A Roundtable Discussion

Getting to the Heart Of the PM Debate

Roundtable Participants

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Jena Passut: Welcome to BI&T’s roundtable on best practices in preventive maintenance (PM). Let’s start with a big-picture question. PM is one of those topics that can set off a lot of debate in the HTM community. Why is that?

John Brown: I think the debate has gotten bigger because of the financial pressures put on the healthcare industry. We have lean initiatives, competition for internal resources, and even competition for outside suppliers for the business. And it can even create friction between these three groups that are competing for the same business. It creates an unwillingness to share at times. There’s also a cost/benefit puzzle, kind of like when you’re buying insurance. How much is too much? How much is not enough? That enters into the debate, also.

Paul Kelley: I think that one of the reasons we have this huge debate is because we’re still asking what PM really means. There’s a debate about what its purpose is. Is it really doing any good? Are we getting the best bang out of our buck on doing those PMs? Even as a field, we can’t decide on what preventive maintenance means.

Stephen Grimes: While PM is a commonly used term, I think most of us recognize that it’s a misnomer because preventive maintenance usually involves things like prophylactic parts replacement, calibration, adjustments that you would make to the equipment, whereas what we’re truly doing is scheduled maintenance, which could be testing, inspections and modifications and such. So, when we talk about PM, most of us are really talking about scheduled maintenance. As to the reasons why I think there’s a debate, one of the issues that we’ve seen over the years is that scheduled maintenance typically represents about half of what healthcare technology management (HTM) programs spend their resources and time on.

Another issue, as John alluded to earlier, is that the need and the benefit of scheduled maintenance, including preventive maintenance is substantially less than what we saw 20 years or 30 years ago. The nature of the equipment has changed. It’s much less mechanical, much less heat sensitive. As a result, it’s much less subject to wear and tear. Also, more equipment has built-in diagnostics. So, scheduled maintenance doesn’t have the benefits it used to have. Once you put it in service, equipment often lasts until either the end of its useful life or it has a spontaneous failure. I would suggest that a spontaneous failure is not something any

*Editor’s Note: Mark Heston was unable to attend this roundtable discussion, but provided his perspectives for this article.
amount of maintenance can effectively address. There’s a smaller and smaller portion of equipment that benefits from scheduled maintenance. I think the industry recognizes that, but many still do scheduled maintenance because that’s what they’ve always done.

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Matt Baretich: I do consulting with hospitals. A lot of times, these are hospitals that know they have trouble, so they bring in a consultant to look at their maintenance programs. And, unfortunately, I still find hospitals that if you ask what their PM or scheduled maintenance procedures are, you find they are still doing little more than an electrical safety test—plugging devices into the safety analyzer. There’s a really wide range of what happens out in the field. It’s all the way from doing complete waste-of-time electrical safety tests and nothing else all the way up to sophisticated evidence-based processes.

Mark Heston: I feel the debate regarding PMs boils down to individual environment, strategy, and resources. Although while we each feel we are different we are really more alike than we want to admit. Some devices see different environments but the device remains the same.

Jena Passut: PM practices vary from hospital to hospital. Is that a good thing?

Paul Kelley: I would say no. On so many levels, it doesn’t make sense. Part of that is because our field doesn’t share data, and there is the evidence-based aspect missing. People make things up in one hospital and they’ll make something up in another hospital, and then you bring in an outside consultant and they’ll see, like Matt just mentioned, totally different ends of the spectrum.

Stephen Grimes: I understand what Paul is saying, and I would probably take a slightly different view of this. I believe when establishing scheduled maintenance activities and frequencies you should take into consideration the manufacturer’s recommendations, the equipment criticality, its reliability, the equipment’s utilization, the environment in which it is used, the service history and you also obviously have to take into consideration the applicable regulations. That approach is probably going to result in a fair amount of consistency among hospitals.

You have to recognize that there will at least be some variation from hospital to hospital because in each individual hospital the same type of equipment may have different criticality, different reliability, different utilization, different environment, and different service histories. All of those things I just mentioned are things that you’d take into consideration when determining what kind of scheduled maintenance you want to do. So, I think you’re looking at maintenance practices from hospital to hospital probably clustering around typical practices, and you’ve got to at least acknowledge or recognize that some variation is OK depending on these other factors that will vary from institution to institution.

