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Case Study

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Ridgeview Medical Center: Service Line Structure Lays Groundwork for Surgical Care Improvement

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Vital Signs

Location: Waconia, Minn.

Type: Private, nonprofit hospital

Beds: 109

Distinction: Top 3 percent in a composite of five surgical care improvement process-of-care measures, among more than 2,300 hospitals (more than half of U.S. acute-care hospitals) eligible for the analysis.

Timeframe: April 2007 through March 2008. See Appendix for full methodology.

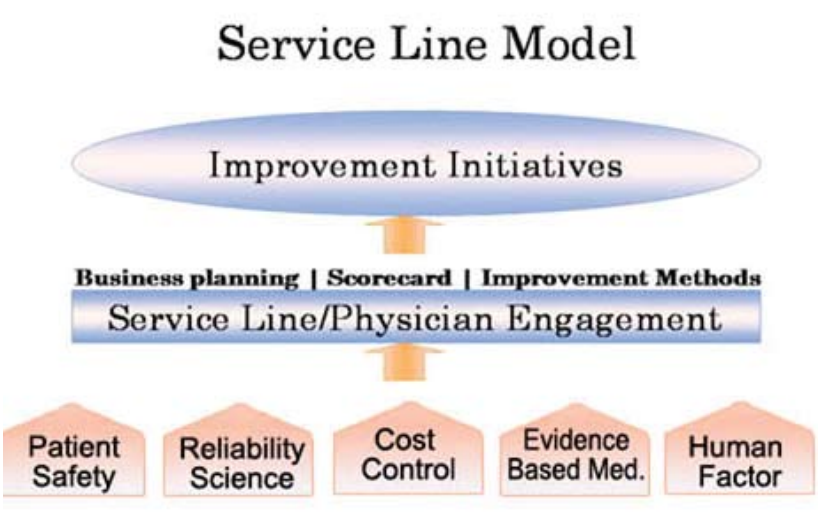
This case study describes the strategies and factors that appear to contribute to high performance on surgical care improvement measures at Ridgeview Medical Center. It is based on information obtained from interviews with key hospital personnel, publicly available information, and materials provided by the hospital during May 2009 through June 2009.[1]

SUMMARY

Ridgeview Medical Center is one of the top performers in the country on process-of-care, or "core," measures for surgical care reported by hospitals to the Centers for Medicare and Medicaid Services. The core measures, developed by the Hospital Quality Alliance (HQA), relate to achievement of recommended treatment in four clinical areas: heart attack, heart failure, pneumonia, and surgical care. Ridgeview performs well across all of the core measures, scoring in the top 10th percentile.

Leaders at Ridgeview attribute achievements in surgical care to the hospital's organizational culture and service line structure. Referred to as "The Ridgeview Way," the hospital's systems, structures, and processes are designed to provide evidence-based care and enhance patients' experiences. The hospital also collaborates with quality improvement organizations at the state and national levels. For a small, independent organization such as Ridgeview, these

Exhibit 1. Ridgeview Service Line Model



Source: Ridgeview Medical Center, 2009

partnerships provide valuable access to quality improvement resources and opportunities to work with peers.

ORGANIZATION

Ridgeview Medical Center, located in the Minneapolis/St. Paul suburbs, is a private, nonprofit hospital with 109 licensed beds. Ridgeview and its associated primary and specialty care clinics serve more than 300,000 people each year, including more than 20,000 emergency department visits, 100,000 outpatient visits, and 7,000 surgeries. In addition to the hospital, which has been expanded many times since it opened in 1963, Ridgeview has a regional network of clinics, a home care and hospice program, a home medical equipment business, and an ambulatory center.

Ridgeview operated as a public (community-owned) hospital until January 2000, when it became an independent private entity. Ridgeview does not belong to a larger health care system, and its independence is a factor as its leaders approach quality improvement. According to Sarah Urtel, R.H.I.A., B.A.S., director of organizational effectiveness, Ridgeview is able to "chart our own destiny" without a large corporation influencing decision-making.

