

NEXT GENERATION INPATIENT CARE: CROSSING THE CAPACITY CHASM



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Table of Contents

Page 1

The Driving Forces

Page 3

The Hospital of the Future

Page 3

Crossing the Capacity Chasm

Page 6

Leading the Way to Next
Generation Care

Page 7

Creating a True System for
Managing Health and Care

Page 8

About the Authors

Page 9

References

The Driving Forces

The driving forces in the health delivery market all indicate the need for dramatic change. In fact, the challenges that stakeholders face are so significant that one could easily conclude that the system cannot be fixed. However, we know that cannot be the answer.

To be successful, hospitals need to make five major changes in operations.

1. **Cross the Capacity Chasm.** The growing boomer population, the increasing longevity of the population and continued medical advances are all contributing to a huge increase in demand. Building new facilities is very costly, and finding additional staff is a growing challenge. The key to success will be increasing throughput in existing facilities.
2. **Keep People Out of the Hospital.** While it seems counterintuitive that hospitals would actively try to reduce admissions, this will be a key strategy for future success. Hospitals will not be able to meet the needs of their communities if there is no more inpatient capacity or if their emergency departments are on diversion. To reduce demand for inpatient care, hospitals need to ensure that the appropriate resources are available outside the hospital.
3. **Leverage “Mid-Level” Professionals.** There are not enough primary care providers now, and the number of doctors choosing primary care is declining as rapidly as the need accelerates. Nurse Practitioners (NP) and Physician’s Assistants (PA) require half the training and can provide high-quality chronic care and perform specialized procedures. Similarly, Registered Nurses (RN) who are retiring faster than new ones are trained, will have more time to manage the course of inpatient treatment if Nursing Assistants provide more direct care and non-care activities. Gaining this leverage safely will require an investment in support systems, so now is the time to begin the journey.
4. **Become the Community Care Home.** There has been a lot of interest recently in the concept of the “medical home,” where a primary care physician works with a team of professionals and is supported by information systems to coordinate all the care for a patient. Even if we had enough primary care physicians to implement this model, there are still other issues: Who will bring all the caregivers together? Where will the money to invest in IT systems come from? What about preventive care? Will payers reimburse for the costs of care coordination? The hospital is really the only entity that can bring all the parties together to develop and maintain a true care community.
5. **Embrace Employers as Partners.** Hospitals have traditionally collaborated with physicians and other healthcare entities. However, employers pay for a large percentage of the healthcare in the United States and are acutely aware of rising costs and the impact of lost time from work related to health issues. Employers have two strong reasons to want to participate in health promotion and community health efforts.

Of course, all these changes need to be made in the context of some other “truths” about healthcare: namely, that efforts to enhance the safety of care, increase transparency and accountability, and create an environment where the patient is at the center of the care system, all need to continue.^{1,2,3}

The good news is that progress is being made and there is experience to build upon. After providing a review of the size and pace of the forces driving change, we will describe what innovative organizations are doing to lead the way to future success in meeting the needs for hospital care. Some of the ideas discussed in the following sections have been tried in the past and then abandoned. However, tools to support change have improved dramatically in recent years as has our knowledge of what is required for success. The examples in the following section have all sustained success within their organizations and are ready to be spread.

Rather than remembering how past efforts have failed, the industry can learn from these organizations about how to succeed with future change.

Demand Exceeds Supply

By 2015, the gap between supply and demand of services will be well on the way to becoming a chasm. The growth in the demand for care is a result of many factors, but a prime cause is the increase in the number of people living with multiple chronic diseases, including a generation of “boomers” reaching their peak years for consuming healthcare goods and services. The effect of a greater number of patients with chronic diseases will be felt across all segments. Demand for Emergency Department (ED) visits is expected to increase by 13 million visits by 2015. The demand for hospital admissions is projected to increase by almost 5 million in the same timeframe and an additional 2 million by 2030.⁴

