HOSPITAL QUALITY: INGREDIENTS FOR SUCCESS— A CASE STUDY OF EL CAMINO HOSPITAL

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ABSTRACT: As part of their study on quality improvement initiatives in U.S. hospitals, the Economic and Social Research Institute and The Severyn Group conducted in-depth site visits at four top-performing hospitals from around the country to identify the factors that drive and challenge these institutions in their realization of quality goals. El Camino Hospital, located in Mountain View, Calif., was one of the hospitals selected for the study. The researchers determined that El Camino's success is primarily the result of two factors—an internal environment that constantly focuses on quality and a set of practical tools that promote good outcomes and quality improvement on a daily basis. Elements of these factors include strong leadership, high-quality nursing and physician staff, leading-edge technology and information systems, and sophisticated data analysis and performance monitoring systems.

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CONTENTS

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ABOUT THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

The Economic and Social Research Institute (ESRI) is a nonprofit, nonpartisan organization that conducts research and policy analysis in health care and in the reform of social services. ESRI specializes in studies aimed at improving the way health care services are organized and delivered, making quality health care accessible and affordable, and enhancing the effectiveness of social programs. For more information, see http://www.esresearch.org.

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ABOUT THE SEVERYN GROUP

The Severyn Group, Inc., specializes in conducting qualitative and quantitative research, and writing and producing publications on a wide range of health care management issues. In addition to printed materials, The Severyn Group has created Web site content and electronic presentations for training and education purposes. Severyn's clients include a broad spectrum of organizations that represent virtually all aspects of health care, including financing, management, delivery, and performance measurement.

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SUMMARY

High quality and effective quality improvement (QI) at El Camino Hospital are primarily the result of an internal environment that constantly focuses on quality, combined with a set of practical tools that promote good quality outcomes and QI on a daily basis. Key aspects of this internal environment include the following:

- Institutional leadership's commitment to quality, as evidenced by the development of aggressive quality goals and a willingness to make significant investments in quality-enhancing systems to help reach those goals.
- A culture that embraces quality and innovation, and that has done so since the institution's founding more than 40 years ago.
- High-quality, liberally-staffed nurses who act as proactive partners of physicians in caring for patients.
- A high-quality medical staff that embraces and actively supports these nurses as they fulfill this role.
- Local (i.e., departmental or unit-based) autonomy and accountability for quality and QI.

Practical tools that promote high quality and QI on a daily basis include the following:

- A comprehensive QI process driven by sophisticated data analysis and performance monitoring systems, top-down and bottom-up goal setting and project identification, and permanent and ad hoc structures to facilitate problem identification and solving.
- Leading-edge information systems and other technologies that promote seamless information flow and that provide safeguards against mistakes, leading to better decisions and reduced risk of error.
- Heavy reliance on critical paths and protocols that serve to reduce variations in practice patterns for those aspects of care that are amenable to standardization around best practices.

- Care coordinators and case managers who focus on high-risk patients and ensure that these and other patients, to the extent possible, receive care that is consistent with the critical paths and protocols, including early rehabilitation and preparation for discharge.

The external environment serves as only a modest impetus for quality and QI at El Camino. The development of reimbursement systems that reward performance is in a nascent stage among local payers. Current payment systems, in some cases, act as a deterrent to investment in quality-enhancing programs. For example, the failure to provide reimbursement for outreach into the community for the chronically ill has made it difficult for El Camino to invest in case managers to perform these tasks. That said, the external environment does serve as a good source of information on benchmarking data and also helps to identify priority areas, such as medication errors or appropriate use of beta-blockers, that are in need of improvement and should be the focus of performance goals and targeted projects.

Key challenges facing El Camino in its efforts to produce high-quality care include the following: getting physicians to use IT in new ways and to accept standardized care, although El Camino has been quite successful in overcoming these challenges; developing compensation systems that reward quality and QI; finding useful benchmark data, as El Camino is a stand-alone institution; and investing in QI in a reimbursement environment that, at best, provides no financial incentives for such investments and, at worst, actually discourages them.

The El Camino case underscores the following lessons learned:

- There is no substitute for creating the type of organization where top-notch talent wants to work, and for creating a culture that values mutual respect and peer-type relations between physicians and nurses.
- Assertive, knowledgeable nurses can play a critical role in ensuring high quality on a day-to-day basis, provided they enjoy the respect of the medical staff.
- Physicians, nurses, and other caregivers can and should be liberated to take local ownership and accountability for QI. The role of leadership is to give these caregivers the motivation to take on these tasks and the tools to support their efforts.

- IT is one of the critical tools that facilitates high-quality and effective QI. Getting physicians to consistently accept and use IT is a challenging task, even in an environment that embraces innovation.
- Proactive case managers play crucial supporting roles in facilitating team-based approaches that get patients appropriate care in a timely manner.

BACKGROUND

El Camino Hospital is a 411-bed facility in Mountain View, Calif., roughly 15 miles north of San Jose and 45 miles south of San Francisco. The hospital is located in a relatively affluent community, although it does serve a small number of indigent patients, and Medi-Cal (California's insurance program for low-income residents, equivalent to other states' Medicaid programs) patients account for roughly 5 percent of admissions. Most indigent patients in the area are served by Santa Clara County Medical Center. Roughly one-half of El Camino's patients are covered by a commercial care plan, and 45 percent are covered by Medicare or a Medicare HMO. Blue Cross, Blue Shield, and PacifiCare are major commercial payers in the area.

El Camino competes with a number of other hospitals. Stanford University Medical Center is 10 miles away. As a teaching facility and academic medical center, Stanford's competition with El Camino tends to be limited to high-end services such as open heart surgery. An HCA-Columbia facility is located roughly 15 miles to the south of El Camino, while a Catholic Healthcare West hospital is located 10 miles to the south. Kaiser has a hospital in nearby Santa Clara that serves the roughly one-third of local residents who are covered by the Kaiser health plan. Despite the presence of so many hospitals, El Camino remains relatively protected. Located in an affluent, densely populated area, it draws the vast majority of its patients from the surrounding community.

Part of El Camino's local appeal is that it is a district hospital, meaning that it is essentially owned and governed by the local community. The hospital is governed by a five-member district board that is elected by the local community. The district includes the cities of Mountain View, Sunnyvale, Los Altos, Los Altos Hills, and parts of Palo Alto and Cupertino. Virtually all business activities and financial information that pertain to the hospital are considered to be public information. Regular board meetings are open to the public, although the hospital's leadership was able to create a separate hospital Board (that currently consists of the same members as the district board) that can meet behind closed doors on occasion to discuss strategic issues of a competitive nature. This prevents

competitors from getting inside information on the hospital's plans before such information would normally be released to the public.

El Camino ranked in the top 1 percent of hospitals in an analysis of quality and efficiency by CareScience, Inc.[1] The CareScience database covers 18 states that report data for all payers and contains close to 20 million inpatient records from 1999. (A minimum threshold of 100 beds was used to form the sample). For each hospital, quality scores are calculated by ICD9-code (56 disease categories are used), and incorporate risk-adjusted adverse outcomes rates for mortality, morbidity, and complications. LOS is used as a proxy for cost or efficiency because hospitals are presumed to spend more on patients who stay longer. While there are some clear limitations to using this variable, the advantage is that LOS is recorded very accurately for each patient. Hospitals that score in the top two quintiles on both cost and quality are considered to have achieved "Select Practice" within that specific disease category. El Camino attained 25 Select Practice designations (the maximum in the sample was 34), indicating that it performed very well across a large number of diseases.[2]

WHAT DRIVES QUALITY AT EL CAMINO?

High-quality care at El Camino Hospital appears to be the result of a variety of institutional factors that have collectively created an internal environment constantly focused on delivering top-notch medical care, combined with a set of tools, including IT and critical paths and protocols, that promote quality and QI on a daily basis. It is largely not, however, the result of a push from external stakeholders, including employers, health plans, and regulators.

The following text describes the key factors that have played roles in allowing El Camino to reach this point. It is broken into three parts. The first is a brief review of the external environment's limited role in promoting quality at El Camino. The next two sections review the internal forces driving quality at El Camino. The first of these reviews contextual factors that serve to create the type of institutional environment in which quality and quality improvement can flourish, and the second reviews specific tools and programs that lead to a focus on quality and QI on a daily basis.

The External Environment Acts as Support, Not Catalyst, for Quality

The external environment in which El Camino operates does not appear to be a strong catalyst for quality, although it does play a role in helping to identify areas to scrutinize and in some cases in supporting discrete projects.

Little, if Any, Pay for Performance

Payment methodologies have historically done little to encourage El Camino's focus on quality and QI, and in some cases have even created disincentives for quality. Over the past few years, a handful of larger payers have begun to discuss publicly the possibility of rewarding high-quality providers, but these programs are early in their development and it remains to be seen whether they will be catalysts for QI among local hospitals.

Since February 2002, Blue Cross of California has made information on quality and medical outcomes for its network hospitals available to its PPO and self-insured health plan members via the company's Web site. The information is made available through a company called Subimo. At present, the program is purely for consumer education purposes with information posted on the company Web site, and it remains to be seen whether Blue Cross will create financial incentives for enrollees to choose hospitals that score well. As a part of a pilot program launched in 2002, Blue Cross has created financial incentives to reward physicians who score well on clinical quality, service quality, and pharmacy measures. Physicians also receive performance reports that compare their scores to those of other physicians in the same geographic area and to physicians throughout the state in the same specialty.

Blue Cross also recently put into place a Centers-of-Excellence (COE) program for bypass surgery that includes 70 of the 120 hospitals in the insurer's network that perform the procedure. Selection for the COE program was based on information submitted to Blue Cross, data from California's statewide quality reporting program for bypass surgery, and information published by The Leapfrog Group, which advocates minimum volume thresholds or outcomes in procedures like bypass surgery where studies have shown a correlation between high quality and volume. El Camino was chosen for the network despite the fact that its volume levels do not meet the Leapfrog standards. At present, Blue Cross plans to publicize the existence of these COEs (and the criteria for achieving COE status) to its members, in the hope that they will use this information to make more informed choices when selecting hospitals. Going forward, the insurer will consider the development of financial incentives (e.g., through benefit design or variable deductibles or copayments) to steer enrollees to hospitals that have achieved COE status.

Blue Shield of California has also initiated a program designed to steer enrollees to certain hospitals. In April 2002, the health insurer developed two tiers of hospitals based on costs, and gave enrollees an incentive (in the form of a lower deductible) to seek services at the low-cost hospitals. Due in part to pressure from the provider community, Blue Shield relatively quickly announced plans to incorporate quality and patient

satisfaction scores into the tier system. In June 2002, Blue Shield announced that hospitals would receive "credit" as an offset to costs if they volunteered to participate in two performance measurement programs: the Patients' Evaluation of Performance in California (PEP-C) initiative, sponsored by the California HealthCare Foundation and the California Institute for Health System Performance, and The Leapfrog Group's program. The Leapfrog program measures the degree to which hospitals have implemented three recommended safety "leaps": computerized physician order entry (CPOE), use of intensivists in the ICU, and achievement of minimum volume levels in select procedures where volumes have been found to be correlated with outcomes. El Camino Hospital was the only hospital in Santa Clara County to achieve the highest rating of three stars on the first PEP-C report.

