GOOD GOVERNANCE CASE STUDY

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Salem Health Models Widespread Quality Improvement

By Elaine Zablocki, *Staff Writer, The Governance Institute*

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Salem Health Models Widespread Quality Improvement

Organization Profiled

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Statement of Interest

Salem Health is a regional medical center anchored by a large downtown hospital, with the busiest emergency room in the state. Over the past few years it has created a Physician Leadership Institute (PLI), which trains hospital and community physicians and operational staff on effective ways to conduct quality improvement. It has completed 57 quality improvement projects and has seven more underway. Improvements from PLI projects include:

- Improving patient throughput for total joint replacement by reducing patients' length of stay in the post-anesthesia care unit by 41 percent
- Decreasing time mothers and babies spend apart after a scheduled C-section by more than 68 percent, thus promoting the positive benefits of skin-to-skin contact

- Improving patient experience survey responses related to time spent with physicians by more than 12 points

Salem Health is not part of a multi-hospital system with a corporate quality improvement office. It has evolved its own models for quality improvement, and its experience shows that consistent, open-minded effort yields significant results. Its experience could serve as an important example for other community-based hospitals with a strong commitment to quality.

Salem Health: Organization Profile

Salem Health is a not-for-profit regional medical center located in Salem, Oregon, serving patients in Marion, Polk, Benton, Lincoln, and Yamhill counties. It includes:

- 454-bed Salem Hospital (founded in 1896), with a Level II Trauma Center, the busiest between Seattle and Los Angeles
- West Valley Hospital, a small critical access hospital, in Dallas, Oregon
- Regional Rehabilitation Center
- Willamette Health Partners medical clinics spread throughout the mid-Willamette Valley.
- 673 physicians on the active medical staff at Salem Hospital and 76 at West Valley Hospital

Salem Health has developed a number of relationships with providers to work on shared goals, resulting in the creation of the Heart and Vascular Institute and the Spine Center. It also has an ongoing collegial partnership with Oregon Health & Science University, the state's premier teaching hospital. Formal collaborations in place through the Salem Cancer Institute and OHSU's Knight Center Institute have revealed a shared commitment to quality and putting the patient first, and the two organizations are now in discussions to form an integrated health system.

Over the past few years, Salem Health has developed two important institutions: the Physician Leadership Institute (PLI) and the Quality Operations Committee (QOC), which serve as the foundation for its quality improvement efforts. In both cases, these institutions evolved from unsuccessful forerunners.

Physician Leadership Institute: Broad Training in Quality Improvement Processes

Salem Health used to have a professional development program that brought in occasional external speakers, but the program didn't have much impact. In 2008, the organization decided to make training physician leaders one of its top priorities. After

enrolling in several training programs, hospital leaders decided to develop their own program to meet Salem Health's specific needs.

The revamped PLI launched in fall, 2010. It offers two courses a year, and is currently scheduling new applicants for classes in 2016. Each course takes four weekends, in a pleasant environment, spread out over four months. The typical class includes about 40 people, half of them physicians and mid-level practitioners, and half of them operational staff. A board member and an executive leader participate in each class.

PLI brings in nationally-known speakers, including:

- Laura Adams, RN, President and CEO of the Rhode Island Quality Institute, on how to use a quality improvement model to manage small-scale rapid cycle tests-of-change
- Todd Allen, M.D., Assistant Quality Officer in the Institute for Healthcare Delivery and Research at Intermountain Healthcare, on quality and why it is imperative to organizational survival
- Larry Harmon, Ph.D., Director of the Physicians Development Program, on tools for collegial interventions and difficult conversations
- Jim Reinertsen, M.D., Senior Fellow at the Institute for Healthcare Improvement, on what leadership looks like in quality improvement
- Robert Wachter, M.D., author of *Understanding Patient Safety* and *The Digital Doctor* on how to mistake-proof processes to improve patient safety

Upon completion of PLI training, participants have the ability to:

- Apply quality improvement, project management, and change theory knowledge to manage and complete a quality improvement project
- Describe current regulatory and economic drivers that are influencing healthcare today
- Explain the role patient experience plays in healthcare quality
- Describe the principles of highly reliable systems and human factors, and the ways they influence healthcare quality and patient safety

Six weeks before the course begins, participants are organized into quality improvement teams. Each team has at least two physicians and one operational leader, such as a nursing director, nurse manager, or pharmacy director. Before PLI classes start, every person has three assigned tasks: to do some reading, to select a physician leader for the team, and to start thinking about practice gaps and possible project ideas for their team.