Greater demand will continue to spur expansion of facilities — \$41 billion in healthcare construction projects were underway in Q4 of 2007.⁵ Yet, at a price tag of approximately \$1 million to \$2.5 million per bed, alternative ways to increase capacity are needed.^{6,7,8} Even if organizations could find the capital to fund new facilities, the challenge of hiring qualified staff to provide ever increasing levels of care will still exist. The shortage of nurses is expected to be 680,000 by 2015 — a time when the U.S. is also projected to be short 56,000 primary care physicians. By 2015, even specialists will be in acute shortage. Recent studies project a gap of over 6,000 cardiologists, over 2,000 other medical specialists, over 7,000 orthopedic surgeons, 19,000 gerontologists and 19,000 general surgeons.⁹

Financial Pressures

The pressure to reduce costs of care will not relent. The U.S. already spends more on health per capita than any other country, and that is with a system in which 45 million people are uninsured and almost half of all adults are not getting recommended care.¹⁰ Neither the U.S. government nor U.S. industry is willing to continue to increase spending — but the expectation is that access and coverage will improve.

Healthcare Spending By Nation

	HC Spending Per Capita	HC Spending % GDP
U.S.	\$6,697	16.0%
Australia	\$3,128	9.5%
Canada	\$3,326	9.8%
Germany	\$3,287	10.7%
Netherlands	\$3,094	9.2%
UK	\$2,724	8.3%

Source: Schoen, C., et al. Toward Higher-Performance Health Systems: Adults’ Health Care Experiences in Seven Countries. 2007. *Health Affairs*. Vol. 26, No. 6, p.w717 – 734.

Hospitals are realizing that new competition based on price will be a market reality. For example, Geisinger Health System now offers flat-fee pricing on coronary artery bypass surgery, including associated pre- and post-operative care.¹¹ The service also comes with a warranty if a preventable complication occurs within 90 days, Geisinger will cover the cost of any additional care needed. For Geisinger, this new offering is part of a larger experiment in pay-for-performance (P4P) models — made possible in part by the fact that the organization has its own hospitals and health insurance plan and employs doctors directly.

Employers, meanwhile, are caught in the middle. They cover (and pay for) more than 60 percent of the care of the U.S. population and want to provide attractive health insurance benefits, but they cannot afford the continued rise in costs. They will also be a driver of innovation that reduces cost. Self-insured Maine-based Hannaford Supermarkets began offering the option of having hip and knee replacement surgery in Singapore (where costs were about 25 percent of the United States.) This generated offers to match that price in the United States. Hannaford was able to negotiate a contract with a Boston-based hospital to perform hip, knee and spine surgery at a cost that allows them to waive a patient co-payment of about \$3,000, fund travel costs and still have significant savings.¹²

Increasing Accountability

Hospitals will be held more accountable for the outcomes of care. Accountability requires performance *management*, not just performance reporting. Reporting on an initial set of core measures demonstrated the large gap between high- and low-performing hospitals. If all hospitals currently performed with the best, then over 103,000 unnecessary deaths could be averted and over \$30.5 billion saved per year in the area of hospital-acquired infections alone.¹³ The list of requirements where pay is based on performance will grow each year as will the list of conditions where there will be no pay for “never events” or preventable adverse events such as hospital-acquired infections. When quality reporting

requirements were first introduced, most hospitals responded by increasing the number of quality review nurses. However, given the nursing shortage and the ever increasing reporting requirements, this is not a feasible long-term solution. Hiring more people devoted to reporting is not the answer — better use of existing data is.

The Hospital of the Future

Given the gap between supply and demand for care, the increased expectations for quality performance and the continued pressure on costs, what could hospital care look like in 2015? Here is a view into the future ...

The hospital will be the health “home” for the community; coordinating community resources and promoting wellness. Hospital executives will work with employers to keep workers healthy, with school systems to revise school lunch programs to provide healthier choices and with public safety officers to advocate for sidewalks to prevent accidents. Hospital executives will devote significant time and energy to keeping patients out of their facilities. Payers, federal and state governments, and employers will become more active participants in creating the future delivery system by revising payment systems to reinforce desired changes in behavior. For example, they will reimburse primary care providers for coordinating care and reap savings from the better health status of their enrollees.

