.5%	4.9%		1.00	ı	1.00	1	- 48.5%		1.00		1.00		4.9%				38
Like Group	2013	8.9	7.0	10.0	6.6	5.0	7.0	51.6%	4.4%		1.35	1.17	1.06	1.05	51.4%		0.80	0.90	0.90	0.94	4.4%				CAB - 3
1103	2013	7.6	6.0 0.0 0.0	8.0	5.7	4.0	6.0	68.1%	4.2%		3.04	2.24	1.56	1.42	75.9%		0.83	1.45	0.75	1.36	3.7%				
Participant 111	2012	8. 1.0	0.0,6	0.01	6.3	4 ¢	7.0	64.8%	7.3%		2.88	2.14 3.86	1.48	1.34	70.7%		1.10	1.77	1.07	1.62	5.6%				
Pa	2011	8.5 0.5	0.4	0.0	6.7	0.0	6.0	69.3%	5.5%		3.75	2.80 7.02	1.62	1.49 1.73	78.7%		0.79	1.27	0.74	1.18	3.8%				
		Length of Stay Summary Total Length of Stay (days) Mean	25 th Percentile	Post-Procedure Length of Stav (davs)	Mean	25 th Percentile		PLOS <6 days	PLOS >14 days	Length of Stay Risk-Adjustment ¹ Short stay: PLOS <6 days	Odds Ratio	Lower 95% Confidence Limit	O/E Ratio	Lower 95% Confidence Limit	Risk-adjusted Rate	Long stay: PLOS >14 days	Odds Ratio Lower 95% Confidence Limit	Upper 95% Confidence Limit	Lower 95% Confidence I imit	Upper 95% Confidence Limit	Risk-adjusted Rate				

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Participant 11103 STS Period Ending 12/31/2013

	Gender, Female	75.0%	60.0%	stinet 동 동	45.0% 38.1%	Bercant 30.0%	t trog		0.0% 2011 2012 2013 2014 2015	rticipant Like		Obesity (BMI 30+)		75.0%		60.0%	Patients 45.0% 45.0% 45.2% 43.5% 43.5%	ant of Barts	Perce 30.0% Z5.0%	15.0%		0.0%	2011 2012 2013 2013 2013	Participant Like STS	Data presented in the renort represent the individual records or out for out of for out	shown; summing the individual non-caucasian categories will not result in the same rates as	shown in the graph since non-caucasian, as defined for the graph, does not include races or	asian	
and the second se	Age >= 65	68.2%	66.0% 06.7% 01.7%		t of Parts	Percent 30.0%	15.0%		0.0% 2011 2012 2013 2013 2013			Race, Non-Caucasian		50.0%		40.0%		28.0%	20.0%	10.0%			013 2013	Participant Like STS	¹ Data presented in the report represent the in	shown; summing the individual non-caucasia	shown in the graph since non-caucasian, as	etrinicities reported in combination with caucasian ² BMI = Weight(kg) / Height(m) ²	
STS	2013	30,241		68.6	70.0	78.0	67.9%	39.6%	0.0%		89.6%	5.0% 1.2%	0.6%	0.3%	2.9%	0.7%	5.9%	0.4%		1.0%	34.5%	23.5%	11.7%	8.0%	0.1%	2			- 55
Like Group	2013	9,773		68.8	70.0 62.0	78.0	69.2%	40.1%	0.0%		91.2%	4.2%	0.7%	0.2%	2.1%	0.0%	5.8%	0.1%		0.9%	34.3%	23.3%	12.2%	8.8%	%0.0 %0.0	2000			AV Replace - 55
03	2013	31		67.2	65.0 59.0	78.0	51.6%	35.5%	0.U%		64.5%	22.6%	0.0%	0.0%	0.0%	12.9%	3.2%	0.0%		0.0%	38.7%	19.4%	19.4%	6.5%	%0.0				
Participant 11103	2012	42		66.1	68.0 58.0	74.0	66.7%	38.1%	0.0%		69.0%	%0.07 0.0%	0.0%	0.0%	2.4%	0.0%	4.8%	0.0%		0.0%	45.2%	16.7%	14.3%	7.1%	%0.0				
Ра	2011	20		67.7	69.5 60.5	78.0	65.0%	45.0%	%.O.O		75.0%	%0.0	0.0%	0.0%	%0.01 0.0%	0.0%	10.0%	0.0%		0.0%	55.0%	20.0%	5.0%	%0.0	%0.0				
		Number of Cases	Demographics Age (vears)	Mean	25 th Percentile	75 th Percentile	Age >= 65 years old	Gender, Female		Race ¹	Caucasian	Asian	Native American	Native Hawaiian/Pacific Islander	Multiple Races	Missing	Hispanic or Latino Ethnicity	wissing	Body Mass Index ²	Underweight (BMI < 18.5) Normal (BMI 18.5 - 24.9)	Overweight (BMI 25.0 - 29.9)	Obese I (BMI 30.0 - 34.9)	Morbid Obocity (DMI 40.0.)	Microbia Opesity (BMI 40.0+)	Missing Weight	2			

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Participant 11103 STS Period Ending 12/31/2013

