JULIE KRISTINE WOOD: So these are my objectives for today. We're going to talk about the importance of quality improvement. We're also going to talk about the basics of quality improvement methodology, as well as talk about maintenance of certification requirements from the American Board of Pediatrics, as it's required for quality improvement, as well as getting involved in your own quality improvement projects, starting your own quality improvement projects. We'll highlight some barriers and benefits to quality improvement in the office setting. And I'll also talk about some successful office based examples from the literature that I've pulled.

So first the basic, the very first basic question is what is quality improvement? It basically, at its most simple definition, identifies gaps in health care. And these gaps are the difference between current outcomes and those that can be achieved using best practice models. And I'm sure all of you sitting here can think of examples in your office right now of gaps, either in administrative processes, service processes, care processes, clinical outcomes. I'm sure you can think of tons, both in your office setting and maybe even your personal life.

The beauty of quality improvement is that it employs rapid cycle improvement. And these are your PDSA cycles, which we'll talk a lot about when we talk about the basics of quality improvement methodology. These identify your opportunities for improvement. They ensure your changes are for the better. And they sustain improvement. They're a good way to make sure your ideas for improvement are definite before you implement your changes or put large changes in place.

So where did quality improvement come from? Just one side briefly on the history of it. It actually didn't start in health care. It borrows heavily from quality management science used in industry for decades. When I say decades, they've been using this since the early 20th century in the industrial sector. And they described it as team based efforts to reduce waste and variation by practicing continual improvement. You can see how that can be transferred to the health care setting as well.

While it started in industry in the early 20th century, it didn't really pick up into the health care setting until the late 20th century, when a JAMA article in 1989 by Drs. Laffel and Blumenthal proposed borrowing this improvement science from the industrial sector and applying them to health care.

So after this JAMA article, there was a lot of thoughts and discussion about quality improvement in health care. But it wasn't until these two groundbreaking documents released from the Institute of Medicine that it really took off. So the first one, "To Err is Human," was released by the Institute of Medicine in 1999. It really placed patient safety and quality improvement in the national spotlight, identifying how tens of thousands of patients die in the hospital every year from medical error. It identified system errors and adverse events in our field of medicine.

As you can imagine, this was a groundbreaking document. They needed a follow up to it so that we could all find a way to fix this. So two years later, 2001, is when they released "Crossing the Quality Chasm." And this is where we are all challenged to improve performance through quality improvement.

And define quality in health care through these six guiding principles. So they felt like quality in health care was safe, timely, effective, efficient, equitable, and patient centered. And this is really the challenge that was put forth to physicians in order to improve quality in health care, to address all of these system errors and adverse events that were brought to the spotlight by "To Err is Human" in 1999.

So this is Dr. Deming. He is known as the father of the improvement theory, the father of PDSA cycles. He got his start in the industrial sector in Japanese manufacturing in the 1950s. And the methodology of quality improvement is based on a lot of his ideas.

So we're going to move on and talk about basic QI methodology here. So the science here provides you with the tools to not only identify your problem, measure your problem, develop interventions to fix the problem, and test whether your interventions are going to work. And this structure here is the basis of quality improvement.

So any time you start a quality improvement project, this should be your basis here or your guide. So these three simple questions and a PDSA cycle-- plan, do, study, act-- is the basis of all quality improvement projects based on the structured methodology.

So we're going to go through each question here. But the first question asks what are you trying to accomplish? This is where you identify your problem. Or you identify that gap that you discovered in your health care setting in your office, in your hospital, wherever you practice.

The second question asks, how do you know that your chain is going to be an improvement? And this is really important. This is where you define your measures or your concrete evidence that change has occurred. And lastly, you ask yourself what change are you going to make that's going to result in improvement? And this is where you define your intervention for your quality improvement project. And these three questions here are intimately related to the planning phase of PDSA cycles.

And as we go through answering these questions and going through a quick cycle here, I'm going to base my discussion on an example from the literature here, from Pediatrics in 2011. And this is out of Cincinnati Children's. And it's just a very simple and well structured quality improvement initiative to improve hand hygiene with health care workers-- kind of tongue tied there.