Every patient arriving in the ED or Admitting will truly need emergency or inpatient care because alternative facilities for other needs are readily available. Early in the hospital stay, expectations will be set for the patient’s discharge — to home, a rehabilitation facility or long-term care. Those plans will be revised daily and coordinated so that when the patient is ready, they can quickly move to the next appropriate level of care.

Because of the need to increase the capacity of existing facilities, a new title, senior vice president of patient flow, will be one of the most important positions on the executive team. This position will be supported by information on resource and facility efficiency that are derived from data in patient care information systems. Workflows and patient flows will be redesigned to reduce wait times and length of stay and bring resources to the patient, not vice versa.

Hospital design will also be evidence-based and reflect the results of research on designs that promote safe, effective and efficient care. For example, rooms will be configured to meet the changing needs of patients so that time-consuming and error-prone transfers of patients are minimized.

Information on how care complies with best practice and on outcomes of care will be as readily available as information on revenue or census. Hospital executives will have the facts to drive improvements; clinicians will receive electronic reminders and warnings if care is moving off best practice. No one will spend time in chart review or manual reporting because all the data about care will be derived from the information systems that are used to provide care.

Nurses will no longer spend more hours documenting care than providing it. They will spend more time in the patient room than the nurses’ station because much of the patient’s information will be captured electronically — some directly from devices. Patient care will be provided by a team, using a shared medical record, so that all information is documented only once.

Because of advances in genomics, care will move one more step toward being truly centered on the patient. Information about each patient’s genomic makeup will be used to reduce the number of adverse events associated with medications and to increase the chance the selected treatment will be effective.

Crossing the Capacity Chasm

With hospitals making dramatic improvements to “cross the quality chasm,” the delivery of quality care will be a universal expectation. All hospitals will have systems in place for continually optimizing safety and quality because hospitals that cannot meet quality expectations will be gone. The future focus of innovation will be on dramatically improving the capacity of the healthcare system — crossing the capacity chasm.

Over a third of Americans feel that America’s health system needs a complete overhaul and that view is shared by many providers as well. Dramatic improvement is possible when the focus is on maximizing quality and reducing waste. To keep pace with changing demands and achieve the future state described earlier, provider organizations will need to look to new staffing models, new ways of increasing throughput, and new ways of coordinating care among providers — while continuing to maintain a laser-like focus on supply costs and operational efficiency. Both major innovation and continuous improvement will be needed.

While there is a huge challenge ahead, there are many examples of organizations across the United States that are moving to this future model today. We can also look to Europe for new models since they have similar issues with the growing gap between supply and demand for care and, in some cases, more flexibility in crafting solutions. To close the capacity chasm, hospitals will need to increase throughput in existing facilities, make optimal use of available resources and manage costs.

Increasing Throughput in Existing Facilities

Inpatient care is delivered by a team of care professionals and support staff that may not meet as a group but needs to be in constant communication. The care processes involve many information transfers and patient handoffs among the care team that must be carefully coordinated for efficient and effective care. Resource and decision bottlenecks, communication gaps, missed assignments and inappropriate use of valuable resources will need to be effectively addressed in the hospital of the future. This will be done by making use of best practices from other industries and implementing new technology. For example, the Toyota lean manufacturing approach and Six Sigma have provided valuable methods and tools. When coupled with

new technology used to locate, direct, remind and alert caregivers and patients, hospitals have made substantial leaps in operational efficiency, space utilization and patient throughput.

The following scenarios illustrate how hospitals can greatly improve efficiency and optimize resources for some of the most problematic care processes and handoffs.

ED Visits

Speeding ED Service: Wes Midlands Ambulance Service – UK

Using an electronic system outfitted with touch-screen capability, paramedics record patient data while enroute to the hospital more efficiently and more completely than on paper. The data is securely transmitted to the hospital in real time, giving caregivers at the hospital detailed patient data as it is being recorded.

Source: Innovacorp Press Release. May 2008.