	Diabetes, insulin Dependent Hypertension	100.0%	80.0%	80.7% 80.3%		it.ik adne	Pa 60.0%	11.9%	8.5% 8.6%		20.0%		2013 2013 2013 0.0% 2011 2012 2013 2013	Participant Like STS Participant Like STS		Chronic Lung Disease, Any Congestive Heart Failure		50.0%:		40.0%	et 0:10	30.0%) freor	25.3% 24.4% 6 20.0% 18.1%	10.0%		0.0% 2013 0.0% 2013 2013 2013 2013	Participant Like STS Participant Like STS	NYHA Class is only collected for patients with CHF % represents monorhism of access that had both CHF	verepresents proportion of cases that had both CHF and the indicated NYHA class		
Г	-	25.0%		20.0%		dnet		nt ol	8 10.0% 10.0%		5.0%	500	R					75.0%			stnet	of 45.0% 40.0%	tneori Š	Pd	15.0%		0.0% 2011				je.	7
STS			31.3%	2.9%	16.8%	8.9%	0.1%	0.1%	0.2%	80.3%	0.1%	20.1%	0.2%		14 405	5.9%	4.1%	0.3%	41.9%	2.4%	13.3%	18.9%	2.2%	0.2%	9.7%	0.2%	13.6%	0.1%	0.2%	% / .0	5.0% 0.2%	e – 56
Like Group	2013		32.3%	3.3%	17.1%	8.9%	0.2%	0.1%	0.3%	80.7%	0.1%	20.0%	0.1%		14 9%	6.2%	4.2%	0.3%	39.3%	2.4%	10.9%	18.9% 6.6%	1.5%	0.1%	9.6%	0.1%	13.4%	0.1%	0.1%	800	4.7% 0.1%	AV Replace
103	2013		32.3%	3.2%	12.9%	16.1%	0.0%	0.0%	0.0%	90.3%	0.0%	12.9%	0.0%		19.4%	19.4%	12.9%	0.0%	16.1%	0.0%	6.5%	8./%	0.0%	0.0%	6.5%	0.0%	3.2%	0.0%	0.0%	20.0	3.2% 0.0%	
Participant 11103	2012		35.7%	7.1%	16.7%	11.9%	0.0%	0.0%	%0.0	83.3%	0.0%	42.9%	0.0%		21.4%	7.1%	14.3%	0.0%	31.0%	0.0%	4.8%	14.3%	0.0%	%0.0	9.5%	%0.0	19.0%	0.0%	%0.0 %0.0	2000	4.8% 0.0%	
ď	2011		30.0%	%0.0 20.02	20.0%	10.0%	%0.0	%0.0	0.0%	90.0%	0.0%	30.0%	0.0%		20.0%	10.0%	10.0%	0.0%	30.0%	%0.0	%0.0	10.0%	0.0%	0.0%	20.0%	0.0%	5.0%	0.0%	0.0% 0.0%	200	5.0% 0.0%	
		Comorbidities	Diabetes Mellitus					INISSING CONTROL	MISSING	Hypertension	Missing	Current/Recent Cigarette Smoker	Missing	Chronic Lund Disease	Mild	Moderate	Severe	wissing	Congestive Heart Failure	CHF / NYHA Class I'		CHF / NYHA Class IV	Class .	MISSING	Peripheral Arterial Disease	initiality of the second secon	Cerebrovascular Disease	funceira	Coma/Nonresponsive State		CVD TIA	



