



# Quality Structures and Functions at Half the Expense

---

A Research and Development Project Cosponsored by the  
Institute for Healthcare Improvement (IHI) and the  
National Association for Healthcare Quality (NAHQ)

Mitch Applegate, Marianne Bunce-Houston, Jana Deen, Anila Hussaini, Andrea Kabcenell, Chris  
McMullan, Karen Schrimmer, Jeffrey Wetherhold

**2/1/2013**

Our goal is to identify the best approaches for running an efficient and effective quality department in hospitals and integrated delivery systems.

## I. Overview

### A. Goal

Our goal is to identify the best approaches for running an efficient and effective quality department in hospitals and integrated delivery systems. We will work with the National Association of Healthcare Quality (NAHQ) to explore best practices and seek out novel approaches in other industries, such as manufacturing, pharmaceuticals, aerospace, and medical devices, with the intent of developing new ideas on how to provide the oversight and functions of a quality department at half of the expense now devoted to these projects.

### B. Background and Rationale

Quality and safety are recognized as key functions in all healthcare organizations. There is a lack of consensus, however, on the structure, staffing, competencies, essential work assignments, and “right-size” of this work. Healthcare quality leaders, both clinical and nonclinical, frequently ask for guidance on the structure, size, and scope of work for quality departments. These departments can include

- regulatory and accreditation reporting functions;
- risk management;
- safety;
- decision support;
- performance improvement, including Six Sigma and Lean; and
- management of specialized registries and databases, particularly in large systems and academic medical centers.

In an era of decreasing resources yet increasing demands for improved quality and safety, quality functions, and the contribution of quality professionals will be critical. This project will attempt to identify skills and competencies of quality professionals as well as the principles that guide the development of models to design optimal staffing.

This effort follows an earlier inquiry at the Institute for Healthcare Improvement (IHI) about how to build improvement capability.<sup>i</sup> This project will extend beyond how to structure the improvement staff to look at the details of how leading programs are managed and prepare to share these with quality leaders, specifically those in hospitals and integrated delivery systems.

There are two major concerns about current quality departments: 1) integrating multiple approaches to quality and 2) cutting expenses. These concerns are often escalated when organizational structures are fragmented. Such fragmentation results in a great deal of rework, including paper and electronic data entry; duplication of work by multiple departments such as risk, quality, case management, and nursing; communications either duplicated or dropped; and inconsistent and sometimes conflicting approaches to performance improvement (PI) or quality. These examples represent waste and unnecessary expense, particularly in staff time.

### C. Research and Development (R&D) Team

Name	Role	Organization
Mitch Applegate	Team Member	Contra Costa Medical Center
Marianne Bunce-Houston	Team Member	Contra Costa Medical Center
Jana Deen	Team Member	Catholic Health Partners
Anila Hussaini	Team Member	IHI
Andrea Kabcenell	Team Advisor	IHI
Chris McMullan	Team Leader	IHI/Stony Brook University Medical Center
Karen Schrimmer	Team Member	NAHQ
Jeffrey Wetherhold	Team Member	IHI

## II. Methods of Inquiry

### A. Guidance from IHI's Executive Team and Strategic Partners

Four weeks into the 90-day cycle, our R&D team presented on our work to date as well as the various functions of the quality department. We received feedback from Tom Nolan, Associates for Process Improvement (API) that the primary function of a quality department is to decrease variation through the identification and reduction of defects. He noted that many functions identified by our team may have been placed in the quality department over time due to the characteristics of the quality leader, the vagaries of the organization's structure, or pressures from external regulations and requirements and not necessarily because they serve the primary function of the department.

### B. Interviews

The R&D team conducted in-depth interviews with quality leaders in seven healthcare organizations (Hospital Corporation of America, Methodist Dallas Medical Center, Virginia Commonwealth University Medical Center, Northwestern Memorial Hospital, Mayo Clinic, Cincinnati Children's Hospital Medical Center, and MD Anderson Cancer Center) and one in manufacturing (Northrop Grumman). Iterations of the same interview template were used to guide these conversations. The interview conducted with the quality leader at Northrop Grumman led us down a different line of inquiry as many of the questions in the interview template were not applicable. Nevertheless, this interview confirmed our understanding that the ultimate goal of a quality department is to increase the detection and reduction of defects.

The Executive Quality Leadership Group, consisting of 30 healthcare quality leaders, was also a source of information. We presented the work at their meeting in December 2012 and facilitated a group discussion of the ideas, findings so far, and challenges. Their responses were thoughtful and informative and guided subsequent interviews.

In addition to interviewing quality leaders, our R&D team also interviewed the ultimate customer—our patients—to gain a better understanding of their priorities. The term “defect” was described to our participants as “what worries them most” concerning their health care. Fifteen patients and their family members were interviewed at Contra Costa Medical Center and Stony Brook University Medical Center over the 90-day period.

### C. Literature Review

We were unsuccessful in finding published literature within or outside of health care citing best practices for quality functions and structures. Our colleagues at NAHQ confirmed this dilemma, as they had conducted similarly unsuccessful literature searches in the past. Our literature review regarding high-cost healthcare defects was more productive. Three articles were found highlighting the most costly healthcare-associated defects. These articles were included in the NAHQ-IHI survey, and two were integrated into this project: The Advisory Board's 2012 report, *Delivering on Value: Positioning Quality for Success in an Evolving Performance-Based Environment*<sup>ii</sup>, and results from NAHQ's 2010 study, *A Practice of the Professional in Healthcare Quality*.<sup>iii</sup>

### D. Survey

An online survey was distributed via e-mail to NAHQ's membership and Certified Professional in Healthcare Quality (CPHQ) credential holders (n=10,700) in January 2013. The survey sought to obtain information from quality leaders about their organization's top defect priorities and the amount of the quality department's time devoted to the identification and reduction of these defects. We received 407 responses over a 10-day period, all of which were compiled for inclusion in this report.

## III. Results

### A. Overview

During our inquiry we realized there was no standard approach to the function and structure of a quality department or division. This appeared especially true for the healthcare organizations interviewed. Quality divisions varied in terms of their scope and breadth within their organizations. Some organizations incorporated additional functions that were considered "quality" related or that complimented the functions of the quality department. Understandably, the size and scope of a hospital or health system was directly related to the size and scope of its quality department.

Our interview conducted with Northrop Grumman followed a completely different path. We learned that, in manufacturing, the quality function generally focuses on the identification and reduction of defects, thereby reducing variation in the process and outcomes. The primary role of quality professionals in this industry was to train, support, and empower front-line workers, using a self-governance and accountability model. This self-inspection approach essentially enabled the downsizing of inspectors, although the organization continued to grow in both scope and revenue. This revelation added a new dimension to our inquiry and shifted the direction of this project.