One of the most visible issues related to capacity is in the ED, where closing EDs to new cases (diversion) makes headlines. EDs faced the gap between supply and demand earlier than other areas of the health delivery system. Between 1992 and 2002, ED visits increased by 23 percent and the number of EDs decreased by 15 percent.¹⁴ Almost half of all Emergency departments report that they are at or over capacity.¹⁵ Hospitals trying to solve ED overcrowding quickly learned that one reason that EDs were overflowing was that patients who did not need ED services were coming to the ED. The second major cause of overcrowding was lack of hospital beds (especially ICU beds) to admit patients coming from the ED. ED overcrowding is just a symptom of other problems in the system. Hospitals are examining many approaches to addressing the causes of ED overcrowding.

For an incoming ED patient, the ambulance staff can be in communication with the hospital, talking directly to the care providers and wirelessly sending the patient's latest clinical information. Upon arrival, the ambulance driver could be routed to the right bay by viewing the large computer monitor located outside of the ED. A GPS system can alert the care team that the ambulance is due to arrive within a few minutes so they are ready to immediately attend to the patient. All information can be transferred to the hospital's ED system.

Inpatient Admissions

Patient transfers from the ED to the inpatient floor, from the OR to the ICU, and between inpatient floors can be expedited using operational dashboards and communication alerts. Workflow management applications integrated with the hospital's registration and clinical systems can display hospital census by floor and include an information banner that displays pending discharges and admissions. When bed capacity reaches a critical level, the computer system could initiate a conference call between department heads to escalate and resolve issues.

Minimizing ED Diversions: St. Joseph's Hospital in Phoenix

St Joseph's Hospital in Phoenix instituted a "capacity code" that is called when the ED is reaching capacity. This triggers a plan where many areas of the hospital focus their efforts on discharging all patients who are ready. The hospital has achieved a 5 percent increase in hospital occupancy and a three-fold reduction in the number of patients who leave the ED without receiving care.

Source: Bursting at the Seams, Robert Wood Johnson Foundation, 2008

University Hospital in San Antonio realized that one delay in admitting patients from the ED was the availability of a cleaned room in the hospital; it took an average of three hours from the time a patient was discharged until the room was available for a new admission. They devised a simple system of red and green notices left at the nursing station to communicate between nursing and housekeeping staff about rooms that needed to be cleaned or were ready. They also changed policies to allow the housekeeping staff to have more responsibility, and they eventually implemented an electronic bed management system. The impact was that the time it took to "turnaround" a bed went from 160 minutes to 23 minutes.¹⁴

Other hospitals have instituted a "bed czar" for ensuring timely patient flow from the ED to the floor, redesigning the way rounds are conducted to focus first on the patients who are likely ready to be discharged and creating a discharge lounge for patients to wait to be picked up. Hospitals participating in the Robert Wood Johnson Program "Urgent Matters" (a collaborative to improve patient flow in the ED) have defined 17 key process indicators that can be used to monitor progress in improving patient flow.¹⁴

Eliminating Patient Transfers: Methodist Hospital

Migration from 63 standard rooms to 56 acuity-adaptable rooms eliminated 90 percent of the transfers. Patient days increased by more than 5 percent even though there was a slight decrease (<5 percent) in nurses on the unit. There was also a 70 percent decrease in medication errors, and the number of patient falls decreased by two-thirds.

Source: Effects of Acuity-Adaptable Rooms on Flow of Patients and Delivery of Care. Journal of Critical Care. Vol. 13, PP 35-45. 2004.

Some transfers within the hospital can be essentially eliminated due to acuity-adaptable rooms. These rooms can be configured to meet all of the patient's care needs no matter what the acuity level, keeping the care team and patient intact. Acuity-adaptable rooms have demonstrated significant improvements in operational costs associated with patient transfers, decreased budgeted nursing hours and increased available nursing time for direct care.

Inpatient Discharges

The discharge process needs to start soon after the patient is admitted. Care protocols and care pathways can remind providers of the status of care delivered and alert care professionals and support staff about delays, issues and pending discharge requirements. The time-consuming task of securing the appropriate next level of care for the soon-to-be discharged patient can be done using technology that matches care needs to available resources — eliminating delays and optimizing resource utilization and patient satisfaction. Post-hospital care is most effective when there is a seamless transition. In Denmark, planning for rehabilitative care begins before a patient is discharged and all patient information is exchanged electronically with the center where the patient will get rehabilitation.