Participant 11103 STS Period Ending 12/31/2013

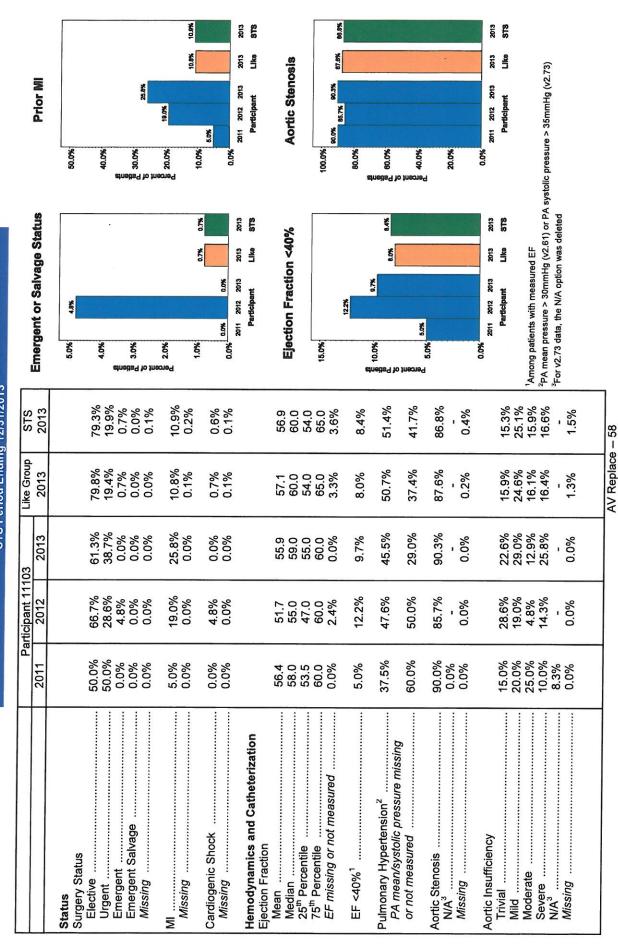
Duke Clinical Research Institute

2013 STS 2.0% 2013 STS 7.4% 2013 Like 8 80% Z013 **Previous Valve** ¹Defined as occlusion of either carotid artery >75% for v2.61 and >79% for v2.73 ²Previous cardiac surgery reflects any prior CAB, valve, or other cardiac surgery Dialysis 0.0% 2011 2012 2013 32% 2011 2012 2013 Participant Participant \$600 10.0% 10.0% 2.0% 15.0% 8.0% 6.0% 4.0% 0.0% 5.0% 0.0% 10.0% Percent of Patients stnebs9 to treored 2013 STS 13.6% Last Creatinine Preop > 4.0 1.6% 2013 373 **Cerebrovascular Disease** 13.4% 2013 Like ×, 2013 Like 32% 2011 2012 2013 2011 2012 2013 0.0% Participant Participant \$6.9 1.1% 5.0% 10.0% 25.0% 20.0% 10.0% 5.0% 15.0% 15.0% 0.0% 5.0% 10.0% 0.0% Percent of Patients 16.3% 15.3% STS 2013 1.3% 0.6% 2.9% 0.2% 6.9% 0.2% 2.0% 0.2% 1.1 1.0 0.8 0.4% 1.5% 3.7% 0.2% 5.5% 0.2% 8.2% 7.4% 1.3% 4.7% Like Group 2013 15.5% 2.9% 0.1% 1.3% 0.7% 6.9% 0.1% 1.9% 0.1% 1.1 1.0 0.5% 1.2% 3.3% 0.1% 5.1% 0.1% 8.2% 6.5% 1.3% 4.5% 2013 12.9% 0.0% 0.0% 3.2% 0.0% 0.0% 1.2 1.1 0.0% 0.0% 3.2% 0.0% 0.0% 9.7% 3.2% 0.0% 3.2% Participant 11103 2012 0.0% 2.4% 0.0% 7.1% 0.0% 2.4% 0.0% 0.0% 2.4% 0.0% 2.4% 2.4% 0.0% 1.5 1.1 0.9 1.4 7.1% 0.0% 0.0% 0.9 1.4 0.0% 10.0% 10.0% 10.0% 10.0% 2011 0.0% 0.0% 0.0% 5.0% 5.0% %0.0 0.0% 0.0% 1.1 CVD Prior Carotid Surgery Missing Infectious Endocarditis Previous AICD ***************************** ************** ************************* Median Value > 4.0 mg/dL Missing ***** First reoperation Previous CAB Previous Pacemaker ------..... Renal Failure, Dialysis-Dependent Missing Missing Immunosuppressive Treatment Missing Missing Cerebrovascular Accident Previous Valve Previous Cardiac Surgery² **Previous Interventions** Mean Last Creatinine Preop Carotid Stenosis¹ 25th Percentile . 75th Percentile . Missing

AV Replace - 57

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Participant 11103 STS Period Ending 12/31/2013



U Duke Clinical Research Institute	Preoperative Beta Blocker	100.0%	B0.0% 77.4% 73.1% no 14.	60.0%	Percent of the control of the contro			013 2013	Participent Like STS	Preoperative Anticoagulants	25.0%	22.6%	Z0.0%	15.0% 15.0%	11.0%	862	5.0%		rticipa	cated ontion was delated			
ocedures 3	Preoperative Aspirin	100.0%	80.0%	60.0% 81% 81%	Percent o	20.0%		0.0% 2011 2012 2013 2013 2013 Bandkalamad		Preoperative ACE Inhibitors	75.0%	50 JAK-		45.0%	25.0% 25.0% 25.0%	_	15.0%	0.0% 2011 2012 2013 2013 2013 2013	rticipant Like	¹ For v2.73 data. the Contraindicated/Not Indicated ontion was deleted			
ic Valve Replacement Pro Data Summary Participant 11103 Period Ending 12/31/2013	STS 2013	200	52.0% 0.0%	0.4%	1.2% 1.2%	0.5%	64.0%	69.1% 7.2%	0.2%	3.2% 3.2%	0.0% 0.6%	0.5%	0.5% 0.0%	0.6%	35.6%	%0.00 0.0%	0.3%	12.4%	0.0%	0.3%	1.7%	0.0%	1
Valve Replaceme Data Summary Participant 11103 eriod Ending 12/3	Like Group 2013	EA 400	54.4% 0.0%	0.1%	0.9% 0.9%	0.4%	68.6%	6.0%	0.1%	2.8% 2.8%	0.0% 0.4%	0.4%	0.4%	0.4%	37.2%	%0.0	0.2%	11.5%	%0.0	0.1%	1.4%	0.0%	AV Replace
Isolated Aortic Valve Replacement Procedures Data Summary Participant 11103 STS Period Ending 12/31/2013	103 2013	58 1%	58.1% 0.0%	0.0%	0.0 %0.0	0.0%	77.4%	0.0%	0.0%	0.0% 0.0%	0.0% 0.0%	0.0%	0.0% 0.0%	0.0%	25.8% 25.8%	0.0%	0.0%	22.6% 22.6%	0.0%	0.0%	%0.0 %0.0	0.0% 0.0%	
<u>s</u>	Participant 111(76 2%	76.2%	0.0%	4.8% 8.8%	0.0%	85.7%	7.1%	0.0%	2.4%	0.0% 0.0%	2.4%	2.4% 0.0%	%0.0	52.4%	0.0%	0.0%	7.1%	0.0%	0.0%	0.0% 0.0%	0.0% 0.0%	
	2011 Pa	65 N%	65.0% 0.0%	0.0%	0.0 %0.0	0.0%	80.0%	00.9% 10.0%	%0.0	5.0% 5.0%	0.0% 0.0%	0.0%	0.0% 0.0%	%0.0	25.0% 25.0%	0.0%	0.0%	15.0% 15.0%	0.0%	0.0%	0.0% 0.0%	%0.0 0.0%	
		Preoperative Medications Aspirin	ligible Cases dicated / Not In		Among Eligible Cases Contraindicated / Not Indicated ¹		Beta Blockers	ndicat	Success	SteroidsAmong Eligible Cases	Contraindicated / Not Indicated	Nitrates IV	Among Eligible Cases	Missing	ACE Inhibitors	Contraindicated / Not Indicated ¹	Missim	Anticoagulants	Contraindicated / Not Indicated	Buissini	Coumadin	Contraindicated / Not Indicated ¹	

