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Quality Models: Selecting the Best Model to Deliver Results

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Quality Models: Selecting the Best Model to Deliver Results

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IN THIS ARTICLE...

Take a look at some well-known quality improvement programs and see how they can work alone and together.

Total quality management
Continuous Quality Improvement
Malcolm Baldrige National Quality Award
Plan, Do, Check, Act (PDCA) Zero defects
Lean processes
Six Sigma
Institute for Healthcare Improvement

The list of quality improvement programs goes on and on. The challenge for physician executives is to decide which model is most appropriate for their organization. And as the ACPE Quality of Care Survey showed, physician leaders are going down many different paths in the quest for achieving the highest levels of patient safety.

Six Sigma was the most common approach utilized by nearly one in five (18.5 percent) of the respondents followed closely by Lean Processes (13.3 percent). Proprietary products provided by vendors represented more than one-tenth (12.2 percent) of the respondents' approach to improve quality. Surprisingly, almost one-third (29.2 percent) of the respondents reported that no program is primarily used to improve quality, which represents a more eclectic approach.

Here's a look at each of the more common quality management models:

Six Sigma

Six Sigma has inspired the approach to quality management in many industries including health care since it began in the manufacturing sector at Motorola. Under the leadership of former CEO Bob Galvin, Motorola not only diffused Six Sigma throughout the enterprise but also attributed Six Sigma to Motorola's winning the coveted Malcolm Baldrdige Award in 1988. Six Sigma was further developed by General Electric, which has a health care consulting division.

Six Sigma is a data-driven, customer-centered approach and methodology applicable to health care products and services. Sigma is a letter in the Greek alphabet used to denote variability. It is assumed that every human activity has variability.

Reducing variability is the essence of Six Sigma. A health care organization's performance is measured by the sigma level of its various clinical, operational and other business processes.

The aim of Six Sigma is to eliminate defects to six standard deviations between the mean and the nearest customer specification limit. The Six Sigma standard is 3.4 problems per million opportunities. Kevin Linderman and others emphasized the need for a common definition of Six Sigma and proposed:

"Six Sigma is an organized and systematic method for strategic process improvement and new product and service development that relies on statistical methods and the scientific method to make dramatic reductions in customer defined defect rates."[1]

The step-by-step method of deploying Six Sigma is based upon DMAIC which translates into:

- Define
- Measure
- Analyze
- Improve
- Control

These steps are not deployed until projects have been selected based upon the translation of organization-

al goals into operational goals.

One of the intriguing aspects of Six Sigma is the reference to the martial arts that draw upon the common focus in both practices on precision and control. In Six Sigma, the certification process is quite rigorous and is based upon the "belt system" within martial arts.

Six Sigma is built upon a strong infrastructure that is essential to driving results. The players in this infrastructure include the following: leadership, champions and sponsors, master black belts, black belts, and green belts.

Leadership: Given the strategic nature of Six Sigma, leadership is essential. However, the initiative must not be exclusively top-down but accountability for results must report to the highest levels of the management structure and even the board.

Champions and sponsors: It is almost a cliché that every successful change effort requires a champion. This is the case for Six Sigma. Typically, the champions sit in key executive roles including the chief medical officer and vice president of medical affairs. However, champions are also informal leaders who use Six Sigma as part of their day-to-day work in both clinical and operational settings. On the other hand, sponsors are those individuals who are willing to have their clinical and operational processes benefit from Six Sigma improvement activities. Sponsors could be clinical chairs, department heads, and service line leaders.

Master black belt: As a leader, the master black belt provides technical leadership and mentorship of black belts and green belts. The master black belt must also possess great teaching competencies. This role is a full-time role within the organization.

2007 Quality of Care Survey

There are several well-known quality programs being promoted nationally. Which of the programs listed below is your organization primarily using to improve quality?

	Response %	Response Total
Six Sigma (DMAIC)	18.5%	192
Lean processes	13.3%	138
Proprietary products provided by vendors	12.2%	126
None	**29.2%**	**303**
Other, including homegrown measures (please specify)	26.7%	277
Total Respondents		**1036**
(skipped this question)		119

DMAIC Steps

- **Define:** Define the problem, clarify and relate it to the customer.
- **Measure:** Measure your target metric and know your measure is reliable and valid.
- **Analyze:** Identify root causes and prioritize root causes.
- **Improve:** Determine and confirm the optimal solution using statistical tools.
- **Control:** Drive for sustainability in the quality solution.