Coordinating Discharges: Partners Healthcare in Boston

The Partners custom application (4Next) sends out referral requests from hospitals to other providers within the care system. The non-acute providers review incoming requests and respond with availability. The hospital matches the patient to the best resource and automatically sends the appropriate patient data when the patient is discharged. This system has decreased the time to secure post-hospital care by more than two-thirds, to approximately five hours.

Source: Health Care Conference Administrators Presentation. "Partners Healthcare, Automating the Transition of Care". March 29, 2007, www.ehcca.com/presentations/hithipaa414/2_03_1.ppt

Workflow Management

Care activities often involve a number of resources that come together to deliver care. Orchestrating the mobile care team, the patient's needs and the non-staff resources to deliver care efficiently and effectively can be helped with new operational intelligence applications and technologies that incorporate process workflow knowledge, task timeframes, resources, time sequencing of tasks and location. These systems collect, measure and track patient flow with an overall goal to improve operational performance in real-time. Key metrics built into the system are used to alert the care team when bottlenecks or delays are likely. For example, if a patient has been assigned to an ED room and has been waiting for the physician more than 20 minutes, an alert could trigger a call to the ED manager for escalation. In the OR, the application could locate the mobile resources (surgeon, nurse, tech, equipment and patient) and using RFID tracking, check the availability of the room. If there is an issue, the system can automatically page the OR manager and send a message to the surgeon.

Making the Optimal Use of Available Resources

There is no way that we can train enough primary care physicians to meet the needs of aging baby boomers and others with chronic diseases. Currently, only 2 percent of medical students are choosing a career in general internal medicine (primary care).¹⁶ There will also be a growing

The Bureau of Labor Statistics (BLS) projects that the number of PA jobs will increase by 27 percent between 2006 and 2016. The PA profession was ranked the fourth fastest growing profession in the country by Forbes and CNN in 2007.

shortage of specialists. However, we could increase the number of mid-level practitioners such as PAs and NPs. These practitioners are highly-trained professionals who can perform tasks ranging from minor surgical procedures, outpatient chronic care, admissions work-ups, health promotion and counseling. EMTs can provide similar roles in the ED. As mid-level practitioners, they can be trained in half the time it takes to train a physician, yet they are highly versatile. They can be used in practically any department to augment the work of physicians. The future hospital will maximize every caregiver's potential value, within licensing restrictions.

At one hospital in North Carolina, an internal medicine physician works with the equivalent of four NPs or PAs to provide care to 9,000 patients (between three and four times more than a typical practice). They also care for about 25 patients in the hospital each day. This model required development and maintenance of standard protocols for care, information systems to provide access to patient information and to identify patients who are not receiving recommended care, and an investment in training. (The practice mentors three PA and NP students in their student rotations.) If this model were adopted across the country, the shortage of primary care physicians would disappear.

Demand for nurses in inpatient care already exceeds supply, and the gap is growing. In 2008, enrollment in baccalaureate nursing programs grew by a mere 2 percent — far less than needed to close the current gap.¹⁷ While efforts to increase the number of nurses will continue, additional measures are needed as well. An all RN nursing staff has been the "gold standard" that is not possible now and will be even less possible in the future. Hospitals are working to leverage other providers and free nurses from many of the non-care-related tasks that consume so much of their time.

Patient-Centered Maternity Care: Ullevål Sykehus Hospital in Norway

If you have the good fortune to have a baby at the Ullevål Sykehus Hospital in Norway, your experience will be quite different than in the U.S. Once you come to the hospital, your progress during labor will be monitored by a midwife with periodic visits from a physician. Within a few hours of an uncomplicated birth, you will walk down a hospital corridor and enter directly onto a hotel floor that is staffed with a midwife. You and the baby's father can stay at the hotel for two or three days — learning about how to care for the baby and getting all the advice you need from the midwife, with a doctor steps away if needed. Care is safe and patient-centered.

A recent study showed that nurses spend only about 30 percent of their shift in patient rooms and another 39 percent at the nurses' station. Almost 20 percent of their time is spent in non-clinical activities¹⁸ and documentation takes over 25 percent of the nurses' time. As will be discussed in examples later, many of the tasks performed by nurses can be delegated to other members of the clinical team. Integrated clinical information systems can streamline documentation and prevent redundant entry of information.