Paul Kelley: On that point, I will agree that there will be slight variations. But, there shouldn’t be huge variations.

Mark Heston: Yes. Each organization should risk manage according to their environment and available resources.

John Brown: From the original equipment manufacturer (OEM) standpoint, we put a lot of effort into, at least in our company, setting up a process based on the product design, product life cycle testing, vendor testing, research and development, failure mode effects analysis, and the vendor component characteristics and life expectancies. We feel that the steps themselves are important to keep consistent. Maybe the frequency of what you do can be changed. And the other part of that is that if you don’t have a consistent process across hospitals and within a hospital, you really can’t gather very good data because you don’t know what’s being done. And then if you’re not consistent about what’s being done, the data doesn’t mean as much.

Paul Kelley: John, to that I will say it goes back to what I was talking about the

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evidence-based factor, which we all should be based on. We're not sharing that data.

**Matt Baretich:** My experience with my clients is that if you ask how they came up with these procedures and this frequency, it tends to be variations on “that's the way we always did it” or “that's the way somebody taught me.” I suppose you could fancy that up and say it falls to professional judgment, but rarely do I hear a clear answer that says, “I look at this evidence” or “I regularly review the results from my previous work and I arrived at this through that process.” So, again, there is a really wide range of how people come up with the stuff they do.

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**Stephen Grimes:** I think that's an excellent point, and I agree. I'm also in favor, I think as probably most or all of us are, of taking an evidence-based approach. But one of the challenges we have is that the evidence that they use, the kind of information that's being recorded in the service histories, is not uniform. If people consistently recorded the same kind of useful information—and by “useful information” I mean potentially actionable information—then I think sharing that information would be beneficial. I suspect if you take a look at what's currently available in the way of data, it's data that would be very difficult to draw conclusions from because you're looking at a pool of data from a wide variety of organizations who record different data and do it in different ways. There is inconsistency in terms of the nature of the data that they are recording. I'll give one example. When you're looking at corrective maintenance work orders, how often does that work order identify a maintenance-related failure or a wear-and-tear-related failure? Yet that information would be critical in determining whether a device might be in need of a different approach toward scheduled maintenance. I would suggest that probably few organizations identify maintenance-related failures in their databases.

**Mike Lane:** I definitely agree with you, Steve, in regard to that category. We just completed a three-year project to really look at evidence-based approaches for our PM program and update what we've been doing for years. We do have categories in place to record those maintenance activities which would identify specific items that we could have an impact on through our PM program. What we found was that, in terms of the actual proper coding by the staff in the field for those work events, the coding wasn't accurate. So we had to go through a process of looking at 30,000 work orders to recode and reanalyze those work events to get to good values. And that's a key point of failure in terms of getting to be evidence-based.

**Stephen Grimes:** Exactly. And I agree, Mike. You've got to be looking for the appropriate data types. But you also have to educate the staff on what the meaning is and how to appropriately code that information in. Absent that, you're going to get garbage. That's a good point.

**Matt Baretich:** I've used the term “evidence-based” a number of times. And I don't want to lean too hard on it because I think of the 5,000 hospitals in the U.S., at least half of them are not going to collect sophisticated data and conduct sophisticated statistical analysis to arrive at evidence-based positions on some of these things. I think a lot of the hospitals are going to be very happy, and justifiably so, with some very standardized processes. The value of HTM or clinical engineering is mostly outside of PM and repair. I think PM is a commodity, we ought to just work through this and narrow it down and say what the standard processes are. And we can give people some options based on their own particular circumstances.

**Alan Lipschultz:** Most people would be more than happy to just accept data and conclusions that are presented to them from a large organization or professional organization, and just go with it. They'd be more
than happy to follow recommendations from someone else, rather than trying to collect their own data and reach/justify their own conclusions.

Matt Baretich: I think it’s perfectly a valid way to do that, too. I mean, a lot of this stuff is not rocket surgery.