Following this announcement, 50 additional Blue Shield network hospitals volunteered to participate in the PEP-C program, representing a 40 percent increase. Additionally, a handful of hospitals announced that they would join the Leapfrog program, which already enjoyed substantial participation among Blue Shield network hospitals. In June 2003, Blue Shield announced the incorporation of additional quality information into the tiering program by adding 14 quality measurements to the system. These 14 measures include Joint Commission accreditation status, PEP-C scores, the extent to which hospitals have adopted Leapfrog's recommendations, and hospital-specific performance in certain procedures reported by the California Office of Statewide Health Planning.

There has been no indication, as of yet, that local insurers are willing to pay high-quality hospitals higher prices as a reward for good performance. In fact, hospital representatives fear that insurers may ask for discounts in exchange for the implicit promise to steer volume to the best performers via consumer education or financial incentives directed at enrollees.

An Impetus for Close Scrutiny of Particular Areas

But while the purchaser community may not be creating strong incentives for quality, other aspects of the external environment do help to promote QI at El Camino. Administrative and clinical leadership pay close attention to what goes on outside the hospital, taking advantage of knowledge gleaned elsewhere and participating in externally-sponsored projects to promote QI within the hospital. For example:

- The CEO sets a handful of performance goals each year that provide a top-down incentive for QI. Often these goals are driven by the agenda of the Joint

Commission for the Accreditation of Healthcare Organizations. For example, four of the five performance goals for 2003 are included as a part of the Joint Commission's core measures.

- The IOM's seminal report, along with publicity from other hospitals, has led to a major focus on reducing medical errors at El Camino. For example, at the direction of the CEO, El Camino launched the medication error reduction team, which consists of the Director of Pharmacy, the Quality Management Manager, the Nursing Education Manager, staff nurses, and a diabetic resource nurse. This committee is charged with developing strategies to reduce medical errors in the hospital. One of its first activities was to conduct a failure mode effects analysis on the process of medication dispensing and administration. (The Joint Commission mandates that hospitals perform this type of proactive analysis in at least one area; the goal is to proactively identify potential problems and to address them before errors occur.) In addition, after hearing about cases of deaths due to medical errors at other institutions, the Medical Director for Quality and Utilization Management personally reviewed the cases of every death in the hospital over a three-month period. The purpose of the screen was not to determine how frequently errors occurred in these cases, but to ensure that any errors that did occur were being picked up by the hospital's existing error screening and reporting systems. Errors cannot be eliminated, nor can problems be addressed, if errors are not detected in the first place. The review confirmed that El Camino's system was working—no undetected errors were identified for review.

- After publicity surrounding clear-cut cases of unnecessary cardiac catheterizations at a local hospital, El Camino designed an audit to make sure that cardiologists at El Camino were not performing unnecessary procedures. This audit, which was based on the American Academy of Cardiology's indications for cardiac catheterization, uncovered only one suspect case, which was referred to the cardiovascular medical executive committee for review. This encouraging result occurred despite the purposeful selection of catheterization patients who did not have further therapeutic procedures, which biased the study toward finding cases of questionable necessity.

- The IOM and other external organizations have identified deep vein thrombosis as a common, serious problem among patients in hospitals that can easily be prevented through prophylactic anticoagulation. Based on this information, one of El Camino's respected critical care physicians conducted a retrospective review in

this area. The physician determined El Camino's performance could be improved and he developed a protocol that was placed into existing clinical pathways. He then met with each clinical department to educate physicians and nurses about appropriate care. The physician recently recommended to hospital administration that a new position be created. This would be an anticoagulation nurse, an RN who would be responsible for monitoring outpatient adherence to the clinical path and educating patients and staff about appropriate use of anti-coagulation medication, as misuse of these drugs is a major source of adverse reactions.

- The Leapfrog Group's promotion of CPOE systems led El Camino to evaluate how its system's performance and functionality compared to Leapfrog recommendations. The review concluded that El Camino did not have all of the decision-support mechanisms (e.g., alerts about drug-drug interactions) advocated by Leapfrog. This lack of adherence to Leapfrog standards was a major impetus in El Camino's decision to purchase its new information system (IS), which will meet all Leapfrog standards. Similarly, because of Leapfrog, El Camino has considered potentially staffing its critical care units with dedicated on-site intensivists. This analysis concluded that the current staffing models, which utilizes intensivists but not to the same degree recommended by Leapfrog, produced high-quality outcomes, and that, for now, staffing with a dedicated full time intensivist would be too expensive and an unwise allocation of scarce resources that could be better devoted to other quality-enhancing activities.

- The Joint Commission's focus on staffing effectiveness led El Camino to examine several issues related to its staffing. The first involved the use of "sitters" who stay with patients at high risk of falling. El Camino is currently investigating whether the development of programs to help these patients sleep better (and thus not wake up confused, which creates increased risk for a fall) can allow the hospital to reduce its costly sitter staff without increasing fall rates or use of restraints. The Performance Improvement department and the director of nursing are monitoring a set of outcomes on a regular basis to judge the impact of the program. The Joint Commission's activities have also led El Camino to analyze the impact of nursing skill mix on medication errors. While the Joint Commission has given hospitals latitude with respect to skill mix, it is requiring hospitals to make sure that staffing mix does not have a negative impact on medication errors, fall rates, and other important quality indicators.

A Source of Benchmarking Data

As a stand-alone hospital competing with multi-hospital systems and integrated delivery networks such as Stanford University Medical Center, Kaiser, and Catholic Heathcare West, El Camino often feels it is at a competitive disadvantage with respect to having access to sound benchmark data for measuring performance and setting improvement goals. While El Camino belongs to a national alliance of hospitals, the institution's leadership has not found the comparative data from that organization to be adequate.

As a result, hospital leadership has adopted a policy of looking to external sources (e.g., payers, regulators and government agencies, or independent groups) for such information. In practice, this means that El Camino often agrees to participate in QI initiatives spearheaded by external parties. For example, when the local Medicare QI organization approached El Camino about participating in a project related to promoting use of anti-coagulation therapy for stroke patients, El Camino embraced the opportunity because this project offered the hospital access to benchmark data in an area it considered very important. El Camino is one of a handful of hospitals around the country that are involved in the Get With the Guidelines program for stroke care sponsored by the American Heart Association. This initiative, being tested in a handful of markets around the country, focuses on real-time data collection (using a Web-based system) in the ED and other nursing units. It is designed to ensure that stroke victims are identified as early as possible and receive appropriate care, including use of "clot-busting" drugs when clinically indicated. El Camino also participates in the National Registry for Cardiopulmonary Resuscitation, which provides outcomes data related to CPR; the Society for Thoracic Surgeon's open heart surgery benchmarking program; and the National Data for Nursing Quality Indicators, which provides clinical benchmarking data on nursing-related outcomes, such as the incidence of patient falls and skin breakdown. After implementation of its new IS, El Camino will also have access to comparative clinical information from other users of the same system.

Report Cards Not Helpful

Interestingly, a variety of report cards, which are designed to help Californians make more informed health care choices, have not served as a vehicle to promote QI at El Camino. The organization does take such reports very seriously. But whenever a report comes out suggesting that El Camino is underperforming in a particular area (a relatively rare occurrence), the hospital has drilled down further into the data. To date, this has led the hospital to conclude that problems with the quality of the data, not the quality of care at the institution, explains its scores.

An Internal Environment That Demands Quality and QI

While the external environment serves as a moderate impetus for quality and QI, the internal environment at El Camino almost demands it. Key components of this environment include: strong leaders who are committed to quality; a culture that embraces innovation; a proactive, top-notch nursing staff that is supported by physicians and the administration; a committed, high-quality medical staff; and a philosophy that gives individual departments and units autonomy and accountability for identifying and resolving quality problems.

Leadership's Commitment to Quality

El Camino's early leaders quickly established their commitment to making the hospital a high-quality institution. These leaders became some of the first in the country to embrace the notion of using IT as a vehicle for quality and QI, including having physicians use computerized order entry and employing a chief information officer. This commitment continued throughout the 1970s and 1980s, although in the 1990s the institution's leadership appeared to lose some of its focus when the organization pursued the strategy of building an integrated delivery network (IDN). During the subsequent building and dismantling of that network (as with many institutions that embarked on an IDN strategy, El Camino ended up abandoning it), financial and non-financial resources that previously had been directed at QI were focused elsewhere.

Board focus on quality. El Camino's current leadership has reinvigorated the organization's commitment to quality and to putting patients first. Many old-timers on the nursing and medical staff suggested that this reinvigoration process has been very important. For example, the Board of Directors tied the CEO's performance review (which determines bonus levels and raises) in part to clinical outcomes and service quality. The CEO has instituted a similar type of system for the top 80 leaders within the hospital. The Board also reviews the hospital's dashboard quality indicators quarterly and is quick to intervene if problems arise, although they seldom do.

But perhaps the best testimony of the Board's commitment to quality can be seen by the "marching orders" they gave the CEO when he was brought in to improve the hospital's financial performance several years ago. The hospital's financial situation deteriorated following the failed strategy of building an IDN. The board told the CEO that the financial turnaround had to be achieved without cutting labor or doing anything else that could undermine quality or patient satisfaction. The Board did not want to see a real or perceived decline in the quality of the care provided by the hospital and it was worried that layoffs might undermine quality. Thus, rather than focusing on cost cutting,

the CEO launched a four-pronged turnaround effort that included a hospital-wide service excellence initiative focused on patient satisfaction and quality (see below for more details), a physician recruitment program designed to build volumes, renegotiation of managed care contracts to boost prices and volumes, and a cost-control program designed to limit increases in expenses rather than cutting them outright.

A discrete set of top-down performance goals. El Camino's leadership creates a culture of quality by developing a discrete set of performance goals in important areas. Within the area of clinical outcomes, the CEO establishes a handful of indicators for the organization to focus on each year, with specific performance goals tied to each. Indicators are typically chosen because they are important and data suggest that the institution has room for improvement. However, in some cases, measures may be included even if the hospital already performs well, especially if an outside organization, such as the Joint Commission, is focused on them. Performance goals are typically developed based on national norms or benchmark performance. This year's group includes appropriate use of beta-blockers and angiotensin-converting enzyme (ACE) inhibitors in heart attack and congestive heart failure (CHF) patients, appropriate use of aspirin, documentation of left ventricular function in CHF patients, and decrease in patient falls. Some of these measures may remain on the annual priority list for next year, while others may drop out and be replaced by higher priorities. In addition, certain performance measures do not change, such as mortality rates for heart attack victims and complication and mortality rates from cardiovascular procedures.

Within the area of service, explicit goals have been set with respect to improving patient, employee, and physician satisfaction. In addition, the CEO spearheaded development of a broad-based service excellence initiative involving six separate teams composed of a wide range of employees. The teams focus on generating and testing "bright ideas" for improving service from the hospital staff, improving education and communication, promoting leadership development among managers, improving outpatient services, improving physician satisfaction, and enhancing recognition of employee contributions to the organization. The chairs of each of the six teams meet on a regular basis to review progress and to keep the program's momentum moving forward.