The first PLI weekend covers models for quality improvement. By the end of the first weekend, each team has identified an aim statement for their project: what they are trying to change, by how much, and a target date. Each team is ready to embark on small-scale tests of change, aimed at closing its identified practice gap. The teams meet weekly, and each team is supported by a trained quality improvement coach.

During the four-month PLI program, national speakers deepen participants' understanding of key issues in quality improvement. Meanwhile, each team is expected to conduct at least three tests of change, working through the PDCA cycle (Plan Do Check Adjust.) "This can take quite a bit of time, since for each cycle they must identify

a potential change, try it, review the results, and then decide whether they need to make adjustments," said April D. Gavin, Medical Staff Professional Development Coordinator.

Meanwhile, depending on the specific goal for each team, stakeholders are brought in from other hospital departments: physical therapy, IT, pharmacy, or whatever is most relevant for the particular project. By the time the four-month program ends, all participants have hands-on experience in working on quality improvement. "For the PLI course, our goal is to teach them the improvement model and the steps needed to carry it out," Gavin said. "Success means actually learning the tools and being ready to come back to the hospital and use them again. If in addition the team does meet its aim statement, that is a bonus."

At present, 308 people have completed PLI training, including 159 physicians and mid-level practitioners. Initially, PLI participants tended to be physicians who were already active in hospital leadership roles. Then a number of specialty groups decided they wanted all their members to experience PLI training. Physicians from the Heart and Vascular Institute have enrolled in PLI, and so have physicians from the Spine Center, and almost all the physicians from the emergency department. "The cardiovascular service line director contacted us and said that the Heart and Vascular Institute medical directors met to discuss further how they engage their providers around efforts to improve quality, reduce variation, and provide exceptional patient experiences. One of the key comments from the physicians was on the value of PLI," said Gavin. "When they started to look at their current plans for quality improvement, they realized how valuable it will be for all physicians to understand the model of change and share a common language."

The PLI program has been successful in large part due to the initial strong commitment from hospital leaders. It is currently open to all physicians on the Salem Health medical staff, including both active physicians (who admit patients) and associate physicians (who consult). At present, Salem Health is reaching out to community-based internal medicine and family medicine physicians. Many of them choose not to have active medical staff privileges these days, since they rely on hospitalists for inpatient care. At the same time, these physicians play a key role in many value-based purchasing programs, such as those aimed at reducing readmissions. "We want to invite physicians who aren't on the active medical staff to participate in PLI so they can understand these tools and work together on community-based projects," Gavin said. The eventual vision is to make the program available throughout the community, and perhaps even regionally.

Quality Operations Committee: Physician-Led Quality Improvement

While teams from the PLI meet every week to work on quality improvement projects, Salem Health's Quality Operations Committee (QOC) meets on the first Friday of each month at 6:30 a.m. to strategically plan and oversee the hospital's quality improvement projects. More than a dozen separate hospital quality improvement teams meet

regularly, each one working towards a specific, carefully chosen goal. The QOC has completed seven improvement projects and another 12 are currently underway.

"I can't say enough about the commitment of the doctors and nurses who participate in these projects," said board member Lane Shetterly, who is also a QOC member. "You have a roomful of people all engaged and working together, with a strong sense of mutual support. Their commitment is palpable during committee meetings, and the fact that they feel empowered. QOC meetings are an exciting place to be at 6:30 a.m."

The board quality committee at Salem Health used to meet regularly, but with limited effectiveness. Like most board quality committees, it included board members, one or two physicians, and one or two community members. The committee reviewed reports on quality, and occasionally met with doctors and nurses to discuss specific high-profile quality concerns, but it rarely engaged with system-wide healthcare quality.

