

Predicting patient survival of high-risk surgeries

Developed for The Leapfrog Group by Castlight Health®



Table of contents

Introduction	3
Predicting patient survival of high-risk surgeries	4
Little progress in reducing variation in predicted survival rates	5
Year-to-year progress is limited	5
Leapfrog's standards	8
Conclusion and calls-to-action	9

2014 Leapfrog Hospital Survey results

Every year, The Leapfrog Group and its membership (employers and other organizations that purchase health insurance coverage for employees and their families, as well as business coalitions on health) ask every adult general acute care and free-standing pediatric hospital in the U.S. to voluntarily complete the Leapfrog Hospital Survey. Leapfrog uses the survey data to publicly report on issues that matter to health care purchasers and consumers, including high-risk surgeries, maternity care, hospital-acquired infections and more. Measures included on the Leapfrog Hospital Survey are endorsed by the National Quality Forum and/or aligned with those of other significant data-collection entities, including the Center for Medicare Services (CMS) and the Joint Commission. Leapfrog partners with the Armstrong Institute for Patient Safety and Quality at Johns Hopkins Medicine to review survey measures and standards and updates them annually to reflect the latest science. Additionally, panels of experts volunteer to meet regularly to review the survey measures and recommend performance standards for each subject area covered on the Leapfrog Hospital Survey.

This is the second in a series of reports Castlight Health is preparing on the results of the 2014 Leapfrog Hospital Survey. To read the first report on Maternity Care, [click here](#).

Predicting patient survival of high-risk surgeries

Despite breakthroughs in surgical safety, some amount of risk will always exist. But for many high-risk surgeries, choosing *where* to receive care can mean the difference between life and death. Given its potential impact on the health and well-being of employees and their families, the quality of surgical care is also critically important to employers. Paying for surgeries through employer-sponsored health insurance plans, these employers want nothing more than their valued workers back on their feet.

The Leapfrog Group, a national employer-driven nonprofit watchdog organization, asks hospitals to report their performance each year and makes this information public, so health care consumers and purchasers can use it to compare hospitals and make the best choice for surgical care.

The Leapfrog Hospital Survey focuses on four specific surgical procedures because they are both common and high-risk, and the survival rates for these procedures vary widely across hospitals. Leapfrog calculates predicted survival rates, by hospital, for each type of surgery.

The four surgeries included in the Survey are:

- **Abdominal aortic aneurysm (AAA) repair**—Surgery to treat an enlarged abdominal aorta, the major blood vessel that supplies blood to the body
- **Aortic valve replacement (AVR)**—Heart surgery that treats problems with the heart's aortic valve
- **Pancreatectomy**—Surgery to remove all or part of the pancreas to treat several conditions, such as benign (non-cancerous) pancreatic tumors, pancreatic cancer and pancreatitis
- **Esophagectomy**—Surgery to remove all or part of the esophagus, usually done to treat cancer

Little progress in reducing variation in predicted survival rates

The predicted survival rates for these four high-risk surgeries continue to vary greatly across hospitals. For instance, for pancreatectomies, this variance is 19 percentage points—predicted survival rates vary from 81% to 100%. For AAA repair, the variation in a patient's chance for survival has actually increased from 2013—there is now a 13 percentage point difference between predicted survival at the best-performing hospital and that at the worst performing hospital (85.7% vs. 98.9%).



Year-to-year progress is limited

The percent of hospitals fully meeting the Leapfrog standard for each procedure has not significantly increased over the past five years, and in the case of abdominal aortic aneurism, the percent of hospitals meeting the standard has decreased. There is still much work to do to ensure that patients have the best chance to survive surgery for these high-risk procedures.