The establishment of these explicit goals and of the service excellence initiative were an attempt by the CEO to send a strong signal to the medical staff and hospital staff that the hospital was going to return to its roots of putting patients first by focusing on service and satisfaction.

Face-to-face meetings with staff. To reiterate the importance of high quality and service levels, the CEO holds quarterly forums with all employees, (each forum is held eight or more times, meaning that the CEO participates in at least 32 such meetings a year) where he recognizes past achievements and reviews future plans for patient safety and goals. The CEO tries to make these sessions highly interactive, taking time to respond to questions and often dedicating time after the sessions to continue informal dialogues with staff. Roughly 1,200 members of the hospital's staff of 1,500 to 1,700 individuals attend these sessions. These sessions are a very important way for staff members to get to know the CEO and for the CEO to make his commitment to quality, and the organization's five pillars, more real to the staff.

Enlightened analysis. El Camino leadership's commitment to quality can also be found in how it analyzes the payback from critical investments, such as IT and other time-saving technologies. Many hospital CFOs analyze the return from new IT investments over a relatively short period of time (usually five years), and promptly conclude that the returns cannot justify the significant expense. But El Camino's leaders recognize the long-term potential of IT, and realize that five years is an unrealistically short time horizon when evaluating a large, new system such as CPOE. As a result, El Camino analyzes IT over a longer period of time, at least 10 years or longer. An analysis of the system purchased in the 1970s suggests that it completely paid for itself, in terms of cost savings, by the late 1970s. Yet it has continued to provide benefits for 25 additional years. This analysis considers the full cost of the IT system, not the subsidized price that El Camino actually paid.

El Camino's leaders do not focus their analysis entirely on the initial acquisition costs, in part because these costs become relatively small when spread out over the appropriate life span of the system, and in part because annual maintenance costs can run from 20 percent to 30 percent of initial acquisition costs for many systems, making these costs more important than the initial price tag. Thus, the $2-million difference in the acquisition costs of the two finalists that El Camino evaluated did not play a large role in the final selection of the new IT system.

Another example of this commitment to quality comes from the pharmacy department, where El Camino's leaders demonstrated their willingness to emphasize quality over short-term cost savings. The hospital's new automated medication dispensing system freed up considerable time for the organization's 12 full-time pharmacists, who previously spent roughly one-half their time dispensing medications. But rather than cutting back on the number of well-paid pharmacists employed, the hospital's

administrative and clinical leadership decided to redeploy their time to focus on other activities designed to reduce medication errors, such as conducting rounds on the floor where pharmacists review patients' medication orders. While eliminating pharmacist positions would have undoubtedly saved the hospital significant funds in the short term, leaders were swayed by scientific evidence in the literature suggesting that redeploying the pharmacists to other activities could improve quality and ultimately reduce costs as well. The Pharmacy Director noted that the literature suggests that the cost savings generated by one pharmacist intervention exceed the costs of that intervention by a ratio of approximately 12:1.[3]

A willingness to spend money to support quality. The pharmacy example cited above illustrates another component of El Camino's leaders' commitment to quality—they are willing to spend money when necessary to ensure quality outcomes. Additional examples of this commitment can be seen in the leadership's willingness to hire additional nurses to ensure liberal nurse-to-patient staffing ratios and to compensate staff for QI activities. Nurses, case managers, and other staff at El Camino are involved in a variety of committees and projects dedicated to QI. At any given time, roughly 10 hospital-wide teams of eight to 10 members are operating, with members involved in monthly hour-long meetings as well as other time spent outside of meetings. In addition, at least 20 different department-level teams, which tend to be smaller, are also working on discrete projects at any given time.

Because El Camino has a unionized nursing staff, there are strict rules on compensation that ensure that nurses are paid for all of their time on these activities and that they receive 1.5 times their regular salary for overtime work, which occasionally will be necessary for nurses who are heavily involved in QI projects.

A Culture That Embraces Quality and QI

While it is difficult to estimate the exact impact, there is little doubt that El Camino's culture plays an important role in driving both the high level of quality and the effective QI processes at the hospital. El Camino's physicians and staff seem to embrace quality and QI. Part of this ethic may stem from the hospital's status as a district hospital—that is, it is owned by and operated for the good of the community. The hospital district's Board members are elected by their fellow citizens and the Board focuses its efforts on making sure the hospital provides high-quality care for area residents.

The hospital's culture, and its commitment to quality, is most clearly seen in the way that members of the medical and hospital staff work together to ensure that quality is

of a high level and is continually improving at El Camino. The current CEO noted that the hospital has a long tradition of using multidisciplinary teams to analyze and address quality problems. Turf issues seldom arise at the hospital. Physicians and hospital staff routinely jump at opportunities to serve on the many ad hoc task forces and permanent structures designed to promote quality. For example, the Medical Director for the Stroke Program recently began looking for volunteers to work on a task force designed to improve the care provided to stroke patients. Every one he approached volunteered to participate, including the head of the ED, despite the fact that the Medical Director did not press for volunteers, and in many cases, was only asking for recommendations of other individuals to approach about participation on the task force.

A Culture That Embraces Innovation

El Camino has a culture that embraces innovation, in part because of its location in the heart of Silicon Valley. Many of the hospital's patients, the staff's spouses and family members, and even some of the board members work in technology-oriented companies. The community as a whole seems to embrace new technologies and innovations.

"What's different about El Camino? The hospital has an ethic of providing excellent patient care. All hospitals may have it to some degree, but here it's a religion."

—CEO of El Camino Hospital, who has been in the job for 2.5 years, reflecting on what is different about El Camino compared to the many other hospitals where he's worked.

But the roots of El Camino's innovative spirit precede the technology boom that put Silicon Valley on the map. Long before the technology boom of the 1980s and 1990s, El Camino embraced technology, and it is continuing to do so long after the bust of the last few years. The hospital's mission statement, written in the 1990s and updated with input from management when the new CEO arrived, highlights innovation as a central goal:

"To be an innovative, publicly accountable and locally controlled comprehensive healthcare organization which cares for the sick, relieves suffering, and provides quality, cost competitive services to improve the health and well being of our community."

The vision of the organization also emphasizes innovation, highlighting "people and technology" as one of five key aspects of the vision. "Creativity and innovation" is also one of the organization's 11 core values.

But the commitment to innovation at El Camino is more than just a mission statement, vision statement, or list of core values. Rather, the commitment can be seen in concrete actions taken by the organization beginning 30 years ago. In the early 1970s, representatives of the Lockheed Corporation approached El Camino Hospital about commercializing its Eclipsys IT system, originally built for defense applications. Lockheed had several choices of hospitals with which to work, and the company approached El Camino because of its stated commitment to innovation and its forward-thinking leaders, who were looking to new technologies as a way to put the hospital on the map regionally and nationally. Thanks in part to a Department of Defense program that provided a significant subsidy (equivalent to roughly 70 percent of the cost), El Camino became the first hospital in the nation to purchase an electronic medical record system in the early 1970s. This system, still in operation today (although it is being replaced soon), includes CPOE. It brings together information from virtually every department in the hospital, allowing for seamless information flow across the facility. And while some additional functionality has been added to the system over time, the core of the system—the ability to seamlessly transfer clinical information and orders throughout the hospital—has been in place since the beginning. (For more information, please see IT Section.)

El Camino was also one of the first hospitals in the country to hire a chief information officer (CIO). The first CIO, hired in the 1970s, was an IT pioneer who later went on to start his own health care IT company, which has become a major player in the industry.

El Camino's commitment to innovation has continued over the years, and has gone beyond IT to include the direct delivery of patient care. For example, El Camino was the first non-academic medical center in the country to offer a kidney dialysis center. El Camino was also an early adopter of a floor-based prescription dispensing machine that stocks the most commonly prescribed drugs for a particular unit. These machines interface with the hospital's pharmacy information system on a real-time basis. The net result is that, first, a physician can enter an order for a drug into the hospital's primary information system. Second, the data automatically flows into a separate but integrated pharmacy system. This, in turn, allows the pharmacist to screen the order (e.g., checking for drug-drug interactions, allergies, appropriate dosing) and fill it by approving the order in the system. The nurse can then retrieve the medication on the floor using a fingerprint identifier and an authorization code. The entire process, from physician order to availability of the drug for the nurse on the floor, took an average of roughly eight minutes in August 2003 (the most recent month for which data are available). This time

varied from a minimum of 1.6 minutes to a maximum of 18.4 minutes. The vast majority (94%) of orders are verified by the pharmacist within 15 minutes of the physician order.

Additionally, the hospital is currently implementing a bar-coding system for drugs. The FDA is now considering requiring this in all U.S. hospitals. This system will utilize bar codes on drug packages, staff badges, and patients to ensure that the appropriate drug is being administered in the prescribed dose to the right patient. Once the system is operational, the probability of a medication error occurring at El Camino will be quite small. Thanks to the CPOE system, errors due to handwriting problems (a common source of medication errors) are largely non-existent, and thanks to the decision-support features of the pharmacy system, adverse drug events (e.g., interactions, allergic reactions) are also rare. The bar-coding system will close the loop by preventing errors in drug type (i.e., drug administered does not match drug ordered), dosing, or routing (i.e., wrong patient).

Medication Error Rates

El Camino's medication error rate in calendar year 2001 was 4.8 per 1,000 patient days. An analysis of the hospital's 547 medication errors for this year found that nearly one-half (264) resulted in no injury, while 84 resulted in minor injuries, one in a major injury, and five in prolonged stays. In 93 cases, the impact was unknown.

Thanks to an intense focus, dispensing errors (one type of medication error) has become an extremely rare occurrence at El Camino. The dispensing error rate for the fiscal year ending June 30, 2002 was 0.003%, with only 40 reported errors out of 1,274,516 administered doses. Moreover, 39 of the 40 errors were classified as minor (i.e., not clinically significant and no adverse patient outcome) and one as moderate (i.e., potentially significant clinically but no adverse patient outcome).

The hospital's new bar-coding system and computer system should further reduce these already low error rates.

Top-Notch, Proactive, Liberally-Staffed, Well-Respected Nurses

Virtually every person interviewed during the site visit highlighted the 700-person nursing staff as the single most important factor driving quality at El Camino. For a variety of reasons that will be discussed below, El Camino consistently employs an ample number of high-quality, experienced nurses who command the respect of physicians and consequently are empowered to act as full-fledged partners in ensuring that patients get the right care in a timely manner. El Camino was one of the first organizations to be named a magnet hospital by the American Nursing Association (ANA). The hospital received the distinction in 1984, based on its high performance with respect to the professionalism of its nursing staff, the involvement of nurses in clinical decision-making

and quality improvement, and nurse satisfaction levels. The hospital is currently reapplying for magnet designation from the ANA.