So again the first question that you ask yourself is what are you trying to accomplish? As I said, this is where you identify your gaps. And how do you go about doing that? Well, either it's just a hunch that you have. Or maybe someone tells you there's a gap there. Or you go to the literature. And you find out that maybe what you're doing is just not up to the standards of what is a best practice model.

So as you see here in Cincinnati, they saw that their hospital goal for hand hygiene was 90%. They took a look at their efforts in both of their pediatric units. And they saw that hand hygiene amongst health care workers only came in at 65% and 74%. So they knew that they had a problem. They identified this as a gap. They knew what they needed to accomplish.

The next question that we talked about, how will you know that change is an improvement? And again, this is a really important step. And it's often a time consuming step in quality improvement. This is where you identify your measures or your concrete evidence that change has occurred, whether it's improvement or not improvement. And this is where you also identify your data collection strategy. So how are you going to collect your data? What is your frame going to be?

Just a brief word on measures here. So in quality improvement, they talk about three different types of measures. The first one are your structural measures. And this is the infrastructure or how you track your patients in your office. This is often, these days, an EMR such is Epic that we have here.

The second performance measure is a process measure. And this is used quite frequently in quality improvement and assesses the steps that should be followed to provide good care. An example of that is maybe something you have in place in your office, whether it's an administrative process, to ensure that all of your patients are up to date on all of their preventative care or their health maintenance.

The last measure that's talked about our outcome measures. And these are the results of health care that are experienced by the patient. In this example here, they talk about diabetic patients who end up with compromised vision or blind. In the pediatric office setting, you might talk about your percentage of asthmatics who are on controller medications who end up having admitted to the hospital each year for asthma exacerbations.

So back to our questions. The last one you asked is what change are you going to make? This is important. This is where you identify your intervention. So the Cincinnati folks for their hand hygiene QI initiative, they defined three different interventions that they were going to make for improvement. You can use single interventions. This is called a multimodal intervention. So they decided on using educational intervention, having a module, having education on rounds.

They also defined a system intervention, making sure there are actually places to wash hands and having everything stocked and repaired. And also behavioral intervention, and this is where there are visibly posted hand hygiene results, so some competition amongst units, as well as giving real time feedback from attendants who are watching whether you washed your hands properly or not.

After you answer all these three questions, like I said, this is probably one of the most time consuming parts of the PDSA cycle. It might come up with this narrative here in your answers to these questions. Your next step is to focus this narrative into what's called an aim statement. So your aim statement is basically your goal for your quality improvement project, as well as the framework for accomplishing your goal.

So you can see here that their aim statement is denoted as being SMART. SMART is an acronym. And it involves everything that should be within your aim theme statement. So it stands for Specific, as you see here. They have specific percentages they're reaching for.

Measurable, so they have percentages again to measure their improvement. The A stands for achievable. You see their goal is greater than 90%. They're not asking for 100% compliance. So I would call that achievable. They want it to be relevant. Of course hand-washing is relevant to all of us that work in the pediatric field. And they want it to be time bounded. So they have that they want to accomplish this by May of 2009.

So let's-- your planning phase, asking those three questions is basically your planning phase. You're done with it. You're moving on to your do phase, which involves actually putting your interventions in the place. As I said, they chose three interventions or a multimodal intervention. You can just choose one single one for quality improvement. It doesn't matter.

And your intervention can basically be anything that you feel like is going to result in improvement. But there are these change concepts here. And these change concepts are basically categories of change that have been identified that are ripe for improvement, basically.

So from our example from Cincinnati, the change concepts that would be involved for their educational intervention would be changing the work environment. For their systems and supply intervention, they would improve workflow, optimize their inventory, and design systems to avoid mistakes. And for their behavioral intervention, they're focusing on the service for that.

