System Redesign Responses to Challenges in Safety-Net Systems: Summary of Field Study Research

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INTRODUCTION

A study team from the Boston University School of Public Health (BU), under a contract with the Agency for Healthcare Research and Quality (AHRQ), conducted case studies in eight safety-net systems to examine the challenges safety-net hospitals and systems are facing. The team also examined the strategies and resources safety-net systems use to address the challenges of the changing health care environment.

We define ***safety-net systems*** as hospitals or medical centers and their affiliated facilities and practices that serve high proportions of low-income, medically vulnerable patients, as indicated by having the highest shares of Medicaid and uninsured patients and lowest shares of privately insured patients compared with all hospitals in the country.[1] Beyond insurance coverage, safety-net systems offer special health care and social services that other hospital systems do not, and they provide comprehensive care to meet the needs of their diverse, complex patient populations. As providers of last resort, safety-net systems offer services that are expected by their communities and required by State and local governments, regardless of whether adequate revenue streams exist to support these services.

In this project, we take as givens both the continued commitment to vulnerable populations and these special roles and skills. We focus instead on the care delivery and business strategies safety-net systems are pursuing to meet the challenges posed by the combination of changes in funding levels and requirements and the potential for increased competition that threatens their standard operating base.

We designed the case studies to obtain detailed perspectives on the types of redesign being undertaken at these systems—especially strategic system redesign—together with the organizational context in which redesign is taking place and the external resources used to support redesign efforts. Our aim was to understand the dynamics of the factors that facilitate or impede both system redesign and the effective use of external resources. All field study sites were visited in person by teams of two or three people for up to 2 days. (Appendix A presents details of the site visit and analysis methods.)

Strategic system redesign involves systemwide efforts to change an organization in ways that align with its strategic and business priorities to pursue its mission while aiming to enhance (or at least preserve) the organization's competitive position.

It involves more than:

- Simply expanding locations or existing services to capture greater market share; and
- Conducting many focused improvement projects that are not closely aligned around organizational priorities.

It is not limited to organizational improvement flowing from a single methodology such as Lean.

(Appendix C provides a glossary of different redesign and improvement approaches and methods.)

The field study systems, listed in Appendix B, were selected to provide examples of a variety of challenges, strategies, and organizational features. They represent different geographic locations in the country, levels of complexity, ownership, academic affiliation, and organizational structure, and, with one exception, are located in large urban areas.

Although we would have liked to gain access to safety-net systems in smaller communities, we do have information on some of those hospitals from conversations conducted for a separate part of the project. The results of those conversations will be incorporated in a comprehensive report of the full project.[i]

Given the diversity of the safety-net systems studied, it is not surprising that we found variation in how they are addressing their challenges. However, some common themes also emerged. One set of factors facing all systems is the dynamics of the current health care environment. In **Section 1**, we highlight those factors briefly to serve as a backdrop to **Section 2,** where we summarize our key findings from the case studies. In **Section 3,** we examine the external resources the sites are using to support their redesign efforts. In **Section 4**, we summarize our findings and discuss their implications for safety-net systems.

In this report, we present only findings. We present recommendations for supporting safety-net systems in a separate PowerPoint and in a report based on a combination of the research findings with findings from the project's scan of available knowledge.[ii]

THE EXTERNAL HEALTH CARE ENVIRONMENT

The landscape for health care providers—especially hospitals—is changing dramatically in response to the passage of the Patient Protection and Affordable Care Act (Affordable Care Act). The Act's focus on improved access and integrated care together with increased attention to controlling health care costs is well documented in the literature, a multitude of reports, and extensive media coverage. While some of the changes bring new opportunities to safety-net systems, others bring challenges, both directly and by affecting the health care market around them.

Most prominently, safety-net institutions project major funding shortfalls as shifts in Centers for Medicare & Medicaid Services (CMS) reimbursement occur nationally in compliance with Affordable Care Act implementation. Disproportionate Share Hospital (DSH) payments are intended to help hospitals that care for high proportions of low-income and underserved populations. Reductions in Medicare and Medicaid Disproportionate Share Hospital Payments were originally scheduled to go into effect in 2014 but have been delayed by Congress until at least 2017.

DSH provisions assume that many uninsured people will be able to obtain coverage, especially through expanded Medicaid programs. However, some policy analysts are concerned that this assumption will not be borne out for several reasons[2]:

- First, the projections of the numbers of people moving into Medicaid are in doubt. With the Supreme Court ruling that States can elect **not** to participate in the Medicaid expansion provisions, large numbers of people are likely to remain without coverage. Estimates suggest that 23 million people will remain without health insurance while funding to cover the cost of providing care to this uninsured group will be significantly

[i] Available on request from Michael.Harrison@ahrq.hhs.gov.
[ii] Available on request from Michael.Harrison@ahrq.hhs.gov.

reduced. This figure is in addition to original estimates indicating that certain groups of people, including undocumented residents, will remain uninsured. Thus, safety-net hospitals will likely continue to serve larger numbers of uninsured patients than expected without adequate reimbursement.

- Second, compounding the problem of uninsured individuals, safety-net hospitals will need to compete to retain current patients and attract new ones, because the Affordable Care Act is designed to increase patient access to care across settings.
- Third, where Medicaid programs do expand, safety-net systems may succeed in competing to retain existing patients and attract new ones, but without adequate Medicaid reimbursement. In most States, because Medicaid pays less than the cost of care provided, increasing the number of Medicaid patients will only serve to increase safety-net hospital shortfalls.

Other Affordable Care Act provisions already in effect through CMS are intended to create incentives for improved efficiency and performance but may affect safety-net systems negatively. Two programs often cited as disproportionately affecting safety-net systems, particularly those in urban locations, are the Hospital Readmissions Reduction Program and the Value Based Purchasing Program.[2]

The Hospital Readmissions Reduction Program penalizes hospitals when the rate at which they readmit Medicare patients within 30 days of discharge (for any reason) exceeds that of other hospitals for three targeted conditions. While all hospitals are working to implement measures to prevent readmissions, differences in regional readmission rates appear to be related to socioeconomic differences.[3] The relatively poorer and more medically complex patients served by safety-net hospitals do not have the resources or access to care needed to address preventable readmissions.

The Value Based Purchasing Program will score hospitals on both performance and improvement dimensions, with payment based on the higher of these two scores. Under this program, hospital reimbursement will be reduced across the board by 1 percent, with the money going into a fund to pay for performance provisions. Experts believe the program does not include sufficient risk adjustment relative to the complex medical needs of the populations served by these facilities. Thus, while acute-care hospitals may gain additional revenue under this program, safety-net hospitals are likely to lose revenue.

Authorized under separate legislation, but closely tied to the Affordable Care Act, are requirements for meaningful use of electronic health records (EHRs). They are part of the government's larger efforts to improve health and transform health care through the use of health information technology (IT) in a measurable way. The deadline to attest for Stage 1 of the phased implementation process was October 1, 2013.

Health care organizations have variable access to resources for adopting a certified EHR technology and demonstrating meaningful use. This is particularly true for rural and community hospitals with smaller budgets and even fewer internal resources. Financial incentives are available for developing EHR through the EHR Incentive Programs for Medicare and Medicaid, but medical centers must access them through State applications.

On the positive side, CMS also currently offers voluntary participation in a number of pilot and demonstration programs that provide safety-net systems with opportunities to redesign their systems in preparation for Affordable Care Act requirements. These programs, most of them created through the Center for Medicare and Medicaid Innovation (CMMI), are intended to support development of system features envisioned under the Act. For example:

- The Partnership for Patients Program provides up to $500 million in grant funding through Hospital Engagement Networks to improve patient safety and reduce hospital-acquired conditions.
- The CMMI Health Care Innovation Challenge provides more than $1 billion in funding for advancing CMS's Triple Aim, defined as improving patient experience of care, improving population health, and reducing cost.
- The Medicare Shared Savings Program aims to improve patient care coordination across physicians, hospitals, and other health care providers through the formation of Accountable Care Organizations (ACOs). ACOs will be rewarded for lowering costs while meeting performance standards based on 33 CMS measures.

The 1115 Medicaid Waiver Delivery System Transformation Initiative is another part of the changing health care landscape. States may apply to CMS for waivers for projects intended to expand Medicaid and CHIP goals. For example:

- California received the first waiver in the Nation to support its Delivery System Reform Incentive Program, which will create incentives for public hospital systems to dramatically expand on recent quality improvement initiatives and make them systemwide. With up to $3.3 billion in funding, all public hospital systems in California are working with the California Association of Public Hospitals to undertake between 12 and 19 major delivery system improvement projects in each system simultaneously, setting ambitious project milestones.
- In Massachusetts, the 1115 Medicaid Waiver Delivery System Transformation Initiative provides $600 million in funding for seven safety-net systems (chosen because of their Medicaid to commercially insured ratio) to improve patient care integration, including development of electronic patient registries to provide infrastructure for such efforts.

These Federal changes are taking place in the context of increased expectations for accountability and regulation. Each new program comes with its own performance and reporting requirements, most based on multiple performance measures. These reporting requirements add to existing reporting requirements from other funding sources, regulatory agencies, and public reporting groups.

In aggregate, the reporting effort has become increasingly onerous, as each group requires different data elements or the same elements calculated and reported in different ways. It is further complicated by inconsistency among the ratings of hospital quality and safety published by a variety of sources.

More generally, safety-net systems are operating in a health care environment that is dynamic and uncertain on many fronts. Most health care systems are working to prepare for the Affordable Care Act, which sets new expectations about population health, what care delivery

will look like, and what payment models will be used. For example, many systems are testing patient-centered medical homes (PCMHs) and developing or at least positioning themselves for ACOs. As part of the positioning, mergers, acquisitions, and clinical affiliations abound. The changes in the larger market increase competition for safety-net systems and add uncertainty for them as they work to develop successful paths moving forward.

SAFETY-NET SYSTEMS RESPONDING TO THE CHALLENGES

Given the pressures safety-net systems must contend with, there is increasing impetus to move away from the status quo on multiple fronts to redesign systems to meet the demands of the current environment. In our field study data, four issues stand out as these safety-net systems strive to respond to the challenges they face while continuing to serve their communities.

Competitive Strategies

Safety-net systems are following different competitive strategies to maintain or improve their financial positions.

The most direct impact of health reform on safety-net systems, as described above, is the threat of reduced funding from changes in Federal programs:

- Federal reductions in Medicare and Medicaid DSH payments as funds are shifted to pay for new insurance coverage;
- New performance accountability requirements that appear to disadvantage safety-net hospitals, such as penalties for all-cause readmission rates; and
- Higher numbers of Medicaid patients as Medicaid coverage is expanded, in most cases with inadequate reimbursement rates.