Traditional Culture vs. Lean Culture

Traditional Culture	Lean Culture
Function Silos	Interdisciplinary Teams
Manages direct	Managers teach/enable
Benchmark to justify not improving: "just as good."	Seek the ultimate performance, the absence of waste
Blame people	Root cause analysis
Rewards: individual	Rewards: group sharing
Supplier is enemy	Supplier is ally
Guard information	Share information
Volume lowers cost	Removing waste lowers cost
Internal focus	Customer focus
Expert driven	Process driven

Source: IHI. Innovation Series: Going Lean in Health Care, citing the work of A.P. Byrne & O.J. Fiume, 2005.

Black belt: As masters of the technical tools, black belts typically are quantitatively oriented or trained and receive one-on-one coaching from their master black belt or consultant. Many black belts are also proficient in information technology due to the integration between improvement activities and information technology. This role is a full-time role within the organization.

Green belt: As facilitators of Six Sigma teams and managers of Six Sigma projects from concept to completion, green belts "get under the hood" and get "their hands dirty" with project management, quality management, quality control, problem solving, and descriptive data analysis. This is typically a balanced role within the organization.

After the infrastructure is in place, the implementation process takes off. Similar to other strategic management efforts, the research is very clear that the successful deployment of Six Sigma depends upon selecting high leverage projects that are few in number and actively engage employees on the front-line workers who are trained and facilitated by green belts.

Lean processes

Lean processes can be traced back to the Japanese automobile industry in general and Toyota Production System (TPS) in particular. Later, Ford Motor Company began to embrace the way of lean thinking.

The terms world class manufacturing, Kaizen, TPS, lean manufacturing and just-in-time all refer to the same principles. Also, lean processes are associated with removing waste from any process.

Lean processes distinguish between value-added and non-value-added activities. The dominant tool is the value-added stream map that seeks to prevent and correct suboptimization along the entire value chain.

Quality is defined as "meeting or exceeding predefined standards." Lean processes deploy a portfolio of standardized tools for common organizational problems.

In the book *Lean Thinking*,[2] there are five steps to this methodology:

1. Specify value from the standpoint of each customer.
2. Identify all steps in the value stream.
3. Make the value creating steps flow toward the customer.
4. Let customers pull value (toward them) from the next upstream activity.
5. Pursue perfection.

One of the more well-known tools associated with lean thinking are The 5 Whys that seek to pursue the root causes of any non-valued-added activity and formulate recommendations for improvement. Another tool is 5S's that refer to sort, straighten, scrub, standardize, and sustain.

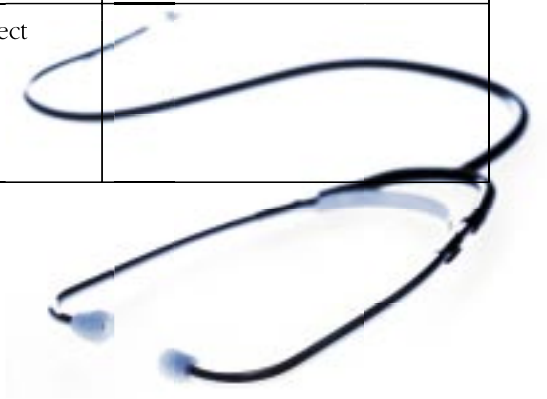
Don Berwick, president and CEO of the Institute for Healthcare Improvement (IHI), included no waste as one of the five goals for health care change in addition to no needless deaths, no needless pain, no helplessness, and no unwanted waiting.[3]

Waste is non-value-added. It must be noted that lean thinking does not mean working harder but working smarter. In essence, the cliché' "lean and mean" is often associated with organizational restructuring and downsizing and this definition should not be confused with lean processes.