HOSPITAL-WIDE STRATEGIES

Service Line Structure

In the early 2000s, Ridgeview moved from a traditional medical staff model, in which a physician department chair serves as the senior leader, to a service line structure, in which physicians and administrators work together. Ridgeview now has eight service lines: women and children, oncology, cardiovascular, surgical, orthopedics, medical specialties, emergency services, and Ridgeview clinics. Each service line is comanaged by at least one physician and one administrator, both of whom are charged with improving service, improving health care outcomes, and enriching patients' experiences.

Leaders credit the service line structure with laying the groundwork for successful implementation of its surgical care improvement initiatives. They also feel that moving to a service line structure has changed relationships within the organization, engaged physicians in quality-improvement efforts, and provided a forum for pursuing quality-improvement activities. As illustrated in Exhibit 1, physician engagement is a requirement of doing the multifaceted work under way in each service line (i.e., the five building blocks at the bottom). Improvement initiatives are reinforced through business planning, the use of a scorecard to track performance, and widespread use of improvement methods.

Ridgeview compensates clinic-based physicians for their work on quality-improvement initiatives and management of the service lines. Hospital leaders feel it is important to compensate physicians for this work, even though the stipend is small in comparison with reimbursable patient care. Recognition of the competing demands placed on physicians helps engage them in quality-improvement efforts and strengthens their relationships with administrators.

In addition to clinic-based physicians, Ridgeview has a hospitalist program with five full-time internists who cover the hospital around the clock and help lead improvement initiatives.

Ridgeview organizes its strategic planning around seven priorities: clinical excellence and patient safety, patient-centered experience, best workforce, community connectedness, operational efficiency, physician engagement, and being the preferred choice in the region. Hospital leaders believe these priorities have contributed to improvements in surgical care. In their three-year strategic plan, hospital leaders set specific measures and goals. For example, Ridgeview is committed to total implementation and use of an electronic health record system by 2011. It is also committed to investment in its service lines and engagement of the medical staff in leadership development and quality improvement.

Project Improvement Teams

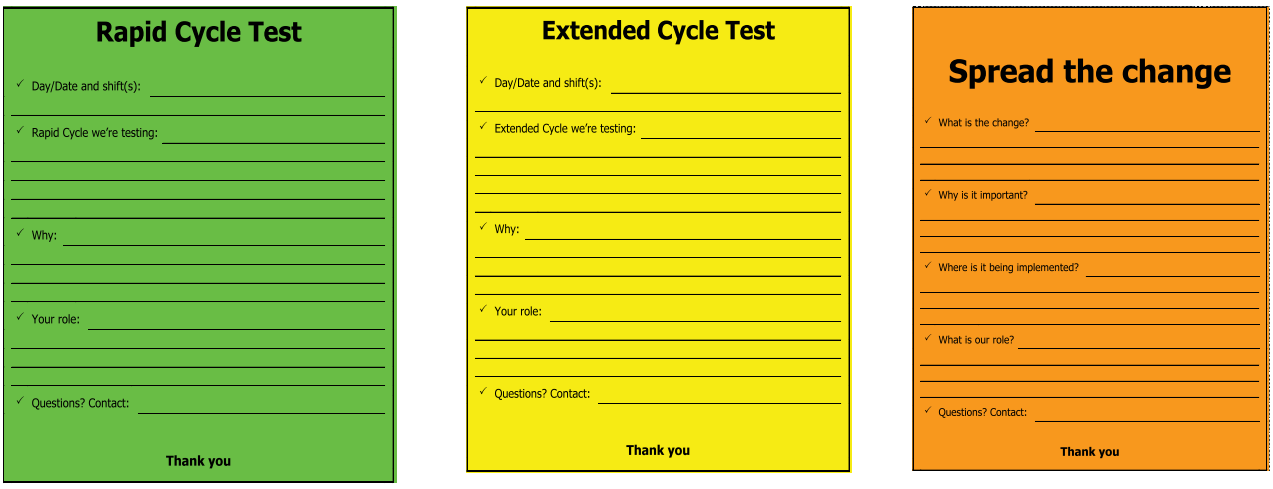
Ridgeview staff follow the Plan-Do-Study-Act model of quality improvement. Urtel believes the benefits of this model include its reliability and capacity to initiate rapid change. When pursuing improvements in a particular area, staff initially target low-hanging fruit. For example, one HQA surgical-care measure monitors the method of hair removal prior to surgery; use of clippers, rather than razors, has been shown to reduce infection rates. To ensure compliance with this measure, all razors were removed from the operating room. According to B. J. Buckland, R.N., M.S., director of surgical services, physicians "can't use a razor if they don't have one." The new clipping practice was adopted by all but one surgeon. Hospital staff then worked one-on-one with this surgeon, who eventually changed his behavior. Such early successes created the momentum needed to address more complex measures.