Added to these changes and the uncertainty they bring are the further pressures of reductions in State funding in many places, the challenges of creating and implementing new models of care, and the dynamics of changing competitive local markets. All the systems studied are committed to their missions to serve the vulnerable populations in their service areas, and most are deeply concerned about the anticipated funding cuts. Their watchword is “No margin, no mission.”

The study sites have been approaching these financial challenges in different ways. In the past, they could rely on a combination of government programs and their own political influence to achieve better reimbursement rates and sufficient supplemental funding. Most also realized—some earlier than others—that different approaches would be needed if they were to remain financially viable in the future, and they began using additional strategies to strengthen their financial positions.

The sites fall loosely into four groups defined by their competitive business strategies. (Note that the study sites do not fall into these same four groups on other issues.) Some systems are having more success than others in achieving a positive operating margin.

Market Dominance in Geographic Area

Two study systems have focused on achieving market dominance in their geographic areas. Hospital E, a large multicampus academic medical center, began to build market dominance a number of years ago by expanding primary care practices and affiliated practices throughout its catchment area and by bringing them all into a single physician-hospital organization (PHO).

The system has a strong commitment to the predominantly poor population in its area. System leaders estimate that the system is now financially responsible for 50 to 55 percent of all medical activity and has touched 70 percent of all health-seeking patients in the area at some time. This system also converted its large PHO to a risk-bearing care management organization (CMO) that currently generates substantial revenue for the system and provided the basis for developing an ACO.

With this market dominance and its medical school affiliation, the system began to offer tertiary services with higher reimbursements. The current business strategy identifies five new tertiary services for expansion to bring additional revenue. Woven into the business strategy is the ongoing commitment to meet the unique needs of their patient population. For example, the new pediatric transplantation service furthers the business strategy while relieving families with critically ill children of the hardship of traveling to another part of the city for care. Layered over these strategies and new initiatives is a strong institutional emphasis on efficiency.

Hospital H achieved market dominance by acquiring most of the hospitals, ambulatory and specialty practices, and ancillary services considered to be competitors in the geographic area. The founding hospital in the system was a regional public safety-net hospital with a Level 1 Trauma Center, serving a high proportion of indigent and uninsured patients. Over time, suburban hospitals added to the system were able to cross-subsidize its less profitable parts, especially when the suburban communities experienced rapid population growth. As the system grew and the county tax base increased, the safety-net system was able to rely less on tax resources.

The strategy continues to center around developing a large, integrated system of care. This system recently opened a new, state-of-the-art children's hospital, which allows it to upgrade the quality and level of care available to families in the area. It is also expanding its hospitalist practices and developing PHOs with groups of community physicians.

To date, the system has been financially successful with a strong operating margin and has consistently been recognized for its commitment to high patient satisfaction and quality performance. However, system leaders expect health reform to have a major impact with reduced Medicaid funding, and the likelihood that DSH payments will not continue. They also assume that there will not be a significant decrease in the number of uninsured patients, many of whom are undocumented. Strategies or plans to address these issues were not evident at the time of the site visit.

Outreach to New Markets and Patients

Two study sites are striving to reach new markets and attract new patients to improve their payer mix. Hospital G, with a strong safety-net identity and without strong market dominance,

has focused on attracting new patients by opening an urgent care center and specialty clinics in the surrounding suburbs and serving as a tertiary referral center for its part of the State to build a more diverse patient population. To support these efforts, the system is working to create the image of a "hospital for everyone" by improving the physical plant—building a spacious new lobby and a new bed tower with private rooms—and by joining in the establishment of a new medical school housed in a new adjacent building.

In a creative strategy to improve its image, this institution has partnered with the community to improve the neighborhood by creating a "corridor of safety" in what has traditionally been a high-crime area. Further, this system has created an ACO for its employees, has the only Level 1 Trauma Center in its part of the State, and receives favorable State reimbursement rates. However, the system continues to face strong competition from other hospitals as evidenced, for example, by ambulances choosing to bypass it in favor of tertiary medical centers farther away. Financial viability is a central priority, with attention given to revenue generated and efficiencies gained by new initiatives.

Hospital B, where leaders aspire to create a stronger market presence in a competitive market, has given priority to the physical plant to create a high-end environment that will draw new patients and support a broader patient mix than its traditional safety-net base. The system has created a PCMH as a new line of business and is currently enrolling members; two additional PCMHs are in the planning stages. It is also working on redesigning its systems with the expectation that improved work processes will improve quality and reduce costs. However, the system currently has the highest proportion of Medicaid patients and the second lowest proportion of commercial patients among the study sites and continues to have a negative operating margin.

Two study sites are in overbedded, highly competitive markets with no chance of market dominance and limited opportunity to expand to new markets. Hospital F, historically very successful in obtaining supplemental funding through skillful political positioning, has recently begun to develop new financial strategies. It strongly self-identifies as a tertiary academic medical center as well as a safety-net system but is in a highly competitive, saturated market. Thus, it lacks some of the expansion options available to other safety-net systems.

When funding reductions at the State level several years ago resulted in substantial loss of funding midyear, the first priority for Hospital F, addressed with the help of consultants, was to cut costs and put its financial systems and business practices in order. While the system made significant progress toward those objectives, its financial status is still uncertain. Although some of the hospital's operating losses are offset by revenue generated by a health plan that primarily serves Medicaid clients, system leaders recognize that financial viability requires a forward-thinking, comprehensive approach. The larger multiphase strategic business plan is to institute structural changes and improve care delivery processes to position the medical center and its affiliated health centers for population management.

The other system, Hospital D, defines itself as a community academic hospital whose strengths are primary care and mental health and for whom managing the population in the catchment area is a high priority. For example, it works with the public health department in all towns in the catchment area on various community services and population health issues. Although this

system's strategy is to build on these strengths, its negative operating margin has forced leadership to recognize that it cannot continue on its current path. Therefore, this system is developing PCMHs and an ACO in anticipation of payment systems moving away from fee-for-service reimbursement, which is inadequate for primary care and mental health.

This small community hospital recognizes it cannot survive independently, so it is negotiating a clinical affiliation with a large tertiary medical center. At the same time, it is focusing on becoming a more efficient system, a process it started 5 years ago when forced to reconfigure in response to the State's sudden withholding of $40 million in the middle of the fiscal year. The reconfiguration included closing inpatient services on one campus and consolidating various health centers and outpatient services. It also laid the groundwork for continuing efforts to increase efficiency and critically examine the physical plant/services offered from a business perspective.

Patient Care Delivery

Leaders in two public hospitals report feeling reasonably secure with their public funding and therefore are focusing their redesign on patient care delivery. Hospital A considers itself secure, given its deep roots in a progressive community and close ties with the public health department. However, even with this level of support, the system has experienced reduced State and Federal funding as a result of the recession. Because physicians and other staff at this site are employed by the affiliated medical school, the latter's budget constraints further affected the site's budget.

This site currently operates with a significant negative operating margin. In addition, system leaders realize that health care reform will change the market, forcing them to compete to retain the patients the hospital now serves. These dynamics are creating impetus for improving access and customer service, along with the physical plant. Despite the challenges and changes, this system's leaders are generally optimistic about the future and excited about specific initiatives, such as building an ACO.

The second system, Hospital C, underwent a governance change in the past few years that resulted in increased autonomy from the county government and integration of the physician association, allowing more control over its financial structure. The system also reported some positive financial growth over the past year, attributed to several developments, including:

- Significant movement during 2012 of Medicaid fee-for-service patients into commercial insurance and the system's own health plan and
- Growth in the number of other commercial patients.

This positive shift in payer mix has led the system to develop and remodel aspects of its infrastructure, and increased growth under the new chief executive officer (CEO) is anticipated. Nevertheless, it continues to have a negative operating margin, which has stimulated attention to the need for more aggressive action to curb costs. In general, however, the system's leaders remain confident of its dominant county inpatient market share and committed to serving the community's vulnerable population.

Ongoing Financial Challenges

Financial challenges facing safety-net systems include:

- **Lack of experience with financial controls and with funding predicated on performance.** Historically, supplemental funding from the State and the Federal Government came without performance standards. Half of the field study sites—those with market dominance and those striving to reach new markets—have been carefully managing their finances. However, the other sites, accustomed to obtaining the necessary funding through political skills, had little incentive to create strong financial controls. This is changing at most of those study sites.
- **Inadequate rates for Medicaid and mission critical services.** As safety-net systems, the field study sites, by definition, have large proportions of Medicaid recipients among their patients, through both fee-for-service traditional Medicaid and, for a growing number, Medicaid managed care plans. Medicaid rates vary across States but typically are below costs. Safety-net systems often also provide other services, such as behavioral health, that are critical in serving their patients. These may draw referrals from other areas but are poorly reimbursed by the State. While non-safety-net systems can subsidize the low Medicaid rates and other low-reimbursement services with revenue from better payers, most of our sites do not have this option.
- **Being in a highly competitive hospital market.** Most of the case study systems are in highly competitive markets. At least two systems, Hospitals D and F, as highlighted above, have limited or no options for opening offices or clinics in wealthier suburbs to attract new patients and thus create a new revenue stream. Unless they have a special niche that guarantees patient streams (e.g., providing the only trauma center in the area), it is difficult to expand to new services.
- **Lack of capital funding**. While several of the field study sites have been able to invest in renovation and new buildings, others find it difficult to make substantial capital investments. The limited available capital must be devoted to carefully staged repairs needed to maintain safe facilities and operating standards. These systems operate at a further disadvantage with aging physical plants that are not laid out to support efficiency, new technology (or the ability to invest in integrated information technology), or new practice patterns such as PCMHs. Nor can they meet patient expectations, such as private rooms.
- **Lack of urgency among staff.** Many of the field study systems have in the past been so successful politically that funding shortfalls were always covered with supplemental funding at the last minute without significant impact on how the systems operated. In these organizations, the culture has come to expect nick-of-time rescues. As a result, the staff (including physicians) have lacked the sense of urgency needed to make difficult changes to reconfigure the system and cut costs. While cultures are changing to reflect the increased urgency, it is still a challenge in some cases to convince staff that the current climate of health care is different.

Alignment of Physicians With Organizational Priorities

Safety-net systems, like other medical centers, are working to bring physicians into closer alignment with organizational priorities.

Across the industry, there is increased emphasis on the alignment of physicians and hospitals.[4,5] For hospitals with community physicians, it is a strategy to ensure a referral stream of patients to the hospital and to create incentives to involve community physicians in hospital initiatives. For systems with employed physicians, it is a strategy to improve coordination across the system and to engage physicians in improvement efforts as the system strives to become a patient-centered, high-value organization. For both groups, hospital-physician alignment is a priority, given the change in payment models and the emphasis on ACO development and management of population health.