Lean processes are based upon embedding improvements in a dif-

Comparing and Contrasting Three Quality Management Models

Factor	Six Sigma	Lean Processes	IHI
Focus	To reduce process variation.	To improve process flow and eliminate waste.	To set aims, establish measures, and test changes.
Methodology	DMAIC (define, measure, analyze, improve, control).	Value Stream Map. 5 Whys.	PDSA (Plan-Do-Study-Act).
Role of Physician Executives	Champion Sponsor	Champion Sponsor	Establish the Mission, Vision, and Strategy. Build the foundation for an effective leadership system. Build will. Generate ideas. Execute change.
Role of Physicians	Master Black Belt Black Belt Green Belt Member of project team. SME (Subject Matter Expert)	Member of project team. SME (Subject Matter Expert)	



Source: Institute for Healthcare Improvement. A framework for leadership of improvement, February 2006.

ferent organizational cultural framework. The Institute for Healthcare Improvement recognizes the importance of culture in the implementation of lean management principles as stated, "In order for lean principles to take root, leaders must first work to create an organizational culture that is receptive to lean thinking."[4] Similar to Six Sigma, an infrastructure must be in place beyond focusing solely on a quality improvement project.

Institute for Healthcare Improvement

Berwick's IHI has developed a quality management model that's grounded in three questions and the Plan-Do-Study-Act cycle.

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in improvement?

Another way of framing IHI's quality management model is to describe it as three sequenced steps:

1. Setting aims
2. Establishing measures
3. Testing changes

According to IHI, there are several tips for setting aims:

- State the aim clearly
- Include numerical goals
- Set stretch goals

- Avoid aim drift
- Be prepared to refocus the aim

There are also key tips for effective measurement:

- Plot data over time
- Seek usefulness, not perfection
- Use sampling
- Integrate measurement into the daily routine
- Use qualitative and quantitative data

Finally, there are tips for testing changes based upon the PDSA cycle:

- Stay a cycle ahead
- Scale down the scope of tests
- Pick willing volunteers
- Avoid the need for consensus, buy-in, or political solutions
- Don't reinvent the wheel
- Pick easy changes to try
- Avoid technical slowdowns
- Reflect on the results of every change
- Be prepared to end the test of a change

What is the decision-making process to choose a specific model of quality management?

After physician executives have familiarized themselves with the different quality approaches, a decision must be made in selecting the best method for their organization. Although the three models were presented separately, they are by no means mutually exclusive. In fact, some recommend that the models be combined:

"Lean provides a total system approach but is short on details, organizational structures and analytic tools for diagnosis. Six Sigma, on the other hand, offers fewer standard solutions but provides a general framework for problem solving and an organizational infrastructure. The ideal solution is to combine the two approaches."[5]

Another decision to be made is if you began with one quality management approach how do you integrate another approach. Ronald Snee offers advice on this challenge:

"If you started from a Six Sigma perspective, you can add lean tools, with their power to reduce waste. If you began with lean, you can add the DMAIC framework and Six Sigma tools designed to reduce process variation and find the operating sweet spot."[4]

In the ACPE survey, the respondents seemed to make the decision to select a specific quality approach based upon a number of different factors:

- Opinion of a board member
- Opinion of a member of the C-suite (CEO, CFO, COO, CMO, etc.)
- Bundling of quality management model with other products or services supplied by vendors such as Premier, Novations, and University Health Consortium
- Honoring the existing tradition of the organization

Physician executives should be advised to engage in optimal decision making rather than satisficing. Satisficing is defined as "searching for and choosing an acceptable response or solution, not necessarily the best possible one."[6]

There are numerous individual and group decision-making models that can be used by physician executives to select the most appropriate quality management model for their organizations.

In the end, physician executives should remember that any single quality management model is only a means to an end. The end is

enhancing the total quality experience of physicians, nurses, other staff, patients, payers and other stakeholders.

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Human Aspects of Quality Management

Physician executives must go beyond processes, statistical process control, evidence-based protocols, and software programs to achieve desired quality and patient safety outcomes.

The response to this challenge is to put into behavioral action a three-pronged approach to what will be referred to as human quality management (HQM). The three prongs are:

1. Internal quality management: Model what you expect
2. A-B-C model of HQM: Diagnosing the barrier
3. Prochaska's model of behavior change: Planning and implementing the intervention

These models and tools will enable physician executives to tap into the individual and collective power of physicians, mid-levels, and other staff to fully engage in the task of delivering safe and high-quality care without being distracted from issues related to:

- Unnecessary stress
- Intimidation
- Fatigue
- Fear of being punished for reporting mistakes/errors
- Sexual harassment and other forms of harassment
- Disruptive interpersonal communication patterns with others

Continued on pg 30

Continued from pg 29

Internal quality management

Based on Heart Math's Inner Quality Management™, physician executives must recognize that they are a model of quality and that they have the responsibility to ensure that the working environment is safe and free from distractions that place patients at risk.