These developments are reflected in the structure of our results. The next section includes our best information on the original question—what is the most effective and efficient way to run a quality department in health care? The subsequent section explores the application of the industrial model of the quality function to health care.

## B. Quality Departments in Health Care

### Definition of *Quality*

What is quality in the context of a healthcare delivery system? We addressed this fundamental question by asking quality leaders what their departments did. The list was long and included virtually anything that required inspection, documentation, judgment, or the improvement of clinical performance. Appendix A includes two examples of the functions of a quality department.

We also asked patients what they thought a quality department should focus on. Their answers were very enlightening. A survey of 10 patients found that each respondent had a different perspective on what to expect of a quality department. Patients felt that the idea of a quality department seemed out of place and that quality should exist across an organization, not just in a department. The terms “defect” and “variation” were not meaningful to patients. However, when asked what was most important to them in terms of quality, their comments flowed easily and reflected concerns about reducing variation. The following statements reflect a synopsis of their comments:

- Quality is neither waiting nor having to plan an entire day to see my doctor.
- Quality is my doctor not getting called away to an emergency on my clinic day after I’ve waited an hour to see them.
- Quality is getting an appointment when I want one and not waiting long on the phone to obtain it.
- Quality is having my medications waiting for me at the pharmacy when I leave the clinic or hospital. I would also like to hear the same message about the medications from the doctor and the pharmacist.
- Quality is the whole team knowing what’s going on. It makes me nervous when I have to ask the same question over and over because they aren’t talking to each other.
- Quality is having my chart accurately reflect me.
- Quality is doing whatever needs to be done proactively rather than reactively.

As a working definition, we described the quality department as a department whose functions are devoted to identifying and reducing of unwanted events or increasing the occurrence of desired results (i.e., infection control, decision support, clinical informatics, and PI). The following discussion uses this definition as a point of departure.

### Elements of a Quality Department

Numerous functions were identified for a quality department by our R&D team. In an effort to streamline our area of focus, we categorized these functions into two categories: proactive and reactive. For the purposes of this project, we agreed to focus on those elements in the quality department deemed to be proactive in nature.

Category	Function
<b>Proactive</b>	Patient advocacy, including- patient/family centered care
	Infection control/prevention
	Care management
	PI, including PI teams, research and application of best practices, knowledge management and transfer, PI application at the frontline, and the use of patient and staff feedback to improve processes
	Decision Support, including the reporting of regulatory data and gathering/reporting selected PI registry data
	Clinical informatics
	Education
<b>Reactive</b>	Quality , including medical staff/Nursing peer review
	Risk management, including Root Cause Analysis CA and Failure Mode Effects Analysis
	Complaint resolution
	Regulatory/accreditation compliance, including Department of Health (DOH), Centers for Medicare and Medicaid Services (CMS) and The Joint Commission (TJC)

A typical quality department includes all of these functions. Examples of organization charts are included in Appendix B. Interviews revealed that there are common trends in how quality departments have evolved. For example, care management, which is tightly linked to discharge planning, has moved into quality departments in the past 10 years. This function is now beginning to move to finance and other areas, because bed flow and bed utilization are seen as a financial issue as well as a quality issue.

### Quality Structures

In 2011, NAHQ conducted a study on “Defining the Hospital-Based Healthcare Quality Community.” Participants were selected from throughout the United States to represent a mix of stand-alone community hospitals, psychiatric hospitals, multihospital health systems, teaching hospitals or academic medical centers, and Veterans Affairs regions. All respondent organizations provided a mix of inpatient and outpatient services.

The specific organizational structure for healthcare quality responsibilities varied considerably among the respondent organizations. The diversity of the organizational structure of the quality imperative in health systems was apparent in the many differences in the locus (centralized/decentralized) of quality functions, range of departments included, and the range of staff involved.

- In about half of the respondent organizations, quality functions were provided by multiple departments that were not integrated under the same leadership.
- In many organizations, some quality functions were performed within clinical service lines, within specific outpatient and LTC facilities, and/or within operational areas (such as pharmacy), which had a “dotted line” reporting relationship with the main quality department. Quality was generally one of many responsibilities of these staff but not their primary focus.
- The majority of healthcare quality leadership reported to the C-suite.

- In about half of the organizations, most or all of the quality-focused staff reported to the main quality department.
- In other organizations, the main quality department had a core staff and matrixed relationships with staff that performed quality functions throughout several other departments. Matrixed organizations often relied on frequent team meetings to coordinate efforts across departments.
- Larger multihospital systems and Veterans Affairs regions had corporate-level quality staff that generally provided overall guidance, support, and educational services for the quality initiatives, and set priorities and goals.
- Each hospital had its own quality staff, which implemented quality initiatives and reported directly to leadership within the individual hospital. If a cluster of several small hospitals in a local area were part of a system, they might have quality staff that served all the hospitals in area and reported to leadership that served that cluster of hospitals.

A 2012 Advisory Board report concluded there is no one organizational model or set of best practices that differentiates higher performing hospitals. The report states that the most effective model is one that takes into account the organization's unique dynamics, such as the number of hospitals or geographic spread, and provides a foundation to advance the organization's culture and goals.<sup>iv</sup>