The sites that we visited are no exception. In varying degrees and through different strategies, all are working to align physicians more closely around medical center priorities. However, for three sites, the organization of physicians is a key component of their strategic direction, despite the sites' contrasting histories and contexts. A closer look at these systems provides contrasting illustrations of both the challenges systems face and their strategies for addressing them.

In one system, Hospital E, physicians are organized in a single physician organization with structures and incentives aligned with the medical center. In this system, virtually all physicians have long been organized this way, and more recently, in a CMO covering both employed and community physicians. Medical center leaders believe they have built significant alignment with providers through these structures; in addition, there is close alignment with the medical school.

All employed physicians and the vast majority of community physicians who live in the area belong to the PHO and thus participate in the CMO. Since the medical center (with all outpatient services, hospitals, and clinics) is financially responsible for roughly half of all medical activity in the catchment area, community physicians are motivated to be aligned with the medical center. The PHO is not an exclusive relationship for them. Virtually all employed physicians are on the medical school faculty.

The CMO was built on the success of the original PHO. Leaders decided the CMO could work with health plans to increase its role, taking on more financial risk to manage the member population and sharing in the premium dollars. At present, the CMO has credibility as a risk management organization across payers. Therefore, the CMO can pool all funding streams (Medicare, Medicaid, commercial health plans) and pay physicians one standard fee for their service regardless of what payment stream their patient is in. This arrangement is designed to both remove disincentives for physicians to care for Medicaid patients and provide incentives to decrease hospital utilization.

The medical center has done well with this approach. Because the CMO is financially successful and is committed to sharing that success with providers, it has been able to increase provider fee schedules on a regular basis for all lines of business, even government and managed care plans. In addition, the prepayment of premiums gives the system both the opportunity to make investments with the margin and the ability to plan ahead, rather than hope there is a surplus at the end of the year. The CMO margin is reinvested in the CMO and hospital system.

Over time, the CMO's financial success has grown until it now represents one-third of the hospital's operating revenue. Its goal was to provide half of the revenue in 2014. The CMO is a significant enough presence that system leaders look to it as a path to redesigning the delivery system. Looking forward, the system is building on this CMO experience to develop an ACO and is participating with CMS as a Pioneer ACO.

Sites Without Physician Alignment

At two sites, the academically based organization of physicians is not aligned with hospital priorities. Physician alignment is a major strategic issue that came up repeatedly in discussions with system leaders and physicians at both sites. In Hospital A, the central issue is that, as medical school employees, physicians are not closely invested in the hospital priorities and structures. Under the current affiliation agreement, the payment model for physicians does not match that of other hospital employees, including hospitalists. Further, physicians are not being held accountable to hospital performance standards that determine the hospital's reimbursement. The system is working to build performance metrics into the university affiliation agreement, but that work is not finished.

In Hospital F, the central issue is that physicians are organized into multiple faculty practice plans by academic departments that operate separately and independently. The reorganization of physician governance was identified as a critical challenge in the medical center's strategic assessment and is thus a priority of medical center senior leadership.

In this medical center, practice plans set policies for physicians working in the ambulatory clinics. Therefore, each ambulatory care clinic runs separately, with different processes and protocols. System leaders recognize that this arrangement is problematic for patient access and quality of care, as patients have to navigate completely different procedures in each clinic they visit. It also further interferes with coordination across services, often resulting in limited linkages across specialties.

To address these issues, the system leaders are creating a single practice plan that will include all physicians; the details were being worked out at the time of our visit. This reconfiguration is intended as the first step in eventually standardizing practices across specialty clinics. The single practice plan will also include financial incentives for physicians tied for the first time to productivity and to a lesser extent to quality.

Along with the change in governance to a single practice plan, the medical center is adopting a new financial payment mechanism to allocate funds to departments. This financial model, in place for only 3 months at the time of our visit, is intended to deliver money to the departments in line with the financial priorities of the organization. Priorities will be reflected, in part, in staffing formulas for each service. They will also be reflected by sharing resources across departments so that lucrative specialties cross-subsidize less lucrative ones. Not surprisingly, the financial model works well for some departments that have received new funds but less so for departments that have had allocation reductions. These differences have reportedly created early dissatisfaction with the system.

System and clinical leaders recognize that the reorganization of practice plans and funding allocations will require substantial culture change in a system with a long tradition of independence of academic departments. However, they believe that the new structures will support the organization financially, an important priority. Equally important, medical center leaders—and medical school leaders—see these changes as necessary for the system to move ahead with the other components of its strategic redesign to support the goals of population management and development of PCMHs and an ACO.

Alignment Challenges

Physician alignment challenges facing safety-net systems include:

- **Avoiding financial losses by physician practices.** In at least one of the field study sites, Hospital D, the physician organization overall loses money because of its heavy reliance on Medicaid reimbursement. In Hospital F, only certain practices lose money (such as primary care and mental health, or those with a low proportion of patients with commercial coverage), while other practices generate revenue. In these scenarios, medical centers then need to cross-subsidize practices, which is difficult if overall revenue is constrained. Hospital D has successfully dealt with this issue, and Hospital F is working to address it.
- **Misaligning academic incentives with medical center priorities.** Most of the study sites are academic medical centers, and they value that identity. A strong academic affiliation is positive for these systems in that it brings prestige and a positive public image to potentially draw new patients. It is also often a benefit in recruiting physicians. Hospital G recently opened a new medical school adjacent to the hospital. However, the affiliation also creates challenges when it leads to competing priorities and incentives, as it has in Hospitals A, C, and F. The cultural and contractual challenges the sites face are to create rules and incentives for physicians that encourage physician practice consistent with system priorities, such as those related to PCMH or ACO implementation.
- **Engaging physicians in medical center priorities.** Traditionally, physicians have operated in medical centers without being part of the fabric of the organization. Often, staff at study sites described their frustration with the fact that physicians do not participate in process improvement or system redesign projects. This is particularly true when physicians are not employed by the medical center, meaning participation in medical center committees and nonclinical responsibilities comes with a financial penalty for them in loss of patient revenue. With the redesign efforts that are needed in safety-net systems, closer physician engagement is needed. Physician compensation at several sites is structured so that a portion of physician compensation depends on participation in improvement projects.
- **Breaking down silos across departments, especially in medical centers with strong academic traditions.** Staff at several sites talked about the difficulty of coordination and integration across departments, especially in the face of strong academic traditions based in departmental autonomy. As the health systems move to models of patient-centered care and population management, the insularity of departments becomes a larger problem—patterns that worked in the past can no longer succeed.

Role of Process Improvement Methods in Performance Improvement

Process improvement methods facilitate performance improvements in a number of ways, but a more comprehensive and strategic approach is needed to be successful in the current health care environment.

Over the past two decades, gaps in health care quality, cost, and efficiency have received widespread attention. In response, health care providers have accelerated efforts to improve patient quality and safety. To ensure the provision of consistently high-quality care, regulatory and accrediting agencies such as CMS, the Joint Commission, the National Committee for Quality Assurance (NCQA), and various State agencies have established standard, publicly reported performance measures.

All safety-net systems in this study are actively engaged in measuring and tracking their performance, identifying and prioritizing areas where performance improvement is warranted, and deploying a variety of process improvement approaches to address deficiencies and to ensure top-level patient care quality. (We define *process improvement* as the systematic use of structured problem-solving methods, the application of data to diagnose and redesign work process problems, and the engagement of multidisciplinary teams in problem solving and redesign. We use the term broadly to include quality improvement and systems redesign using any of a variety of methods.)

Performance Improvement Efforts at Field Study Sites

All field study sites provided examples of recent work designed to improve performance in targeted clinical areas. Each safety-net site has a long history of applying basic process improvement methods to examine and raise quality, safety, and patient satisfaction performance to required or desired levels. For example, Hospital H's explicit goal is to be in the top decile or better on CMS Hospital Compare and Press Ganey patient satisfaction measures, and they have received substantial recognition for their achievements. In contrast, as a result of a sentinel event and unsatisfactory responses with accrediting surveys, Hospital B completely revamped improvement structures and approaches, setting up a new committee structure and dashboard under new leadership.

All study sites noted that the push to improve is continuous. As aspects of care are redesigned, it becomes apparent how much work remains to be done. Further, as the entire industry advances, it becomes increasingly difficult to remain at the top.

Most of the sites' staff we interviewed seemed familiar with basic process improvement methods. Although the specific tools used (e.g., collaboratives, PDSA, rapid cycle improvement, DMAIC, root cause analysis, FMEA[iii]) vary both among and within study hospitals, improvement staff are actively working to familiarize staff at all levels of the organization and in different clinical or professional areas with the use of multidisciplinary teams, structured problem- solving methods, and application of data analysis to diagnose and redesign work process problems.

[iii] PDSA = Plan-Do-Study-Act; DMAIC = Define, Measure, Analyze, Improve and Control; FMEA = failure mode and effects analysis.

Many of the physicians and nurses at study sites reminded us that quality improvement training, including the expectation of involvement in improvement projects, is now a standard part of medical and nursing education. Thus, young clinicians increasingly join the organization already having the needed skills.

All study sites have tackled a wide variety of initiatives to improve care delivery and, in some cases, administrative processes. Examples include:

- Projects to improve intensive care unit processes and procedures (e.g., central line bundles or other aspects of infection control) or throughput in emergency departments to prevent diversions or reduce waiting times;
- Operating room procedures such as on-time starts or tight glycemic control; and
- Administrative processes such as ensuring that medical records are signed and completed, or optimizing coding and documentation.

Most of these efforts are highly visible within the organization; involve system wide, multidisciplinary teams; and have achieved impressive results. For example, Hospital B reduced emergency department diversions from a routine level of 27 percent to virtually none over a 6-month period. This targeted improvement aimed to protect the system's community role as the premier Level 1 Trauma site and prevent less acute patients from migrating to nearby hospitals.

Use of Specific Improvement Tools

All but two of the field study sites, Hospitals D and F, are using versions of Lean or Lean Six Sigma improvement tools, typically in select parts of their organizations. The individuals interviewed at these sites believe that Lean methods have the potential to advance or accelerate their improvement efforts. None of the study sites seems very far along in using Lean. But improvement managers at the sites using Lean expressed the hope that Lean methods would provide a more scientific, rigorous, and cost-effective approach to process improvement than other methods.

Hospitals A and B have been influenced by prominent examples of Lean principles in action in organizations such as Virginia Mason and Denver Health, a sister safety-net organization. Advocates in these systems reported that Lean emphasizes repetitive improvement cycles, chips away at waste, and helps strengthen the organization's improvement culture as results build staff confidence and engagement. Importantly, Lean's focus on value streams inherently addresses costs and more efficient work processes.

When leaders and staff recognize that Lean improves quality and saves money, there is growing support for the investments in time and expertise needed to do the work. In Hospital B, for example, an early project reorganized a supply area, resulting in better access to supplies and considerable savings when more than $50,000 of unnecessary materials were returned to a vendor. The project's results quickly became part of the organization's Lean folklore.