Monitoring performance is a shared effort throughout Ridgeview. In the surgical area, accountability for measurement is spread among the circulator (the operating room nurse present during surgery and responsible for coordinating all nursing care), quality-improvement specialist, certified registered nursing assistants (CRNAs), and nurses. Electronic charting captures surgical data, but performance reports shared with each service line are created manually.

Quality initiatives are tested in project improvement teams, which vary in size and include clinical leaders, administrative leaders, and other key staff. When a team is ready to implement a new care process, they will first test it over a short period with one patient ("rapid cycle test") and then meet to discuss the results. Process changes that show positive results will be tested on a larger population ("extended cycle test") and, if successful, rolled out across the hospital ("spread the change"). When process changes fail to show positive results, the team starts over—revising the process and monitoring the results at the rapid cycle level until it is ready to be tested at the next level. An extended cycle test typically involves three to five patients and lasts one to three days. After a successful extended cycle test, the change is spread throughout the organization through staff education, updates to policies and procedures, and other activities.

Many improvement initiatives take place simultaneously. To help staff understand what projects are under way, team leaders—together with their team members and other staff involved in testing the change—fill out a communication sheet describing the project and the reasons for undertaking it, outlining the roles of various staff, and providing the name of a person to contact with questions. The communication sheets are posted in areas such as nursing stations and break rooms and made available on the hospital's intranet. The sheets are color-coded to indicate the stage of the change process. If applicable, an order set or other form will be attached (Exhibit 2).

Exhibit 2. Communication Sheets: Three Stages of Process Improvement



Source: Ridgeview Medical Center, 2009

Transparent Reporting

Ridgeview's leaders believe in transparency in reporting the results of quality-improvement efforts. All hospital employees can view the results of any improvement initiative via the hospital's intranet. Quality indicators are also built into the management dashboards. "It is important to keep quality improvement in the forefront," Buckland says, "otherwise it becomes 'out of sight, out of mind'."

Each service line receives regular reports outlining performance at the group and individual physician levels. At minimum, the reports include core measure performance; in some cases they also include other statistics of interest to service line staff. The reports incorporate data from departments such as pharmacy and laboratory to illustrate how different units in the hospital work together.

A dashboard outlining the surgical service line's performance is created monthly for managers and other service line staff. Individual physician results, identified by name, are reported at surgeons' meetings that occur eight times a year. When a problem is identified, the quality improvement coordinator for surgical services, Chris Vos, R.N., B.S., works with physicians to resolve it by answering questions and providing clinical evidence supporting new practices.

During service line meetings, Buckland reports performance results and engages staff in discussions about them. He posts progress reports and other quality-related announcements in well-trafficked and surprising locations, such as employee restrooms—adding a touch of humor to the improvement process. A bathroom may also be a less threatening location for posting individual results than a public hallway.

Daily and weekly "huddles" are also part of the communication process. During the 20- to 30-minute huddles, project-improvement teams gather to review the results of rapid cycles completed in the past week and determine next steps for the upcoming week.

REGIONAL AND NATIONAL INITIATIVES

As an independent hospital, Ridgeview looks outside its walls to benchmark and share best practices. The hospital regularly participates in state and national initiatives and partners with leading quality organizations to further its own activities. It has taken part in collaboratives and training programs sponsored by the Institute for Healthcare Improvement (IHI), the Institute for Clinical Systems Improvement, the Joint Commission, and the Minnesota Hospital Association.[2] Ridgeview is a charter member of IHI's IMPACT Leadership Community, which aims to improve

leadership capabilities for quality-improvement in health care organizations. The hospital also participates in IHI's 5 Million Lives campaign, which promotes adoption of patient safety interventions. Partnerships such as these provide access to quality improvement resources and opportunities to work with peers.