Internal quality management is all about integrity and credibility as a leader. Cultivating your own internal quality management is partially dependent upon the alignment between your personal/professional values and those of your organization.

The other aspect of internal quality management is resisting the temptation to multi-task for the sake of efficiency, time management, and for some, creating internal adrenaline rushes that rob the executive functions of the brain with the fuel necessary to problem solve and make decisions in a more effective way.

In essence, the practice of mindfulness—or being in the here and now—is critically important for the delivery of safe and high-quality care. Peak performers in the arts, sports, politics and medicine use mindfulness to focus the attention on a particular task.

A-B-C model of HQM

The A-B-C model of HQM enables physician executives to dissect the triggers (antecedents or A) of the behaviors (or B) that represent major obstacles and the effects (consequences or C) of the behaviors.

For instance, fear of reporting a medical mistake is both an emotion and behavior if the individual acts on that emotion. The antecedents or triggers may be that the individual was socialized early in his or her career or at that particular organization "not to rock the boat."

Table 1: Stages of Behavior Change Model

Stage	Description	Managerial Intervention
Precontemplation	There is no intention to change behavior due to unawareness of the problem or opportunity.	• Describe the problem or opportunity. • Announce the call for action. • Communicate the new expected behavior.
Contemplation	There is the consideration to change behavior as questions are answered and emotions are quieted.	• Respond to questions with information. • Respond to need to "quiet the emotions" with assurance and social support. • Remind individuals how they engaged in previous behavior changes successfully.
Preparation	There is the intention to change behavior as resources for change are being garnered.	• Provide education and training to support the expected behavior change. • Develop mechanisms to provide feedback and reward the expected behavior. • Spell out the consequences for not engaging in the expected behavior.
Action	There is a visible change in behavior related to overcoming the problem and/or seizing the opportunity.	• Clarify the expected behavior change. • Offer corrective feedback if necessary. • Deliver rewards or consequences if necessary.
Maintenance	There is the continuation of the behavior without prompting and rewarding by others.	• Transform the expected behavior into a cultural norm, that is, "the way we do things around here." • Get out of the individual's way and "let them do what they have proven to do best." • Support them if there is personal life challenge.

The consequences may be that the individual witnessed or heard through the grapevine of another health care provider who was chastised for reporting a quality or safety problem.

Physician executives must strive to determine what precedes and follows any one of the major obstacles and attempt to eliminate or reduce the antecedent (trigger) and deliver another consequence that will motivate the expected behavior rather than the unexpected behavior.

In this illustration, the physician may want to set the tone that reporting safety and quality problems is "not rocking the boat" but "being a good corporate citizen" or "an extension of your role as a health care professional."

Also, the physician executive may want to thank the individual for reporting the quality or safety problem and follow-up with them regarding the policy, procedure and outcome of the investigation and resolution of the reported problem.

Working with resistance

Physician resistance itself is not problematic. It depends upon the effects of the resistance. In fact, some argue that if there is no resistance when initiating a safety or quality initiative that nothing is really being advanced of any value beyond the "status quo."

A useful approach to work with physician resistance is to view the resistance as consisting of several layers that must be peeled away one-by-one using a stage model of behavior change developed by Prochaska and applied to quality in health care organizations.[1]

Table 1 illustrates the stages of change and 15 specific interventions that physician executives can use to guide physicians in moving from pre-conte mplation ("they don't get it.") to maintenance ("not only do they get it, they do it habitually.")

It is critical that physician executives determine the particular stage of each physician and then develop a plan to facilitate the movement of each physician further along to the point t hat the physicians have acquired a "new habit" that is self-reinforcing and self-sustaining.

An uncomfortable reality is that all physicians will not move further along because individuals have free-will and have a right to exercise their free-will. The leadership mandate in those cases is how long do you attempt to "win them over" and do you allow one or a few physicians' preferences, even if well-reasoned and articulated, trump the safety and quality of care and the work environment.

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