So once you put your intervention into place, you're going to give it some time. But then you need to go back to your data or your measures. And this is in the study phase. You want to gather your post-intervention data and compare it to your baseline data. And this can be done with raw numbers. It usually is raw numbers. There's very little statistics involved in quality improvement usually. You want to gather your post-intervention data the same way that you gathered your baseline data. So this might be reviewing 20 charts. It might be reviewing three weeks of observations for hand hygiene.

This here is a control chart. This is also important to quality improvement. And in the study phase is a good visual depiction of change occurring. So along your x-axis, you see months, the dates down there. And your y-axis, you see percent compliance with hand hygiene on unit B.

And you see the first, at the beginning there-- I also lost my glasses, so I'm trying to-- the beginning there, the first few months, you see that there's some oscillation there around a mean. But the mean is about 74%. And the oscillation, while there is variation there in their data, it does, for the most part, stay within the control limits that they have set.

You see there in March of 2009, this is where they make their three interventions. And they decided to make all three of their interventions at once. After that, I think it's really easy to see that there is immediate response and improvement to a new mean up there of about 91%. Still some variation and oscillations in their data month by month, but still stays within their control limits that they've set. And I think visually, you can see that they've met their goal of 90%.

And I think you can also see that it's sustainable. So you see improvement immediately. And then you see it continuing. After everybody forgets about it, it doesn't drop back down to where it was in their baseline data. That's a good segue to letting you know that you're not quite finished after you've collected your post intervention data. This is in your act phase. And this is where you plan for sustainability of your project. Or you can consider new PDSA cycles if maybe your intervention wasn't as successful as you thought it should be.

So in planning for sustainability, this could be putting an algorithm in place to ensure that things stay as improved as they were, putting guidelines in place basically. So that's quality improvement methodology in a nutshell. It's pretty simple once you do a project or two to get the idea of it. I included this slide here. This is the ihi.org the Institute for Healthcare Improvement. And they have computerized models of quality improvement methodology that I think are really good and can either serve as your primer on quality improvement or a refresher course as well.

So that was the easy part, defining what quality improvement is and defining briefly quality improvement methodology. We're going to talk about, now, how you get maintenance of certification points for quality improvement. And that's part four of your MOC. And also how you can best meet these requirements, given your practice setting and the time constraints. Best underlined, italicized, bolded, because it's a very important question. And it can take very different answers for different people.

So some people don't have too much time for quality improvement. And we'll talk about what would be a good approach for you. Other people want to improve the setting for their patients. They want to improve their practice. They want to improve something in their field of pediatrics in the office setting. So we'll talk. As we go through the different ways to gain MOC credit, we'll talk about multiple different ways to get this credit. And you can think about what would be best for your setting and your practice.

So first here's a refresher of your MOC cycle. And there's four parts to it. The first one is obviously maintain your license. And then the second part is doing your lifelong learning, your prep questions. The third part is taking your written test. And the fourth part is where quality improvement comes in, and that's performance in practice, or making sure that you have competence and systematic measurement and improvement.

So the point system, you need 100 points for your cycle. And 40 of those can come from part two, 40 from part four. And then 20 can come from either part two or part four. So the bottom line is you need 40 to 60 points in quality improvement. And it can be in one of two categories here.

So the first category, we talk about establish quality improvement projects. And these are structured, live quality improvement projects that are led by different sponsoring organizations. The second way to get MOC credit for quality improvement is web based improvement activities. And these are more self paced, mostly computerized quality improvement initiatives.

I was very confused about this initially. But I guess in the past, you used to only need one project from part two and one project from part four. And they're now moving towards a point system, where you need 100 points total like I just talked about. So the only way to see where you are in that is to go to your ABP, your own portfolio.

Down in the third section there is where you're going to find your part four or quality improvement projects. And you'll find not only your live projects there, but also your web based projects. And if you search for it, this is what you find. You can narrow it down by specialty. General pediatrics, here are some results from that. I want to point out here the points. So quality improvement projects are each 20 or 25 points. So that means you need two to three in order to meet your maintenance of certification requirements.