Jena Passut: At AAMI, the Medical Equipment Management Committee has released a new standard, EQ89, Guidance for the use of medical equipment maintenance strategies and procedures. Paul, given your work with that committee, can you tell us about that document? How do you believe it can or should impact PM practices?

Paul Kelley: I’d like to say first that John, Steve, and George are all on that committee also, so I want them to chime in, too. It started off as a framework on how to create a procedure. If you’re not going to follow the manufacturer’s procedures, we wanted a standard on how to go about that. It evolved into—and I’m using the word “framework” because it’s not a cookbook—of how to develop your maintenance strategies, as well as the procedures. I’m really excited about it, because we’ve been through a lot of contentious battles with the wording and the order. And I think it’s going to come out with what was mentioned earlier—a process on how to create these procedures. In it, it does state that you can get information from manufacturers, from other facilities, and so forth as approved by the Centers for Medicare & Medicaid Services (CMS). And it’s going to be a great impact to hospitals that follow it in that it gives them something to say when the surveyors, including George and his people from The Joint Commission, as well as DNV Healthcare, come in, ask, “How do you develop your procedures?” They can state, “We follow the guidance of EQ89.”

George Mills: First, it’s been an honor to serve on that committee. The final document is a good resource. I think the field has been—at least what I hear—really wanting to be given advice or guidance on how to do certain things. And one of the things they wrestle with is when we ask the question, “How did you set your PM strategies and activities in place?” We get a lot of blank stares. This document really guides them to create an answer for when they’re being surveyed. So, when asked the question, they can go back to a process—a process that has been clearly defined, provides the tools to do what they need to do, and they can really get back to the changes and what they’ve done for the program. They can then take a pride in that, and show it to the surveyors and be successful. I’m excited that we finally crafted this. The field should really benefit from the guidance that’s provided in this document.

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John Brown: I think that it does help a couple of things. It stressed the importance of documenting what they do. You document your strategy, and then you document your processes, and then the outcomes. So it gives them a more firm roadmap of how to do that. So I think it’s important that it drives the documentation and the data collection part of it to make sure they’re making the right choices and follow up to make sure those choices have the intended outcomes.

Alan Lipschultz: Am I correct that the baseline you still need to start with the manufacturer’s recommendations in order to be able to say, “I’m deviating from that?” Unfortunately, a lot of hospitals don’t even bother looking at the manufacturer’s recommendation. They just go by the standard generic procedure for inspecting this type of device.

Stephen Grimes: It says that there are a number of sources that you should take into consideration, including the manufacturer’s recommendations and service histories, to make an informed decision about what your practices are going to be. We just provided guidance on who’s qualified to make the decisions what factors should be considered.
John Brown: From an OEM’s standpoint, like I said, we put a lot of effort into developing the PM practice around the device design. And you want to start with those. So that is the critical element, I think.

Jena Passut: Speaking of device design, PM practices will differ by device, but are there any universal truths or steps when it comes to good PM? What should every HTM department be doing when it comes to PMs?

George Mills: I think before the experts weigh in, I’d like to say that the people who do the work, the biomed techs, they need to understand why do they do PMs. One thing that we like to ask on survey is, “Why do you do PMs?” And if they say, “Because my boss gave me this work order,” that’s really not the “right” answer. I really would like to know that they understand why we do PMs. Why do they do PMs? Because it’s ensuring the calibration of the equipment, the reliability of the equipment, extending life of the equipment, other reasons. The people that do the work need to be able to elaborate exactly why they do these. I’ll turn it over to the rest of the team to go into the nuts and bolts of it.

Stephen Grimes: I agree, George. That’s really what it should be. Unfortunately, I think, because of what’s happened with the recent CMS maintenance regulations, the answer is going to be that there is some maintenance done just to meet regulatory requirements. But some of these maintenance requirements don’t have a demonstrable benefit of reducing risk.

John Brown: From the nuts and bolts side of it, what we’ve learned over the last few years is first you got to be very consistent on your standard of work or you don’t have a baseline to work from. And then you’ve got to keep detailed records not only the PM work but any repairs between PMs, so you can analyze that data. And you can’t make changes too rapidly. If you start making changes and you’re not standard consistent, your data isn’t going to lead you down the right path.