Selective hiring. El Camino enjoys this strong position in nursing for a variety of reasons. The catalyst for high-quality nursing began years ago when the institution's leadership made it clear that El Camino only wanted to hire the very best candidates. This policy, put in place during an era when there was no nursing shortage, helped to establish the hospital's reputation as an attractive place for good nursing students to seek employment. The policy carries forward to this day, even though El Camino, like virtually all hospitals, has had to implement strategies to fill nursing positions in times of shortage. Today, nursing candidates are interviewed by a team of individuals, including floor nurses who will work with candidates who are hired. A candidate is generally not offered a job unless everyone on the team concurs with the decision to extend an offer. Allowing peers to have input into hiring decisions not only helps to ensure that the best candidates are hired, but also facilitates training. Staff nurses who train new candidates feel a sense of ownership, rather than feeling that department management dumped an unfamiliar—and perhaps unqualified—candidate on them).

Excellent staffing. The existence of high-quality nursing staff at El Camino is not merely the result of good hiring decisions. Once nurses arrive, the hospital's higher-than-average staffing ratios give them more time to do what nurses are supposed to do (e.g., educate patients and work with physicians and care coordinators to manage the care of individual patients). Nurse staffing ratios at El Camino average one nurse per four or five patients on medical/surgical units. This is better than the California proposed standard of one nurse per six patients and a significant improvement upon the one nurse per 10 to 12 patient ratio that new hires at El Camino report exist at several other area hospitals. At two local hospitals, there are hiring freezes due to budgetary problems.

In fact, meeting the new state standards will not require major staffing changes for El Camino. Analysis suggests that only minor tweaking will be needed in the overnight shift, whereas other local hospitals have discovered that they may need to add as many as 100 full-time equivalent nurses. El Camino leaders worry that they might lose their substantial competitive advantage with respect to nursing if every hospital is essentially forced to upgrade to staffing levels that approach those already in place at El Camino.

Experienced nurses. These additional patient care hours not only serve to directly improve quality, but also help El Camino attract and retain top-notch nursing talent. El Camino's vacancy rate for RNs averaged 7.7 percent in fiscal year 2003 (ended in June),

well below the Northern California average of 10.8 percent and the statewide average of 10.2 percent. (Both the California figures are averages based on nine months of data.) Turnover rates at El Camino averaged 9.2 percent in 2001 and 7.9 percent in 2002, well below comparable figures for Northern California (15.5 percent and 11.1 percent, respectively) and the state (18.1 percent and 13.4 percent, respectively). El Camino's turnover rate fell even further, to 6.8 percent, in fiscal year 2003. El Camino's head of nursing believes the hospital has a significantly lower percentage of new graduates on its staff than do other hospitals in the area, in part due to higher retention rates. The average nurse at El Camino has been with the hospital for just under 12 years.

High retention means that El Camino seldom faces periods when it must hire and train many new nurses at the same time, which can make quality hard to control. It also means that new nurses are trained and mentored by good, experienced nurses, and can quickly become productive members of the patient care team. New nurses go through four to 10 weeks of training (with compensation) that includes a customized orientation, unit-based training, formal classes (to provide socialization opportunities with peers that unit-based training does not), and a preceptor program with weekly meetings. Nurses are observed by preceptors as they perform patient care duties during this time period, and they are not allowed to take care of patients on their own until a preceptor signs off on their competency levels in key aspects of the job. One relatively unique aspect of El Camino's training is the use of a performance-based assessment system for all new hires that tests critical thinking and other relevant skills. The results of this evaluation help to develop a customized training program that addresses individual needs.

After initial training, El Camino continues to offer its nurses opportunities for education and advancement via a wide array of continuing medical education activities and through tuition reimbursement policies that are viewed by new hires as being more generous than those of the competition. El Camino offers an attractive career track. New hires—who are hired at a clinical nurse (CN)or CN1 level—are able to advance to CN2 within six months. More importantly, CN2 nurses can pursue a CN3 track if they complete certain projects (agreed on by their managers) or work in other ways to significantly promote the professional environment. CN3 level nurses receive additional compensation, approximately 5 percent more than CN2 nurses.

Physicians who value and encourage proactive nurses. Culture, particularly the attitude of the medical staff, is the most important factor responsible for high-quality nursing at El Camino. The culture clearly values nurses tremendously and encourages them to be proactive members of patient care teams and to participate broadly in QI initiatives in

partnership with the medical staff. As an example of this latter role, ED nurses are working with physicians to develop triage pathways for patients that are designed to reduce bottlenecks in getting patients admitted to the hospital or discharged from the ED. This facilitates timely access to appropriate care for patients who need it and reduces ED bottlenecks that occasionally force the hospital to shut down its ED to ambulances.

Nurses are viewed as professional peers by physicians, and they routinely give their input on the clinical decisions being made every day related to the care of individual patients. Physicians not only accept the input, but welcome it and have even come to expect and rely on it. Part of the reason that physicians are so accepting and respectful of nurses input is the medical staff's organized leadership has historically made it clear that physicians who fail to treat nurses with respect will not be allowed to continue practicing at the hospital. In the mid-1980s, a handful of physicians at El Camino were believers in the "old-school," hierarchical model of physician-nurse relations where physicians called the shots and nurses were expected to carry out their orders without question. Some of these physicians reacted negatively to nurses who tried to play a more active role in patient care and they treated the nurses poorly. The medical staff leadership confronted these physicians and even got involved in tense standoffs over the issue. The underlying message became clear—that the medical staff will not tolerate physicians who fail to respect nurses.

"When I walk into the hospital here, I can immediately find the nurse(s) caring for my patient. They are informed, offering suggestions and seeking information needed to ensure that the right care is being given. They know what they are talking about and what they are doing, so why wouldn't I listen? When I go into other hospitals, I'm lucky if I can find the nurse(s) caring for my patients, and if I ask them something, they seldom know the answer. The contrast (between El Camino and other hospitals) is like night and day."

—an El Camino physician

"When you first come here as a new physician, you learn two things—work together with the nurses and use the computer. If you don't learn these lessons over time, you will be dealt with."

—an El Camino medical director

High-Quality Medical Staff

El Camino is an attractive hospital for many top-notch physicians, including Stanford graduates, who are looking for an innovative community hospital in which to work. Physicians are drawn to the hospital's size, its commitment to quality, its high-quality nursing staff, its commitment to IT and innovation, and the relative autonomy that physicians enjoy in running clinical departments with only limited interference from administration.

Physician leaders at El Camino appear to be highly driven to continuously improve quality. For example, during the site visit, the chief of medicine and the chair of a special committee working on cardiovascular care expressed significant dissatisfaction with the fact that many of the physicians in general medicine and cardiology were not formally using the hospital's critical paths in medicine. However, subsequent analysis found that these physicians do follow the key standards of care contained in the pathways (e.g., appropriate use of beta-blockers and ACE inhibitors for cardiac patients). Many of these physicians use personalized order sets that are integrated into the electronic medical record instead of the pathway. As a result of this inconsistency, the hospital has been limited in its ability to collect and analyze information electronically regarding how patients are treated. To address this situation, physician leaders are re-drafting pathways to promote their use. Ultimately, this will also improve the hospital's ability to collect accurate information. These physician leaders believe that accurate data collection and analysis are critical to future QI, even though current practice patterns appear to be sound. As the chair of the cardiovascular committee noted, "We can always do better, but we need data to improve."

Local Autonomy and Accountability for Quality and QI

El Camino's administrators let their high-quality clinical staff run the show. While administration plays an important role in spearheading change (by setting priorities and creating targets for improvement) and is invaluable in supporting improvement (by providing data on performance measurement), it largely allows the physicians and nurses to determine what elements need changing and how to change them. For example, each department's medical executive committee—a team of four physicians, including the chief of staff, vice chief of staff, secretary, and past chief of staff—handles peer review issues within its department. This includes approaching physicians who may be behaving inappropriately (e.g., treating nurses or other staff with disrespect) or whose practice patterns may be out of line. The administration supports these activities (e.g., through data collection and feedback), but lets the clinical leaders within each department make their own decisions on issues related to quality.

The concept of local autonomy and accountability extends to the nursing units, as well. El Camino employs a self-governance model for each of its nursing units, rather than using any form of structured or shared governance. Individual units set their own quality goals—although these may be based in part upon organization-wide goals set by the administration—and develop their own performance improvement projects designed to achieve these goals. Nursing units also make their own staffing decisions on a day-to-day basis, using the Nursing Intensity Measurement System (NIMS) tool to help determine

appropriate levels. The NIMS committee, which has representation from each unit, serves as an oversight committee to make sure that the NIMS tool is valid.

Nuts-and-Bolts Factors That Drive Quality on a Daily Basis

Along with factors that create an internal environment where quality and QI processes can flourish, El Camino invests in a variety of nuts-and-bolts tools and processes that ensure high levels of quality and that drive QI activities on a daily basis.

An Effective QI Process

El Camino's QI process—known as the performance improvement plan—appears to be quite effective at monitoring quality performance, identifying problem areas, assigning or creating a team of appropriate individuals to tackle the problem, developing interventions to address the issue, and monitoring the impact. The net result is quick identification and resolution of quality issues, and therefore, high and increasing levels of quality. What follows is a review of the key elements that make this QI process work.

Formal, hospital-wide bodies to instill accountability for improvement. El Camino has established several formal bodies that serve to instill accountability for quality and QI throughout the organization. Within the medical staff, the Medical Executive Committee (MEC) serves as the primary body with overall responsibility for the quality of care provided by physicians at El Camino. This committee oversees all medical staff committees and affairs, including those related to quality assessment, peer review, and credentialing. The executive committees within individual departments submit regular reports on their activities and achievements to the MEC. The Quality Council also works to creates ongoing accountability for QI within the medical staff, particularly regarding interactions between the medical staff and other clinical departments. This group consists of the vice president of patient care services, the vice president of clinical support services, the vice chiefs of each of the medical staff departments, patient care services directors, the manager of clinical decision support, the director of clinical effectiveness, and the co-chairs of the Performance Improvement Committee (PIC). The Quality Council directs quality performance improvement activities of the medical staff and reports to the MEC. The vice chiefs also report annually to the MEC on performance improvement activities and achievements within their departments. Regular reports are also provided in a variety of key clinical functional areas, such as infection control, medication use, blood use, risk management, autopsy, care coordination, restraint use, resuscitation, and use of clinical pathways.

The PIC consists of representatives from patient care services departments, the clinical laboratory, nutrition services, respiratory medicine, pharmacy, radiology, rehabilitation services, employee health, education, human resources, environmental services, material management and clinical effectiveness, along with the medical director for quality assessment/utilization management. PIC meets monthly and is charged with overseeing performance improvement and monitoring activities within the hospital. The PIC receives regular reports on all major, interdepartmental performance improvement projects along with key areas for monitoring.

Ongoing monitoring via dashboard indicators and other tools. El Camino continuously monitors performance via use of dashboard indicators for every major department. The dashboard includes a handful of measures, with specific targets for each one, that are intended to give a snapshot of the department's performance. These dashboard indicators are typically organized into categories based on the five pillars of the institution as a whole—quality, service, people, finance, and growth. Not all departments have an influence over each of these areas, so some department's dashboards will not include measures and goals for all five categories. For example, the nursing department's key indicators relate to four of these five pillars, as outlined below:

- **People indicators:** RN/LVN vacancy rate; percent of non-licensed nurses
- **Service indicators:** percentage of patients rating quality of nursing as excellent within the inpatient setting and the ED; percent of patients rating pain management as excellent within the ED; percent of patients rating total time spent in the ED as excellent; median wait time in the ED.
- **Quality indicators:** patient fall rate per 100 patients (while reducing use of sitters); ED diversion time with no computed tomography(CT); use of ACE inhibitors at discharge for heart attack patients; use of ACE inhibitor at discharge for CHF patients; Medicare LOS for acute medical/surgical patients.
- **Financial indicator:** expenses as a percentage of gross revenues.