### Quality Problems

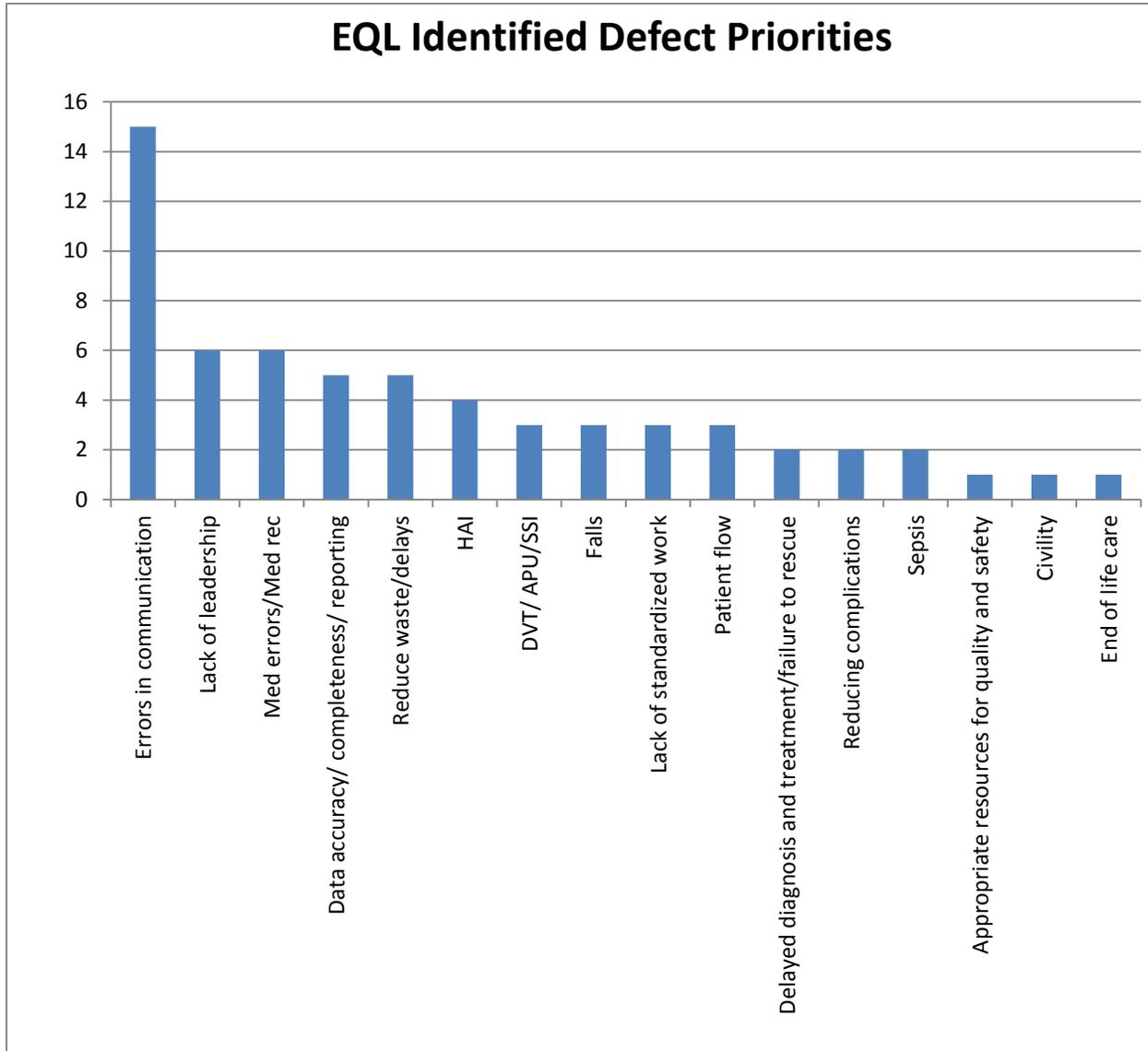
A key question for identifying best approaches to a quality department is, "What problems are you solving?" The initial discussions in health care included poor performance, risk management, compliance with standards and accreditation, credentialing and sometimes infection control, case management, and bed utilization. However, when considering what problems underlie all of these, it was clear that the lessons from industry would help us and that variation and specific defects were the basis for almost all of the issues that quality departments address. With that, we decided to understand what defects were challenging our quality leaders in their daily work.

When asked to identify the defect priorities in their organizations, many healthcare leaders expressed difficulty with the term "defect." As clarification, we defined a *defect* to our participants as "something that happens that isn't supposed to happen" or "something that is supposed to happen that doesn't occur." Once this explanation was offered participants appeared to be more comfortable with the term and were able to identify their top defects.

Regardless of the scope or size of the organization, it appeared there were some common themes in terms of what the organizational priorities were in the identification and reduction of defects. Reducing the incidence of healthcare-acquired infections, reliability in performance on the core measures, and decreased readmissions were identified by most of the interviewed organizations as priorities. However, the amount of time devoted to those priorities varied greatly from organization to organization. Northwestern Memorial and Cincinnati Children's believed 100% of the quality department's time was devoted to the identification and reduction of their defect priorities whereas Mayo and Virginia Commonwealth felt 50% or less was devoted to this effort. All organizations identified providing safe

care as a strategic goal/priority. When asked how the organization was performing in the identification and reduction of defects, all noted some success in at least one of their defect priorities.

Figure 1. Priorities for Defect Reduction for the Executive Quality Leadership (EQL)



### Interview of Executive Quality Leadership (EQL) Leaders

IHI’s EQL members were engaged for the purpose of this project as well. Members were asked to identify their organization’s top four defects and the percentage of time devoted to the identification and reduction of those defects. These data are displayed in Figure 1, with the defects listed in order of response frequency.