"We were very concerned about quality, and frustrated by our committee's failure to make a difference," Shetterly said. "We realized that having the board committee meet and occasionally make pronouncements about how we're going to do this or that differently just is not an effective way to change the ways things are done around the hospital." Shetterly is an attorney, a former state legislator, and the former board chair of a small community hospital that is now part of Salem Health. He served on the 15-member Salem Health board from 2001 to 2004, and again from 2009 to the present.

About three years ago, Salem Health board members attended a conference where they learned about a quality model pioneered by McLeod Health. In this model, the board authorizes physicians to identify quality issues and take the lead in solving them. Salem Health tweaked the model to meet its own needs, and created its Quality Operations Committee (QOC) through a collaborative process with its physicians. "Doctors worked together with board members to develop the organizational chart and charter for this committee," said Shetterly. "We all agreed that our new Quality Operations Committee would be physician-led and patient-centered."

Today the QOC includes 17 physicians, three board members, and five executive team members. Suggestions for improvement projects arise from many sources: the PLI, clinical concerns from physicians, hospital-wide statistical data, and national quality initiatives. Once a year, in alignment with strategy deployment, QOC makes decisions on the priority work for the upcoming fiscal year and allocates resources for project work to support and improve initiatives in quality and safety, financial performance, engagement, and patient experience. "When we make decisions about our quality projects for the coming months, we have something that hasn't been handed down by the board or the executive team, but has been worked through collaboratively with physicians," Shetterly said. "Because of that, each project is much more likely to win support out on the floors and in the operating rooms."

QOC is charged to be mindful of cost and revenue issues as well as clinical quality. "We're seeking projects that will offer the greatest increases in health without great increases in cost, and if possible with savings in costs," Shetterly said. "We expect to be more efficient in providing services at the same time that we improve quality. The QOC is responsible for keeping financial metrics in front of the medical staff as they

work through these quality projects." The process follows a longitudinal approach, which includes regular reports back to the QOC so it is informed about progress over time. This is essential so there is continued follow-up and long term monitoring for each completed project.

A Commitment to Lean and Kaizen

In 2011, CEO Norm Gruber brought Lean thinking to the Salem Health board, and several board meetings focused on the ways Lean can be valuable in a hospital setting. Gruber met with each board member individually to discuss the value of Lean. "We were looking ahead to the future and recognizing that the way things have been done in healthcare in the past will not be the way things are done in the future," Shetterly said.

Lean is a philosophy and management system based on methods developed by Toyota, which emphasizes:

- Looking at value from the viewpoint of the consumer
- Eliminating steps and processes that do not create value
- Smooth workflow
- Continuous improvement
- Respect for, and participation from, all employees

"Lean is relatively new in healthcare," said Leah Mitchell, M.S.N., B.S., RN, Vice President for Kaizen, Quality, Safety, and Patient Care Services. "There is an entire methodology used in Lean around keeping or sustaining improvement through time, which traditional models for improvement typically don't include. We chose Lean because it incorporates methods for sustaining improvement, and also because it has been highly effective in other industries. We think it can be effective in healthcare."

Salem Health has now set up a series of dashboards throughout the organization, which are monitored by the QOC, top hospital leaders, and nursing leaders for each unit. One set of dashboards relates to ongoing quality improvement projects, designed to "regenerate and improve" a specific aspect of care. Once an area has reached an appropriate level, it is monitored through a "sustain and operate" dashboard, to ensure it stays at that level, and does not decline.

"Respect for people is an essential component of the Lean system," said Nancy Dunn, RN, M.S., Senior Kaizen Clinical Nurse Consultant. "Once we realized this, we started moving our hospital culture in the right direction. When we teach Lean it's always through experiential learning. That's the beauty of the Physician Leadership Institute, as well. We know that culture changes slowly. However, through hands-on training you learn by doing, and you're also creating a new culture."

"Lean is about the people at the front lines helping to make improvements," Mitchell agreed. "So many traditional quality improvement processes put a leader in charge, making decisions about what to do. In contrast, Lean is very much about the involvement and engagement of people at every level, working to create change, because they know where there is waste."

What Is Kaizen?