I also want to point out, in the second column there, UPIC, and under that is ABP, under the Intermountain Health care. Those are your sponsor organizations for these quality improvement projects. And the sponsor organization, those are the people that are in charge of all the infrastructure for the actual project. They make sure that the project meets the ABP's guidelines. They have everything in place for you. They're good QI leaders and have a lot of knowledge QI and have really everything set out for you. You just have to join their project.

Just briefly here, starting your own QI project or getting MOC or ABP approval for a MOC project is kind of beyond the scope of this talk. But I just wanted to point out that there's lots of standards for these requirements. And that's why it's important that these sponsor organizations have all of this knowledge. And they put the infrastructure in place for you. And then they also talk about what it means to have meaningful participation in a quality improvement project. And this differs project by project. But they will be able to tell you how many months each project's going to be and what your commitment is going to have to be to the project.

This is just an example of a project regarding autism screening and CHADIS. And if you look at the description, there's a very lengthy description of each project. And it tells you exactly what you need to know about the project. This one, you don't need any chart audits. You only need a computer with web access.

If you look down at the second arrow, they talk about that automated QI reports are going to be sent to you as you gather your information. And then they also give you the completion requirements. So how many months does it take? How many patients do they require you to have involvement with this project? And again, when you're thinking about how QI is going to fit into your office sitting and how you're going to best meet these requirements and best be engaged in quality improvement, these descriptions are really important to read.

There's a whole list of topics for quality improvement for live projects and also for the web based projects. And here's just a couple of them that I picked out recently when I was doing a part four activities search. So again you can see, maybe you have a special interest in asthma or autism or obesity. And there's projects, basically, for everybody in there.

You see, some of these projects are listed as EQIPP projects. And that's a segue into the second way to get MOC credit for quality improvement. So you can either do your live project, where you join the structured QI sponsored by a certain organization, or group or hospital. Or you can do a web based module.

And there's two web based modules. The first one is EQIPP. And this is Education in Quality Improvement in Pediatric Practice. And this is an AAP sponsored module. And it's basically an online learning program, weaves improvement principles with pediatric specific content. Again they provide the tools, the information, the guidance. You just join and collect and analyze and measure your data over time.

And importantly, each course also includes basics of QI concepts. So again, if you need a refresher on quality improvement methodology or if it's your first time engaging in a project, they have those basics of QI for you, before you even start the project.

And this here is just an example of a flow chart for one of the web projects. And as you see, it's very well laid out for you, step by step by step. And it really follows the QI methodology that we just talked about. Initially you're going to have your QI course that we talked about, have your refresher on quality improvement. As you go through that, you're going to go through those three questions we talked about and then PDSA cycles following it.

So that's the first way to get credit with a web based models. The second way is something called performance improvement modules. And these are ABP sponsored modules. So the ABP has theirs. And the American Board of Pediatrics has theirs as well. Again, lots and lots of topics for quality improvement to anyone's interests. You can find something up there that I'm sure you're interested in.

And since these are ABP sponsored, you can find them either on the ABP web page. Or you find them through your part four activity search. Again you can look through the scriptures of them and see if they're going to fit your practice setting, your time constraints, and your interests. This one, it produces run charts for you. That's great. You just have to input the data. And it'll produce your run charts for you. You only need two to four months to complete it.

This asthma performance improvement model, I just wanted to point out at the bottom, they also talk about including case studies. Select rich and varied lists of hyperlinked resources to support learning not only about asthma but also about quality improvement. So again these courses not only help you become engaged in quality improvement, but also refresh your knowledge on quality improvement methodology, which is very important. There's tons of literature out there that says the best way to learn quality improvement is not only through didactic sessions, but also to be involved in longitudinal and mentored and structured quality improvement projects.

So the way to gain MOC credit, the first one is you become a sponsor for a quality improvement effort, which is quite a large undertaking and is usually hospital settings or large groups that become sponsors, not necessarily just individuals or offices. We talked about the part four activity search and joining live structured projects led by QI leaders or sponsor organizations. And then the web based models, these are probably the quickest way to engage in quality improvement and to gain MOC credit. And they have the EQIPP module sponsored by the AAP and the PIM modules sponsored by the American Board of Pediatrics.