For example, working with IHI, Ridgeview created a set of order bundles for suspected pneumonia patients. An order bundle is a designated grouping of clinical orders that are evidence-based and vary according to a patient's risk factors.

Ridgeview's leaders believe the Minnesota Hospital Association (MHA) has played a critical role in improving quality and patient safety in the state. MHA leads a variety of statewide campaigns, or "Calls to Action," which provide tools and a forum through which hospitals can collaborate and share best practices. Current campaigns include prevention of wrong-site surgeries, prevention of patient falls, and elimination of serious pressure ulcers.

According to Urtel, the MHA campaigns "reinforced the hospital's internal decisions and provided a roadmap for best practices and an opportunity to learn from colleagues." Standardization of care practices across the state spares hospitals from "reinventing the wheel" each time they roll out a new initiative. In addition, the state's physicians benefit, in that similar processes are used at the different institutions at which they practice.

A joint effort between MHA, the Minnesota Medical Association, and the Minnesota Department of Health has further contributed to a culture of quality and transparency in hospitals across the state. Minnesota was the first state in the country to require hospital reporting of the 28 adverse events identified by the National Quality Forum, commonly referred to as "never events." The Minnesota Department of Health publishes an annual report of hospital-specific data on the incidence of never events.

SURGICAL CARE IMPROVEMENT STRATEGIES

Facilitating Dialogue and Sharing Evidence

Achieving physicians' buy-in and support is important to Ridgeview's surgical-care improvement strategy. Quality-improvement staff engage physicians and other clinicians in discussions about proposed initiatives and seek consensus before moving forward. To promote understanding, they share the clinical evidence demonstrating the links between best practices and better patient outcomes. Buckland also relies on clinicians from other specialties, such as pharmacists, to help garner support from surgical staff for a particular initiative.

For example, to improve compliance with the core measure recommending administration of antibiotic prophylaxis more than one hour prior to surgical incision, Beth Schnabel, R.N., nurse manager, surgical services, met with the CRNAs as a group and provided education and clinical evidence regarding the efficacy of prophylactic antibiotic timing. Their compliance with this measure improved by the next measurement month. To secure buy-in from surgeons about discontinuing antibiotics within 24 hours of surgery, Schnabel and her team distributed clinical evidence supporting the change and invited the director of pharmacy to speak with surgeons about the efficacy of this practice.

Standardizing Operating Room Procedures

Standardization of care processes through preprinted order sets has helped improve the hospital's performance on certain measures, such as preoperative antibiotic selection. With preprinted order sets, the best practices became the default standard, thereby reducing the opportunity for human error. There are preprinted order sets for both preoperative and postoperative activities, varying by type of surgery (Exhibit 3).

Team Building in the Operating Room

Ridgeview has worked to facilitate open communication and teamwork in the operating room. In 2000, its operating room staff participated in a series of

Exhibit 3. Colon Surgery Pre-Op Preprinted Order Set

Order Date: _____ **Ordering MD please initial here if this page is modified:** _____

ALLERGIES: _____ DIAB: Y N WT: _____ kg

All orders are active unless crossed out.

Nursing Orders:

1. Obtain surgical consent.
2. Follow Anesthesia Pre-op Orders (#17158).
3. Thigh high TEDS.
4. Knee high pneumatic boots.

IV's/Medications:
Additional drug orders are to be written on the standard physician order sheet.

1. LR at 75 mL/hr.
2. Ancef (cefazolin) 1 gm IV x 1 started 30 minutes before incision
   If allergic to cephalosporins, or severe PCN allergy, use:
   Clindamycin 900 mg IV x 1 started 30 minutes before incision
3. For **Colon cases**:
   Ancef (cefazolin) 1 gm IV x 1 started 30 minutes before incision
   + Flagyl (metronidazole) 500 mg IV x 1 started 1 hour before incision (compatible at Y-site in tubing)

   If allergic to cephalosporins, or severe PCN allergy, hold Ancef and Flagyl and use:
   Gentamicin 2.5 mg / kg IV x 1 started 1 hour before incision
   + Clindamycin 900 mg IV x 1 started 30 minutes before incision (compatible at Y-site in tubing)
4. Heparin 5,000 units subcutaneous pre-op.