Salem Health is committed to the Kaizen approach to quality improvement. Kaizen is a Japanese term meaning continuous improvement, and it is often described as an important aspect of Lean. In practice, it has several slightly different meanings. One textbook describes three different types of Kaizen:

- "Point Kaizen": solving small problems within hours or days
- "Kaizen Events": focus on rapid improvement for medium-scope problems, taking one week or longer
- "System Kaizen": long-term, large projects typically involving the redesign of a department and its procedures[1]

Salem Health projects do not necessarily fall into this precise outline. "We utilize different aspects of Lean Kaizen as our organization needs them to address specific problems," said Jaime L. Nichols, M.B.A., Director of Continuous Improvement. "Kaizen includes a wealth of tools, so we look at all the tools we have available, to understand the problem we're trying to solve. We pick and choose the tools that make the most sense."

The general process is to review all available data and drill down to uncover the root cause. "Once we understand the root cause we try to put a countermeasure into place," Nichols said. "Some problems are so complex they require additional countermeasures and tests of change for us to feel that we've fully fixed that problem."

When Salem Health considers an area that needs major, double-digit improvement, it is described as a breakthrough project. The staff expects to do a significant amount of work and several tests of change on each breakthrough project to reach the goal. One test of change may reduce a problem by 10 percent, and the second may reduce it by another 10 percent, and the third by 10 percent more. Each of these changes may end up taking from 30 to 60 days, with incremental improvements after each test of change, so the whole project may take six months or a year.

Visual management is an important component of Salem Health's work. The breakthrough, or strategic work is displayed in a "visibility room" where leaders monitor progress on exceptionally important projects. Like the "regenerate and improve" and "sustain and operate" dashboards, the breakthrough dashboard is monitored throughout all levels of the organization, from the QOC and top executives to individual nursing units.

Financial Implications of Quality

Salem Health has embarked on its quality initiatives because it values patients' health, safety, and quality of life. However, the organization is also aware that payment incentives for high-quality care are increasing each year, and have a significant effect on every hospital's bottom line.

1 Mark Graban, *Lean Hospitals: Improving Quality, Patient Safety, and Employee Engagement,* (Second Edition), November 2011, p. 207.

Under the Affordable Care Act (ACA), CMS has implemented programs to strengthen payment incentives for high-quality clinical care. For example, under the Hospital Value-Based Purchasing Program, Medicare reimbursement is adjusted based on each hospital's performance on a series of quality measures. For fiscal year 2015, eight Surgical Care Improvement Project (SCIP) processes are included as process of care measures, and Central Line Associated Blood Stream Infection (CLABSI) has been added as a new outcome measure to be monitored. For fiscal year 2016, CLABSI and five SCIP processes are included as value-based purchasing measures.

The ACA also established the Hospital Readmissions Reduction Program, which reduces Medicare payments to hospitals with avoidable readmissions. Initially, the program focused on 30-day readmission rates after inpatient care for heart attack, heart failure, and pneumonia. For fiscal year 2015, the program also looks at readmissions after inpatient care for chronic obstructive pulmonary disease and knee and hip replacements.

A number of Salem Health's most important payers are interested in negotiating contracts offering financial incentives for improved clinical measures. "Increasingly, across the nation, payers are working with hospitals on agreements to improve specific aspects of care," Mitchell said. "Usually it's a negotiation back and forth. The hospital suggests areas where it would like to improve, and the insurance company responds. Eventually you come to a mutual agreement about the metrics you'd like to improve that year. Really, it is about a partnership [between payer and provider] to improve quality in healthcare."

Dunn noted that based on its payment agreements with private insurers, as well as the CMS pay-for-performance incentives, Salem Health had 1.8 million dollars at risk based on meeting performance objectives for its 2014 Surgical Care Improvement Project (SCIP.)

Quality Improvement: Precise, Time-Consuming, and Rewarding[2]

Quality improvement is a nitpicky process. It means changing something and checking to see the effects of that change, then changing something else and checking to see the new effects. When you're looking at changes in a complex healthcare process, quality improvement requires many different steps, involving people with many different skills working together as a team.

Salem Health has completed many quality improvement projects over the past three years. Experts shared details about three of them with us:

- Surgical Care Improvement Project (SCIP)
- Geriatric Hip Replacement
- Central Line-Associated Bloodstream Infection (CLABSI)

Because these are multifaceted projects that each take several months (or longer), it isn't possible to describe every step. However, we can look at some of the most

2 Refer to accompanying dashboard report (PDF) for this section, which is too large to include here. It can be found at www.governanceinstitute.com.

valuable and interesting steps in each of these projects. (Charts summarizing the key steps in each project will be posted on The Governance Institute's Web site.)