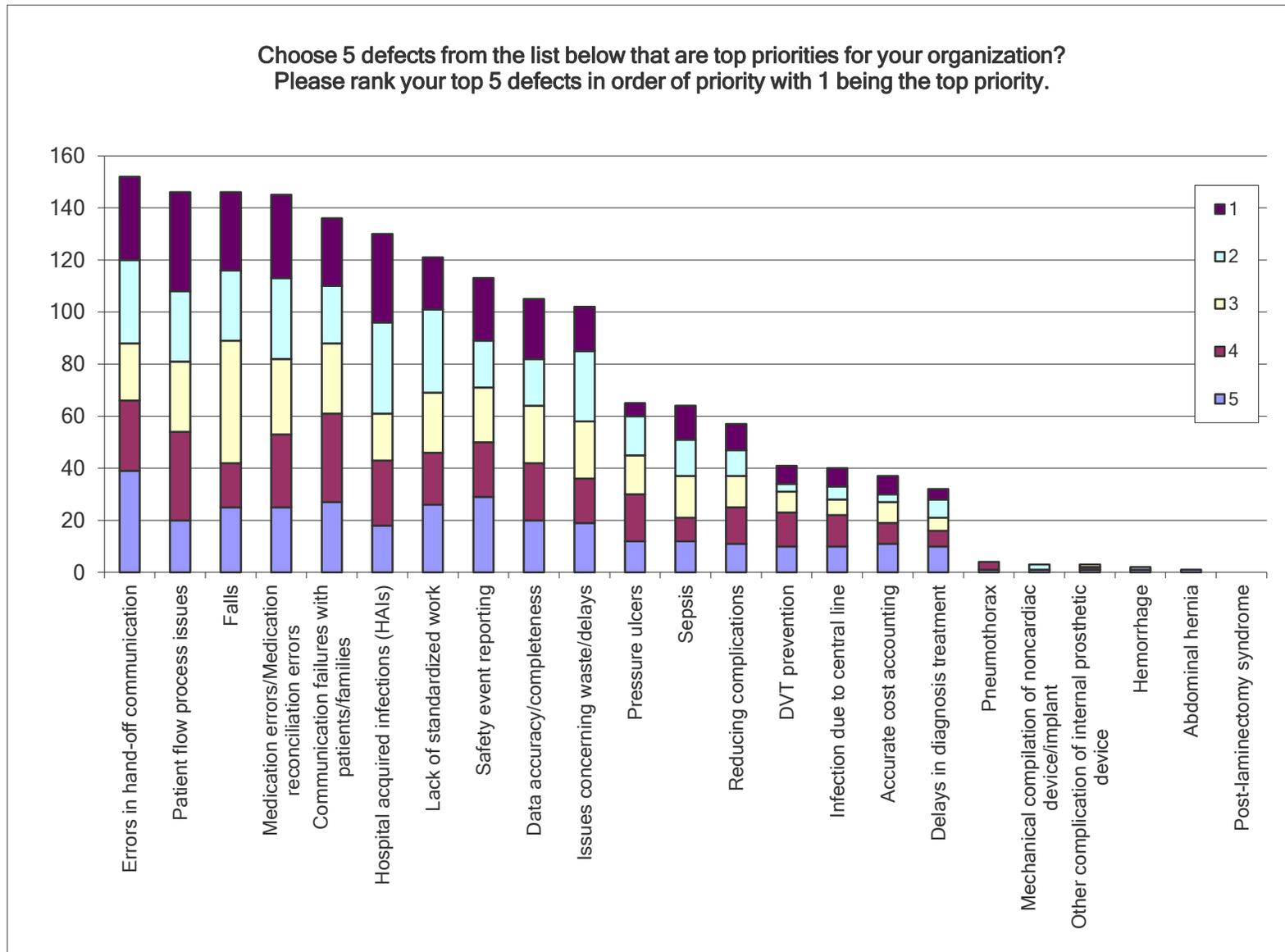
The top defects identified by members fell into the categories of errors in communication, issues related to lack of leadership, medication errors/medication reconciliation, data accuracy/completeness/

reporting and reduction of waste/delays. The percentage of time the quality department staff collectively devoted to identify and reduce prioritized defects ranged from 0% to 30%. The average percentage of time devoted to the identification and reduction of the prioritized defect was 11.5%.

### **IHI-NAHQ Survey**

We developed an electronic survey to expand our scope and capture input from additional participants. The survey asked similar questions to those included in the telephone interviews. An online survey link was sent to NAHQ members via e-mail from the leaders of NAHQ. Members who choose to participate were added to a pool for a drawing to win a \$100 gift card.

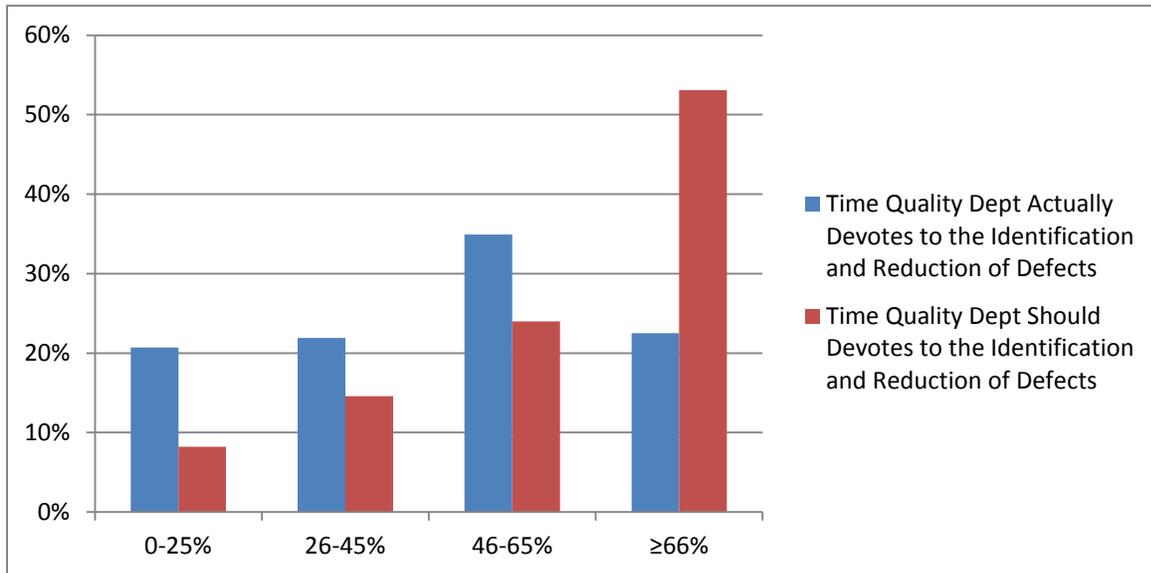
Figure 2. Top Five Priorities for Defect Reduction, NAHQ Member Survey, January 2013.



Results received from the survey confirmed much of the information gathered during our telephone interviews and discussion with the EQL members. Errors related to communication (in handoff and with patients and families) were priorities in all venues. Errors in medication and medication reconciliation were the fourth most frequently identified priority by members and tied for second among the EQL leaders.

When asked about the percentage of time their department devotes to the identification and reduction of defects members' responses varied. More than 53% of the responders believed their department *should* dedicate  $\geq 66\%$  of their time to the identification and reduction of the prioritized defects. This response suggests quality leaders are unsatisfied with the amount of their department's time currently devoted to these organizational priorities and feel that something has to change for them to be effective. These results are included in Figure 3 below.

Figure 3. Actual vs. Ideal Time Devoted to Reducing Defects, NAHQ Member Survey, January 2013



In the survey, the greatest barrier to devoting the desired amount of time to the identification and reduction of defects was inadequate clinical documentation (49.1%). Adherence to regulatory requirements (43.5%) and the inability to use the electronic medical record effectively (38.5%) were the second and third largest barriers.

Participants were asked if their departments included reactive functions (quality assurance/peer review, risk management, complaint resolution, regulatory/accreditation) and/or proactive functions (PI, care management, decision support, infection control/prevention, patient advocacy). Of the respondents, 93.1% reported that their department included reactive functions compared to 88.1% who reported departments including proactive functions. Many departments contain both reactive and proactive functions, but fewer organizations use their quality department for proactive approaches to quality.