However, the three study sites working with Lean, Hospitals A, B, and H, cautioned that Lean improvement methods alone may not be appropriate in all situations. Staff at Hospitals B and H are exploring ways to use Lean or Six Sigma *selectively* to address aspects of the strategic redesign issues they face.

Hospital B, for example, had been using Lean and other process mapping tools to design its new PCMH practices. Midway through the project, staff began to feel that strict adherence to Lean procedures was slowing them down. They quickly shifted to more top-down decisionmaking methods to move beyond some of the impediments, with the intention of returning to a Lean process once they had regained momentum.

Hospital H is using Lean Six Sigma tools to address cost-cutting requirements through staffing optimization work. Staff have found that the use of a structured Lean process helps defuse the emotionally laden issues inherent in this type of endeavor, although final decisions are still made at the managerial level.

Although most sites endorse the value of having made an investment in Lean, only Hospital A appears to be making a major commitment to it. Hospital A is working with consultants formerly with a national leader in Lean redesign within health care to train staff and implement Lean tools in selected key parts of the organization (e.g., urgent care, postanesthesia care unit). None of the sites resembles the few, well-known health systems that are applying Lean as the guiding philosophy of the organization.

Infrastructure Building

Most field study sites are working to build strong improvement infrastructures to support sustained redesign efforts. To address the major redesign needed in most systems, comprehensive and strategically aligned improvement approaches are needed**.**

Most sites have or are building an infrastructure for improvement work, typically one or more staff groups with sufficient training, experience, and expertise to help others in the organization carry out redesign work. Current improvement departments at study sites are small, usually no more than a dozen people and often fewer than that. There are tradeoffs (and organizational competition) between investing in infrastructure and operations. In some cases, improvement work beyond the basics of reporting and regulatory requirements is seen as a cost to the system. Staff and groups who can demonstrate that they pay for themselves are likely to receive continuing organizational support.

A few sites are deliberately assembling dedicated process improvement units that are flexible and sophisticated enough to take on a wide variety of assignments. Hospital A, for example, used Medicare and Medicaid incentive funds to hire a full complement of improvement staff with expertise in infection control, data management analytics, and informatics. Experienced physicians, nurses, and other staff were carefully selected for and often promoted into these positions. These staff play consultative roles within the organization, helping departments and clinicians with a variety of problems, some of which are more managerial or analytic than might be expected with "traditional" process improvement activities.

Some of the more experienced quality managers cautioned that it has been important to ensure that process improvement methods are seen as tools and used flexibly so that approaches are not dismissed as "the flavor of the month." The goal of savvy improvement leaders at study sites is to spread and diffuse improvement so that the tools are available and the philosophy infused throughout the organization. The organizational structures in both Hospitals A and B have supported improvement experts within an executive or central department and then dispersed

those highly trained individuals into decentralized positions throughout the organization. All sites are working to engage staff throughout the organization in improvement efforts. Hospital B has hired physicians to fill chief quality officer and chief medical information officer roles to more fully engage clinical staff in improvement activities.

Hospital A trained hospitalist staff in improvement methods to build a group of enthusiastic early adopters who could then influence and bring along other physicians. Hospital H sent corporate process improvement staff out to departments such as Housekeeping and Food Services to foster cross-departmental efforts to improve efficiency. Hospital F recently identified physician quality leaders in each department as a strategy to spread capability for and commitment to systematic improvement work. It remains to be seen how well these approaches help spread and sustain improvement efforts.

Hospitals A and H are striving to ensure that improvement work is tightly aligned with the organization's strategic priorities and applied in ways that demonstrate its utility and value. In Hospital H, process improvement staff trained in Lean Six Sigma methods have become the "go to" resources for major organizational cost-cutting initiatives. This work emanates from the corporate finance department, with little emphasis on formal methods being used. The group manager tries to align specific staff assignments with key organizational strategies but thinks more time is needed before the group is invited to contribute to a wider variety of corporate initiatives. Hospital A's quality officer helped the leadership team reestablish its strategic planning process, in part to ensure that her area's resources and initiatives were appropriately prioritized, especially given limited resources available for process improvement.

Less attention is paid to integrating improvement work across the organization. Many sites split their process improvement work among several functional areas, reinforcing organizational silos. Hospital H has at least three improvement groups reporting separately to the chief medical officer, senior nurse leadership, and a senior leader with financial and administrative oversight responsibilities. While each department has a relatively well-defined scope of practice (e.g., the medical group focuses on evidence-based practice and clinical effectiveness), integrating improvement efforts across departments might reduce redundancy and enrich cross-organizational efforts.

Process Improvement Challenges

Process improvement challenges facing safety-net systems include:

- **Building adequate process improvement infrastructure and capacity.** A key challenge is to structure process improvement so that it is part of the organization, not simply a standalone piece. Experts in Hospitals B and H expressed concern that improvement expertise and efforts were fragmented in their organization, sometimes situated in separate clinical areas (Medicine and Nursing) and administrative departments. Related functions such as patient safety, patient concerns, and risk management also exist in separate structures within the organizations.

Experts at these sites looking to strengthen their efforts are considering whether to pull staff with disparate yet related expertise into one unit. While they feel there is "strength in unity," especially under a strong and respected leader, they recognize the need to balance the centralization of expertise with dispersion of improvement capacity throughout the organization. For example, they could designate improvement champions in each department, such as at Hospital F.

- **Selecting benchmarks.** Leaders in field study sites were seeking appropriate institutions to benchmark. Some were looking for other public hospitals as benchmarks but understood that size, markets, governance, and many other factors influenced comparability. Others preferred to benchmark against non-safety-net hospitals they felt were similar, such as other urban or academic medical centers. Academic medical institutions often prefer to participate in the University HealthSystem Consortium (UHC) for benchmarking purposes.
- **Building health IT to support the level of measurement sophistication required by the current generation of performance improvement.** Health IT systems, particularly integrated electronic medical records that can provide the data to support improvement work, require a massive investment, often beyond the reach of safety-net systems with limited resources. Institutions, such as Hospitals C, D, and H, that have made this investment, despite the significant implementation burden, are well ahead of the game. Systems that currently lack such resources must expend significant human capital or create elaborate workarounds to obtain, organize, and interpret data to support operations and process improvement.

Organizational Commitment and Support for Redesign

Organizationwide commitment and support are required for safety-net systems to transform patient care quality and build the new models of care and the payment structures needed to survive.

Literature on transformational organizational change in health care identifies characteristics of high-performing organizations that include:

- Supportive leadership;
- Organizational mission, vision, and values that frame and embrace the desired changes;
- Strategically aligned and integrated change efforts; and
- Highly engaged staff to lead sustainable projects that can be spread within the organization.[iv]

Leaders of several sites working to transform their systems to build new models of care and prepare for new payment models share the characteristics described below.

[iv] For example: Lukas CV, Holmes SK, Cohen AB, et al. Transformational change in health care systems: an organizational model. Health Care Manage Rev 2007;32(4):309-20.

Senior Leadership Support

Senior leadership support guides redesign. Without exception, those interviewed emphasized the importance of leadership in creating a vision for and engaging the organization in redesign. Staff at several organizations highlighted the importance of having stable leadership; leadership transitions can have a detrimental effect on momentum. Hospital C has had four CEOs in the past 9 years, compared with Hospital H where the same CEO has been in place for more than 30 years. The CEO with long tenure is described as a trusted visionary who aggressively and consistently sets goals and high expectations for the organization, while the site with leadership turnover has spent time waiting for each new leader to establish goals and priorities.

Similarly, several staff interviewed at Hospital B described the CEO as new and innovative, although he has been with the organization almost a decade. He is unrelenting in pushing the hospital to become a market leader rather than just a safety-net hospital. He imports ideas from other industries to change the face and the footprint of the institution, including an updated lobby that looks and functions like a top-level hotel, corridors that are de facto art galleries, and contracts with pharmacy chains to provide comprehensive in-hospital outpatient prescription services.

Visionary leaders at study sites seem to recognize the magnitude of the challenges they face, are not satisfied with the status quo, and are willing to demand that bold actions be taken for the organization to survive and thrive as the health care environment is redefined. Such leaders often champion change efforts, ensuring that staff working on system redesign have sufficient resources and that barriers to progress are addressed.

Often top leaders play these roles, but in at least a few organizations, the locus of leadership support comes from middle managers with the passion and vision to lead organizational change efforts from the middle out. In Hospital A, the vision and energy for reinventing the organization comes from the chief quality officer (CQO), who has been highly successful in influencing the organization to use process improvement to tackle key problems and opportunities. The CQO has strategically accomplished this by building a flexible infrastructure of skilled staff and data resources to support change efforts, drawing in physician champions, and influencing senior leadership to build strategic alignment around change efforts.

Commitment to Shared Mission, Vision, and Values

Commitment to shared mission, vision, and values provides direction. Staff at the field study sites commonly exhibit passionate commitment to their mission of providing care to underserved patients from diverse socioeconomic backgrounds who have complex medical needs. These values are expressed in ways that emphasize safety-nets' linkages within the communities they serve: stewardship of resources and patient centeredness. Staff at several study sites also emphasized "just culture" frameworks that simultaneously promote transparency, psychological safety, and accountability for quality and patient safety. Such strongly held beliefs create impetus for process improvement because improving quality and efficiency perpetuates the organization's ability to sustain its mission and because it is morally the right thing to do.

In many organizations visited, symbols and expressions of the organization's mission and values were publicly displayed as pillars of excellence or patient-centered care campaigns, for example. Almost all interviewees referred to aspects of organizational mission as providing support for key initiatives, such as developing new lines of business. Hospital E has built pediatric oncology and pediatric transplantation services so families would not have to travel outside their community for care. Some study sites also use patient and family participation in governance and change initiatives as a way of staying connected to and fulfilling their mission.

Alignment of System Redesign With Strategic Priorities

System redesign is aligned and integrated with strategic imperatives, goals, and priorities. By definition, strategic priorities focus on stretch goals involving multiple players; large-scale redesign efforts and process redesign approaches can help staff take on and organize work that otherwise seems overwhelming. Leaders at most study sites understood that aligning system redesign efforts with key organizational priorities was critical, both to empower initiatives and ultimately to effectively implement strategies.

Staff interviewed acknowledged that linking improvement work to organizational strategies and priorities helps promote visibility, engagement, and willingness to move beyond barriers. Hospital D has an extensive portfolio of strategic initiatives linked to several key organizational goals, including cost-cutting measures, preparing for ACO and PCMH implementation, and redesigning clinical practices to better manage care across the continuum. Hospital G recently created a visual leadership framework to illustrate the aligned relationships among its values, strategies, and redesign priorities centered on a core of "one team, one purpose."