Surgical Care Improvement Project

The Surgical Care Improvement Project is an effort to improve surgical outcomes by ensuring that a "bundle" of important steps takes place for every surgery. Each of the individual steps improves care, but when they are all applied together, the bundle leads to substantially increased improvement.

At the start of the SCIP improvement project, Salem Health was doing well on some of the measures, but not on others. The quality improvement team decided to focus on five measures:

- Urinary catheter removed within two days after surgery unless there is a documented clinical reason to retain longer
- Patients taking beta-blockers before surgery will receive a beta-blocker during the perioperative period unless contraindicated
- Preventive antibiotic received within one hour before surgical incision
- Appropriate antibiotic selected for each procedure
- Preventive antibiotic discontinued within 24 hours after the end of anesthesia

For example, during surgery a Foley urinary catheter is sometimes inserted. Perhaps one of the most important measures in the bundle is ensuring that this catheter is removed soon after surgery. When it isn't removed on schedule, some patients may end up with urinary tract infections.

In the past this was dealt with by a "back end correction," a person-to-person effort to educate someone who had made a mistake. The problem with this process is, 1) the mistake has already happened, and 2) corrective feedback comes long after the actual event—so long that the person who made the original error can hardly remember it.

"We had been working on this for eight years, and we still had recurrent problems," said Dunn. "This time we tried the Lean approach. Instead of looking at who made the mistake, we looked for the root cause. We realized we needed an appropriate system to support the provider and nurse to do the right thing at the right time."

When surgeons come in to check on patients the day after surgery, they have a dozen things on their minds, and the Foley catheter is not at the top of the list. The SCIP team asked its informatics members to set up a best-practice alert in the electronic medical record, so on the first day after surgery, the physician is reminded to remove the catheter. On the second day, the alert screen becomes more explicit, essentially saying, "it's two days out from surgery. Either remove the catheter, or tell us the reason you plan to leave it in, and here are SCIP-eligible appropriate reasons for that choice."

The computer system also generates a morning report for nurses, listing all the surgical patients who still have a Foley catheter inserted. This is called a "redundant check." It is a belt-and-suspenders approach...there's an alert screen in the electronic medical record, and in addition there's a nurse asking, "Dr. Jones, do you really want to leave this Foley in?"

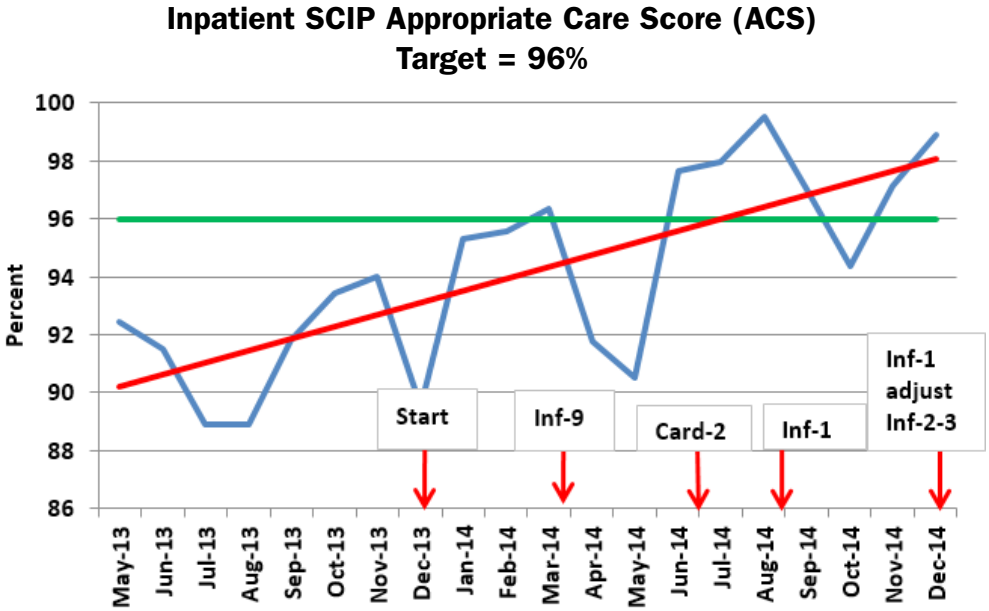
At this point, the SCIP team had developed a solution to the urinary catheter problem. But the issue goes far beyond the SCIP team; it affects everyone who does surgery at Salem Health. How do you persuade all those physicians to understand and respect and use the new system?