### Linking Defect Reduction to Cost Savings

If quality departments began operating with a goal of defect reduction it would be easier to link defect reduction to cost savings, thereby turning the quality department from a perceived cost center to a perceived revenue generator. With this in mind, we completed a literature review to identify the most costly defects in health care. The literature was most rich in costs associated with clinical medical errors, defined as adverse outcomes due to improper medical management. According to 2008 data, the most frequent measurable medical errors and the most costly medical errors were postoperative infections and pressure ulcers. Adverse drug events were the most frequent medical injury and likely the most costly, but most are not considered the result of medical errors and therefore were not included in the list. Defects in areas such as communication, flow, and medication errors are harder to quantify in costs, because they are not recorded in medical claim data.<sup>v</sup>

### Approaches to Improvement

Our team was interested in learning if there was a particular PI approach or methodology used most often among the organizations interviewed. We found that the PI methodologies used varied across the organizations. Virginia Commonwealth and Mayo use a “tool box” approach where the tool and methodology applied is dependent on the problem at hand. This approach mirrors the method embraced by our industry example, Northrop Grumman. Cincinnati Children’s predominantly uses Plan-Do-Study-Act (PDSA) and, on occasion, Lean approaches. MD Anderson uses PDSA and Define Measure Analyze Improve Control (DMAIC). Northwestern Memorial uses DMAIC and Lean and HCA use Six Sigma. Dallas Methodist uses FOCUS PDCA in the quality department, though their organizational effectiveness department uses Lean as their PI methodology.

Another area of interest was the role front-line workers and unit/department managers had in the identification and reduction of defects. All quality leaders acknowledged the importance of the front-line worker and local manager in the identification and reduction of defects. Dallas Methodist noted it was a challenge to empower staff to feel comfortable to stop the line when they recognize potential errors or concerns. At Mayo, leadership levels manage and approve initiatives. They believe this approach provides flexibility for managers to identify and work on opportunities for improvement.

Both Northwestern Memorial and HCA use financial incentives for managers/senior leaders to ensure the integration of PI throughout the organization. These incentives are tied to the achievement of predetermined goals or metrics on their dashboards. Five of the seven hospitals cited a formalized educational program for their staff, leaders, and managers as a method for successful integration. Mayo was the only organization that mentioned required PI education for their medical students.

All of the organizations interviewed noted strengths in the dissemination of information within the organization. HCA identifies the best practices in their high-performing hospitals and spreads those practices to their other hospitals. Dashboards, websites, newsletters, and review at leadership meetings were common methods used to disseminate information. Northwestern Memorial and Mayo are both transparent in the communication of their adverse drug events (ADEs) or serious safety events (SSEs) throughout their respective health systems. Northwestern Memorial conducts weekly meetings where 3–5 adverse events selected by the risk management department are reviewed to determine if there is a

systems component that may have contributed to the harm and that would benefit from an interdisciplinary review. Participants are charged with identifying opportunities and a plan for improvement. They believe this approach promotes a commitment to patient safety and PI across the organization.

There was not a great differentiation noted between patient safety and PI by the organizations interviewed. MD Anderson defined PI as the design/redesign and optimization of work processes. Both HCA and Virginia Commonwealth viewed these functions as integrated. Northwestern Memorial noted their patient safety department focuses on the identification and prevention of adverse events. Mayo and Dallas Methodist view patient safety as more of a monitoring, managing, and reporting of serious safety events function. However, it was noted that the information learned from patient safety at times fueled PI initiatives. Cincinnati Children's recently integrated patient safety and employee safety as they believe they are related functions.

### **Electronic Health Record**

We were curious to learn from these organizations whether the electronic health record (EHR) was perceived as a hindrance or help in the identification and reduction of defects. Surprisingly, only HCA cited strictly positive attributes of the EHR. Mayo, Cincinnati Children's, Northwestern Memorial and Virginia Commonwealth had mixed views. They believed the EHR aided in the prevention of some defects but at times could also contribute to defects. MD Anderson was in the process of transitioning their "homegrown" EHR to a vendor-created EHR and, as a result, viewed the EHR as a hindrance. Dallas Methodist, the smallest of the hospital/health systems interviewed, was presently using a hybrid EHR and shared staff frustration with the system.

### **Financial Tools/Assessment**

As the focus of this project was to identify best approaches for running efficient and effective quality departments we were eager to research financial tools used by healthcare organizations to assess efficiency. Most of the organizations interviewed were not aware of any available financial tools. Dallas Methodist uses Solucient data from Thomson Reuters but did not believe the data to be entirely useful. Cincinnati Children's worked with a vendor to create a "Level of Effort" computerized system. All performance improvement staff is asked to track their time and the number of tests applied to their assigned project.

The most typical measure of staffing within healthcare organizations is the ratio of staff to beds. Respondent organizations to the NAHQ study employed 15.6 quality-related full-time employees (FTEs) per hospital, or 1 FTE for every 12.5 acute care beds. A key finding was that quality functions were often distributed in multiple locations or departments within healthcare organizations. Quality staff for the outpatient services were generally included in FTE counts. When quality staffing ratios from the study hospitals are extrapolated to the distribution of hospitals in the United States ( $n=5,815$ ), the weighted results showed an average of 14.6 quality-related FTEs per hospital nationwide, still 1 FTE for every 12.5

acute care beds.<sup>vi</sup> This might be considered a benchmark of typical practice in the United States. The question remains whether this is an optimal use of personnel or if there is a better way to deploy people working on quality.

### **C. What if Quality Departments in Health Care Used a Defect-Reduction Approach?**

Interviews and scans have shown that in a manufacturing setting, quality is handled in a more focused way. We observed the following characteristics:

- Reduction in variation and eradication of defects is imbedded in everyday work at the front line. The actual work of defect reduction is decentralized. Inspection is integrated into the front line. The organization educates and empowers staff to identify and reduce variation in their own work.
- The quality department is focused on defect identification and reduction of variation. The sole focus of their work is to support efforts at the front line production process. Their role is to educate and mentor front-line staff and managers in the application of PI tools and methodologies.
- Risk management, regulatory compliance, and performance improvement are in separate areas with different managers.
- PI also provides resources to the front-line managers on selecting processes for improvement, designing improvement initiatives, and assuring that they are carried out.
- Measuring and tracking performance happens at the front line and is a standardized function for leaders at all levels. Data from production is reported in a dashboard-like format all the way up the organization. This is not solely the role of the quality department.
- Manufacturing organizations typically measure staffing ratios of FTEs to total staff employed by the organization. Northrop Grumman's quality department's staffing is 31:1, meaning 31 operators to 1 inspector (quality FTE).
- A simple calculation, using Commonwealth Fund data from 2006, ("Average Number of Hospital Staff per Acute Care Hospital Bed," 2006 Multinational Comparisons of Health Systems Data 2008 Complete Chartpack) can produce an analogous ratio of operators to inspectors. If there is 1 FTE in quality for every 12.5 acute care beds in the United States and there are 5.4 staff members for every 1 acute care bed in the United States, then it follows that we have 1 quality FTE (inspector) for every 67.5 staff (operators). This raises the question whether there is another way to configure the quality department to be more efficient. Specifically, fewer quality FTEs with a greater focus on reducing variation at the front line might be much more effective.

