

## Lean and Six Sigma

Presenter: Dr. Deirdre McCaughey

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Dr. Tomaszewski:

Welcome to the Center for Health Organization Transformation steep dive webinar series. Today's webinar will be an overview of the Lean Six Sigma as a methodology for quality. The presenter for this webinar will be Dr. Deirdre McCaughey.

Dr. Deirdre McCaughey:

Thank you very much for that gracious welcome Lesley, I appreciate it. Welcome everyone. Today I am going to talk about Lean and Six Sigma tools and the relationship they have to quality improvement inside our health care industry. As everyone likely knows, we have across our industry an increasing number of issues arising with respect to patient safety and patient outcomes. These headlines that you see on this slide are very common with the number of popular press headlines that we all see on a daily basis that identify as health care providers and deliverers of care we are failing consistently in preventing hospital errors and patient safety adverse events from occurring. We know that since the Institute of Medicine launched its groundbreaking reports *To Err is Human* and *Crossing the Quality Chasm* that quality improvement methodology and quality improvement as an attention area for healthcare industry leaders is becoming increasingly important.

Today one of the focus areas that is arisen as a financial imperative is the Hospital Acquired Conditions Program that has recently been launched by CMS or the Centers for Medicaid Medicare. If you are not familiar with the HAC or Hospital Acquired Condition reduction program essentially what occurs is for the hospitals in the lowest quartile of performance in the country for a number of HAC's occurring in the hospital are penalized up to 1% of their CMS reimbursement. As many of you may know, the average hospital in the United States is currently earning approximately 3.5% margin.

Therefore the idea of losing 1% of revenue as a result of hospital acquired conditions is a very financially critical imperative for many hospitals to pay close attention to. So we have an addition to the moral and ethical imperative of looking after patient and preventing adverse events from occurring. We also as industry leaders and organizations have an imperative financially to address healthcare quality. This particular example on this slide is a really good example, it is focused on surgical procedures, but it really is a good example of what exactly is happening in our industry, which is following the CSM institution of a number of payment models that attach financial penalties for poor clinical outcomes to patients. This model really captures the concept of quality base care or quality based payment in health care. As our industry continues to progress we see our private insurers are also looking at the various outcome metrics and measures they can attach to hospital performance in order to incentivize or de-incentivize performance. This simply highlights very key areas in which there are financial incentives attached to that establish this idea of quality based payment.

The actual processes of care that are being utilized in institutions, penalties for errors or adverse events, penalties for readmissions to hospitals within thirty days, the actual evaluation of patients and their families with respect to satisfaction with their hospital experience, shared

savings programs that help hospitals and physicians that are doing exceedingly well, sharing the savings that CMS and insurers are also capturing with better performance, and then the linkages to clinical outcomes and examining how financial incentives are attached to the actual patient outcome. Really quality performance, I want to start by just recognizing that when people speak to quality there are fundamentally two different ways to look at quality inside an organization. One of them is what is commonly referred to as quality assurance or quality control and that really is retrospective examinations of quality and events and trying to understand why things occurred in an organization. An example of that would be a root cause analysis that occurs after a patient adverse event has happened. There is also the focus of quality improvement and quality improvement is a forward focus so it's more proactive and it is looking at processes that are in place in an organization and examining the processes and trying to identify ways to improve that process. It's really important for institutions and health care leaders to think very strategically about when you are identifying quality concerns in your institution. Are you identifying something that requires a retrospective examination of an incident or are you thinking forward proactively to look at various processes in which performance might not be at an expected benchmark and trying to examine ways to improve the process. It is a very important part of determining what the next steps in the quality improvement process is.

Many institutions will typically hear a language that is referred to as we need to be engaged in Lean or Lean Six Sigma or become involved in Six Sigma and this particular diagram is a really nice way to think a little bit about, if you will, the pyramid of robustness of quality improvement and if you look at the bottom three layers (the quality assurance, quality control, and inspection) it is all a very retrospective approach to quality, that is looking at *What have we done? Where did something go wrong?* and really at approximately the toll of quality management level. A quality program starting to look prospectively and looking at the processes we have and going into that from the perspective of *how do we improve things?* You will see as identified on the pyramid that Lean and Six Sigma are actually two different sides of a coin when it comes to quality improvement processes.