Diagnostics: (Labs, X-rays, etc.)

Type and screen.

Physician's Signature: _____ Date: _____ Time: _____

ALL VERBAL ORDERS MUST BE SIGNED/DATED/TIMED BY AUTHORIZED PRACTITIONER WITHIN 24 HOURS

Ridgeview Medical Center

MAJOR PROCEDURE PRE-OP
Drs. Elftmann, Taylor, Whitson

9/96, 12/08
17167

1PO

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Source: Ridgeview Medical Center, 2009

team-building exercises that led to the development of a conflict resolution process that is still used today.

"The team training resulted in marked improvements in communication and teamwork because the teams learned that there are only four choices when it comes to handling a problem in the operating room," Buckland says. The four choices are: initiate one-on-one discussions with the other parties, rely on a third-party resource to resolve the conflict, escalate the issue to management, or do nothing. This conflict resolution process offers a roadmap to improve the working environment by opening lines of communication and reducing unproductive gossip. Operating room staff understand that, once they choose how to resolve a conflict, they should not spend additional time thinking about it (Figure 4).

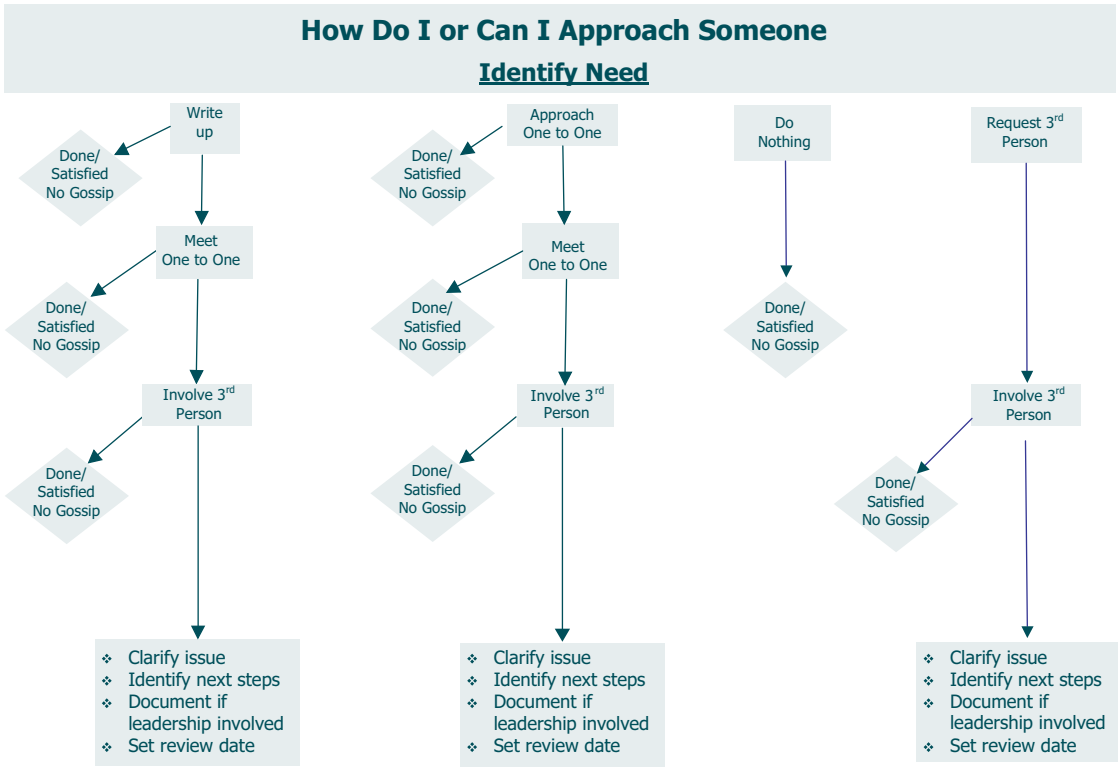
One issue resolved through this process involved a surgeon who used inappropriate language when he was frustrated, making some operating room staff uncomfortable. After staff shared their concerns with managers, the department director and nurse manager spoke with the surgeon. He acknowledged his tendency to swear and subsequently improved his behavior.