So I'm going to move on to talking about some barriers to quality improvement in the office setting. So as you see here, physicians in small to medium primary care practices face unique challenges in implementing quality improvement. And this is from a qualitative study, interviews of not only pediatricians but family practitioners and internists, and asked them well, what are some barriers to engaging in quality improvement in your office.

And these were their top four responses. First they talked about lack of motivation among staff. They talked about not having systems for tracking their measures or their data. They also talked about lack of time, which is huge. And lastly a lot of people, a lot of them cited limited resources and training in quality improvement overall as a barrier to being involved in quality improvement in their office.

So as I said above, these limited resources or barriers for quality improvement might even include education and the basics of quality improvement. So another qualitative study of surveys and interviews of-- I believe these were internists only from 2005-- asked them what is quality improvement? What do you think of quality improvement? What does it mean to you?

And this person here, as you see, has a very robust and long answer. It looks like they googled it and took it off of Google. It's perfect. But other people, very difficult to find, very difficult to do, a mirage, or I don't know. So as you can see, this is a huge barrier to quality improvement. If you don't really know the methodology behind it or even what it means, how can you become involved in quality improvement?

I think this is getting better. This again, I said was from 2005. And I think this is improving, not only because residency programs are teaching more quality improvement to the residents, as well as having residents be involved in longitudinal quality improvement projects, but also like I talked about, getting MOC credit for quality improvement. Whether it's a live activity, whether it's a web based activity, they're going to not only coach you through it, but they're also going to give you basic quality improvement methodology courses for each of those. So I think the limited resources and training for QI is getting better over the last few years.

So the same study that I asked about noted barriers to quality improvement in the office setting office also asked what are some characteristics of small practices that engage in successful quality improvement? Now as you'll see, the top three that are cited here, each of them by more than 2/3 of respondents to the survey, talked about the most important thing in an office setting to engage in quality improvement would be designation of a practice champion or somebody in your office that's going to be the go to person for quality improvement. Also cooperation of the other physicians and staff in your office is important, as well as the commitment or involvement by you or your practice leaders.

Notably external facilitators of quality improvement, such as external funding or external groups helping you engage in QI in the office were not noted to be as important as internal facilitators. As you see here, only 24% to 37% of survey respondents felt like these were important to getting a good QI culture in the office setting.

So I'm just going to finish up here by talking about these three pieces of literature that I pulled out of. Each of them were in Pediatrics and were about quality improvement initiatives in pediatric office setting. And two of them are based on preventive services and one on acute care.

So the first one there under preventive services, Improving Preventive Service Delivery Through Office Based Systems, this is a quality improvement initiative from the early 2000s out of North Carolina. And when they talk about office based systems, they talk about putting processes in place to improve the interactions between patients, staff, and providers, so that every step is taken on every single patient at every encounter.

And they talked about how every office has this in place for billing to make sure that each patient is billed for their encounter. So why not streamline and tweak this process to preventative care so that they can make sure that all of their patients are up to date on their preventative care or health maintenance, such as vision screening, their anemia screening, their lead screening?

The group below that, the Statewide Quality Improvement Outreach that improves preventive services for young children, was from the mid 2000s. And this is a group out of Vermont that actually tailored this approach from the North Carolina folks, the office space systems for preventative care, tailored it to the whole state of Vermont.

So they included 31 out of 35 pediatric practices throughout Vermont. And they were able to put these systems in place to improve preventative care and health maintenance services to all of the children in Vermont, which is pretty cool.

From the acute care standpoint, Effectiveness of a Practice Based, Multimodal QI Intervention for Gastroenteritis, this is also out of North Carolina. And what these folks did is they wanted to reduce rates of possibility of hospitalization for children with mild to moderate dehydration and gastroenteritis using evidence based guidelines.