Along with dashboard indicators, El Camino has designed other measurement systems that are designed to give real-time measures of performance. For example, El Camino monitors patient, employee, and physician satisfaction data (both trend information and comparisons to benchmark hospitals) on a continual basis. Working with Professional Research Consultants, Inc (PRC), an outside organization, El Camino conducts surveys of approximately 400 patients, 40 employees, and 20 physicians every month and inputs the results into an information system that analyzes and reports

performance scores with the most up-to-date data on a daily basis. Charts provide trend information on raw scores and on the hospital's performance relative to a group of peer hospitals that work with PRC. This comparison data is measured in terms of percentile, so that being in the 95th percentile means that the hospital is performing better than 95 percent of the hospitals in PRC's database. Clinical managers receive these reports on a daily basis.

This real-time monitoring allows the hospital to identify and resolve problems quickly. For example, a review in January 2003 of the PRC survey data showed that the hospital was scoring poorly in the area of discharge instructions, with many patients indicating that they had not received or understood these instructions. The Inpatient Satisfaction Team quickly determined that many patients had received discharge instructions but did not realize what they were. In March 2003, a new, bold discharge instruction folder was developed to highlight the instructions. In addition, nursing and discharge planning staff were instructed to make sure that patients understood the contents of the folder and that they took the materials at discharge. The patient escort service, a volunteer group, was also instructed to make sure that the patients took the folders. These volunteers took the job seriously, telling patients that the folders were their "tickets" out of the hospital. By May 2003, PRC surveys suggested a dramatic improvement in patient satisfaction scores with respect to discharge planning instructions.

It is difficult to underestimate the value of the real-time nature of this data collection, analysis, and feedback program. A problem that began in January 2003 was identified virtually immediately, allowing a team to be formed and an intervention developed within five months, leading to improvement a mere two months later. Thanks to this system, El Camino is able to identify and quickly address virtually any problem related to patient, employee, or staff satisfaction on a real-time basis. The system appears to pay quality dividends, as El Camino consistently ranks at the very top of its peers in terms of employee satisfaction.

The Performance Improvement Department provides the chief of each clinical department with annual, or more frequent, data on physician practice patterns, including the percentage of patients placed on clinical pathways and the adherence to care plans outlined in clinical pathways and protocols. Data are typically provided to these chiefs in an unblinded fashion. In keeping with the spirit of local unit autonomy, individual medical departmental leadership is free to decide when to share information with physicians on their practice patterns. This information is shared in a blinded fashion, with physicians only knowing their own performance. The department leadership may also

choose when it is appropriate to approach individual physicians about patterns that may be out of line with accepted practice. In some situations, performance data are provided to department chiefs more frequently (e.g., quarterly), particularly if there are problems, such as unwelcome changes in practice patterns, or changes in practice standards within the community. For example, after reviewing physician-specific data, the medical leadership within cardiovascular services became concerned about how quickly patients suffering heart attacks were taken to the cardiac catheterization laboratory for diagnostic tests and angioplasties, if needed. The committee decided to share blinded, physician-specific data on a quarterly basis with each doctor. The approach seemed to work, as the median time to the catheterization laboratory dropped from 274 minutes to 101 minutes in six months. These gains have largely held up over the subsequent 12 months, with the median time ranging between 101 to 134 minutes, with an average of 112 minutes over this 12-month period.

Drill down to analyze potential problems. Along with dashboard indicators, El Camino uses its information system and, when necessary, manual tools (e.g., chart review, data collection tools) to drill down to identify the root causes of problems identified through routine performance monitoring.

For example, physicians and nurses began noticing that abdominal surgery patients were getting blisters following surgery in the area where the tape was applied to hold the dressing. Working together, the nurses and physicians developed a set of possible causes for the problem, focusing on how the bandage was applied. The nurses designed a paper-based chart to track whether bandages were placed vertically or horizontally and what impact that placement had on blister rates. After several months, it became clear that vertical placement was superior and it became the new standard protocol for caregivers applying bandages to post-abdominal surgery patients.

Another example regarded back surgery, where caregivers noticed a spike in post-operative wound infections among patients undergoing back surgery. Working in partnership with infection control specialists, the physicians and nurses focused on a variety of potential sources of the higher-than-usual infection rate. These potential factors included operating rooms that were not being properly cleaned, specific physicians using improper infection control techniques, or caregivers using improper technique in applying or changing bandages. A form was designed to track each of these potential causes over a period of several months, but no common cause could be found. Team members then hypothesized that the infections were being caused by skin organisms that formed because patients were not being adequately cleansed before the surgery. The current protocol was

to have a caregiver scrub the patient's back right before surgery. Caregivers decided to replace this approach with a new, prospective back-scrub program in which patients were given scrub brushes during their pre-operative admission visits and instructed to thoroughly scrub their backs both the night before and the morning of surgery. The new approach was highly effective, virtually eliminating post-operative wound infections in this set of patients.

Aggressive top-down and bottom-up project identification, goal setting. The performance monitoring function also helps El Camino identify global, organization-wide improvement goals, which are set each year by the CEO, and "bottom-up" departmental goals. Typically performance improvement projects are developed within each area to meet these goals.

As noted previously, each year the CEO develops a handful of strategic goals for El Camino that include specific quality indicators for the organization to meet. Performance improvement projects are typically set up to help the hospital achieve its performance goals in each of the areas highlighted by the CEO. In addition, relevant departments (i.e., those that have an influence over the achievement of the organization-wide goals) will set their own performance-improvement goals and potentially develop their own projects or participate in organization-wide projects based on the "top-down" goals.

Departments also use their department-specific performance reports to identify other priority areas for improvement within the department. In fact, the vast majority of improvement projects are done at a department level, with at least 20 projects conducted each year. Whenever projects require cross-departmental cooperation and administrative support (e.g., resources to assist with data collection), the Performance Improvement Prioritizing Group (PIPG) meets to review the requests. One such project, reducing medication errors, involved the cooperation of multiple departments, including the nursing units and pharmacy. The PIPG meets at least twice a year to review new requests and to oversee the progress of previously-approved projects, although it will also meet on an as-needed basis as requests for approval and support are made.

Permanent and ad hoc committees and structures. El Camino is small enough that it does not have to deal with a lot of turf issues across departments. A handful of permanent structures exist to promote quality and QI. When needed, ad hoc committees are pulled together, including representatives of relevant departments, to address problems. The organization has a task force mentality. That is, a small group delves in, tackles a problem, and then disbands once the problem is resolved.

As noted, most clinical specialties at El Camino have a medical executive committee that is responsible for quality, including peer review activities. The committee consists of four individuals—a chief of staff, vice chief of staff, secretary, and past chief of staff—who have historically served on a voluntary basis. The hospital just recently began paying modest stipends, but because of the culture of the institution and its commitment to quality, physicians have been fulfilling these functions on un unpaid basis for years, with most physician leaders rotating through the various positions.

El Camino also has medical directors for the catheterization laboratory, ED, critical care unit, mental health, radiology, renal services, neonatology, pathology, and quality/utilization management. These individuals are responsible for overall quality of care within their individual areas. They report to the appropriate medical staff executive committee (e.g., the catheterization laboratory medical director reports to the medical staff executive committee for cardiovascular services).

Any employee or physician can fill out a confidential quality review report detailing a problem, such as a nurse taking issue with a physician's behavior or care patterns. Nurses feel empowered and encouraged to fill out these reports and are confident that issues will be taken seriously and acted upon, if appropriate. The hospital's medical director for quality and utilization management reviews every quality review report that involves a physician (other reports are sent to the appropriate clinical department), and refers specific issues to the departmental medical executive committee, when appropriate, or to the relevant hospital committee. Issues requiring immediate attention are referred to unit medical directors or to the medical liaison for that unit. In addition, monthly and quarterly reports that detail problems raised in the quality review reports are sent to each clinical department, and a trend analysis can be obtained on individual physicians if requested by a department's medical executive committee. In addition, every nursing unit has a unit council that meets monthly to address issues within the unit. A physician representative is assigned to each unit council, and that physician will often handle physician-specific issues that may arise through the unit council.

Each year El Camino develops a Performance Improvement Workplan that consists of specific areas that have been targeted either for improvement or monitoring. Those areas designated as being in need of improvement become "performance improvement projects." For 2003/2004, projects are underway in the following areas related to clinical and service quality: reducing patient wait times for emergency services, reducing turnaround time for lab specimens, reducing medication errors, reducing injuries due to patient lifts/transfers, improving the effectiveness of skin care, improving the care

of patients in need of detoxification services, and enhancing the effectiveness of pain management. Each of these areas has an assigned leader or owner to oversee a team of individuals who meet on a regular basis to develop interventions to improve performance. Performance within each area is measured via use of specific indicators, utilizing both trend analysis and comparisons to external benchmarks where available. Reports for each project are submitted on a quarterly basis to the PIC and on an annual basis, or more frequently, to the Quality Council.

The annual workplan also includes a set of clinical areas that are designated for functional monitoring to ensure that performance remains high. Each of these areas is also assigned a leader or owner and performance is measured using a set of clinical indicators and external benchmarks. Reports for these areas are generally made to the Quality Council on a quarterly basis. Clinical functional monitoring activities for 2003/2004 include blood use, utilization management, infection control, medication use, operative and invasive procedure review, restraint use, resuscitation outcomes, unusual occurrences, autopsy, cardiac rehabilitation outcomes, clinical path trends, "code red" (e.g., times when the ED is closed to new patients), staffing effectiveness, and a set of core measures related to the care of heart attack victims and patients with heart failure. Non-clinical functional monitoring activities for 2003/2004 are concentrated in the area of patient satisfaction, including patient compliments and complaints.

In some cases, committees are formed on an as-needed basis to tackle specific quality problems. For example, after the hospital was forced on several occasions to go to "code red" status (meaning that ambulances could not go to the hospital due to lack of inpatient beds), the hospital formed the "throughput" committee. Chaired by the head of patient care services, this committee meets monthly and consists of the manager of clinical effectiveness, a case manager, and representatives from radiology, housekeeping, and other relevant departments. The committee's charge is to free up inpatient beds as early in the day as possible by eliminating bottlenecks that delay discharge (e.g., slow turnaround of laboratory test results) and bed turnover. The committee has identified one problem currently being addressed: beds are not being cleaned in a timely manner after discharge because housekeeping is unaware that the bed is ready for cleaning. To address this issue, the hospital is purchasing a software system that will track the occupancy status of each bed on a real-time basis (similar to the systems hotels use to keep track of rooms), thus ensuring that housekeeping is alerted of the need to clean a bed as soon as a patient is discharged.