Staff Engagement

System redesign requires the active commitment and participation of staff. Leaders and improvement experts at most study sites engaged in system redesign worry that resistance or apathy can slow progress and impede results. They strategize about how to move beyond aspirations, particularly how to fully engage segments of the workforce whose participation they believe will be critical to success.

Leaders used a number of strategies, including training, retreats, conferences, and site visits to exemplar organizations, to engage staff who would be affected by reconfigured processes and systems in implementing key strategies and change efforts. Leaders at a few of the study sites are thinking more strategically about ways to engage specific segments of the workforce. Hospital A has deliberately involved a small group of physicians (20) in early improvement work. This strategy, funded by local patient safety and pay-for-performance initiatives, has resulted in a network of physician champions who gradually work with and engage other physicians and residents throughout the organization.

Organizational Challenges

Organizational challenges facing safety-net systems include:

- **Limited organizational resources.** Field study sites struggle with a number of issues that complicate their leaders' ability to tackle strategic system redesign. Chief among the barriers is lack of sufficient resources to move the work forward at the desired pace or level. Several of the safety-net systems in the study, for example, felt they lacked the capital needed to invest in integrated electronic systems necessary to provide data and support workflow for system redesign. Because the cost of replacing existing systems is prohibitive, Hospitals A and B are managing redesign efforts based on largely manual data collection and reporting efforts.

  At a more basic level, many study sites said that resources to hire consultants, send staff to trainings or conferences, or even free up staff time to work on projects were scarce. Hospital A described sending only one person to an Institute for Healthcare Improvement (IHI) program, where other hospitals represented at this particular training had funded and sent large groups of staff.

  It also was not unusual to hear that staff routinely worked on redesign activities on their own time, coming in before or after their shifts or on weekends. Staff at Hospital E said time delays caused by, for example, waiting for the multiple appropriate administrative approvals required to institute a change effort, along with other administrative hurdles, acted as "soft stops" to project momentum. These delays, especially when multiplied over a number of projects going on simultaneously, were frustrating for staff engaged in the various change efforts.

  Investments in resources to support organizational redesign goals are carefully managed at most study sites. Managers, for example, often seek substitutes for expensive training programs, including free or grant-funded learning opportunities. At almost all study sites, consultants typically have time-limited engagements after which activities are transitioned in-house.

- **Complexity of reporting.** The scope and complexity of accountability and reporting requirements faced by safety-net systems are overwhelming. These systems are not in a position to influence what is required of them, and they look to outside organizations such as hospital associations to represent their interests to ease the reporting demands. Several sites suggested that AHRQ and other industry leaders could play a role in streamlining performance measurements for which they are accountable, even though efforts to accomplish this through NCQA, for example, have thus far been largely unsuccessful.
- **Improvement fatigue.** The pace of change is overwhelming, and staff at many sites feel they cannot keep up, let alone make the progress required to position their site effectively as health care reform is implemented. At a fundamental level, all hospitals are required to manage multiple relationships, payer demands, performance measures, and regulatory requirements. In addition, managing the still-emerging requirements of Affordable Care

Act implementation requires levels of effort above and beyond what they were previously expected to do.

While health care reform ultimately may begin to streamline some of these requirements, in the short term, the metrics hospitals are required to track, report, and get involved with have multiplied exponentially. At many study sites, we heard that staff are experiencing improvement fatigue and that initiatives feel random and chaotic, rather than planned and progressive. Staff report that the organization can only focus on short-term objectives, and staff have yet to see their work as contributing to building a new culture and a new way of working.

- **Aligned engagement.** Leaders at most study sites believe they must build a culture where staff are adept and flexible with system redesign. To attain this goal, staff in the middle or at the frontlines of safety-net organizations say they need "roadmaps" to understand where the organization is going and how to get there. They need to know how individual work contributes to larger goals and objectives.

  To some extent, passionate process improvement champions have influenced study organizations' ability to move the work forward, but that passion and drive can only go so far. Pockets of improvement expertise need to be spread so that growing numbers of staff have the opportunity and experience of improving work systems. Leadership must be aligned and prepared to use their considerable influence to set expectations and create momentum.

USE OF EXTERNAL RESOURCES

With more emphasis across the industry on performance, new models of care, and improved financial performance, leaders and staff at the safety-net systems in the study were seeking resources targeted to the problems they face and the populations they serve. As we learned, some of their experiences have been positive, but the systems also occasionally struggle to find and use resources that meet their needs.

Use of a Wide Variety of Resources

Safety-net systems use a wide variety of external resources to support their redesign efforts.

Consultants

The study sites use consultants as resources for a variety of organizational issues, such as operational planning and improvement, strategy and leadership development, improvement training, and implementation of new models of patient care. Use of consultants was frequently time limited, with the goal of building the needed expertise in-house as quickly as possible.

Examples include:

- **Financial planning.** Hospital F has engaged consultants to help them develop robust financial management and cost accounting systems. Current systems are antiquated and cannot provide the data needed to manage in the age of health reform. Hospital G used

consultants for cost cutting and streamlining administrative processes. Hospital H used consultants to examine staffing optimization across the organization. This project involved both financial and operational components, because staffing optimization requires both rightsizing and reorganization of staffing assignments.

- **Strategy and culture.** Many sites use consultants to assist with leadership development, strategic planning, and aspects of cultural development. In Hospital F, a consulting firm was engaged in a short-term contract to help develop a strategic plan. One member of the consulting team stayed on for an extended role in the executive suite to help the medical center implement the plan until internal expertise could be built within the organization. Additional examples of strategic engagement at Hospitals B and H include working with well-known consultants to develop a "pillars of excellence" model for framing organizational mission and goals or for facilitating patient-centered health care initiatives.
- **Operational planning and improvement.** Most sites have used consultants to help redesign operational performance or efficiency in a number of areas such as behavioral health, throughput and flow, supply chain management, and physician group operations. Most of these engagements had specific objectives, were time limited, and helped the organization meet defined objectives. Assignments described involved the use of traditional consulting approaches, rather than quality improvement methods detailed next.
- **Process improvement.** Consultants have been used to help conduct or facilitate (indirectly teaching) a variety of process improvement activities, but specialists in Lean Improvement and Black Belt certification[v] programs were mentioned by sites as the latest investment. Improvement consultants sometimes can help organizations unfreeze resistance and move beyond the status quo. At Hospital B, consultants insisted that new procedures be tested the same day following a planning session. Staff learned that improvement work does not need to be perfect; small changes can make a big difference. In addition to *doing* quality improvement, consulting groups frequently are used to *train* staff. Lean consultants used at Hospital A were developing Black Belt capability, as well as helping create a framework for structuring and executing improvement work.
- **Affordable Care Act implementation.** Hospitals B and G both used consultants to assist with ACO or PCMH implementation. A strength of these engagements was that consultants were familiar with regulatory and certification requirements and helped the organizations attain Level 3 NCQA PCMH status at designated sites quickly and smoothly. However, as organizations begin to plan for global reimbursement and managing care across the continuum, staff are realizing that few consultants have the experience of key internal staff and so further use of consultants is not indicated.

Field study sites had both positive and negative experiences in terms of satisfaction and goal achievement, but most had some reservations about consultant use. Consultants are expensive, and some are not well versed in health care or safety-net specifics. Some sites reported experiences where consultants' products were inflexible or insufficiently operationalized to be of concrete assistance.

[v] Black Belt certification is part of the Lean Six Sigma program. The program has several levels, such as Green Belt, Black Belt, and Master Black Belt.

Membership Organizations

Most of the safety-net sites in this study belong to national, State, or local membership organizations. These organizations and State hospital associations generally offer a wide variety of services, including benchmarking data, collaboratives, learning sessions/conferences, demonstrations, and consultative services. Another important facet of membership in organizations is a sense of identity, for instance, as an academic institution or a public hospital, and peer group affiliation.

- **National membership organizations.** Field study sites are members of several prominent national organizations, but in many instances, their reliance on the organization is for selected activities rather than the full range of services offered:

    - America's Essential Hospitals (AEH) represents and lobbies for the country's safety-net hospitals and health care systems. Beyond working to secure government funding for public hospitals, AEH offers opportunities for education in areas such as quality and safety. It also conducts research on issues relevant to public hospitals, such as health reform and disparities. Six of the eight field study sites belong to AEH, although levels of active participation in the services offered varied. For some, an analogous State-level organization is viewed as more hands on and useful. Hospital B discussed participation in the AEH Safety Network, working on the 10 initiatives recommended by the Partnership for Patients program. Hospital D regularly hosts AEH fellows.
    - UHC is the membership organization for academic medical centers. Membership in UHC provides access to benchmarking databases, opportunities for education and knowledge sharing, specialized subcouncils for senior leadership and other job groups, and consulting services in areas such as performance improvement, supply chain management, and revenue generation. Most, but not all, of the study sites are currently members of UHC. For those that are members, the primary value is in the benchmarking data. The CEO at Hospital A was given advice early on to join UHC so that the hospital would have a peer group to identify with beyond public hospitals. This CEO found the affiliation very positive and feels that the experience of seeing that they initially ranked toward the bottom was the catalyst for starting that site's comprehensive improvement journey.
    - The American Hospital Association (AHA) advocates for hospitals and health systems, often working closely with State hospital associations. Almost all the systems in this study are affiliated with AHA. A member of senior leadership at Hospital B was on the AHA Board of Trustees; in this role, he had opportunities to visit hospitals around the country and returned with many strategies to try at his facility.

- **State membership organizations.** In several cases, study sites reported a high level of engagement and satisfaction with State hospital associations. Membership includes frequent opportunities to participate in collaboratives and learning sessions, as well as technical support in applying for Federal grants. The most frequently mentioned activity among the study sites was participation in collaboratives. Hospital G has worked closely with its State hospital association on demonstration projects that have advanced its ACO

accreditation. Hospital A works intensively with its very active State public hospital association and the affiliated action arm on Medicaid 1115 Waiver activities. Most of these initiatives focus on service excellence and patient safety or experience of care.

Improvement Training

A wide range of training resources is available, from basic through advanced levels, in quality and process improvement. These include in-person or virtual training programs, consultants, university programs, online programs or toolkits, and a wealth of literature and industry experience to draw on. Some of the training programs mentioned in study site interviews include:

- IHI. IHI belongs in a category by itself because of the number of program options available that are specifically tailored to health care providers. They include learning networks and collaboratives, a variety of didactic and experiential learning venues (both in-person and virtual), a repository of online resources (many of which are free), conferences, and campaigns and toolkits. Recently, IHI developed a specific focus on the needs of safety-net institutions, including a fellowship program. All of the field study sites had at least some experience with IHI initiatives and most had positive experiences. Their participation was often limited, however, because IHI programs were usually viewed as too expensive for safety-net systems.
- Academic-based training programs. Most local colleges and universities provide courses in quality improvement. Programs vary in terms of curricula, faculty, quality improvement methods emphasized, and program quality. Hospital G had the opportunity to train 30 Lean Green Belt facilitators at a nearby university. Participants were strategically selected to advance key organizational priorities and spread the use of Lean throughout the organization. In the end, the program was not successful because it did not provide actual project experience. Green Belts returning to the organization did not have the skills to deploy what they had learned and eventually were retrained.