A few leading hospitals have discovered that delivery robots can be effective assistants to nurses and other skilled personnel, such as lab technicians. Robots in use today can already deliver medications, meals and lab specimens, as well as fetch linens and supplies from inventory rooms. Using laser sensors, a digitized hospital floor plan and guided by an onboard computer, a robot can navigate its way around the hospital, avoiding obstacles and calling elevators as needed. Newer versions can automatically attach to and detach from carts and hampers.

At Providence Hospital in Washington, D.C., one delivery robot does the work of 4.2 full-time-equivalent staff for about \$2.85 per hour. The robots do not replace the nurses — rather they raise nurse productivity and even lead to increased job satisfaction. Washington Hospital Center (WHC), also located in Washington, D.C., made robots part of a recent campaign to attract new nurses to the facility. WHC uses two robots to deliver routine medication carts to the nursing units, allowing the hospital to reassign pharmacy technicians to the inpatient units, making them part of the care team. Pharmacy technicians now provide a higher level of service to nurses.

Robots at Washington Hospital Center (WHC):

WHC also employs a third robot to make regular deliveries of medical materials and ad hoc deliveries of additional linens and supplies. In a pilot held across four units, robot-delivered medications and supplies eliminated 6 to 10 trips of 45-minutes each to the pharmacy or materials management per day. Net nursing time savings comes to about 1.5 hours per unit per day.

Source: Technologies that Enhance Nursing Care Delivery. CHCF. October 2008.

Managing Costs

Given the importance of getting the most out of available resources at the best possible cost, leading hospitals will need to renew their focus on cost management. With about 15 percent of hospital budgets going to supply costs, the supply chain is a natural place to focus cost management efforts. Some estimates have indicated that reducing supply chain costs by 5 to 15 percent can result in an increase of 1 to 3 percent of a hospital's total operating margin.¹⁹ Another study found that most supply chain costs stem from four services lines: cardiology, cardiac surgery, orthopedic surgery and neuro-spine procedures. This kind of concentrated purchasing pattern can make it easier for

hospitals to renegotiate contracts and manage their inventories. Of course, managing supply costs is “old news.” However, the tools available and the understanding of how to effectively implement change has improved. Benchmark data, contract management tools and cost-accounting systems are all critical tools for hospital decision makers; yet, less than a third of hospitals have implemented these capabilities.²⁰

Reducing Supply Costs: Rockford Health System (Illinois)

When supply chain management responsibilities are consolidated and performance measurement and monitoring are introduced, the benefits can be substantial. For example, Rockford Health System in Illinois identified \$4.5 million in annual savings through reevaluating stock levels, renegotiating contracts and other optimization strategies.

Source: CSC Sample Supply Chain Client Results. CSC presentation. August 2, 2006.

A highly-effective approach to controlling costs is to collaborate with clinicians in the supply chain process and help them understand the full costs of the resources they use. Physicians are particularly well-positioned to assist with cost control, as their vendor preferences often dictate what is purchased. Other clinicians can help identify items that are used infrequently and can ease the switch to a more standardized set of supplies. “Gainsharing,” the practice of offering clinicians cash rewards for lowering hospital costs, is one way of acquiring support for such changes. According to one five-year study comparing six cardiac catheterization labs, gainsharing reduced hospital costs by 7.4 percent, or \$314 per patient, per year without compromising the quality of care or patient access to care.²¹

Leading the Way to Next Generation Care

Several hospitals are already on the path to next generation care. Their stories provide valuable insights and lessons learned for others to further push the boundaries of efficient and effective care delivery.