"Education is critical," said Raj Nair, M.D., a general surgeon who served as lead physician on the SCIP team. "When we make changes in the EMR that affect everyone, we send out information through a wide range of communication methods. We also send out targeted messages to nurses and surgeons to cover the more specialized aspects."

But in addition to education, Dr. Nair said, the most important aspect of quality improvement is to adjust processes in a way that makes the physician's (and everyone's) job easier. "When you give me a process that lets me work correctly with less effort, you win my support," he said.

This is only one aspect of the story. The SCIP team went through similar analyses and took equally creative steps to improve results on all five measures. The full team met every Tuesday at 6:15 a.m. for a 90-minute meeting to review all the measures. Operational staff—nurses, pharmacists, staffers from clinical informatics, various people depending on the different stages of the project—held a 15-minute huddle almost every day to review what had been accomplished and what they hoped to accomplish next. (Top hospital leaders would often drop by the huddle to check in and offer their support.)

By the end of the project, the SCIP team had scored a bull's eye, with an appropriate care score reaching 98 percent from the baseline of 91.84 percent. The intent of the Foley measure was to reduce urinary tract infections. Since the best practice alerts went into place, there has been a significant reduction to zero for SCIP-eligible patients for one year at the time of this publication.



Geriatric Hip Replacement

The Geriatric Hip Fracture Team has been working over the past two years to reduce hip-related readmissions by 50 percent, reduce average length of stay, and increase patient satisfaction. This is a particularly interesting project because reducing readmissions depends in part on cooperation with providers outside the hospital walls. The team implemented several changes with significant positive effects, as described below.

Synchronized rounding: Initially, surgeons rounded before 7:00 a.m., when care management staff was not available. Under a revised schedule, the care manager on the orthopedic unit comes in early and is available during surgical rounds. Later in the day, the care manager rounds as part of the multidisciplinary team, enhancing communication with the patient and other team members.

Standardized patient education: When someone breaks a hip, they often need follow-up care at a skilled nursing facility, and information about this major life change can be difficult to absorb in such a short period of time. The improvement team found communication is most effective when the surgeon first discusses the diagnosis and prognosis with the patient, and then the care management team steps in afterwards to reinforce the message, using the same terminology. "The orthopedic surgeons were extremely collaborative with us throughout this process," said Tina Morris, M.S.N., CMC, CCM, NE-BC, RN, Nurse Manager, Care Management Department. "We worked together on standard scripting, and this process created a stronger relationship between surgeons and care management staff." The team also developed appropriate written materials for patients and families, to supplement these initial conversations with surgeons and care managers.

Ensuring adequate nutritional intake: After hip surgery, patients are typically delirious and confused, and often they don't eat much. The team considered the option of post-surgical tube feeding, but decided instead to put resources into "high touch" programs such as personal help during meals from a nursing assistant, and greater attention to each patient's food preferences.

Hospitalist rounding: As part of the care management team, a hospitalist sees each patient, in addition to the surgeon. "The team looked closely at reasons patients were returning to the hospital, and found often they were readmitted for medical issues not related specifically to the hip fracture," Nichols said. "Adding hospitalists to the care team means if there were any medical issues that could be exacerbated by the hip fracture, they can be addressed proactively. This reduced readmissions significantly."

Partnership with skilled nursing facility: The hospital developed a partnership with a local skilled nursing facility (SNF), Windsor Health and Rehabilitation Center, which offers therapy seven days a week and developed standardized communication patterns between the hospital and the SNF. Currently, nurse-to-nurse communication takes place before discharge, packets of information are sent with the discharged patient, and the SNF is able to access hospital records. "When the nursing facility

*To receive a copy of this matrix in spreadsheet format, please download it at www.governanceinstitute.com, or contact The Governance Institute at info@governanceinstitute.com or (877) 712-8778.

finds they cannot obtain needed medications they call us, and we work together to overcome that barrier," said Morris. "As a hospital, we often have quicker access to pharmacies and other services."