RESULTS

Ridgeview exceeds state and national averages on all of the surgical process-of-care measures. Exhibit 5 displays the most recent year of data for Ridgeview on these measures. Exhibit 6 shows the trends over time for selected surgical measures. Ridgeview's performance in the antibiotic selection and discontinuation measures shows significant improvement from 2007 to 2008. The hospital's performance on the measure gauging antibiotic administration within one hour fluctuates from year to year—indicating an opportunity for improvement. After a dip in 2007, the data indicate solid performance in the venous thromboembolism prophylaxis measures.

In Minnesota, some payers promote quality improvement by increasing reimbursement for positive clinical outcomes. In addition, local newspapers report

Exhibit 4. Ridgeview Operating Room Dispute Resolution Process



Source: Ridgeview Medical Center, 2009

on hospitals' performance on the core measures. These incentives provide motivation for Ridgeview to maintain its high performance. In the future, Ridgeview staff in the quality and finance departments would like to quantify the cost savings associated with high performance in order to better understand the value of the hospital's quality-improvement efforts.

LESSONS LEARNED

Hospitals looking to improve their performance in surgical care might take the following lessons from Ridgeview's experience:

- Create a strategic plan dedicated to quality and backed up with specific measures and goals.
- A service line model focused on improving patients' experiences creates a team environment and lays the groundwork for change.
- Engage physicians and secure their buy-in before implementing new care processes.
- Collaborate with the departments that work with the surgical staff, such as the emergency department and pharmacy.
- Rely on a team approach in the operating room and other clinical units.
- Use preprinted order sets and order bundles to help standardize practices and reduce the opportunity for human error.

FOR MORE INFORMATION

For further information, contact B. J. Buckland, R.N., M.S., director of surgical services, b.j.buckland@ridgeviewmedical.org.

Exhibit 5. Ridgeview Medical Center Scores on Surgical Care Improvement Core Measures Compared with State and National Averages

Surgical Care Improvement Indicator	National Average	Minnesota Average	Ridgeview Medical Center
Percent of surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection	86%	86%	96% of 291 patients
Percent of surgery patients who were given the right kind of antibiotic to help prevent infection	92%	93%	96% of 292 patients
Percent of surgery patients whose preventative antibiotics were stopped at the right time (within 24 hours after surgery)	84%	89%	99% of 289 patients
Percent of all heart surgery patients whose blood glucose is kept under good control in the days right after surgery	85%	85%	0 patients
Percent of surgery patients needing hair removal from the surgical area before surgery, who had hair removed using a safe method (electric clippers or hair removal cream, not razor)	95%	92%	100% of 210 patients
Percent of surgery patients whose doctors ordered treatments to prevent blood clots after certain types of surgeries	84%	87%	99% of 354 patients
Percent of surgery patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery	81%	84%	99% of 354 patients

Source: www.hospitalcompare.hhs.gov. Data are from April 2007 through March 2008.

Exhibit 6. Performance on Selected Surgical Care Improvement Core Measures, 2007–08

	2007–Q1	2007–Q2	2007–Q3	2007–Q4	2008–Q1	2008–Q2	2008–Q3	2008–Q4
Antibiotic within one hour – All	95.0%	93.9%	98.8%	94.6%	98.7%	92.1%	94.4%	93.2%
Antibiotic selection – All	92.5%	93.9%	93.8%	93.2%	98.7%	98.4%	95.7%	98.6%
Antibiotic discontinuation within 24 hours – All	90.9%	96.9%	98.8%	98.6%	98.6%	100.0%	100.0%	100.0%
VTE prophylaxis ordered* – All	99.0%	95.6%	97.7%	100.0%	100.0%	99.0%	100.0%	100.0%
VTE prophylaxis timing* – All	99.0%	95.6%	96.6%	100.0%	98.8%	99.0%	100.0%	100.0%

*VTE= venous thromboembolism.
Source: Ridgeview Medical Center, 2009.