I want to focus on that little bit because I think people use that somewhat interchangeably to refer to one collection of tools when in reality, Lean and Six Sigma are actually different kinds of methodologies. When an institution is pursuing a Lean methodology they are trying to reduce waste, so what they are trying to do is look at what we are doing, how we identify the value in a particular process, and what we do to eliminate the waste that occurs. Again, an example of that might be often you see organizations will examine processes for supplies in units and wards and try to look at and how much of the supplies are thrown out or not used and examine the processes of how supplies are taken and used and utilized and ordered to identify ways to reduce waste. Six Sigma on the other hand, is looking at variation; looking at a specific process and saying, *What is the actual variation that is occurring?* and trying to eliminate variation. They are very much two different goals here: Lean is to reduce waste and Six Sigma is to eliminate variations. If you are thinking about a process, for example in hospital acquired conditions, one approach in a Six Sigma project might include to look at the actual process that takes place from hospital acquired conditions being identified in a patient to the actual end point where the patient's condition is quote, unquote billed to insurance or discharged, and following through the actual process of the physician's notes, the coding of the physician's notes, the interpretations of those notes by the frontline billing staff, the way the billing staff code that, how that's entered as far as payments, and identifying whether something is a hospital acquired condition or something else.

Six Sigma again, is really trying to look at variation so it becomes important again for individuals and hospitals and health care organizations to pause and think about, what are we trying to achieve?

The methodology that you use for Lean is not the same as the methodology that you would use for a Six Sigma project. This particular chart on this slide is actually a really nice way to look across a variety of processes and as someone becomes involved in or takes their first dive into Lean Six Sigma quality improvement. They come across a number of different kinds of ways to manage quality and improve quality, and this is a very simple diagram that sort of shows the expansion and improvement of the methodology and how it covers different kinds of achievement and different kinds of goals. The very first box in green, the 5S box, is really when people start to look at their quality processes and they are looking at different kinds of ways in which an organization can manage quality. So 5S is a particular methodology that refers to: *Sort, Straighten, Shine, Standardize, and Sustain*. It's a process that gets put in place in an organization to look at a process and say: *How did we get from point a to point b?, Are we organized?, Have we got things labeled?*, and it is a very basic first step. The next step in the leadership development is looking at standardizing work within an organization and using various different tools that come from the manufacturing industry that help to map out what's referred to as a *value stream*.

*Value stream* is really about understanding the components it takes to start from the beginning of a process to the end of the process. As you see in this particular diagram, there is a growing awareness and a different kind of focus as you move to *project management, Mature Lean*, and then to *Six Sigma*. I want to point out with *Mature Lean* and *Six Sigma*, if you look at the far left hand side the focus of *Mature Lean* is waste reduction and the focus of *Six Sigma* is value added. They are very distinctly different components of approach to quality improvement and very important for organizations to understand that. One of the things when we work with organizations initially who are thinking of embarking on quality journeys, we try to create a framework for the organization that helps them to understand that terminology of Lean and Six Sigma. Those of us that have experience, expertise, or extra training in Lean Six Sigma methodology often use these terms interchangeably because we have been trained in what they mean. The really nice way to think about the quality improvement journey is what is referred to as the Demand model.

The Demand expands for the five items you see on the slide right now. Defining a problem is the first step, measuring the current process you have is the second, analyzing what you have discovered in your measurement to identify what causes the problem you are concerned about is the third, the fourth step is identifying solutions and mechanisms by which you can improve the problem or the performance or the process used to create the outcome, and then the last step is controlling; it's embedding the solution in the organization so the new and improved way of carrying out the process becomes part of the organization's culture. It's a nice framework for thinking about quality improvement because all components of quality improvement regardless of the tool you use have to go through that demand process.