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Participant 11103 STS Period Ending 12/31/2013

	Preoperative Lipld-Lowering Agent	75.0%		60.0% 67.1% 66.7% 56.5%	etnede A A A A A A A	2	0.0%	d	15.0%		0.0% 2011 2012 2013 2013 2013	Participant Like STS		Intraop Blood Products Used		60.0%		30.0%	36.0% 36.0%	000%		ercen 20.0%		10.0%		0.0% 2011 2012 2013 2013 2013			ated option was deleted	n 5 Days			
	Preoperative Coumadin	5.0%		4.0%	inebs Sou Sou		2.0%	1,4%	1.0%	0.0% 0.0% 0.0%	2011 2012 2013	Participant Like STS		Preoperative Antiplatelets			15.0%		11.0%	ametia 10.0%	of Pa		P. 5.0% 5.0%	27%	500	0.0% 2011 2012 2013 2013 2013	Participant Like STS		¹ For v2.73 data, the Contraindicated/Not Indicated option was deleted	^c Excludes patients not on ADP Inhibitors within 5 Days			
STS	2013	55.9%	55.9%	0.4%	70 T 0/	0.1%	%0.0	0.3%	2.0%	2.0%	0.3%		16.6%	21.0%	13.0%	11.9%	14.8%	18.4%	4.4%	2.7%	2.7%	0.0%	0.3%		38.9%	8 2%	11.4%	4.2%	5.3%	14.6%	5.5%	0.1%	- 60
Like Group	2013	56.7%	%/.9c	0.1%	0.1%	0.1%	0.0%	0.1%	1.6%	1.6% 0.0%	0.1%		15.1%	18.2%	17.0%	15.1%	16.4%	17.6%	0.6%	1.7%	1.7%	0.0%	0.1%		36.8%	7.5%	11.6%	3.7%	4.9%	13.3%	4.8% 10 E%	0.2%	AV Replace
1103	2013	38.7%	38.7%	0.0%	%U U	0.0%	0.0%	0.0%	0.0%	0.0% 0.0%	0.0%				ı	ı	1			0.0%	0.0%	0.0%	%n.n		32.3%	0.0%	12.9%	0.0%	9.7%	3.2%	3.2% 27 6%	0.0%	
Participant 111	2012	57.1%	%1.10	0.0%	%U U	0.0%	0.0%	0.0%	9.5%	9.5% 0.0%	0.0%		25.0%	0.0%	%0.0	%0.0	50.0%	%0.62	0.0%	11.9%	11.9%	0.0%	%0.0		11.9%	2.4%	2.4%	2.4%	0.0%	/.1% / 8%	4.0%	0.0%	
Pa	2011	40.0%	5 0%	0.0%	%0.0	0.0%	0.0%	0.U%	0.0%	0.0%	0.0%			ı		ı	ı		ı	5.0%	5.0%	0.0%	%0.0		35.0%	20.0%	5.0%	0.0%	5.0%	70.0%	3.0% 15.0%	0.0%	
		Lipid-Lowering agents	ndicated ¹	Missing	Glycoprotein Ilb/Illa Inhibitor	Among Eligible Cases	Contraindicated / Not Indicated '	Buicsing	ADP Inhibitors within 5 Days	Contraindicated / Not Indicated ¹	Missing	ADP Inhibitor Discontinuation ²	 < 1 Day 	1 Day	2 Days	3 Days	4 Days	Missing		Antiplatelets within 5 Days	Among Eligible Cases	Contraindicated / Not Indicated	D	Operative Information	Number of Blood Product Units Used	1 Red Blood Cell Unit	2 Red Blood Cell Units	3 Red Blood Cell Units	1+ Freeh Frozen Bloome I laite	1+ Cryoprecipitate Units	1+ Platelet Units	Missing	