ThedaCare's Appleton Medical Center is an example of fundamentally rethinking rather than just incrementally improving care. They designed a model called collaborative care that has been in development and testing in a general medical surgical care unit since 2007. Changes in process, staffing mix and facilities have all contributed to a 20 percent reduction in length of stay for the unit. In their new model, the physician, nurse and pharmacist come together in the patient's room to develop a plan of care for the patient — eliminating fragmentation and communication delays and errors. Nurses save time because all supplies for the patient (including medications) are delivered directly to the patient's room through a cabinet that can slide out into the corridor to be stocked so that nurses spend more time at the bedside. Nursing care is guided by care guidelines based on diagnosis, and many tasks once performed by RNs are now performed by Licensed Practical Nurses or Nursing

Assistants. Costs of care are lower because of the shorter stay and the reduction in non-value-added steps. One insurer reports that an uncomplicated coronary by-pass graft costs \$12,000 to \$30,000 less when provided at TheDaCare than at competing hospitals in the region.

Virginia Mason Hospital has tailored the “lean manufacturing” approach to its care redesign efforts. The goal is to shift its infrastructure from provider-centric to patient-centric while eliminating waste and waiting time. For example, they have implemented the Kanban (visual card) system which signals the need to restock. The card is put near the bottom of the stack of supplies so when the nurse sees the card she knows it is time to restock. Supplies do not run out, but they are not over-ordered. Standardized surgical trays also save money by no longer setting out extra instruments that no one uses. Optimal use of resources is an important aspect of this approach. Virginia Mason has reduced appointment and telephone delays by having medical assistants handle incoming calls, instead of untrained operators.²²

Overall, the hospital has saved \$12 to \$15 million in capital, cut inventory in half and freed an estimated 25,000 square feet of space using better space design. Staff walking distance has been reduced by 38 percent. There has been a 44 percent gain in productivity or the equivalent of 77 FTEs. Virginia Mason reports that RN time available for patient care increased from 32 percent to 90 percent.²³

University of Mississippi Health Care (UMHC) analyzed its workflows and made changes at every key point — from pre-admission and admission to case management, discharge planning and discharge — resulting in a 12 to 15 percent capacity gain in beds. They also created a special “Patient Placement Center” (PPC). Akin to an air traffic control center, the PPC is a centralized control room staffed by nurses whose job is to get the right patients placed on the right floors at the right times. The nurses have all of the data they need in one place, including historical data. This enables them to maintain accountability over bed control, place patients in accordance with best-practice algorithms and even cluster patients by attending physician in order to enable physicians to complete their rounds more efficiently. From a financial standpoint, the PPC has been a major success and has already resulted in the avoidance of \$34.8 million in annual denials from services it would have rendered that would not have met reimbursement criteria.

Other improvements that have helped UMHC become a more efficient enterprise include:

- Hiring dedicated admission nurses, patient flow coordinators and hospitalists to oversee pre-admission duties, admissions and case management
- Forming “Triad” teams of nurses, case managers, and social workers to work together to optimize patient throughput
- Moving to a 12-hour shift instead of an 8-hour shift to reduce the number of handoffs and improve continuity of care

- Beginning discharge planning during the admission phase and introducing a SWAT team to give special attention to uninsured or underinsured patients and other cases requiring long stays

Improved coordination and capacity utilization have resulted in a 5.3 percent projected increase in patient volume for 2008 and a 7.7 percent projected volume increase for 2009.

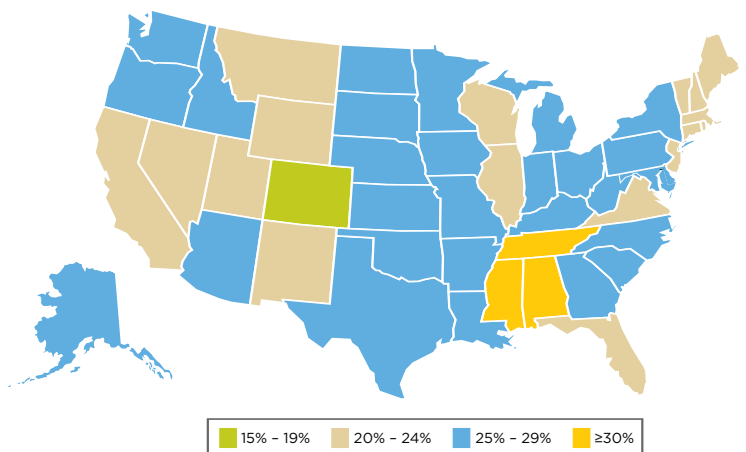
Creating a True System for Managing Health and Care

The ultimate goal of all health delivery organizations needs to be to keep as many people as possible out of their facilities by helping citizens to remain healthy and to take care of themselves.