## IV. Conclusions and Recommendations

### A. Conclusions

- i. Quality departments spend a great deal of time and energy on tasks not related to quality (identification and reduction of defects). Quality leaders would like to shift the non-quality-related time to value-added quality functions.
- ii. Communication and teamwork associated defects were identified as highest priorities by both quality leaders and hospital patients.
- iii. Successful organizations have shifted their way of thinking from the quality department owning quality to everyone in the organization assuming ownership of quality. This is a more productive and leaner approach to the standard quality structure.
- iv. All organizations offered some type of organized educational program for staff on the theory and application of PI methods and tools. There was no one dominant methodology used for performance improvement across organizations interviewed. Successful organizations appeared to train their staff on the various PI tools and allowed them to apply the tools to solve problems and resolve their everyday frustrations.
- v. Quality departments have changed their focus from simply “quality driven” (the identification and reduction of defects) to incorporate their “value” to the organization. The quality department is considered that which includes guides or facilitators to educate and mentor staff to reduce variation and decrease defects in their everyday work. They are viewed in their organization as experts in PI. This thinking encompasses a financial component: efficiency in processes and decreased operating cost.

### B. Examples of Best Practice

#### Mayo Clinics

Mayo’s leadership shared with us their department’s journey in its practice redesign. In the past, the quality department drove change throughout the organization. Individual departments are now expected to drive change within their area. As a result, their “quality group” was converted to a “value group.” They renamed their quality department the Office of Value Creation, which measures the organizational landscape through data review, identifies organizational trends, and makes recommendation for improvement projects.

Mayo noted its culture of safety goal is to have engagement at the local level in every department. In order to achieve this goal, they require staff to complete educational courses on the use of PI methodologies and tools so they can apply these tools to solve problems in their everyday work. These educational courses are provided through Mayo’s Quality Academy, an online educational program that allows staff to obtain bronze, silver, and gold status depending on the number of educational modules completed and the successful application of the skills learned to an identified performance improvement project.

By committing to continuous value creation and pulling to the front line the importance of value, Mayo leads the direction for the next series of solutions. Using value to define the activity range ensures that

cost is integral to the ongoing dialogue of defect reduction. Simply put, better quality at half the cost is a value. This approach also opens the dialogue to patient identified defects that are traditionally distinct from the defects identified by practitioners and the system.

### **Cincinnati Children's**

Engagement of frontline employees and unit managers is a priority at Cincinnati Children's Hospital. Frontline workers are active in defect reduction and running or participating in 120-day improvement projects. On any given unit, there are run charts and control charts posted depicting their progress. Employees understand how their units' PI projects tie into the "five big dots" (PI priorities) of the organization. Participation as a member or a leader in a PI team is required in order for an employee to receive a "top box score" in their performance evaluation. All managers are trained in the application of, and expected to run tests of, change (using PDSA). Quality performance is a component of a manager's performance evaluation.

The motto of Cincinnati Children's quality department is "to be the best at getting better." IT measures efficiency by tracking staff time and effort in a "Level of Effort" computerized system. All quality improvement staff members are asked to track their time and the number of tests applied to their assigned project. Their goal is to move the quality department staff away from meetings and toward running tests of change at the front line. Staff members are expected to have a minimum number of tests per week per project. This approach is expected to accelerate the rate of improvement and is used to measure the time and effort the organization invests to fix a specific problem.

### **Hospital Corporation of America**

HCA benefits from its vast organizational structure. All hospitals in the system are ranked based on performance. The corporate headquarters ranks all hospitals in the system based on performance and the practices of the highest performing hospitals are studied to determine how their practices differ from the practices of the other hospitals. Those differences are identified as best practices and are spread to all hospitals within the system. This process is a systematic approach to the dissemination of performance improvement information and successes throughout the organization.

### **C. Recommended Tests of Change**

- Test lessons learned from this research and development project by application in 3–4 test sites. Focus the test sites' quality departments on one specific defect and deploy staff to concentrate their efforts on eliminating it. Report back on what was learned and recommended changes.
- Test manager and front line staff responsibility for defect reduction and day-to-day improvement in several units. Support these staff with quality department coaches.
- Have quality staff track time and effort (number of tests of change) devoted to individual PI projects. Set goals for the number of tests of change applied in relation to the number of hours devoted to the project.
- Incorporate the need for employee participation in a PI project order to achieve a top box score on their performance evaluation.

**In Summary: What if health care looked more like manufacturing?**

While speaking with John Sidor of Northrop Grumman, we learned how the manufacturing industry's view of a quality department has evolved over the years. Their quality departments or functions became more decentralized and, as a result, leaner through self-governance and accountability while the organization continued to grow. The role of inspection moved from the quality department to the front line. The quality department's function shifted toward engineering, training, analyzing, and auditing.

If health care was to look more like manufacturing, the function of quality would be decentralized, with the quality department serving as educators and mentors providing support. Staff at the front line would be tracking defects in real time and looking for solutions. The other quality functions would be doled out to individual departments. Dashboards would be simpler and would focus on the priorities of a specific area. PI would happen routinely at the front line, selected by both front-line local concerns and system-wide issues. The cost of quality department would shrink and the staffing would be leaner.

Cincinnati Children's and the Mayo Clinic are organizations with quality departments that most closely mirror our findings in manufacturing. The majority of their quality departments' resources and time are spent on defect reductions. If health care functioned like manufacturing, these organizations would be considered leaders in the field.

---

<sup>i</sup> *IHI 90-Day R&D Project Final Summary Report: Building Improvement Capacity*. Cambridge, MA: Institute for Healthcare Improvement; April 2008.

<sup>ii</sup> Clinical Advisory Board. (2012). *Delivering on Value: Positioning Quality for Success in an Evolving Performance-Based Environment*. Washington, D. C.: The Advisory Board Company.

<sup>iii</sup> Fabrey, L. J., & Benevente, J. L. (2011). *A Practice Analysis of the Professional in Healthcare Quality*. Glenview, IL: Applied Measurement Professionals, Inc. and Healthcare Quality Certification Board.