Review of external sources to identify best practices. El Camino's clinical leadership is constantly scouring the literature and other external sources to identify best practices that could potentially improve patient care. For example, the medical staff leadership within the kidney dialysis program was not satisfied with the hospitalization and mortality rates among dialysis patients. A 10-person team, consisting of three medical directors, a technician, dietitian, and other patient care staff, began meeting for 60 to 90 minutes each week to come up with ways to improve outcomes. Through these meetings and a review of the literature, this group learned that increasing the overall amount of time on dialysis was not likely to improve outcomes. They also uncovered evidence suggesting that several innovations could make the dialysis experience less unpleasant for patients, including nocturnal sessions (i.e., while the patient sleeps) and remote, at-home dialysis. The group also became aware of literature suggesting that more frequent, shorter dialysis sessions—between 1.5 and three hours per session, five or six times a week, as opposed to lengthier sessions three times a week for four hours—could lead to improved outcomes. As a result of this finding, in 1996, El Camino launched its short, daily dialysis program for its sickest patients, offering several options, including short, daily sessions at the hospital and at home. As a result, quality-of-life scores improved, as patients had more energy and generally felt better physically, and cognitive function also increased. Hospital admission rates and the average number of hospital days per patient decreased significantly, as well. The short, daily dialysis was also less costly than conventional alternatives.

Leading-Edge Information Technology

El Camino's IT system plays a critical role in producing high-quality outcomes today and will play an even more important role in the future.

The benefits of IT today. The IT system at El Camino facilitates quality on a daily basis by allowing for the near-instantaneous transfer of information across departments, meaning that clinicians seldom must spend time tracking down test results or other vital information from a patient's medical record or history/physical. They are also seldom forced to make medical decisions without this information nor must they delay making decisions because of a lack of information. For example, information flows seamlessly between caregivers and across departments at El Camino because of IT. Laboratory and radiology results are available to doctors as soon as they are entered into the system, unlike in paper-based systems where results must be called in or placed into the paper record. The net result is that patients are more likely to get the right care in a timely manner because physicians and other caregivers can make more informed decisions. For example, as noted previously, the IT system allows for the dispensing of medications very quickly.

At present, drug orders are filled and available to nurses on the units in less than 15 minutes from the time of the physician's order.

El Camino's IT system not only facilitates quality through the fast flow of information across the hospital, it also directly increases quality through built-in safeguards against errors, including CPOE of pharmacy orders, which reduces transcription errors, and automatic screening of drug orders to identify and prevent adverse drug reactions (e.g., allergic reactions or drug-drug interactions). As noted, the new dispensing system is helping to further minimize errors and speed up delivery times, and the new bar-coding system will make the drug ordering and dispensing system virtually error-proof.

Finally, the IT system also serves as the repository of the key information needed to produce the extensive performance monitoring and reporting described elsewhere in this case study.

New Pyxis System Frees Up Time for Quality-Enhancing Pharmacist Services

The new Pyxis automated dispensing system not only boosts quality by minimizing the risk of drug dispensing and administration errors, it also frees up a tremendous amount of pharmacists' time that is now spent on other quality-enhancing activities. Before the new system went into place, most of El Camino's 12 full-time equivalent pharmacists spent roughly one-half their days dispensing medications and making sure that the orders they had filled matched the orders made by the physician. Only two pharmacists were available to conduct rounds (i.e., reviewing patient charts on the units in an effort to catch medical errors.) These two pharmacists were only able to cover six units of the hospital, primarily by conducting spot checks on the floor. Thanks to the new system, many more pharmacists can now spend time on the floors, performing prospective (rather than retrospective) reviews for patients throughout the hospital. In addition, in the past only two pharmacists were in a position to answer questions caregivers had about drugs, now all pharmacists have the information they need to answer these questions.

The role of IT in the future. Ironically, the backbone of El Camino's IT infrastructure remains the 30-year old system that was developed by Lockheed. While it has been updated somewhat over time, the original system's functionality still keeps El Camino significantly ahead of the competition with respect to information flow. In fact, El Camino hospital was recently named one of the most "wired" hospitals in the U.S.[4]

But the physicians at El Camino are not satisfied, and they served as a driving force behind the hospital's decision to purchase a new system. The new system will have a number of functional upgrades, as follows:

- Built-in checks to alert physicians to potential medication errors at the time of order. The old system linked to another pharmacy-based system and therefore gave the pharmacist, rather than the physician, a prompt if an order might be inappropriate.
- Decision-support systems that generate automatic flags when interventions are recommended (e.g., caregivers are alerted to conduct an evaluation whenever a patient has lost or gained 10 pounds or more) or when an order does not comply with existing standards
- Greater flexibility in integrating pathways and protocols into the system.

The new system also makes it impossible for anyone to re-enter data into the system by hand. Except for basic information from the patient's initial history and physical and any new orders entered by a physician, all information flow in the new system must be accomplished via integration (i.e., transfer from one system to another) or download from the web-based server, thus eliminating the potential for error from the re-entry of data into different parts of the system. In the future, patient telemetry monitors will also be linked into the system, so that vital signs and other important patient data are automatically transferred, thus eliminating the possibility that a nurse or other patient caregiver might enter incorrect information, which could ultimately lead to a medical error. The Web-based nature of the new system will make it easier for physicians to access patients' information from the convenience of their offices or homes. At present, 190 physicians can access the hospital system remotely, with about 30 doing so on a regular basis. The new system will be easier to access remotely, since it is Web-based, and it will provide physicians with more information, including a patient's history and physical, which is not part of the system today.

In addition to purchasing the new system, El Camino is experimenting with a variety of laptop and wireless applications that are intended to further improve communication and the flow of information around the hospital and beyond the hospital's walls. For example, bedside devices are being tested to allow nurses or physicians to enter data, like information obtained in the patient's history and physical, directly into the medical information system from the bedside. These same devices can be used for patient education purposes. Other wireless technologies are being tested to facilitate communication among caregivers, including small, voice-activated devices worn around the neck that can be used to track down individuals or to leave messages. Unlike phone-based systems that assign a piece of equipment and a phone number to an individual, these

devices can be used by anyone, with individuals being linked into a wireless network via password-based, voice-activated log-in.

IT spending. El Camino's commitment to IT can be seen in the resources it spends on its various systems, which account for between 4 percent and 5 percent of its annual revenues, significantly more than the 3.3 percent that the typical healthcare organization spends.[5] But leading-edge systems need not always cost more. For example, during the 1990s, when El Camino's leadership began directing its attention to an ill-fated, short-lived, yet expensive, plan to build an integrated delivery system, the organization's IT systems became fragmented and complex. El Camino ended up purchasing a large number of relatively discrete, inexpensive systems that were designed to link newly acquired parts of the organization and to address gaps in functionality or other problems with the Lockheed system. When the current CIO came on the job several years ago, he found that El Camino was dealing with more than 100 different IT vendors and spending nearly 9 percent of its operating budget on IT. The CIO has been able to reduce significantly the number of vendor relationships and the IT budget, even as the hospital invests in a state-of-the-art replacement for the old Lockheed system.

Heavy Reliance on Clinical Paths, Standards, and Protocols

El Camino is trying to standardize as many aspects of patient care as possible, to reduce unwarranted variations in the way patients are treated.

Clinical pathways for routine care. El Camino was an early adopter of clinical pathways with many clinical specialties, including orthopedics, maternal and child health, and the surgical units, and put pathways in place as early as 1989. More than 40 clinical paths have been developed by physician-led interdisciplinary teams composed of nurses, care coordinators, social workers, respiratory therapists, pharmacists, physical therapists, and financial and clinical data analysts.

Each clinical path has a physician leader who is responsible for ensuring that the clinical content of the path is appropriate and up to date. Pathways are updated annually. Many physician leaders prefer to work closely with the chief nurses and care coordinators on their units in developing and updating pathways. In some departments, the physician leadership has asked the nurses to take the lead in developing the pathways. Once initial drafts are completed, the physicians review the pathways, suggest or make changes, and ultimately approve final drafts.

At present there are 35 clinical paths in use in surgery, orthopedics, cardiovascular services, maternal/child health, behavioral health, and medicine. The pathways tie in directly to the hospital's clinical information system. Clinical paths exist in the system as order sets in a clinical path menu. Physicians can "register" a patient on the clinical path by checking a box as they begin entering orders. During the hospital stay, a care coordinator is assigned to each pathway, as well, making sure that patients on the pathway progress as expected. The care coordinator also tracks complications and deviations from the pathway, facilitates team meetings, and in some cases, leads pre-operative patient education sessions based on the pathway. At discharge, the physician confirms the patient's clinical path status.

Most pathways are also available in a paper-based, grid format for staff orientation and reference purposes. Several paths are also available in formats suitable for patients and families, as they can provide valuable pre-admission, educational information to these individuals and can aid in letting them know ahead of time what to expect on each day of their stay and when they should expect to leave the hospital. This education helps to ease patient anxiety, boost satisfaction levels, and reduce the likelihood that patients or family members will resist being discharged from the hospital.

In specialties where the care for most patients is relatively routine and thus amenable to standardization, roughly 90 percent of patients are placed on a pathway. As a result, variations in practice patterns, which were often quite wide in the early 1990s, have been virtually eliminated. The carotid endarterectomy pathway provides a good example of how pathways can narrow practice variation. After reviewing national research, all surgeons performing these procedures decided that their patients should stay longer (i.e., four hours) in the PACU and that patients for whom vasopressors were unnecessary could avoid admission to the critical care unit and instead go directly to the transitional care unit from which they could be discharged the next day. All surgeons now follow this new standard of care.

An annual report is produced each year on each clinical path. The report includes, at minimum, long-term trends in case volume, percentage of patients on the path, average LOS, and average direct cost per case. Additional reports are prepared for high-volume, high-complexity, and high-risk pathways that include discharge information, complications and readmissions, and medical necessity for each day of the hospital stay. Additional reports may be developed at the request of the medical staff. These requests are usually made in response to a potential problem identified in an initial report that requires further drilling down. For example, the 2002 report on the elective bowel surgery

pathway identified an uptick in LOS and a drop-off in the percentage of patients on the pathway. A more detailed study was launched to determine if any of several parameters (e.g. delayed ambulation, foley catheter use) were responsible for the increase in LOS. Unfortunately, no clear conclusions could be drawn, and thus no changes were made to the pathway or to the way patients were being treated.

Discrete, focused protocols for less routine care. Some aspects of medical care are less amenable to standardization and thus, clinical pathways are less appropriate. Patients on the general medicine units, including those with congestive heart failure and those suffering heart attacks or strokes, fall into this category. El Camino has attempted to put pathways in place for some of these areas, but patients are placed on the pathways only 30 percent of the time. This is true partly because physicians in these specialties are more resistant to pathways, but also because the pathways are often not appropriate.