Graph Key

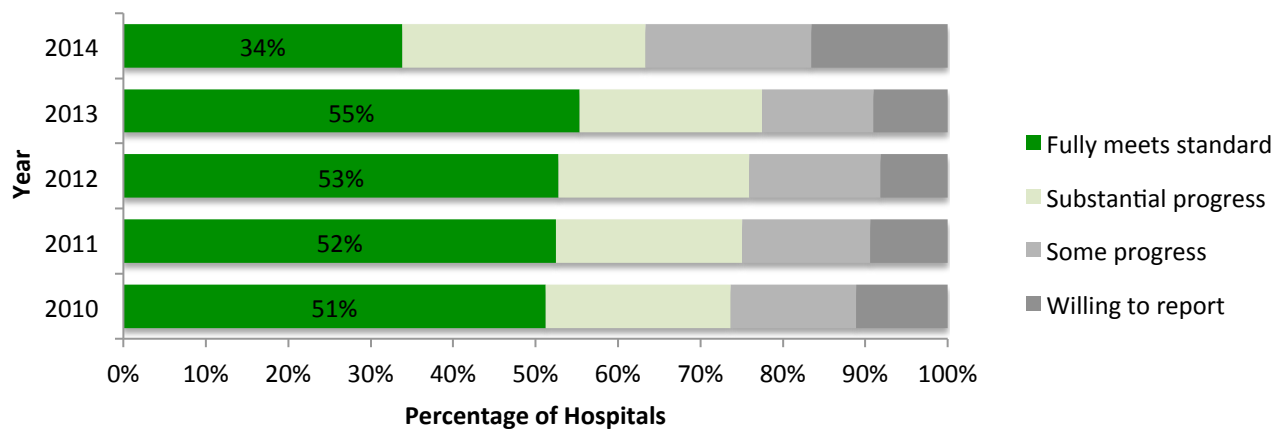
Fully Meets - “Best Odds of Survival”, meaning the hospital is in the best quartile for the composite measure for this procedure.

Substantial Progress - “Better Odds of Survival”, meaning the hospital is above the midpoint (median), but not in the best quartile for the composite measure for this procedure.

Some Progress - “Improved Odds of Survival”, meaning the hospital is below the midpoint (median), but not in the worst quartile for the composite measure for that procedure.

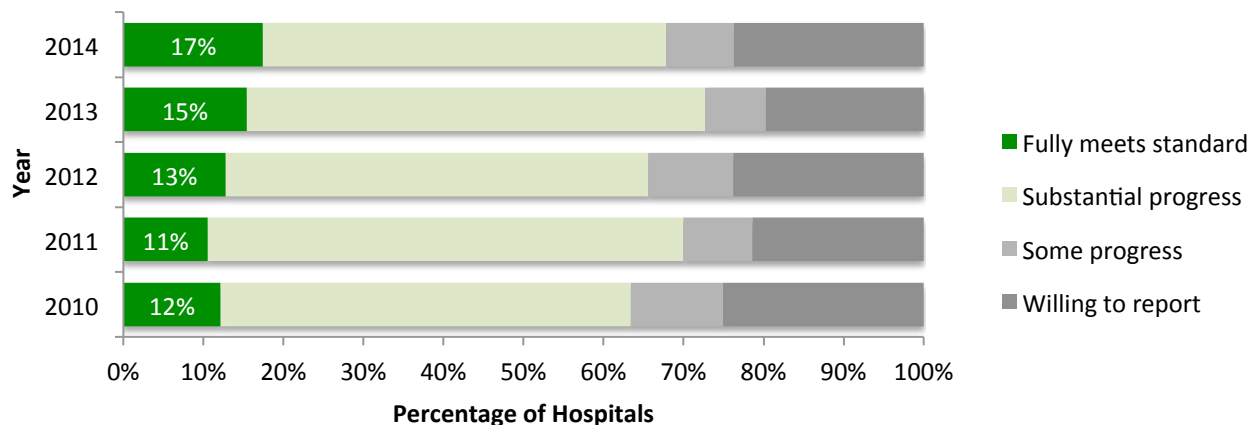
Willing to Report - “Lower Odds of Survival,” meaning means the hospital is in the worst quartile for the composite measure for that procedure.