	UUKe Clinical Research Institute	Cross-Clamo Time (min)	Median + 25th/75th Percentiles	100	ŀ			SecturilM		-1 -1 -1 -0	8	2013 2013	Participant Like STS	Skin Incision Time Median + 25th/75th Percentiles	250	240 - F T T	230	210		190	180 L L	170	160 2011 2012 2013 2013 2013	Participant Like 573
rocedures	13	Preoperative IABP		5.0%		4.0%	ineitar 1 3.0%	Percent o 2.0%	1.0%	0.5% 0.3%	013 2013	rerocipent Like 515		CPB Time (min) Median + 25th/75th Percentiles	130	T		setur <u>8</u>		• 1 8		ı 	2013 2013	Participant Line STS
acement Pl mary	11103 g 12/31/201	STS	2013	2.0%	0.3%	0.2%	- 0.1%	0.1% 1.1%		7.77	58.0	91.0		105.7	98.0 79.0	123.0	0.5% 1.6%	adam generation	33.4	6.0	44.0	212.3	198.0	163.0 244.0
: Valve Replacerr Data Summary	Participant 11103 Period Ending 12/31/2013	Like Group	2013	2.1%	0.5%	0.2%	0.1%	0.1% 0.5%		74.0	60.0	92.0		107.1	99.U 81.0	124.0	0.6% 0.7%	400 (V) (000 (000 (000	32.0 20.5	15.0	40.0	211.0	197.0	163.0 242.0
Isolated Aortic Valve Replacement Procedures Data Summary	STS P	103	6102	9.7%	%0.0 8.7%	0.0%	- 0.0%	0.0% 0.0%		73.8	58.0	0.77		102.4	97.0 78.0	110.0	0.0% 0.0%				I	220.5	210.0	176.0 244.0
lso		Participant 111	7107	7.1%	2.4%	2.4%	0.0 %0.0	0.0% 0.0%		70.5	62.0	83.0		99.3 02.0	80.0 80.0	106.0	0.0% 0.0%		1 1		ı	212.7	201.5	1/8.0 237.0
		2011	1107	10.0%	0.0% 5.0%	5.0%	%0.0 %0.0	0.0% 0.0%		82.3 74.5	68.5	83.U		108.3 04 0	89.0	115.0	0.0% 0.0%					221.6	204.0	186.5 235.5
A MAN AND AND AND AND AND AND AND AND AND A	· · · · · · · · · · · · · · · · · · ·			IABP	Intraop	Postop	Missing	Robotic Technology Assisted	Cross-Clamp Time (min)	Mean	25 th Percentile		Cardiopulmonary Bypass Time (min)	Mean	25 th Percentile		Circulatory Arrest	Circulatory Arrest Time (min)	Median	25 th Percentile	/5 Percentile	Skin Incision Duration (min) Mean		75 th Percentile

AV Replace -- 61

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Participant 11103 STS Period Ending 12/31/2013



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Participant 11103 STS Period Ending 12/31/2013

Duke Clinical Research Institute

2013 STS 2013 Ventilation Time Median + 25th/75th Percentiles Total ICU Hours Median + 25th/75th Percentile 2013 Lite 2013 2013 2013 H-01 Participant Participant 2011 2012 2012 EM. 2011 8 Ş 0 4 130 120 110 100 2 8 8 \$ 8 R 8 8 8 8 BUNOH SINOL Intraop/Postop Products Used 54.9% 2013 STS 19% 2013 373 Initial Ventilation <6 Hrs Excludes patients extubated in the OR 82.7% 2013 47.9% 2013 51.0% ²Among patients reintubated 60.7% 2011 2012 2013 2013 Participant Participant 12.38 71.4% 2011 2012 75.0% 40.0% 100.0% 80.0% 40.0% 40.0% 80.0% 20.0% 100.0% 80.0% 80.0% 20.0% 20.0% 0.0% Percent of Patients Perce it of Pab 14.4% 7.1% 15.8% 22.1% 28.4% 0.0% 10.4% 46.1% STS 2013 54.9% 9.7% 159.9 69.1 2.3% 4.0% 0.4% 20.2 6.5 4.3 12.2 72.6 47.0 25.1 76.2 13.7 6.3 Like Group 53.7% 9.2% 15.4% 6.8% 15.5% 20.6% 27.1% 0.1% 47.9% 2013 131.3 67.0 8.8% 17.9 6.2 4.2 11.7 12.8 6.1 2.3% 0.1% 3.8% 0.8% 70.2 47.0 25.0 75.4 51.6% 3.2% 16.1% 0.0% 22.6% 9.7% 25.8% 0.0% 66.7% 2013 243.9 249.6 106.2 75.1 42.6 102.9 3.2% 0.0% 9.7% 46.6 5.4 8.4 22.2 Participant 11103 35.7% 9.5% 11.9% 16.7% 14.3% 0.0% 2012 71.4% 13.0 5.4 6.2 7.1% 0.0% 76.8 52.6 28.3 96.0 0.0% 71.4 81.0 8.0 5.2 75.0% 20.0% 30.0% 15.0% 30.0% 10.0% 35.0% 0.0% 40.0% 15.0% 94.3 59.3 48.3 135.6 2011 39.2 8.7 5.1 41.3 0.0% 0.0% 47.6 31.7 8.4 Intraop/Postop Blood Products Used 1+ Fresh Frozen Plasma Units 1+ Platelet Units 1 Red Blood Cell Unit 4+ Red Blood Cell Units 1+ Cryoprecipitate Units Mean Median Mean Median Extubated in OR Reintubation Median Mean Missing 75th Percentile Missing Missing Total Number of Blood Product Units Mean Initial Ventilation <6 hours¹ Additional Ventilation Hours² **Total Ventilation Hours** Initial Ventilation Hours 25th Percentile Total ICU Hours Ventilation ICU Stay