As Salem Health continues its work to reduce readmissions, it continues to look at where to expand quality partnerships. It recently expanded its work with skilled nursing facilities to include heart failure.

Central Line-Associated Bloodstream Infection (CLABSI)

Central venous catheters are increasingly used to provide long-term venous access, and catheter-related infections lead to increased length of stay and significant mortality. "We realized early on that CLABSI extends across the institution, physically and over time," said Martin Johnson, M.D., medical director of the intensive care unit and lead physician on the CLABSI improvement team. "A central line may be placed in the operating room, or the emergency room, or the ICU. Then that physician may hand the patient off to a hospitalist or a subspecialist. Some of these lines eventually leave the hospital and go out to the community, with other physicians inheriting the responsibility of caring for that line."

For this reason, the CLABSI improvement team included an ER physician, an anesthesiologist, an infectious disease specialist, an intensivist, and a hospitalist, each offering their own specialized perspectives. As the CLABSI team developed appropriate interventions, these physicians were able to share information with their colleagues.

A bundle of appropriate precautions can eliminate central-line-related infections. They include:

- Appropriate hand hygiene
- Maximal barrier precautions upon insertion
- Chlorhexidine skin antisepsis
- Optimal catheter site selection
- Daily review and prompt removal of unnecessary lines

The Salem Health CLABSI improvement team tested the effectiveness of all these steps, with the goal of adhering to the entire bundle 100 percent of the time. The work process included several rapid improvement events, in which the team partnered with an analyst from the hospital's business intelligence department (part of information services). This is particularly useful when a project requires a redesign of the electronic medical record, or a different type of data report. "Instead of sending lots of e-mails, the business intelligence department sends a person to help specifically with the project, " said Erica L. Randall, RN, M.S.N., Kaizen Clinical Nurse Consultant. "It gets done in three days instead of bouncing back and forth for three weeks."

During the CLABSI project, the team used rapid improvement events to develop a standardized process for selection line criteria, to develop daily documentation for removal and ownership of PICC lines, and to develop a fever workup for potential CLABSI. During rapid improvement events, the team met every day. "Dr. Johnson and

our other physician colleagues could drop in, watch a demo, and suggest adjustments on the spot," Randall said.

Tests of change on this project started at the end of February 2014. For several months, there were no CLABSIs and the team thought it had reached its improvement goals. However, during the current fiscal year, Salem Health has experienced CLABSIs. The hospital is now working to learn from this experience. "We don't want CLABSIs to occur at our hospitals, so when that happened recently, we quickly identified the root cause and put in the proper countermeasures," said Nichols.

Salem Health looks at trends and details in the information it collects throughout the year. That data then helps the organization determine the most critical opportunities for improving the quality and safety of patient care in the next year. Some of the recent central line infections seem to relate to particularly complex patients. In addition, the care environment has changed and the hospital is now serving extremely sick patients outside the critical care units, some of them with central lines. The hospital plans to examine ways to institute additional counter measures throughout its adult health services areas.

Integrating Successes and Planning for the Future

"Salem Health's structured approach is working," said Nichols. "Through our quality improvement work, we reduced patient harms by 33 percent from fiscal year 2013 to fiscal year 2014." She noted that Salem Health is on the road to continue this trend with its focus on:

- Reducing hospital-acquired infections (down 41 percent so far this year)
- Improved evidence-based practice in immunizations and venous thromboembolism
- Reducing avoidable readmissions

What does the future hold for Salem Health? "Generally we accept that we will see continuing changes in healthcare at the state and federal levels over the next several years," Shetterly said. "That calls for precisely the strategy we are pursuing: to be a nimble operation that is always willing to reevaluate where we are and where we're going. We find that the Lean process is collaborative and focuses on patient safety, patient experience, revenues, and costs. That means that whatever happens, we'll be in the best position to react and adapt and survive."