The relative lack of success in using pathways for general medicine patients has led El Camino's clinical leadership to embrace the idea of developing and promoting adherence to more specific process indicators that have been proven effective in treating patients. Thus, pathways are being redrafted and simplified to emphasize the handful of things that really matter to quality. For example, scientific evidence clearly supports the use of beta-blockers and aspirin for patients suffering an acute myocardial infarction or heart attack. On the basis of this evidence, there has been a strong push to get physicians to agree to a set of standard order sets or protocols that can be incorporated into the information system and easily "checked off" by the doctor. The new information system will facilitate this process, as it will be easier to replace customized physician order sets with standardized orders. Another important indicator is how quickly patients who are having heart attacks get to the cardiac catheterization laboratory. The medical director in cardiology chose to address this issue by feeding back blinded performance data to physicians every quarter. The approach worked well, as physicians who were slow sped up considerably. Once performance improved, the data feedback process stopped. A similar approach is being taken with ventilator patients. Rather than using a critical path, nurses and physicians have developed standing orders to cover a handful of things that really matter. The nurses play critical roles in urging physicians to use the standing orders.

Focusing standardization efforts on a handful of important indicators can also benefit the quality of nursing care. Nurses do a better job when they are able to concentrate on a handful of key orders that are standardized across all physicians, rather than dealing with customized order sets for each physician, as sometimes occurs on the general medicine units.

Focusing on A Few Things That Improve Stroke Care

Perhaps the best example of the focused approach to standardization at El Camino is for stroke patients, where the medical staff director is working with the nursing staff to implement the American Heart Association's Get With the Guidelines program, a Web-based prospective data collection tool designed to compare performance across institutions on key indicators for stroke care. El Camino's stroke team developed a "stroke patient clipboard" that is used by data collectors in the ED to review the patient log and collect critical information that is loaded into the Web-based tool. The ED alerts the data collectors via telephone when a potential stroke patient arrives in the ED. Key indicators are examined and reported back to the stroke task force. These include type of stroke, method of transportation to the hospital, how quickly after symptom onset the patient arrived in the ED, and how quickly a CT scan was completed after the patient arrived. It is also noted whether t-PA is administered to patients (if it is not administered, the reason is noted) and how quickly it is administered.

The next step in the process is to work with relevant community stakeholders to educate professionals and the public about the few key things that seem to matter with respect to stroke care, including knowing the warning signs for stroke, understanding the importance of coming to the ED early, and understanding the importance of quick assessment and administration of t-PA for eligible patients. The ultimate goal is to get the community and medical professionals to think about stroke the same way they do heart attacks. That is, to get the community to understand the importance of seeking early medical treatment and to get medical professionals to understand when to use life-saving drugs for these patients. El Camino's analysis found that only 5 percent of patients are currently getting t-PA. While this compares favorably to the national average of 2 percent, departmental leadership at El Camino would like to drive this figure to at least 10 percent (as has been achieved by the stroke center at Stanford) and ideally to 20 percent, which studies suggest is a theoretical best practice. Many patients will not be candidates for t-PA for clinical reasons, even if they come to the ED quickly. El Camino would also like to improve its "door-to-needle" time (the amount of time it takes between a patient's arrival in the ED and the administration of t-PA to eligible patients) to 60 minutes (20 minutes to initiate a CT test to confirm the presence of a stroke, 20 minutes to read the results, and 20 minutes to administer t-PA to those who need it). El Camino currently has an average time of 170 minutes.

Care Coordinators, Quality Review Nurses to Oversee Patient Care

El Camino uses care coordinators and quality review nurses in its critical care, surgical, and medicine units to work with nurses, physicians, and social workers to oversee patient care, ensuring that patients stay on critical care paths, in those cases where the path is being used, and that care adheres to established protocols. These coordinators also make sure that discharge planning activities begin early and that patient transfers proceed as smoothly as possible. Two care coordinators, one quality review nurse, and one social worker work in the critical care units, with similar staffing for the 56-bed medicine unit and the surgical unit. One care coordinator also works with a social worker in the maternity and neonatal intensive care units.

Care coordinators conduct an initial assessment of every patient admitted to the hospital. They also participate in twice-a-week rounds of each unit during which all cases are reviewed. The medical director also participates in these rounds in the CCU and the

NICU. Case coordinators also work with physicians on a daily basis to ensure that patients are receiving appropriate care and progressing according to plan. In addition, they also work closely with physician leaders to review and update clinical care paths and protocols to ensure they reflect the latest trends in medicine.

Overcoming Key Challenges to Quality and QI

This section highlights several key challenges that El Camino has faced over the years with respect to quality.

Getting Physicians to Use IT

El Camino has fewer problems getting physicians to use IT than do most hospitals, in part because of the hospital's location in Silicon Valley. But physicians' acceptance of IT is not merely the result of the hospital's geographic location. Rather, physicians' use of IT has been carefully crafted for more than 30 years. Both Lockheed and the hospital's leadership in the early 1970s emphasized the importance of working closely with physicians to design a system with them in mind. Lockheed worked with a core group of "champion" physicians to develop the initial product, and these physicians helped promote use among their peers. The result was that physicians accepted the new system with relatively little protest. And while most medical school graduates today readily embrace the system when they join El Camino (since these doctors routinely used personal computers and other IT tools during their training), even those who are resistant to IT accept it, largely because the culture demands that they do so. In those rare instances when a new physician does not quickly embrace the computer, the nursing staff will sit down with the doctor to teach him or her how to use the system effectively and efficiently.

But even with an IT-savvy medical staff already in place, El Camino's leadership had to be careful to include the medical staff in the selection and implementation of the new IT system. To that end, the CEO began the selection process by consulting with a select group of physicians who were pushing for a better IT system. He then allowed these physicians to form a task force that took responsibility for selecting a new system. The physicians were particularly focused on finding a system that could meet the Leapfrog Group's requirements for CPOE, including real-time decision support related to preventing medication errors, as well as the ability to branch out into the community by linking with information systems residing in other organizations. The task force evaluated roughly 10 different products over a period of several months. In aggregate, more than 100 physicians participated in testing these products, spending roughly two to three hours on each system. The task force narrowed the potential options to two systems. Representatives of each system set up shop in the hospital for a week, during which time

all physicians and staff members were urged to test the system and to vote for the one they liked best. More than 500 individuals, including 70 doctors, tested each system. The task force then rated the two systems on 15 different criteria, including cost, before making a selection.

Even after this intense, physician-led selection process, El Camino is careful not to be perceived as forcing implementation of the new system on the doctors. The leaders are especially concerned about physicians feeling that they are being bombarded by the functionality of the new system. For example, there are concerns that physicians may feel that they are constantly being alerted by the system's many decision-support functions. The "bombardment" issue was one of several important factors that led to a revolt against CPOE by physicians at Cedars-Sinai in Los Angeles, which ultimately led hospital leaders to abandon the system. El Camino decided to initially turn off most decision-support functions and only turn them on once physicians get used to the new system and agree that they want the new functions. Some functions, such as screening for drug-drug interactions, will initially be set to alert physicians only to serious errors, rather than any potential error.

El Camino is also instituting a comprehensive training program for the new IT system. Launched in May 2003, the program is initially focused on teaching a core group of leaders, including three doctors, to use the system and on cultivating a group of trainers who can teach others to use the system and also train more new trainers. The hope is to have a cascading effect, with ever-expanding sets of trainers taking responsibility for training the entire staff. The vendor is providing the initial training. The costs of this training, including the costs of replacing staff while they are away at training, were included in the initial acquisition price.

Rewarding Staff for Contributions to Quality and QI

El Camino employees have not historically been rewarded for their contributions to producing high-quality care or to improving quality over time. While the unionized nursing staff receives regular compensation for the time spent on QI activities (e.g., committee participation), there was no quality component to the organization's compensation system before 2002. So, it is fair to say that El Camino was not selected for this study based on its system of financial incentives.

El Camino's current leadership recognizes that the lack of incentives is a potential problem as the organization strives to improve. Shortly after taking over his position, the current CEO instituted a pay-for-performance plan for the roughly 80 individuals who

serve in managerial or executive-level positions (e.g., director, vice president). The system is now in its second year for executive-level employees and its first year for managers. It provides employees with opportunities to receive bonuses based upon performance within five areas. Two of these areas directly relate to quality: service and clinical outcomes. Within each of these two areas, specific quality-related goals have been set, with year-over-year raises and bonuses based on performance against these goals. The amount of at-risk compensation varies, with individuals who directly report to the CEO having more risk and department managers having less risk. To qualify for the bonus pool, hospital leaders and managers must demonstrate that they meet or exceed standards in three areas—leadership competencies, management competencies, and meeting performance goals related to the overall hospital goals. Management competencies are taught through a series of five core workshops offered three times monthly that each individual must attend shortly after becoming a manager or vice president. Additional management workshops are required from time to time, as deemed appropriate by administrative leaders. Leadership competencies are taught through mandatory quarterly workshops for all managers and vice presidents.

Prior to this system, pay raises for everyone in the hospital were based upon more subjective measures that tended to vary across departments. These criteria were often not perceived as being directly linked to quality. While that system remains largely in place for the vast majority of El Camino's 1,200 employees, the current CEO is committed to extending the new quality-focused system across the entire hospital, as he believes it is the best way to align incentives.

Until that occurs, El Camino is looking for other ways to reward top-notch service and clinical quality among rank-and-file staff. For example, as a part of the service excellence initiative, the hospital has established a variety of inexpensive but effective rewards programs, including employee-of-the-month recognition (based on peer nominations) and cards that can be submitted by patients or others to recognize an employee's (or doctor's) service ethic. These cards can be redeemed for gift certificates. In addition, El Camino holds a story-board fair every year in which individual departments showcase their performance improvement projects, highlighting how they met or exceeded performance goals. Approximately 20 departments present each year at this event. The CEO always attends, presenting awards for the best projects, including best use of data and most significant performance improvement. This session, which also includes prize drawings and other giveaways, provides an excellent opportunity to reward the QI activities within the organization and to educate staff about what is going in the

institution. The hope is that good ideas will be "stolen" and replicated throughout the hospital.

These non-financial rewards systems seem to have been effective in helping to create a working environment that El Camino staff appreciates. Survey data from PRC suggest that El Camino consistently scores above almost all other hospitals in terms of employee satisfaction with the hospital as a place to work.

Promoting Quality in an Environment of Conflicting Financial Incentives

Like many hospitals, El Camino's administrative and clinical leaders find it difficult to promote quality in an environment where purchasers not only do not reward high quality, but in some cases inadvertently discourage it.

For example, El Camino loses significant money on stroke patients. While reimbursement varies by payer, even the highest rates do not cover the organization's costs. These inadequate levels of reimbursement make it difficult for the hospital to justify investing funds in the stroke program, in spite of an internal task force's June 2002 recommendations that the hospital institute a variety of initiatives (e.g., formation of a stroke team, development of community education programs) designed to improve the quality of care for stroke patients. As a result, the hospital has been forced to develop a separate fundraising program to subsidize the cost of these initiatives. In addition, hospital leaders are concerned that their efforts to educate the community about strokes and to upgrade and publicize the hospital's capabilities in stroke care may lead to increased financial hardship if the hospital ends up serving more money-losing stroke patients. Current projections suggest that if the hospital is successful in enhancing its stroke program, losses will amount to several million dollars over a period of just a few years.