This chart on the video is particularly helpful as an example chart. Again, I want to emphasize that when you are new to Lean and Six Sigma you may not be as familiar with the tools and they can be somewhat overwhelming for a consultant or a quality expert who can come in and talk about an entirely large, if I can call them, toolbox full of tools you can use in quality Improvement. If you see, we will start with this visual diagram on the top right hand side *defining the project* and again it identified the purpose of identifying a project or a problem and in the red lists different kinds of tools you would use. SIPOC is one tool, *process flowing charting* is a second tool, *fish bone etc*; those are various tools you use to help define a problem. If you look at the next step and measure, there are a number of tools that are used to measure the processes that are being used. So as you can see beneath that, there are examples of input output charts, process optimizers and those are statistical tools that help to measure an actual

process that is occurring. Analyze is a step in looking at the data that you have and if you look at the examples there, you have a *mini tab* example which is a statistical program; on the left you have *simulation*, and these are tools that you use to complete an ability to analyze a particular data or process or problem.

Improvement involves dashboards and different kinds of charting diagrams, so it's looking at how we set the standards in place to improve our process and how we measure it. Then the control at the end of the top left is bringing back the different kinds of flows charts and methodology that helps capture how we are embedding the new process into our organization. I share that only simply to help people know that when you think about Lean Six Sigma quality improvement there are many tools. In the beginning of the journey, the important part is to think about what is it that you are actually trying to achieve and what part of the demand process you want us to think about depending on the problem you have. Therefore you are trying to identify the stage and move forward through it to help determine how you will develop new processes. This is a really nice, simplistic way to look at the demand process and the typical questions that are asked during the different steps. For example under define you can look at questions like: *What is the problem? What is the scope of our problem? What are the important metrics that we need to evaluate to measure this problem? Who are relevant stakeholders that we need to involve?* So on and so forth.

As you see in each one of those different parts of that Demand Cycle, there are different questions and focuses we want to have. All are critically important to have and they actually need to all be done somewhat in the order that you see in front of you in order to methodically go through the quality improvement process. Just wrapping up quickly then, at a thirty thousand foot dive into Lean and Six Sigma, really what we are trying to take away from this webinar today is the importance of understanding that the emphasis on financial accountability attached to patient outcomes, as measured by quality and safety events, is a significant change in our industry that at all likelihood will not go away.

It has become a very important financial imperative for all institutions to think about process improvement. How do we as an institution improve the processes we use to provide care in order to optimize those outcomes? Process improvement can be incredibly complex and there are no ends to the thousands of books you can read on process improvement. Process improvement really follows that very specific methodology of using that demand model of identifying and defining a problem, interpreting how you will measure your problem and analyze it, what are the steps you want to take to improve it, and how will you control it to ensure it become part of it. Remember that Lean and Six Sigma, and when people use that terminology, remember those are tools. Lean refers to a set of quality improvement tools, Six Sigma are a set of quality improvement tools and they are different and it's not important that you memorize all the tools but it's important to recognize that they have different goals and different expectations. Understanding that helps you to ask important questions on quality improvement projects in order to determine what exactly we are trying to achieve and how we best achieve that quality improvement.

What I recommend to all organizations as they go forward in their Lean and Six Sigma quality improvement journey is to be involved with people who have experience in this area; people who've had trainings, whether they are internal people inside your institution, expertise of external consultants, or the expertise of university research partners. There are a number of people that can help you move along your journey of Lean Six Sigma and quality improvement can help your organization optimize its patient outcomes. Last, I want to just share these three particular resources that I find incredibly helpful when I work with client organizations; they are very helpful for hospitals to have. The Practical Lean Six Sigma and the Lean Six Sigma Pocketbook are absolutely fantastic books that give a really good

introduction to the concepts of Lean and Six Sigma and exactly what we are trying to achieve.

The Middle Report I can't say enough of this resource. The Institute of Health Improvement, if you haven't been there it's the most incredible treasure chest of wonderful resources in quality improvement, adverse event improvement, and improving health care delivery. It's a very good white paper Going Lean in Health Care, it's a fantastic starting point and I absolutely encourage organizations to have a look at the IHI website. That is our Deep Dive webinar for today and a quick overview of the concepts of Lean and Six Sigma and how they fit within quality improvement processes for all organizations. If at any time you would like further help with understanding any of this content or would like to discuss how it's applicable to your institution, please feel free to contact me at the contact information you see on the screen. Thank you so much for your time today and thank you to the Center For Health Organization Transformation for giving me the opportunity to speak today.

Dr. Tomaszewski:

You are welcome and thank very much for that informative webinar. Thank you all for joining this webinar. Have a good day.