<sup>iv</sup> Clinical Advisory Board. (2012). *Delivering on Value: Positioning Quality for Success in an Evolving Performance-Based Environment*. Washington, D. C.: The Advisory Board Company.

<sup>v</sup> Shreve, J., Van Den Bos, J., Gray, T., Halford, M., Rustagi, K, Ziemkiewicz E. The economic measurement of medical errors [Internet]. Schaumburg, IL: Society of Actuaries. Retrieved from [www.soa.org/files/research/projects/research-econ-measurement.pdf](http://www.soa.org/files/research/projects/research-econ-measurement.pdf)

<sup>vi</sup> Fabrey, L. J., & Benevente, J. L. (2011). *A Practice Analysis of the Professional in Healthcare Quality*. Glenview, IL: Applied Measurement Professionals, Inc. and Healthcare Quality Certification Board.

---

## References

- American Productivity & Quality Center (APQC). (2012). Best Practices Report. Building Strong Process Management Capabilities. Houston, TX: APQC.
- Clinical Advisory Board. (2012). Delivering on Value: Positioning Quality for Success in an Evolving Performance-Based Environment. Washington, D.C.: The Advisory Board Company.
- D'Antonio, M. (2007, February 27). Inside the Ritz-Carlton's Revolutionary Service. *1to1 Magazine*. Retrieved from [www.1to1media.com/view.aspx?DocID=30068&m=n](http://www.1to1media.com/view.aspx?DocID=30068&m=n)
- Fabrey, L. J., & Benevente, J. L. (2011). A Practice Analysis of the Professional in Healthcare Quality. Glenview, IL: Applied Measurement Professionals, Inc. and Healthcare Quality Certification Board.
- Institute for Healthcare Improvement. (2008, April) *IHI 90-Day R&D Project Final Summary Report: Building Improvement Capacity*. Cambridge, MA: Institute for Healthcare Improvement.
- Kapiki, S. (2012, April). Quality Management in Tourism and Hospitality: an Exploratory Study among Tourism Stakeholders. *International Journal of Economic Practices and Theories*, 2(2), 53–61. Retrieved from [www.ijept.org/index.php/ijept/article/view/quality\\_management\\_in\\_tourism\\_and\\_hospitality\\_an\\_exploratory\\_study\\_among\\_tourism\\_stakeholders](http://www.ijept.org/index.php/ijept/article/view/quality_management_in_tourism_and_hospitality_an_exploratory_study_among_tourism_stakeholders)
- Perry-Ewald, P. (2008, October-December). Q: How Many Quality Professionals Does it Take to Support a Hospital? A: It Depends. *Quality Management in Healthcare*, 17(4), 341–348.
- Shreve, J., Van Den Bos, J., Gray, T., Halford, M., Rustagi, K., & Ziemkiewicz, E. (2010, June). The economic measurement of medical errors. Denver, CO: Society of Actuaries. Retrieved from [www.soa.org/files/research/projects/research-econ-measurement.pdf](http://www.soa.org/files/research/projects/research-econ-measurement.pdf)
- The Advisory Board Company Clinical Advisory Board. (2009). Building a Best-in-Class Quality Infrastructure: Streamlining the Quality Function to Maximize QI Effectiveness. Washington, D.C.: The Advisory Board Company. Retrieved from [www.advisory.com/Research/Physician-Executive-Council/Studies/2009/Building-a-Best-in-Class-Quality-Infrastructure](http://www.advisory.com/Research/Physician-Executive-Council/Studies/2009/Building-a-Best-in-Class-Quality-Infrastructure)
- The Advisory Board Company – Clinical Advisory Board. (2012). Delivering on Value: Positioning Quality for Success in an Evolving Performance-Bases Environment. Washington, D.C.: The Advisory Board Company. Retrieved from [www.advisory.com/Research/Physician-Executive-Council/Studies/2012/Delivering-on-Value](http://www.advisory.com/Research/Physician-Executive-Council/Studies/2012/Delivering-on-Value)
- Van Den Bos, J., Rustagi, K., Gray, T., Halford, M., Ziemkiewicz, E., & Shreve, J. (2011). The \$17.1 Billion Problem: The Annual Cost of Measureable Medical Efforts. *Health Affairs*, 30(4), 596–603. Retrieved from <http://content.healthaffairs.org/content/30/4/596.abstract>

**Appendix A: Interview Template**

Interviewee: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Date: \_\_\_\_\_

Interview Participants:

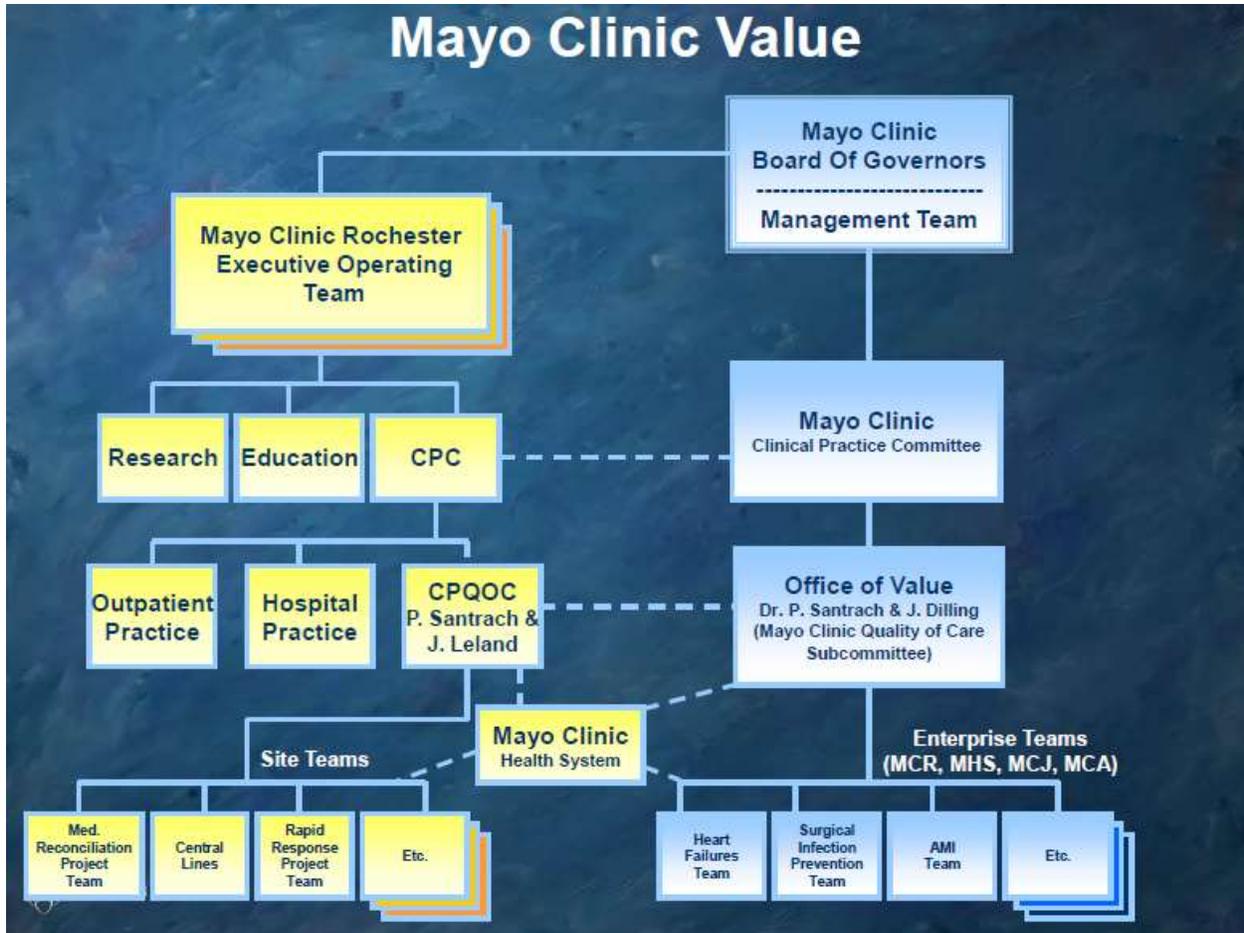
- |   |   |  |   |
|---|---|--|---|
| <input type="checkbox"/> Andrea Kabcenell | <input type="checkbox"/> Chris McMullan | <input type="checkbox"/> Jeff Wetherhold | <input type="checkbox"/> Anila Hussaini |
| <input type="checkbox"/> Mitch Applegate  | <input type="checkbox"/> Marianne Bunce | <input type="checkbox"/> Jana Dean       |   |

Thank you for agreeing to participate in this interview. As noted in the charter sent to you before the call, the goal of this project is to identify the best approaches for running an efficient and effective quality department in a hospitals or integrated delivery systems. Working with the National Association of Healthcare Quality (NAHQ), we are exploring best practices and seeking out novel approaches in other industries with the intent of developing new ideas on how to provide an effective and efficient quality department. In our approach to study quality departments in other industries such as manufacturing, we noted the primary role of the quality department is to reduce variation thereby increasing the likelihood of defect identification and reduction. A defect can be defined as something that happens that isn't supposed to happen or something that is supposed to happen that doesn't occur.

1. We realize that the primary goal of a quality department is defect reduction, although they do many other things. We would like to focus on that to start. What does your organization consider its top 10 defects priorities?
2. What percentage of your collective quality department's time is devoted to the identification and reduction of these defects?
3. What is the size and scope of the hospital/health system?
4. What are the strategic goals/performance improvement (PI) priorities or the organization?
5. How is your organization performing in the identification and reduction of these defects?
6. What performance improvement methodology is used in the organization? How is PI integrated within the organization?
7. What is the role/engagement of managers in defect identification and reduction?
8. What is the role/engagement of front-line staff in defect identification and reduction?
9. How does the organization differentiate safety from PI?
10. Is the electronic health record (her) considered by the organization an attribute or a hindrance in the identification and reduction of defects? Can you provide an example?
11. Do you have a financial analysis template or tool to assess the efficiency of the quality department? If yes, would you be willing to share the tool?
12. How is defect identification and reduction information shared within and outside of the quality department/division?
13. Is there any additional information you would like to share with us regarding the function or structure of your quality department/division?
14. Is there anyone else you think we should speak with?

Appendix B: Table of Organizations

Figure 1: Mayo Quality Table of Organization





**Appendix C: Select Graphs Obtained from NAHQ Survey**

Figure 1: Type of Organization of Survey Participants

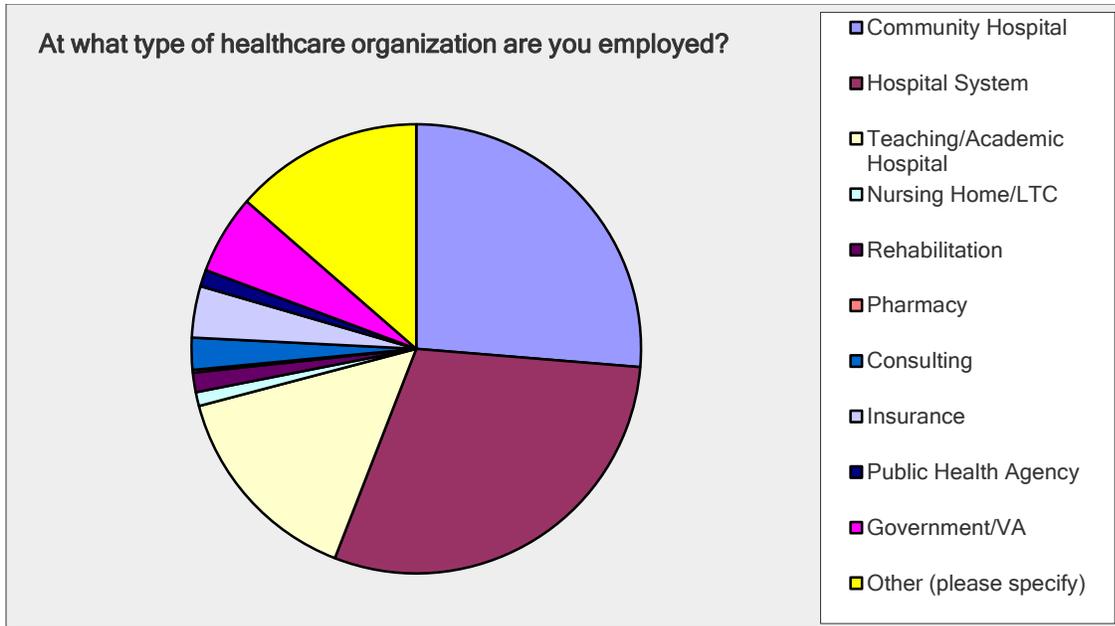


Figure 2: Barriers to Devoting More Time to Top Defect Priorities