Another area where financial incentives discourage quality is in the provision of care to patients with chronic conditions. El Camino is hoping to use its case management programs to extend care into the community for patients where this approach makes sense, such as stroke victims, the frail elderly, or patients with CHF. But current reimbursement systems do not reward this approach, since hospitals are reimbursed based on acute events (e.g., hospital admissions) and receive little, if any, reimbursement for investing in case management programs that proactively monitor patients in the community. For example, El Camino is currently investigating the feasibility of developing a "Coumadin clinic," the centerpiece of which includes a dedicated nurse who is charged with monitoring patients after they leave the hospital and taking steps to ensure that their anticoagulation levels remain within the appropriate range. But the current

reimbursement system creates no incentive for the hospital to pursue this quality-enhancing service. Not only will El Camino receive little or no reimbursement for these proactive efforts, the organization's success in keeping patients from repeat acute episodes will directly lead to lost revenues for the hospital. Some pilot projects are attempting to correct this perverse payment incentive, and El Camino hopes to participate in these programs.

Getting Benchmark Data

As a stand-alone institution, El Camino sometimes has difficulty in finding comparative performance information that allows institutional leadership to gauge how well the hospital is doing. The hospital's CEO is trying to move the organization to focus as much as possible on outcomes but is being limited by a lack of available data. The national alliance to which El Camino belongs has not been able to provide the type of benchmarking data that hospital leadership needs to push QI to the next level.

As noted previously, the hospital has addressed this problem by adopting a philosophy of participating in as many externally-driven QI projects as possible, mainly because such participation typically includes access to benchmark data. The hospital also engages the services of proprietary companies that offer access to benchmark data, such as the benchmark data that PRC provides on patient, employee, and staff satisfaction, which drives much of the hospital's service QI initiatives.

El Camino's CEO is also constantly investigating opportunities to gain access to other propriety databases on quality. As he noted, "Without comparison data on outcomes and other quality indicators, we don't know if we are doing a good job or not."

CONCLUSION AND LESSONS LEARNED

El Camino Hospital's success is primarily the result of two factors—an internal environment that is highly conducive to quality outcomes and processes and a set of practical tools that promote quality and QI on a daily basis. An examination of the El Camino experience provides the following lessons:

- There is no substitute for creating the type of organization where top-notch talent wants to work and for creating a culture that values mutual respect and peer-type relations between physicians and nurses.
- Proactive, knowledgeable nurses can play a critical role in ensuring high quality on a day-to-day basis, provided they enjoy the respect of the medical staff.

- Physicians, nurses, and other caregivers can and should be liberated to take local ownership and accountability for QI. Hospital leadership should motivate these caregivers take on these tasks (e.g., goal-setting, appropriate rewards systems) and the tools to support their efforts.
- IT can facilitate high quality and effective QI. On a daily basis, IT boosts quality by allowing for the accurate, immediate transmission of important information across departments, units, and personnel, and by putting in place safeguards against medical errors. IT can also support QI by providing vital performance information that can be used to identify and address quality problems.
- Getting physicians to consistently accept and use IT is a challenging task, even in an environment that embraces innovation. A small group of physician "champions" should take the lead role by testing and selecting the system that is purchased and then should take responsibility for "selling" the system to other physicians. Nurses can play an important role in working with resistant physicians, especially older doctors who may not be used to the technology.
- Benchmarking data can play an important support role in QI efforts. Even stand-alone facilities can gain access to information if they are willing to purchase services from vendors (such as the patient, physician, and staff satisfaction data provided by PRC) and to participate in externally-sponsored QI projects.
- Proactive case managers play a crucial supporting role in facilitating a team-based approach that gets patients appropriate care in a timely manner.

RELATED PUBLICATIONS

In the list below, items that begin with a publication number can be found on The Commonwealth Fund's website at www.cmwf.org. Other items are available from the authors and/or publishers.

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#731 *Recommendations for Improving the Quality of Physician Directory Information on the Internet* (forthcoming). Linda Shelton, Laura Aiuppa, and Phyllis Torda, National Committee for Quality Assurance.

#767 *Exploring the Business Case for Improving the Quality of Health Care for Children* (July/August 2004). Charles Homer et al. *Health Affairs,* vol. 23, no. 4. *In the Literature* summary forthcoming; full article available at http://content.healthaffairs.org/cgi/content/full/23/4/159.

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#700 *Quality of Health Care for Children and Adolescents: A Chartbook* (April 2004). Sheila Leatherman and Douglas McCarthy. The researchers use 40 charts and analyses to outline the current state of children's health care, arguing that the health care system has devoted far less attention to measuring the quality of care for children and adolescents than it has for adults. Download the chartbook at http://www.cmwf.org/publications/publications_show.htm?doc_id=233882

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#636 *Value-Based Purchasing: A Review of the Literature* (May 2003). Vittorio Maio, Neil I. Goldfarb, Chureen Carter, and David B. Nash. From their review of the literature, the authors conclude that value-based purchasing will only be effective when financial incentives are realigned with the goals of high-quality care and performance measures address purchasers' particular concerns.

#635 *How Does Quality Enter into Health Insurance Purchasing Decisions?* (May 2003). Neil I. Goldfarb, Vittorio Maio, Chureen Carter, Laura Pizzi, and David B. Nash. According to the authors, public and private purchasers may be able to hold physicians and insurers accountable for the quality and safety of the health care they provide. Yet, there is little evidence that current value-based purchasing activities—collecting information on the quality of care or selective contracting with high-quality providers—are having an impact.

#614 *The Business Case for Tobacco Cessation Programs: A Case Study of Group Health Cooperative in Seattle* (April 2003). Artemis March, The Quantum Lens. This case study looks at the business case for a smoking cessation program that was implemented through the Group Health Cooperative (GHC), a health system and health plan based in Seattle.

#613 *The Business Case for Pharmaceutical Management: A Case Study of Henry Ford Health System* (April 2003). Helen Smits, Barbara Zarowitz, Vinod K. Sahney, and Lucy Savitz. This case study explores the business case for two innovations in pharmacy management at the Henry Ford Health System, based in Detroit, Michigan. In an attempt to shorten hospitalization for deep vein thrombosis, Henry Ford experimented with the use of an expensive new drug, low molecular weight heparin. The study also examines a lipid clinic that was created at Henry Ford to maximize the benefit of powerful new cholesterol-lowering drugs.

#612 *The Business Case for a Corporate Wellness Program: A Case Study of General Motors and the United Auto Workers Union* (April 2003). Elizabeth A. McGlynn, Timothy McDonald, Laura Champagne, Bruce Bradley, and Wesley Walker. In 1996, General Motors and the United Auto Workers Union launched a comprehensive preventive health program for employees, LifeSteps, which involves education, health appraisals, counseling, and other interventions. This case study looks at the business case for this type of corporate wellness program.

#611 *The Business Case for Drop-In Group Medical Appointments: A Case Study Luther Midelfort Mayo System* (April 2003). Jon B. Christianson and Louise H. Warrick, Institute for Healthcare Improvement. Drop-in Group Medical Appointments (DIGMAs) are visits with a physician that take place in a supportive group setting, and that can increase access to physicians, improve patient satisfaction, and increase physician productivity. This case study examines the business case for DIGMAs as they were implemented in the Luther Midelfort Mayo System, based in Eau Claire, Wisconsin.

#610 *The Business Case for Diabetes Disease Management at Two Managed Care Organizations: A Case Study of HealthPartners and Independent Health Association* (April 2003). Nancy Dean Beaulieu, David M. Cutler, Katherine E. Ho, Dennis Horrigan, and George Isham. This case study looks at the business case for a diabetes disease management program at HealthPartners, an HMO in Minneapolis, Minnesota, and Independent Health Association, an HMO in Buffalo, New York. Both disease management programs emphasize patient and physician education, adherence to clinical guidelines, and nurse case management.

#609 *The Business Case for Clinical Pathways and Outcomes Management: A Case Study of Children's Hospital and Health Center of San Diego* (April 2003). Artemis March, The Quantum Lens. This case study describes the implementation of an outcomes center and data-based decision-making at Children's Hospital and Health Center of San Diego during the mid-1990s. It examines the business case for the core initiative: the development of a computerized physician order entry system.

The Business Case for Quality: Case Studies and An Analysis (March/April 2003). Sheila Leatherman, Donald Berwick, Debra Iles, Lawrence S. Lewin, Frank Davidoff, Thomas Nolan, and Maureen Bisognano. *Health Affairs,* vol. 22, no. 2. Available online at http://content.healthaffairs.org/cgi/reprint/22/2/17.pdf.

#606 *Health Plan Quality Data: The Importance of Public Reporting* (January 2003). Joseph W. Thompson, Sathiska D. Pinidiya, Kevin W. Ryan, Elizabeth D. McKinley, Shannon Alston, James E. Bost, Jessica Briefer French, and Pippa Simpson. *American Journal of Preventive Medicine,* vol. 24, no. 1 (*In the Literature* summary). The authors present evidence that health plan performance is highly associated with whether a plan publicly releases its performance information. The finding makes a compelling argument for the support of policies that mandate reporting of quality-of-care measures.

#578 *Exploring Consumer Perspectives on Good Physician Care: A Summary of Focus Group Results* (January 2003). Donna Pillittere, Mary Beth Bigley, Judith Hibbard, and Greg Pawlson. Part of a multifaceted Commonwealth Fund-supported study, "Developing Patient-Centered Measures of Physician Quality," the authors report that consumers can understand and will value information about effectiveness and patient safety (as well as patient-centeredness) if they are presented with information in a consumer-friendly framework.

#563 *Escape Fire: Lessons for the Future of Health Care* (November 2002). Donald M. Berwick. In this monograph, Dr. Berwick outlines the problems with the health care system—medical errors, confusing and inconsistent information, and a lack of personal attention and continuity in care—and then sketches an ambitious program for reform.

#534 *Room for Improvement: Patients Report on the Quality of Their Health Care* (April 2002). Karen Davis, Stephen C. Schoenbaum, Karen Scott Collins, Katie Tenney, Dora L. Hughes, and Anne-Marie J. Audet. Based on the Commonwealth Fund 2001 Health Care Quality Survey, this report finds that many Americans fail to get preventive health services at recommended intervals or receive substandard care for chronic conditions, which can translate into needless suffering, reduced quality of life, and higher long-term health care costs.

NOTES

[1] Specifically, it ranked 28th among nearly 2,700 hospitals.

[2] See the overview report for more detailed explanation of selection methodology.

[3] Leape LL, Cullen DJ, Clapp MD, Burdick E, Demonaco HJ, Erickson JI, Bates DW, "Pharmacist Participation on Physician Rounds and Adverse Drug Events in The Intensive Care Unit," *Journal of the American Medical Association*. (July 1999) 282(3): 267-70; Schumock GT, Meek PD, Ploetz PA, Vermeulen LC, "Economic Evaluations of Clinical Pharmacy Services 1988-1995," *Pharmacotherapy*. (November–December 1996) 16(6): 1188-1208; The Advisory Board Company, *Reducing Adverse Drug Events: Best Practices*. (Washington, D.C.: Clinical Initiatives Center, 2000).

[4] Solovy A, "2003 Most Wired Survey and Benchmarking Study," *Hospitals and Health Networks*. (July 2003) 77(7): 38-48.

[5] "Health Care IT Spending Grows," Business & Finance section of *iHealthBeat,* September 23, 2003. Available at http://www.ihealthbeat.org.