The fact that many people in the U.S. are living unhealthy lifestyles is not news. According to the Centers for Disease Control, over one-third of adults in the U.S. are considered obese (BMI ≥ 30) — a condition that puts people at an increased risk for a number of ailments including hypertension, osteoarthritis, diabetes, stroke and coronary heart disease.²⁴ The prevalence of obesity has steadily increased over the past decade, and experts predict that the trend will continue.

Prevalence of Obesity, By State (2007)

According to the CDC, only one state (Colorado) has an obesity rate for adults of less than 20 percent.



Smoking is another lifestyle choice that increases the risk and expense of chronic diseases. Eliminating smoking is rated by the CDC as the most cost-effective prevention program, and hospitals are leading by example in this area. Hospitals were among the first to ban smoking in their facilities, and now many hospitals are also extending these bans to sidewalks, parking lots, lawns and beyond. In Denver, Colorado, the city council recently passed an ordinance creating a non-smoking perimeter around all hospitals.²⁵ Moreover, hospitals and other healthcare employers are creating incentive programs — and instituting penalties — to encourage their employees to lead healthier lives. For example, starting in 2009, at the Indianapolis-based hospital system Clarian Health, employees will be docked \$10 for every pay period that their BMI is 30+. They

will also be docked \$5 per pay period if they smoke, or if they do not meet goals for cholesterol, blood pressure and glucose levels.²⁶ Weyco, a Michigan-based medical benefits company, went further when it announced that it would terminate employees who continued to smoke. On the day the rule went into effect, several employees resigned rather than submit to the mandatory breathalyzer test.²⁷

Making sure care is provided in the appropriate setting improves community health and also helps control hospital costs. The Emergency Department is a very expensive setting to treat patients who need routine ambulatory care. However, many patients see it as their only option. Aurora Sinai Medical Center had high numbers of patients arriving at the ED for non-urgent care. Rather than turn them away, Aurora reduced demand by implementing a system that uses information on the patient's problem, insurance, location, language, etc., to schedule patients for appointments with community providers. ED visits dropped almost in half, and losses in the ED dropped by millions. Other hospitals are using similar approaches to schedule follow up visits for patients seen in the ED.²⁸

While prevention is often considered the responsibility of health departments and ambulatory providers, hospitals are playing an increased role. The expectation is that all chronic care patients will get an immunization or other chronic care intervention when they are admitted. It makes sense for hospitals to play a role in ensuring their communities get flu shots as well since they can lessen the typical January surge in admissions if there is a flu epidemic. For example, to make it easier to get a flu shot, Caritas Hospital in Norwood, MA set up a drive-through clinic where nurses at curbside gave flu shots in less than one minute.²⁹

By connecting with the school system, hospitals can influence health at an early age. National Children's Medical Center in Washington, D.C., partners with the D.C. Department of Health to provide health services to all 49,000 D.C. public school children. Their goals include early detection, prevention and health education.

Hospitals will be able to engage employer groups in promoting healthy lifestyles. Employers have a double incentive to keep workers healthy — they will be paying less for healthcare, and they will be reducing lost time from work. Caterpillar is a leader in efforts to keep employees healthy. They provide incentives for employees to participate in a health risk appraisal which includes data from medical claims, as well as information supplied by the employee. The appraisals, completed by 90 percent of employees, are used to design wellness programs that include classes and on-site coaching. Their smoking cessation efforts have achieved a 34 percent quit rate, and half of the participants in their diabetes program lowered their HbA1C (an indication of blood sugar control). Since 2002, the annual medical cost inflation for Caterpillar has averaged below 2 percent compared with a U.S. average of 4.3 percent.^{30,31}

By joining forces, hospitals and employers can create health programs that promote the health status of individuals and reduce employee health costs for large and small employers alike. As this involvement spreads to community groups and other stakeholders, hospitals increasingly will be seen as proactive centers for grass-roots health and wellness rather than just institutions for acute care.

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