Abdominal Aortic Aneurysm Quality by Category

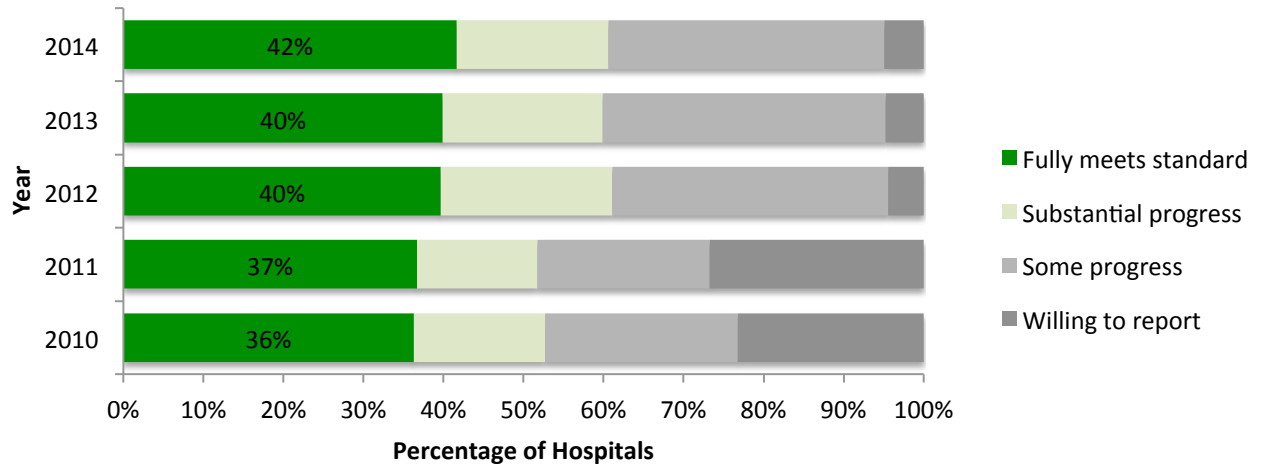


* The change in performance between 2013 and 2014 may be partially attributed to a change in the measure specification that made it more difficult for a hospital to get full credit.

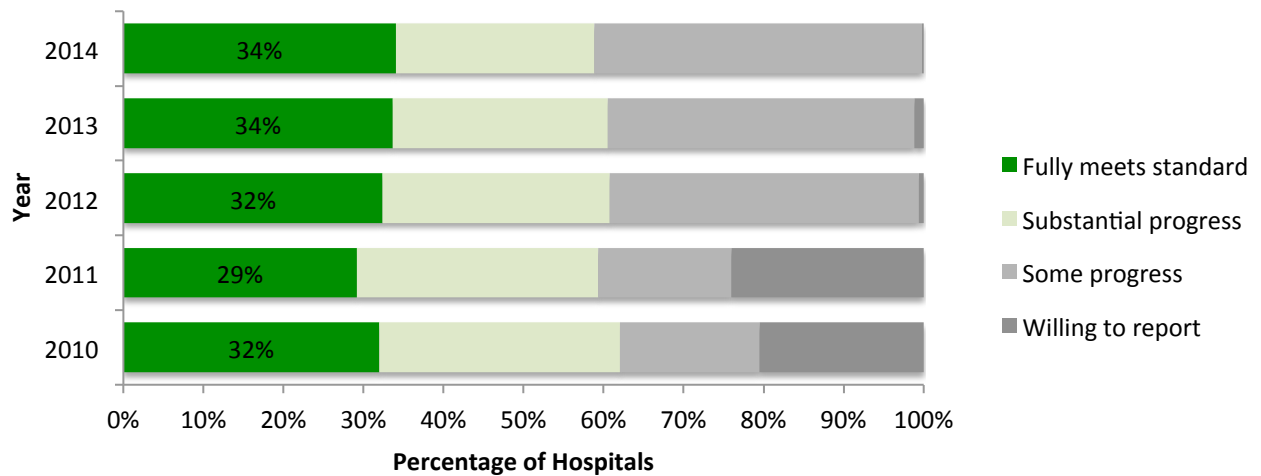
Aortic Valve Replacement Quality by Category



Pancreatectomy Quality by Category



Esophagectomy Quality by Category



Leapfrog's standards

Developed by Drs. John Birkmeyer and Justin Dimick at the University of Michigan and Dr. Doug Staiger at Dartmouth Medical School, the predicted survival rate has been tested for validity in peer-reviewed research,¹ and is calculated using two pieces of information:

1. The number of patients who had the surgery at a given hospital, and
2. The number of those who died after having the procedure at that hospital

In addition to the above methodology, The Leapfrog Group has worked where it can to align its process measures with national and state outcomes assessment systems. For example, several national registries hosted by medical specialty societies collect information on mortality for specific procedures such as aortic valve replacement. For aortic valve replacement, Leapfrog allows hospitals to report their risk-adjusted mortality rates as reported to a national registry.