AV Replace - 63



Participant 11103 STS Period Ending 12/31/2013

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2013 ST8 . 2013 STS 2.3% **Operative Mortality** Operative Mortality Risk-adjusted rate + 95% Cl ZO13 2% 2013 ²Refer to the Report Overview for information on risk-adjustment methodology 2011 2012 2013 X0.0 X0.0 2013 Participant Risk-adjustment is not performed on time periods of less than 6 months Participant 2012 2011 10.0% 8.0% 8.0% 4.0% 2.0% 0.0% 15.0% 10.0% 5.0% \$0.0 511 Percent of Patie etnetra to tneoned 2013 8T8 . 2013 STS 16 Among patients readmitted to the ICU In-Hospital Mortality In-Hospital Mortality Risk-adjusted rate + 95% Cf 2013 2013 6 E 8 2011 2012 2013 **6**0 2013 Participant 10.0 2012 2011 10.0% 8.0% 8.0% 4.0% 2.0% %0.0 15.0% 10.0% 0.0%1 5.0% Percent of Pagents squ Percent of Patie 141.9 70.0 STS 2013 67.5 46.2 3.5% 1.8% 2.3% 1.00 -1.00 1.8% 1.00 -1.00 -2.3% Like Group 140.6 2013 65.5 46.2 3.4% 1.6% 2.2% 0.93 0.67 1.28 0.89 0.76 1.03 0.93 0.71 1.23 0.95 0.83 1.07 2.2% 2013 163.2 6.5% 0.0% 0.0% 0.82 0.25 2.69 0.00 6.00 0.0% 95.7 59.7 0.77 0.23 2.54 0.00 0.00 0.00 0.0% Participant 11103 174.4 138.0 2012 64.4 49.8 7.1% 0.0% 0.76 0.30 1.95 0.00 0.00 2.67 0.0% 0.0% 0.75 0.31 1.83 0.00 0.00 0.00 0.0% 127.5 5.0% 2011 87.9 5.0% 5.0% 1.02 0.61 1.70 1.37 0.07 5.83 3.6% 1.04 0.57 1.86 1.63 0.09 6.95 3.6% Mean Median Mean Median In-hospital Mortality Operative Mortality Odds Ratio O/E Ratio Lower 95% Confidence Limit Risk-adjusted Rate Additional ICU Hours¹ Upper 95% Confidence Limit Upper 95% Confidence Limit Lower 95% Confidence Limit Upper 95% Confidence Limit Upper 95% Confidence Limit Mortality Risk-Adjustment² Risk-adjusted Rate Readmitted to ICU **Mortality Summary** In-hospital Mortality **Operative Mortality** Initial ICU Hours

AV Replace - 64

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Participant 11103 STS Period Ending 12/31/2013

	Any Reoperation	50.0%	40.0% 10	Percent of Paties 20.0% 20.0%	10.0%	4.5% 6.7% 6.7%	2011 2012 2013 2013	Prolonged Ventilation	50.0%	Percent of Patients 20.0% 20.0% 25.0%	10.0% 11.9% 0.1% 0.1% 0.6%	2011 2012 2013 2013 2013 Participant Liko 313		
	Major Morbidity/Operative Mortality	60.0%	40.0% 40.0%		10.0%	0.0%	2011 2012 2013 2013 2013 Barticlaant 11ka 676	trate 1	5.0%	Percent of Patients 20% 20%	1.0% 1.2% 1.2% 1.2% 1.0%	2011 2012 2013 2013 Participent Like STS	¹ Variable eliminated for v2.73 data ² New variable for v2.73 data	
STS	2013	45.7%	14.0%	5.2% 3.1%	0.1% 0.0%	0.8% 1.6%	0.0%	1.4% 0.2% 1.0%		3.8% 2.4% 0.3% 0.2%	13.2% 8.8%	2.4% 0.0% 4.9%		- 65
Like Group	2013	44.3%	13.4%	5.1% 3.2%	0.1% 0.0%	0.6% 1.3%	0.0%	1.2% 0.2% 0.7%		3.6% 2.3% 0.3% 0.2%	12.2% 8.1%	2.3% 0.0% 4.5%		AV Replace 65
03	2013	45.2%	16.1%	9.7% 0.0%	0.0% 0.0%	0.0% 9.7%	0.0%	0.0% 0.0% 0.0%	3.2	3.2% 0.0% 0.0% 0.0%	9.7% 9.7%	6.5% 0.0% 0.0%		
Participant 11103	2012	45.2%	16.7%	4.8% 0.0%	0.0% 0.0%	0.0% 4.8%	0.0%	2.4% 0.0% 0.0%		2.4% 0.0%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	11.9% 11.9%	0.0% 0.0% 2.4%		
Pa	2011	60.0%	40.0%	25.0% 15.0%	0.0% 0.0%	0.0% 10.0%	5.0%	0.0 0.0%		0.0000000 80000000 88000000000000000000	30.0% 25.0%	5.0% 0.0% 12.5%		
		Complications Summary Any Complications	Any Major Complications / Operative Mortality	Operative Complications Any Reoperation	Reoperation for Graft Occlusion	Reoperation for Other Cardiac	Perioperative MI '	Infection Complications Any Infection Deep Sternal Infection/Mediastinitis Septicemia/Sepsis	Neurological Complications	Any Neurological	Pulmonary Complications Any Pulmonary Prolonged Ventilation	Prneumonia		