So they decided to focus on oral re-hydration therapy and put care processes in place to catch these patients earlier before they had to be hospitalized for their dehydration. So when I say care processes, they looked at triage of these patients in their office. They looked at triage of these patients over the phone. And they also did a lot of education with not only their families of their patients, but as well as their providers, the nurses, the physicians, the nursing assistants about oral re-hydration therapy so that they could teach parents about this strategy to reduce rates of hospitalizations for gastroenteritis.

And again I chose all three of these, because they were published in Pediatrics. They were in the office setting. And they were all very successful QI initiatives. And I went through them and went through some other QI literature. And there's common themes that emerge from this literature as to why these were so successful.

And as you'll see, they all start with C, which is nice. So the first common theme amongst them was that each QI initiative that I found with anything, but especially with pediatrics in the office setting, involved designating a champion for QI in your practice.

And that can be a physician leader. It can be a non-physician leader. It can be anybody that has some interest in QI or maybe some knowledge in quality improvement and is interested in pursuing it further and being the go to person in your practice. And then the importance of also having an improvement team that you gather that is also interested in QI to supplement whatever your leader is deciding for your practice to do.

Cooperation and collaboration was really important. So the North Carolina group with the Office Based Systems for Preventative Care talked about, initially they thought this was going to be a very time consuming process, putting all these steps into place to make sure that they had everybody up to date on all their health maintenance.

But they found that when they spread out the responsibilities to different physicians in the practice, to the nurses, to the administrative staff, to the nursing assistants, to the social workers, that they did not have to take on too many extra responsibilities. So it was important to have everybody cooperate and collaborate on their QI initiative.

Peer to peer teaching and sharing of knowledge is important. So the gastroenteritis group out of North Carolina, they started with three pilot practices. And they chose those practices not only because they were spread throughout the state, one in Western North Carolina, one in Central, and one in eastern North Carolina, but also because those three practices designated themselves as having a QI leader or someone in their group that was more knowledgeable or more interested in quality improvement.

So they chose those practices to pilot this effort to reduce hospitalization for gastroenteritis. And after they piloted it and it led to success, they were able to teach and share their knowledge and collaborate with the other practices in their area of the state, not only with the care process they put in place and the successes and the failures and the bumps in the road they had, but also just some basic QI methodology. You do this step next. And then after this, you'll do this step. So all of this literature talks about the importance of having sharing of knowledge and peer to peer teaching for successful quality improvement.

And then lastly they talk about commitment. Obviously it's important to have data collection plans and strategies and set meeting times so that everybody stays on the same page for your QI initiative. But another thing that each piece of literature that I'd pulled talked about, success having control over their intervention.

So we talked about the preventative services folks got to choose what they wanted to work on for improvement. Did they want to improve their immunization rates? Do they want to improve their vision screening, their anemia screening? The practice got to choose that.

Same thing with the gastroenteritis folks. So they got to choose exactly what care process they thought was going to work for them. Was it going to be phone triage? Was it going to be triage in the office? And they cited this as very important for all of them, because it led to more commitment and more buy in from their practice. And it also led to the practice feeling like they're the expert and with more commitments. So these four common themes lead to the success of these QI initiatives. And I think they're very important whenever you're thinking about QI in your office.

So just to finish up, I included some resources here at the end. We already talked about the IHI. And they have modules for learning quality improvement methodology, all the way up to live courses if you want to be a QI leader.

The NICHQ, or the National Initiative for Children's Healthcare Quality, was once a part of the IHI. They've broken off into their own sector. And they have list serves. They have learning collaborative. They have established projects and toolkits. The AAP actually borrow some of their tool kits to use for their EQIPP projects.

We talked about the EQIPP and the importance of those. And then QUIIN is the Quality Improvement Innovation Network. I think this is a really good network here. This is also an AAP group. And it's broken down into two sectors, the VIP, or Value in Inpatient Pediatrics. And the PIN is the Practice Improvement Network. And they not only have formal projects and informal projects, but they also have email groups and list serves that if you join them, they will notify you of QI projects maybe in your area that you might be interested in joining. Resources, questions?