Networking

Field study sites expressed interest in learning from other organizations, especially those whose experience provides models that they can adapt to their own site. Staff in safety-net systems seek to learn from similar organizations, although those are not always other safety-net groups. For example, staff and leaders in safety-net systems that are also academic medical centers look first to other academic medical centers.

Membership organizations provide opportunities for networking, as described above. An additional popular form of networking used by a few study sites is experiential site visits. Members of Hospitals A and B had visited leading organizations such as Virginia Mason, ThedaCare, and Henry Ford. The visits were described as inspiring, helping leaders and others who attended them to visualize the prospects for integrated system redesign. However, the visitors recognize that there are wide gaps between the benchmark organizations' capabilities and their own, so they also look to other sources, such as hospital associations or consortiums, for benchmarking and useful lessons.

Web-Based Tools

Web-based tools are helpful in that they are readily available and generally are free. Study sites mentioned toolkits or other Web-based resources available from IHI, AHRQ, NCQA, and even the Baldrige and Magnet groups. One study site used NCQA tools for PCMH implementation. The NCQA tools were described as helpful in that conditions for certification were specified, but limited in that they emphasized *what* to do rather than *how* to do it. Several sites mentioned AHRQ toolkits and common formats. Although sites viewed such tools as helpful, one person commented, "You can't replace the human touch and collaboration that takes place through actual conversations."

Grants and Demonstrations

Safety-net hospitals often rely heavily on grant funding to support process improvement efforts. Study sites described involvement in a range of grant-funded activities, including pilots and demonstration projects.

- **Foundations.** Foundations have long been a source of grant funding, often for smaller scale pilot initiatives. However, a handful of foundations, such as the Robert Wood Johnson Foundation (RWJF), operate on a larger scale, frequently funding multisite projects. Several study sites mentioned grants from RWJF, such as the Aligning Quality collaboratives and the Transforming Care at the Bedside program.

  Several of the field study health systems have partner (hospital-based) foundations dedicated to raising funds and administering grants within the system. Accessing funds through the hospital foundation may give the hospital increased flexibility to use resources in ways that are not otherwise available to public hospitals. At Hospital G, foundation grants were used to fund a behavioral health posttraumatic stress disorder program. The team involved had no other funding options, and they cited this effort as an example of the creativity required when resources are scarce and competition is high.

- **Federal Medicare/Medicaid grants.** Health reform is ushering in a new crop of Medicare and Medicaid grants intended to foster innovation and prepare hospitals for the changes demanded by the Affordable Care Act. Many of the study sites are participating in these types of grants. Several sites received grants from the CMMI demonstrations. Hospital G received CMMI Innovation grant funding for a citywide coalition focused on improving delivery of primary health care to individuals in the lowest socioeconomic tier. Already, the project has demonstrated that the intensive in-home followup model used by the coalition improves patient adherence to treatment and prevents unnecessary hospitalization. Hospital B participates in the CMMI-funded Partnership for Patients initiative, which involves improving 10 patient safety and care transition metrics. The site finds the volume of data required and the extensive project demands to be overwhelming. (Other sites have typically taken on only two or three of the Partnership initiatives.)

  Hospital D, in partnership with the state and a limited group of other hospitals in the area, used 1115 Medicare waiver funds to finance transformation initiatives. The money supported six large projects: a patient-centered medical home; a complex care management program; a primary care/behavioral health integration initiative; a diabetes

management program; a population health initiative focused on tobacco cessation; and a risk stratification pilot. The site is currently working to meet the project milestones and the data reporting requirements that accompany the funding.

Positive Experiences of Safety-Net Systems With Selected External Resources

Safety-net hospital staff describe positive experiences with external resources in terms of satisfaction and goal achievement when:

- ***The initiative and organizational goals are well aligned***. For example, Hospital B participated in initiatives sponsored by a dominant insurance carrier and the State Medicaid programs to implement Level 3-certified PCMHs. These initiatives were a key priority for the safety-net system, and the resources available were valuable in helping the organization move forward. The program used two groups of consultants, one of whom had access to a network of hospitals doing PCMH implementation; this access enabled the site to reach out to other hospitals to find models and data to support local work. However, while one consultant brought valuable insights to the project, the other had complex project management requirements that added only minimally to the project's success.
- ***Funding accompanies the learning experience.*** Examples include grant-funded initiatives, such as RWJF's Transforming Care at the Bedside program, and the Medicaid waiver transformation initiatives, such as the Delivery System Reform Incentive Program in California (Hospital A) or the Delivery System Transformation Initiative in Massachusetts (Hospitals D and F). Such programs typically tie incentives to achievement of ambitious process or outcome milestones. While funding is significant and can be used relatively flexibly (for example, to hire staff or invest in information technology), organizations must commit to and work aggressively toward established goals.
- ***Outside experts are seen to bring clout and experience to positively influence the organization, particularly its leaders.*** Leaders at Hospital A have begun a series of conversations with the former CEO of a safety-net system who is intimately familiar with Lean health care delivery and the complexity and problems faced by safety-net systems; this individual was seen as providing both concrete and visionary advice. The exchange was suggested by the organization's quality officer as a way of advancing the leadership team's understanding of the opportunities available through deployment of Lean Improvement.

  Other sites have used relationships developed through professional organizations such as AEH or AHA to keep abreast of industry advances and to provide connections for other organizational staff. At Hospital A, a consultant previously with one of the leaders in Lean health care was able to act as an iconoclast in his role as a Lean *sensei* to expedite change efforts. For example, he challenged leaders to understand and empathize with the experiences of patients who wait hours in urgent care.

- ***Resources are used flexibly and tailored to the specific needs of individual safety-net systems.*** Hospital H had engaged a consulting group to help them frame strategic initiatives as pillars of excellence. The framework used includes five principles, but the organization ultimately included seven pillars. They chose to split patient safety and quality into separate efforts to emphasize the importance of its role in the community as an innovative, responsible public hospital.

Challenges Safety-Net Systems Face in Using External Resources

Staff in field study sites also highlighted problems in using external resources:

- ***Many resources are very expensive***. Safety-net systems often seek ways to move forward in spite of resource constraints, including looking for free, cost-effective, or funded opportunities. As noted, costly resources are used selectively, typically for a short period of time, to build and bring expertise in-house.
- ***Resources do not always fit the organization's culture and needs***. Safety-net systems differ from one another on a number of dimensions, such as governance, funding, size, configuration of services, and teaching relationships. Sites regularly mentioned the gaps between what was expected from consultants and what was received. Consultants often do not have indepth knowledge of health care or of the specific challenges faced by safety-net systems.

  However, as previously mentioned, while AEH is seen as a valuable resource for public hospitals, not all safety-net hospitals identify with that affiliation. Some safety-net hospitals view themselves as a dominant community hospital first, albeit one that serves a portion of the population with complex needs and underfunded reimbursement profiles. For them, resources or initiatives specifically targeted to safety-net systems may not attract their attention or meet their needs. Safety-net systems that have or strive for a broader identity, such as an academic or tertiary medical center, are more reliant on UHC or even AHA as a frame of reference for their activities and goals.

- ***Guidance is limited for development and implementation of innovative payment and care delivery models.*** Currently, few specialized resources are available to assist with innovations such as medical home or ACO implementation. As noted, existing resources focus on specifying requirements but have little to offer in terms of guidance on implementing these complex innovations. In some cases, staff at safety-net organizations that have already achieved Level 3 NCQA medical home accreditation believe they know more than so-called industry experts.

SUMMARY AND DISCUSSION

The landscape for all health care providers is changing dramatically in response to the passage of the Affordable Care Act, given its focus on improved access and integrated care together with increased attention to controlling health costs. While some of the changes bring new opportunities to safety-net systems, others bring challenges, both directly and by affecting the health care market around them. In this context, safety-net systems face multiple demands that provide increasing impetus to redesign their systems to continue to attract and care for patients and to remain financially viable.

The Boston University study team conducted case studies of a diverse group of eight safety-net systems to understand the pressures the systems are facing and the strategies and resources they are using to address them. The sites were selected, not as a formally representative sample, but as illustrations of different approaches to responding to local markets and carrying out the strategic directions defined by system leaders.

Some of the field study systems appear to be farther along than others in preparing for the new environment, but none offers a full model for others to emulate. Instead, different systems provide lessons on different dimensions: both the practices that are working well, and the challenges that signal where other systems may need to pay attention and where external resources may be needed.

In looking at the ways the study sites are redesigning their safety-net systems, we emphasize ***strategic system redesign***. We define this term as systemwide efforts to change the organization in ways aligned with strategic and business priorities to pursue the mission of serving vulnerable populations while aiming to preserve or enhance the organization's competitive position.

Among the demands on the systems we studied, the most pressing for most is ***pressure to restructure to remain financially viable***. While some sites are currently more financially successfully than others, all face challenges and are striving to evolve in anticipation of changes in payment sources and new payment models. Of the four business strategy groupings that we identified, the strongest systems, financially, are those with *market dominance*, a status not within reach for the others. Systems in the other groups have had mixed success in attaining positive operating margins over the last 3 years:

- **Competitive markets:** Two sites are working actively to reach beyond their safety-net identity to compete in their market by offering new services and bringing in new patients.
- **Overbedded markets:** Two other systems, both in overbedded markets where the ability to compete with non-safety-net systems is limited, are focusing on reducing costs. In addition, one is emphasizing its tertiary capacity and the other has entered a clinical affiliation with a tertiary teaching hospital.
- **Public funding:** The two remaining systems believe they will continue to have strong public funding support, despite negative operating margins.

Across groups, the challenge cited most often is inadequate rates for Medicaid and mission-critical services, such as mental health. Some, but not all sites, are also challenged by lack of experience with financial controls and lack of capital funding. At least a few sites are further challenged by lack of a sense of urgency for change among staff; supplemental funds have always arrived when needed in the past and, until recently, staff believed the same would happen again.

Physician alignment with medical center priorities is important in all field study systems, although with differing emphasis and through different strategies. Close physician alignment is needed to:

- Meet the business goals of ensuring a referral stream of patients for impatient care;
- Foster changing physician roles in new payment and care models that emphasize integration, coordination, and continuity to manage the health of populations; and
- Engage physicians in ongoing improvement activities.