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Participant 11103 STS Period Ending 12/31/2013

Duke Clinical Research Institute

31.8% 83.1% 2013 **STS** 2013 STS **Discharge ACE Inhibitors** Atrial Fibrillation Observed rate 31.3% ³Recent Recurrent AFib is among patients with history of recent afib (v2.73 data only) 2013 N.3% 2013 23.1% 31.8% 2011 2012 2013 2011 2012 2013 Participant Participant 21.6% 85.8% ²New Onset Afib excludes patients with preoperative atrial fibrillation Excludes patients with preoperative dialysis or last creatinine > 4 36.7% 50.0% 100.0% 40.0% 40.0% 30.0% 20.0% 80.0% 10.0% 0.0% 80.0% 20.0% 0.0% Percent of Patie Percent of Patients Renal Failure Complication 2013 STS 2.3% 90.0% 2013 STS **Discharge Aspirin** 2.5% 2013 90.5% 2013 ⁴Variable eliminated for v2.73 data ⁵Excludes in-hospital mortalities 83.6% 0.5% 2011 2012 2013 2011 2012 2013 Participant Participant 100.0% 100.0% 0.0% 0.0% 10.0% 8.0% 4.0% 2.0% 80.0% 60.0% 40.0% 20.0% 8.0% 0.0% Percent of Patients Percent of Pati 38.2% 31.9% 15.1% 74.4% 20.2% 0.6% STS 2013 2.3% 0.2% 0.0% 1.8% 0.1% 0.7% 4.0% 0.2% 0.4% 87.7% 90.9% 3.6% 0.2% 34.6% 83.1% 58.3% 7.0% AV Replace - 66 Like Group 36.7% 31.3% 11.7% 0.0% 1.1% 1.1% 0.1% 74.0% 20.0% 0.7% 86.7% 90.5% 2013 2.5% 0.2% 1.8% 0.6% 4.6% 0.2% 0.3% 0.1% 4.2% 0.1% 36.0% 84.3% 57.3% 6.7% 41.9% 23.1% 25.0% 2013 64.5% 35.5% 93.5% 93.5% 0.0% 0.0% 35.5% 6.5% 0.0% 6.5% 0.0% 6.5% 58.1% 3.2% 3.2% 9.7% 0.0% 0.0% 0.0% Participant 11103 92.9% 100.0% 2012 31.0% 0.0% 2.4% 4.8% 0.0% 71.4% 28.6% 54.8% 95.8% 42.9% 2.4% 0.0% 0.0% 0.0% 0.0% 0.0% 7.1% 0.0% 100.0% 50.0% 25.0% 42.1% 57.9% 0.0% 2011 0.0% 0.0% 0.0% 0.0% 5.0% 0.0% 0.0% 0.0% 0.0% 26.3% 35.7% 26.3% 0.0% %0.0 0.0% 0.0% **************** Any Vascular Acute Limb Ischemia Recurrent Recent Atrial Fibrillation³ -----Tamponade Gastro-Intestinal Complication Aspirin Anticoagulant Complication Multi-System Failure ******************* Hospice Heart Block⁴ Other Missing Contraindicated / Not Indicated Other Hospital Among Eligible Cases Contraindicated / Not Indicated Missing Nursing Home Renal Failure¹ Discharge Medications⁵ Among Eligible Cases Vascular Complications Extended Care/TCU Home Discharge Location⁵ Renal Complications Other Complications Cardiac Arrest ACE Inhibitors Missing