Notes

[1] This study was based on publicly available information and self-reported data provided by the case-study institution(s). The aim of Fund-sponsored case studies of this type is to identify institutions that have achieved results indicating high performance in a particular area, have undertaken innovations designed to reach higher performance, or exemplify attributes that can foster high performance. The studies are intended to enable other institutions to draw lessons from the studied organizations' experiences in ways that may aid their own efforts to become high performers. The Commonwealth Fund is not an accreditor of health care organizations or systems, and the inclusion of an institution in the Fund's case-study series is not an endorsement by the Fund for receipt of health care from the institution.

[2] Institute for Clinical Systems Improvement is a nonprofit organization that promotes patient-centered and value-driven care. It is sponsored by a group of health plans in Minnesota and Wisconsin. See http://www.icsi.org/.

[3] Two additional surgical care improvement measures were added in 2007 but were not included in the composite score for selection purposes because data were not available for four quarters.

Appendix. Selection Methodology

Selection of high-performing hospitals in process-of-care measures for this series of case studies is based on data submitted by hospitals to the Centers for Medicare and Medicaid Services. We use five measures that are publicly available on the U.S. Department of Health and Human Services' Hospital Compare Web site, (www.hospitalcompare.hhs.gov). The measures, developed by the Hospital Quality Alliance, relate to practices in surgical care.

Surgical Care Improvement Process-of-Care Measures

1. Percent of surgery patients who received preventative antibiotic(s) one hour before incision
2. Percent of surgery patients who received the appropriate preventative antibiotic(s) for their surgery
3. Percent of surgery patients whose preventative antibiotic(s) are stopped within 24 hours after surgery
4. Percent of surgery patients whose doctors ordered treatments to prevent blood clots (venous thromboembolism) for certain types of surgeries
5. Percent of surgery patients who received treatment to prevent blood clots within 24 hours before or after selected surgeries

The analysis uses all-payer data from April 2007 through March 2008. To be included, a hospital must have submitted data for all five measures (even if data submitted were based on zero cases), with a minimum of 30 cases for at least one measure, over four quarters.[3] Approximately 2,360 facilities—more than half of acute care hospitals—were eligible for the analysis.

No explicit weighting was incorporated, but higher-occurring cases give weight to that measure in the average. Since these are process measures (versus outcome measures), no risk adjustment was applied. Exclusion criteria and other specifications are available at http://www.qualitynet.org/dcs/ContentServer?cid=1141662756099&pagename=QnetPublic%2FPage%2FQnetTier2&c=Page).

While high score on a composite of surgical care improvement process-of-care measures was the primary criteria for selection in this series, the hospitals also had to meet the following criteria: not a government-owned hospital, at least 50 beds, not a specialty hospital, ranked within the top half of hospitals in the U.S. in the percentage of patients who gave a rating of 9 or 10 out of 10 when asked how they rate the hospital overall (measured by Hospital Consumer Assessment of Healthcare Providers and Systems, HCAHPS), full accreditation by the Joint Commission; not an outlier in heart attack and/or heart failure mortality; no major recent violations or sanctions; and geographic diversity.

About the Authors

Aimee Lashbrook, J.D., M.H.S.A., is a senior consultant in Health Management Associates' Lansing, Mich., office. Ms. Lashbrook has six years of experience working in the health care industry with hospitals, managed care organizations, and state Medicaid programs. She provides ongoing technical assistance to state Medicaid programs, and has played a key role in the development and implementation of new programs and initiatives. Since joining HMA in 2006, she has conducted research on a variety of health care topics. Aimee earned a juris doctor degree at Loyola University Chicago School of Law and a master of health services administration degree at the University of Michigan.

Jennifer N. Edwards, Dr.P.H., M.H.S., is a principal with Health Management Associates' New York City office. Jennifer has worked for 20 years as a researcher and policy analyst at the state and national levels to design, evaluate, and improve health care coverage programs for vulnerable populations. She worked for four years as senior program officer at The Commonwealth Fund, directing the State Innovations program and the Health Care in New York City program. She has also worked in quality and patient safety at Memorial Sloan-Kettering Cancer Center, where she was instrumental in launching the hospital's patient safety program. Jennifer earned a doctor of public health degree at the University of Michigan and a master of health science degree at Johns Hopkins University.

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