Leapfrog's standards for high-risk procedures

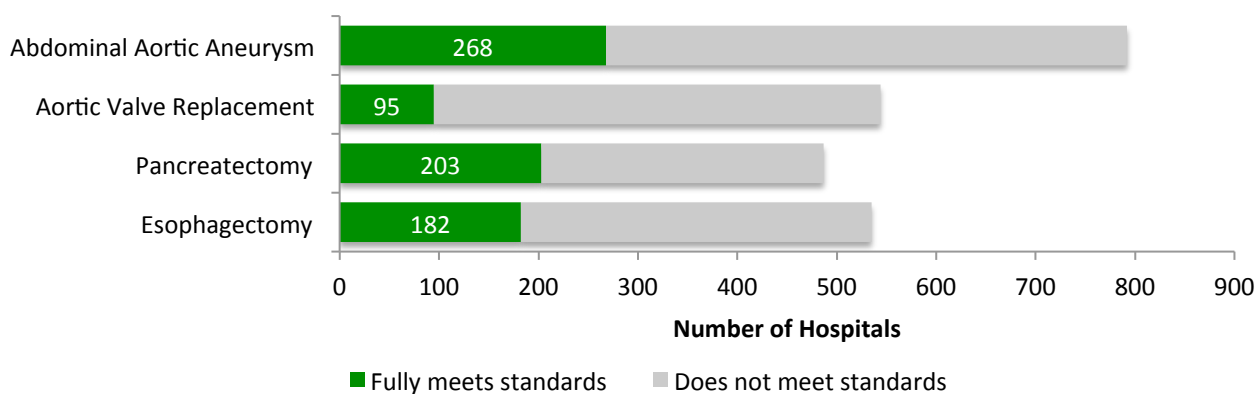
Abdominal aortic aneurysm (AAA) repair: Hospital has a predicted survival rate of 97.3% or better for patients having this procedure.

Aortic valve replacement: Hospital performs at least 120 of these surgeries per year and reports a risk-adjusted average mortality rate that's better than expected given the type of hospital and its patients; OR has a predicted survival rate of 95.6% or better.

Pancreatectomy: Hospital has a predicted survival rate of 91.3% or better for patients having this procedure.

Esophagectomy: Hospital has a predicted survival rate of 91.7% or better for patients getting this surgery.

Hospitals Meeting Leapfrog's Standard for High Risk Procedure Quality



¹ <https://leapfroghospitalsurvey.org/web/wp-content/uploads/FSebhr.pdf>

Conclusion and calls-to-action

All surgeries carry some amount of risk. However, it is evident that some hospitals in the U.S. simply provide safer, higher-quality care, and patients deserve to know how hospitals in their community stack up. Many hospitals have already implemented processes and protocols to ensure that their patients enjoy the best possible outcomes when having surgery. Below are additional steps that hospitals and other stakeholders can take to ensure patients receive the best care.

- **Hospitals** that have low predicted survival rates are encouraged to continue working toward better surgical outcomes—learning from others that have achieved high standards of care.
- **Employers** should urge hospitals to complete the Leapfrog Hospital Survey and should encourage their employees to choose hospitals that provide the highest levels of surgical care.
- **Patients and families** that need surgical care services are encouraged to consult the Leapfrog Hospital Survey results before choosing a hospital for their procedure.

Choosing a hospital for care is one of the most important decisions consumers can make. By taking strong action, hospitals, employers and consumers can each play their part in ensuring patients have the greatest possible chance for a positive outcome.

To learn more about Leapfrog's surgical survival predictor, go to its [survival predictor fact sheet](#) and [evidence-based hospital referral fact sheet](#).



About The Leapfrog Group:

National nonprofit watchdog The Leapfrog Group was founded in 2000 by employers and other purchasers of health benefits to collect data from U.S. hospitals and publicly report their performance by facility. Leapfrog has been the nation's premier advocate of transparency to galvanize giant leaps forward in quality and safety of care. Leapfrog's data by hospital from the [Leapfrog Hospital Survey](#) and [Hospital Safety Score](#) allow purchasers of healthcare to structure contracts and purchasing toward the highest performing hospitals, while providing consumers with potentially lifesaving information on hospital quality. The biannual Hospital Safety Score, which assigns letter grades to hospitals based on how safe they are for patients, empowers consumers to search for a local 'A' hospital for their life-long healthcare needs.

About Castlight Health:

Castlight Health, Inc. (NYSE:CSLT) is the leader in Enterprise Healthcare Management. We believe great healthcare builds great business and U.S. enterprises can gain control over the \$620 billion spent annually on healthcare, transforming a crippling cost into a strategic business advantage. Recognized as [a top 2014 software platform](#) by the HR Technology Conference & Exposition, Castlight's Enterprise Healthcare Cloud enables employers to understand and manage all their healthcare investments while helping employees make the best possible healthcare decisions. Castlight is a great place to work, honored with a [Glassdoor Employees' Choice award](#) and recognized by Rock Health for Diversity in Leadership. For more information visit www.castlighthealth.com. Follow us on [Twitter](#) and [LinkedIn](#) and Like us on [Facebook](#).