U Duke Clinical Research Institute		Discharge Lipid-Lowering Agent		100.0%	82.4% 81.6%	B0.0% 74.2% 77.4% 76.5%	eneite See		40.05 80.05		20.0%			Bandhamad 1 1 1 2013 2013			Smoking cessation counseling			85.6% 89.4%	60.0% B	60.0%	nt of F	40.0%	20.0%		0.0% 2011 2012 2013 2013 2013 2013	ŝ	ated option was deleted cable Bacords			
ocedures 3		Discharge Beta Blocker	4 mm mar 100.0% 07.4%	-	80.7% Dr. Ani		0.0%	11 Of 1	40.0%	4	20.0%		0.0% 2011 2012 2013 2013 2013 2013	rticipant Like		Cardian Bohahilitation Bafami		100.0% 100.0%	94.1% S0.8%	BU DAT		Petbar 80.0%	ant of	40.0%	20.0%		0.0% 2011 2012 2013 2013 2013		² For v2.73 data, the Contraindicated/Not Indicated option was deleted ² Excludes in-hospital mortalities and Not Amilicatle Percents			
acement Pr nary 11103 3 12/31/201:	STS	2013	OE OB/	00.U%	6.1%	0.2%	72 1%	75.5%	4.5%	0.3%	9.6%	9.6%	0.0%	0.3%	36.6%	36.6%	0.0%	0.3%	35.4%	35.4%	%0.0	0.3%		85.9% 0.3%	86.4%	0.9%						10-
lsolated Aortic Valve Replacement Procedures Data Summary Participant 11103 STS Period Ending 12/31/2013	Like Group	2013	700 10	04.0% 90.8%	6.6%	0.1%	73.2%	77.4%	5.4%	0.1%	9.7%	9.7%	0.0%	0.7.0	37.8%	37.8%	0.0%	0.7.0	37.2%	37.2%	0.0%	0.7.0		90.8% 0.2%	85.6%	0.5%					AV Renlace _ 67	AV Nepiave
lated Aortic STS P	03	2013	83 0%	86.7%	3.2%	0.0%	74.2%	74.2%	0.0%	0.0%	0.0%	0.0%	0.0%	%0.0	64.5%	64.5%	%0.0	%0.0	6.5%	6.5%	%0.0	e 0.0		100.0%	100.0%	0.0%				2		
s	Participant 11103	2012	88 1%	97.4%	9.5%	0.0%	73.8%	81.6%	9.5%	0.0%	11.9%	11.9%	0.0%	%0.0	81.0%	81.0%	%0.0	% 0.0	9.5%	9.5%	%0.0	800		94.1% 0.0%	100.0%	0.0%			 0123			
	Pa	2011	94 7 %	100.0%	5.3%	0.0%	73.7%	82.4%	10.5%	0.U%	5.3%	5.3%	0.0% 0.0%	20.0	78.9%	78.9%	0.0%	20.0	10.5%	10.5%	0.0%	200	100 001	0.0%	100.0%	0.0%						
A MARE AND A MARE			Beta Blockers	Among Eligible Cases	ed / Not In	Missing	Lipid-Lowering Agents		Contraindicated / Not Indicated	Buccia	ADP Inhibitors	Among Eligible Cases	Missing	D	Antiarrhythmics	Among Eligible Cases	Contraindicated / Not Indicated	0	Coumadin	Among Eligible Cases	Contraindicated / Not Indicated	2	Discharge Referrals/Counseling ⁴	Valuac veriabilitation Kelerral	Smoking Cessation Counseling	Missing						

Duke Clinical Research Institute	Postop Length of Stay Median + 25th/76th Percentilles	t T	L			2	2013	월 	PLOS > 14 days	25.0%	20.0%	efnetts* 15.05 %		10.0%	5.0% 4.8% 0.6%		2011 2012 2013 2013 2013 Participant Like STS				
ocedures 3	Total Length of Stay Median + 25th/75th Percentiles	15	10 T T			4	2013 2013	Participant Line STS DI OC / 6 Access		100.0%;	80.0%	ameita 60.0% 24.8%	80'0 8	40.0%	20.0%		Participant Like STS	¹ Evolution in homital madalities.	Examples III-Hospital Mortalines		
acement Prr nary 11103 J 12/31/201:	STS 2013	10.0%	0.0% 0.3%	1.7% 1.2% 0.2%	0.8% 1 4%	0.0% 0.0%	0.1% 0.0%	0.1% 0.2%	0.0% 0.0%	- 3.6%	4.3%		80 C	5.0	0.02	7.4	6.0 5.0	8.0	40.7%	0.2%	- 68
Isolated Aortic Valve Replacement Procedures Data Summary Participant 11103 STS Period Ending 12/31/2013	Like Group 2013	11.4%	0.1% 0.3%	2.0% 1.4% 0.3%	0.9% 1.6%	%0.0 %0.0	0.1%	0.1% 0.4%	0.0% 0.0%	- 3.8%	2.4%		8.4	2.0	2	7.1	6.U	8.0	43.3%	%D.C	AV Replace – 68
lated Aortic STS P	<u>33</u> 2013	9.7%	0.0% 0.0%	0.0% 0.0% 0.0%	6.5% 0.0%	0.0% 0.0%	0.0%	0.0% 3.2%	0.0% 0.0%	- 0.0%	0.0%		11.0	3.0	2	9.2	3.0	0.0	54.8%	%1.0	
s	Participant 11103 2012	16.7%	0.0%	4.8% 2.4% 0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%		7.0	3.0		5.9	3.0	7.0	73.8%	¢ 0.	
	Pa 2011	10.5%	0.0% %0.0	5.3% 0.0%	%0.0 0.0%	0.0%	0.0%	0.0%	0.0% 0.0%	5.3%	0.0%		0.0	4.5		7.2	4.0	0.0	50.0%	8000	
A LAND THE ALL AND		Readmission and Reason ¹ Readmitted within 30 days	Pharmacological	Arrynumia/Heart Block Congestive Heart Failure MI and/or Recurrent Angina	Pneumonia or other Respiratory Complication	Coronary Artery Dysfunction	Infection - Deep Sternum		Acute Vascular Complication	VAU Complication	inissing	Length of Stay Summary Total Length of Stay (days)	Mean Median	25 th Percentile		Mean Median	25 th Percentile	/a Percentile	PLOS <6 days		