Three sites offer contrasting examples of two approaches to alignment:

- **Academic structures:** For two sites, physician incentives and structures are governed by academic structures. In one, physicians are university employees who are not held accountable to hospital performance standards. In the other, physicians have historically been in multiple faculty practice plans, an arrangement that fragments patient care and limits coordination across services. In the latter system, senior leadership at both the medical center and medical school are working to bring all physicians under a single practice plan to improve patient care and financial stability.
- **Care management organization:** In contrast, the physician organization in the third site was a key component of the successful medical center business strategy a decade ago. That strategy first built market dominance and then helped to create a CMO that more recently provided the basis for creating an ACO. This physician structure, which includes community and employed physicians, is financially successful for both the medical center and participating physicians.

All three examples are sites closely affiliated with medical schools, demonstrating that, while affiliation is not always a barrier to physician alignment, it is a complication when medical school incentives are not well aligned with medical center priorities. Close relationships between medical school deans and medical center CEOs appear to be a critical base for improving alignment. Several sites are also employing more physicians directly as a strategy for closer engagement and alignment.

In addition to pressure to redesign their systems to transition to new models of care***, ongoing demands for quality, safety, effectiveness, and economy require constant attention and innovation*.** Beyond concern for the well-being of patients, attention to performance is important because it increasingly has financial consequences. All the study sites are actively measuring their performance and using process improvement approaches where needed to improve quality and safety. Most sites are using some elements of a Lean approach, usually in select pockets throughout the organization and with a focus on using the specific tools, rather than using Lean to drive management philosophy.

The challenges all sites face in varying degrees are:

- Building adequate process improvement infrastructure and capacity;
- Integrating process improvement with ongoing organizational operations, rather than treating process improvement as a standalone piece;
- Integrating improvement efforts across departments to reduce redundancy and develop cross-organizational solutions when needed;
- Building information technology to support the level of measurement sophistication required by the current generation of performance improvement;
- Dealing with the scope and complexity of multiple external reporting requirements; and
- Identifying appropriate benchmarks that may or may not be other safety-net systems.

Taken together, the pressures facing the study systems appear to ***require a broad approach to system redesign*** that encompasses not only the traditional tenets of process improvement, but also redefinitions of services, relationships with physicians, and restructuring of operations.

Viewed through a framework based in the literature, sites provided examples of one or more of four characteristics associated with transformation in high-performing sites:

- Senior leadership that provides vision and direction;
- Commitment across the organization to shared mission, vision, and values;
- System redesign initiatives aligned with strategic imperatives and priorities; and
- Active commitment to staff engagement in change.

None of the sites shows all characteristics at a high level.

In addition, *three interrelated challenges* stand out for many of these sites:

- Staff in several facilities talked about *improvement fatigue* with the rapid pace of change as system leaders are managing multiple relationships, payer demands, regulations, and reporting requirements.
- This fatigue is coupled with the *need for more aligned engagement around redesign*. Staff below leadership mentioned that new initiatives often feel random and chaotic because of the number of simultaneous projects and activities, and they desire roadmaps to help them understand how their efforts fit with the larger organizational plan.
- The *availability of resources* in the organization is a continuing problem for many sites. Examples of limitations range from lack of capital funding for electronic data systems to lack of resources for needed external expertise to inadequate funds to support staff participation in external training or networking opportunities to not having enough slack resources to allow staff to participate in redesign activities.

There are no clear patterns or groupings of sites that cut across these issues. However, the ***conceptual framework*** displayed in Figure 1 at the end of this section illustrates the common strategic redesign issues these systems are facing and the factors that affect them in pursuing their missions to continue to serve vulnerable populations.

To describe the framework:

- *Safety-net external environment*, in the upper left corner, represents the forces, or pressures, to which each system is responding. Such external forces do not fully determine the actions of safety-net systems, but they drive leaders' decisions about strategy and business design.
- *Primary targets of redesign and improvement*, in the center, represent the areas in which safety-net systems are working to redesign and improve in response to those external pressures and to organizational strategies and priorities. Underlying these initiatives are three focal concerns of revenue, care delivery, and efficiency that safety-net systems need to balance in their operations and redesign efforts.
- *Organizational capacity for strategic system redesign*, on the bottom left, represents the contribution of vision, alignment, and culture to system redesign. Safety-net systems need senior leaders who can define a well-considered strategic path forward and then initiate redesign efforts aligned with their strategic goals and priorities. Systems also need commitment across the organization to shared mission, vision, and values, and active commitment and participation of staff in redesign.
- *Organizational building blocks*, on the bottom right, portrays the structures, resources, and skills that can help safety-net systems carry out their strategic redesign aims, as well as their basic service delivery and business operations. The elements presented are those that are important at the study sites.

The *challenges* facing safety-net systems that we have outlined throughout this report most directly affect the organizational features, and through them, each system's ability to achieve its objectives in its priority redesign areas.

To address their redesign objectives and work to meet their challenges, the systems have used a wide variety of external resources, ranging from consultants and trainers to membership organizations to grants and demonstrations. The **contribution of potential resources to strategic redesign depends on three features**:

- **Expertise.** External resources add value to an organization when they bring expertise not contained in the organization or not present with enough capacity to tackle the issues needed. The expertise of outside experts may also bring added influence in achieving desired changes when their perceived prestige and status gives them more clout than internal staff or leaders. On the other hand, external expertise adds less value if consultants with limited engagements end their work without leaving an operational plan or transferring expertise to local staff so the organization can fully implement the strategies or programs the consultants help them design.

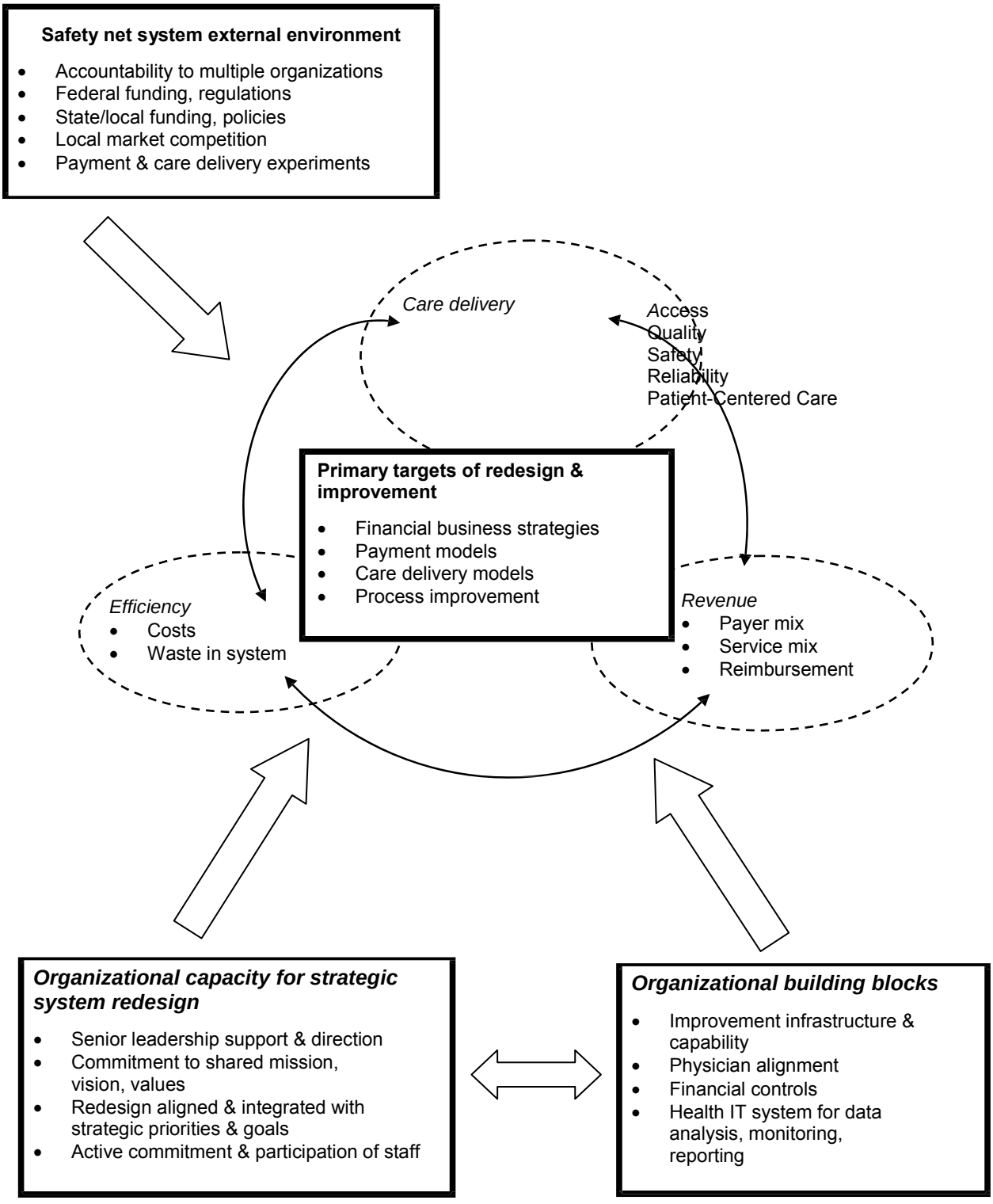
  In a different vein, staff may join collaboratives or attend training where they expect to gain knowledge from the organizers who are perceived as experts, only to discover that they are ahead of the instructors in their progress. Webinars or toolkits can provide valuable information and tools but generally do not offer opportunities for personal interaction with the developers and so may be seen as being of limited usefulness.

- **Fit.** Alignment of the resource with organizational goals would seem to be a basic requirement, but it is not always met in practice. In some cases, for example, consultants may not understand health care and safety-net systems or the particular needs of the medical center with which they are working. It is also important for the resources offered to be flexible and tailored to the needs, structures, and culture of the organization. A product or service that is a boilerplate, developed elsewhere without offering support in adapting it to local specifics, is not likely to be useful and therefore will be viewed as a waste of resources. Another factor influencing fit is the identity of the organization. Some systems do not seek resources tailored to safety-net systems because they identify themselves more broadly as a tertiary medical center or academic medical center.
- **Affordability.** Many resources are expensive. For financial and strategic consulting with specialized expertise, a safety-net system may decide that the expense is worth the assistance on a critical priority. In other cases, such as participating in conferences or learning sessions with trade or membership organizations, the system may not participate or may send a single individual rather than a team. This practice potentially limits the value of the experience in changing the organization.

  Grants and demonstration projects are desirable not only because they provide content guidance and shared learning to test new approaches and models, but also because participation is free or brings funding into the organization. However, they also bring program requirements that may not fit closely with the organization's priorities and almost always require extensive data reporting with different elements and formats that add to the site's burden of data gathering and analysis.

This is a time of uncertainty for virtually all safety-net systems. The experiences of the eight systems that served as case studies for this project offer a detailed view of the issues they are dealing with in the face of this uncertainty in the changing health care environment. The case studies provide insights about the strategies they are pursuing to address those issues and the external resources they are currently using. While these cases are only illustrative, we believe they offer important lessons about redesign and about the types of resources that may contribute to strategic redesign. These lessons should prove useful to other safety-net systems and to stakeholders who have an investment in the future of safety-net systems.

Figure 1: Framework for Strategic System Redesign in Safety Net Systems



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APPENDIX A: METHODS

Teams of two or three members of the BU study team visited each of the eight field study sites for up to 2 days to conduct scheduled interviews with individuals and groups. At seven of the sites, we conducted between 9 and 15 individual and group interviews with individuals across the organization. A similar study was already underway in the eighth system, so we collaborated by limiting the number of our interviews to three senior executives and including the interviews conducted by the other team in our analytic framework.

Data Collection

At all sites, a local point of contact (POC) facilitated the arrangements for the visit logistics. The informants ranged from senior medical center leaders to managers responsible for system redesign to staff members engaged in system redesign. The site visit team provided the POC with a list of positions of people to be interviewed. Where more than one person filled a designated position, such as staff or middle managers who participate in system redesign activities, the POC identified the individuals to be interviewed.

Semistructured interviews: All individuals invited to be interviewed had the opportunity to decline, as participation was voluntary. Before the interview began, we obtained informed consent. Each interview lasted approximately 30 minutes to 1 hour. We used a semistructured discussion guide designed to pursue information to answer AHRQ task order questions as tailored from the scan. The interviews also included questions designed to probe the organizational context and antecedent conditions guided by the study's organizational model.

At each site, the first part of the interview targeted the system redesign activities identified as being of interest in selecting the site—the focus of redesign and the types of external support used. The second part of the interview asked questions more broadly about the organizational and antecedent context for redesign at the site. The specific subset of questions asked of each respondent was determined by the role of each person interviewed and the structure of the site. For example, questions about organizational strategy were directed to senior leaders, not to frontline staff. In this way, we obtained a more comprehensive view of the organization than if we had asked all respondents identical questions in the same detail.

The final interview guide was developed with assistance of the study's Expert and Stakeholder Panel. In each interview, one team member took the lead in asking questions, while the other research team member took detailed notes; interviews were audio-recorded for backup with permission of the person being interviewed.

Document review: To augment the data collected via interviews, we requested as appropriate from each site, documents relevant to its redesign such as organization charts, strategic planning materials, and redesign tools.

Impressions and informal observations: In addition to taking formal interview notes, team members reported their informal observations, including impressions, anecdotes, and general reactions to the visit.

Data Analysis

We used a structured analytic tool to facilitate the qualitative data analysis. This focused approach, used successfully by the BU project team on other projects, ensured adherence to the brief time available between the close of data collection and submission of the required Research Summary and Findings report. In this approach, the conceptual framework was used to identify key research constructs for analysis tied directly to the interview questions. The constructs were put into a matrix with operational examples to define each construct, and the matrix provided the initial coding of data. The matrix was expanded to cover the remainder of the AHRQ study questions and the organizational transformation conceptual framework used on the project to capture the organizational context, antecedent conditions, and change dynamics that accompany redesign.

The primary focus of the data collection and analyses is at the level of the organization as a whole. Data on units within the organization have been used to provide depth to the organization-level analysis—to investigate the implementation and impact of redesign activities in different parts of the organization, and to analyze interactions, spread, and synergies of activities across units. Data on the external environment, also secondary, have been used to examine the impact of external pressures on organization-level system redesign.

Following each site visit, the site visit team jointly filled out the analytic tool with narrative evidence of processes and activities associated with each construct at that site. Site visit team members used information across all interviews to complete the matrix, citing specific examples provided by respondents. Differences in perceptions and accounts among respondents have been noted and included in the analysis; site-generated documents were used to further validate information provided through interviews.

Each interviewer initially completed the ratings and narrative evidence independently. Individual ratings were then combined into a single set of ratings and evidence for the site. Our experience on other projects is that team members are in high agreement about the main points of narrative evidence provided for each construct and often bring complementary perspectives with different details that enrich the account.

Any inconsistencies in numeric ratings across interviewers were discussed, with final rating reached by consensus. Team impressions of the broader organizational context, the organizational culture, and informal aspects of the visits were noted and are included in the structured matrix under appropriate constructs, clearly labeled as impressions.

The analytic tool was structured to move directly from evidence to analysis, both to create detailed site profiles from which to develop a rich understanding of the dynamics of each case and to identify common patterns or contrasts through cross-case-site comparisons. Initial coding was built into the structure of the matrix on rating items.

As recommended in comparative field study analysis,[1] the analysis by the project team has cycled back and forth between individual cases and comparisons across cases to capture evolving themes and to understand the dynamics among variables. Throughout this process, the project team has revisited the full interview notes for more detailed analysis on points of interest and to pursue hypotheses for manuscripts.

[1]Miles, M.B. and Huberman, A.M. (1994). Qualitative Data Analysis: An Expanded Sourcebook (2nd Edition).

APPENDIX B: PARTICIPATING SAFETY-NET SYSTEMS

- Boston Medical Center, Boston, Massachusetts
- Cambridge Health Alliance, Cambridge, Massachusetts
- Cooper University Hospital, Camden, New Jersey
- Hennepin County Medical Center, Minneapolis, Minnesota
- Memorial Healthcare System, Hollywood, Florida
- Montefiore Medical Center, Bronx, New York
- San Francisco General Hospital, San Francisco, California
- Truman Medical Center, Kansas City, Missouri

APPENDIX C: GLOSSARY OF IMPROVEMENT TERMS AND FREQUENTLY USED ABBREVIATIONS AND ACRONYMS

Improvement Terms

System redesign involves improvement or redesign work that promotes alignment and synergy among quality improvement efforts and seeks to create changes that are well aligned across units and conditions. System redesign thus involves coordinated, multidimensional changes in the management and delivery of care.

Strategic system redesign involves systemwide efforts to change the organization in ways that are aligned with strategic and business priorities to pursue its mission while also aiming to enhance (or at least to preserve) the organization's competitive position.

It involves more than:

- Simply expanding locations or existing services to capture greater market share; and
- Conducting many focused improvement projects that are not closely aligned around organizational priorities.

It is not limited to organizational improvement flowing from a single methodology, such as Lean.

Process improvement is a generic or overarching term meant to describe the systematic use of structured problem-solving methods, the application of data to diagnose and redesign work process problems, and the engagement of multidisciplinary teams in problem solving and redesign. We use the term *broadly* to include quality improvement and systems redesign using a variety of methods.

Process improvement tools**:** Study sites selected and used a variety of process improvement approaches to system redesign. Some of the methods commonly mentioned included:

- **Collaboratives:** A shared learning approach whereby organizations with common interests in specific improvement topics work together, usually with an experienced facilitator or faculty member, to design, test, and implement changes that lead to sustainable improvement. Collaboratives are sometimes referred to as **Learning Networks.**
- **Rapid cycle improvement:** The use of process improvement tools and methods to achieve breakthrough improvements in performance within a short timeframe, usually 90 days.
- **PDSA:** PDSA is a rapid cycle process improvement tool for testing a change by planning it **(P)**, doing it and, trying it out **(D)**, studying the results **(S)**, and acting on what is learned **(A)**.
- **Root cause analysis (RCA):** RCA attempts to improve performance by identifying and correcting the root causes of adverse events, as opposed to simply addressing their symptoms. By focusing correction on root causes, organizations can prevent problems from recurring.

- **Failure mode and effects analysis (FMEA):** FMEA is a systematic, proactive method for evaluating a process to identify where and how it might fail, and to assess the relative impact of different failures to identify the parts of the process most in need of change.
- **Benchmarking:** Benchmarking is the process of comparing one's business processes and performance metrics to industry bests or best practices from other industries. Health care providers strive to find organizations similar to themselves with which to benchmark. For example, safety-net systems that are academic medical centers may use benchmarking data from the University HealthSystem Consortium to evaluate their performance.
- **Lean improvement methods**: Lean is a process improvement method and managerial approach that has its roots in manufacturing (i.e., Toyota Production) and technology, although it is now used extensively in health care. Lean is viewed as a customer-centric approach to reducing variability and waste in work processes. Common methods include **kaizen rapid improvement events** and **value stream mapping**. Advocates of Lean methods view them as a way to build a culture of improvement in addition to improving performance.
- **Six Sigma improvement**: Six Sigma is a process improvement method originally developed by Motorola. It focuses on eliminating defects and reducing variability in processes. Six Sigma emphasizes the use of statistical process improvement measures. In recent years, Lean and Six Sigma approaches have sometimes been combined. Lean/Six Sigma improvement emphasizes flow and waste issues, as well as the pursuit of performance excellence.
- **DMAIC:** This is a Six Sigma process improvement method that stands for: (D) Define goals and scope of the project, (M) Measure current performance, (A) Analyze current performance in terms of future requirements, (I) Improve, and (C) Control (implement and institutionalize new work processes).
- **Black/green/yellow belts**: These terms, borrowed from Lean and Six Sigma process improvement, designate the level of training, expertise, and experience staff members have in process improvement. Black Belts are able to facilitate or lead complex and high-level projects. Green Belts may contribute to Black Belt projects or lead/facilitate less complex projects. Yellow Belts generally serve as team members and contributors to Green and Black Belt projects.

Frequently Used Abbreviations and Acronyms

ACO	Accountable care organization
AEH	America's Essential Hospitals
AHA	American Hospital Association
AHRQ	Agency for Healthcare Research and Quality
BU	Boston University
CMMI	Center for Medicare and Medicaid Innovation
CMO	Care management organization
CMS	Centers for Medicare & Medicaid Services
DSH	Disproportionate Share Hospital
EHR	Electronic health record
IHI	Institute for Healthcare Improvement
IT	Information technology
NCQA	National Committee for Quality Assurance
PCMH	Patient-centered medical home
PHO	Physician-hospital organization
RWJF	Robert Wood Johnson Foundation
UHC	University HealthSystem Consortium

APPENDIX D. PUBLICATIONS AND PRESENTATIONS

Harrison MI, VanDeusen Lukas C. System Redesign for Value in Safety-Net Hospitals and Systems: Challenges and Implications. PowerPoint presented at briefings within Department of Health and Human Services, 2014. Available at [provide link]

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VanDeusen Lukas C, Holmes SK, Koppelman E, et al. Strategic System Redesign in Safety-Net Systems: Meeting the Challenges of a Changing Health Care Environment. Poster at AcademyHealth Annual Research Meeting, 2014.

Zallman L, Bearse A, Neal N, et al. Strategies for aligning physicians to system redesign goals at eight safety-net systems. J Comm J Qual Pat Saf 2014;40:541-9.