Mike Lane: One of the universal truths that I see and kind of echoes what John was saying is that, you know, in terms of when you’re doing PM, it’s really important that it’s identified what did you identify as a potential failure or activity that adds benefit for that activity. Ultimately, we want to be adding value as we’re doing the preventive maintenance. And if we’re not, then maybe we shouldn’t be doing it.

Mark Heston*: Very basic statement: Ensure safety for each and every patient. Whatever that requires.

Paul Kelley: I think the only universal truth about PM is—to reiterate what George said—to ask if the device is working properly and safely when I’m finished. Period.

Matt Baretich: Paul, what do you say in EQ89 about devices for which the manufacturer provides a no PM guidance?

Paul Kelley: We do mention in there that you should always start with the manufacturer’s literature and recommendations when available. We note in there that it’s not always available, that there are other sources and—once you gathered data and you’ve talked with your peers—you might find a way to verify the equipment. And we do specifically make a difference of verification versus calibration.

Stephen Grimes: My recollection was we said if the manufacturer’s recommendations weren’t available, to use what’s done by other manufacturers of similar categories of equipment as a guidance. We did recognize that a particular manufacturer’s procedures aren’t always going to be available.

John Brown: You should be involved in the upfront process of purchasing equipment and start asking those things on the front end in the buying cycle. So it’s, hey, where is this stuff, where can I get it, what do you have?
Alan Lipschultz: Sometimes the manufacturer says, “The device has to come back at the factory for a PM.” Once the manufacturer states that, then I think the local shop is really going out on a limb if they ignore it. If the local shop disagrees with the manufacturer on that topic, they need to ask why the factory insists on it coming back. What does the factory do with the device when they have it back that can’t be done in the field?

Stephen Grimes: I think those kinds of things ultimately have to be addressed by a risk assessment. Most of us recognize that any effective program is going to be evidence-based. It’s going to be done following a risk assessment that is looking at the individual categories of equipment and what a risk assessment suggests needs to be done as far as maintenance is concerned. I don’t think you automatically need to send items back even if that’s the only option the manufacturer offers. I think you can do a risk assessment and if the criticality is sufficiently low or the history suggests that there is not a need to send it back, you’ve got other options. So I don’t think you always have to go back to the manufacturer if you’ve done an appropriate risk assessment and that assessment suggests you have alternatives.

Alan Lipschultz: I’m not sure how you do an appropriate risk assessment unless you have the data that the manufacturer relied on when they made their recommendation. So I have usually followed the path of asking the manufacturer to please define for me in writing why it must come back, what you’re going to do with it, and why it cannot be done in the field. I recommend listening to what they say before reaching a conclusion.

Stephen Grimes: I think that certainly could be part of the risk assessment. But you’re looking at your history too. If you’ve had this equipment for some period of time and found no record of failures and if you have sent some of them back in the past, you can find out what they did. Is there anything they’re really doing to it other than perhaps doing an inspection on it? That’s all part of that risk assessment process which, again, would factor in what the manufacturer is doing when they get it back.

Alan Lipschultz: The risk assessment also must ask what are the consequences of the device failing?


Jena Passut: George, besides people not understanding why they’re doing their PMs, are there any other common PM mistakes that you encounter?

George Mills: First, I think that we see that some departments seem to be blinded by their own documentation. What I mean by that is leadership (i.e., the department head, or whomever) takes verbatim whatever their staff says. For staff to simply sign off on the work order and state, “OK, it’s done” leaves a question in my mind. I would challenge leadership to sample the work that’s being done by their staff. My experience is that, as time goes on, a lot of our teams get creative in what they’re doing and then develop their own shortcuts, which may or may not be OK. If they’re OK, then we should be adopting and then changing our methods and expectations. If they’re not acceptable, then we need to be retraining staff to get them back on track. So, my advice is don’t just take documentation verbatim. Make sure that it’s accurate and it really reflects what’s going on. Let’s revisit the theme that I mentioned earlier, about staff understanding and being able to explain what’s going on in their program. I have seen a lack of a solid medical equipment management programs and management plans that really explain the process. A lot is written already explaining some of the concerns we’ve developed in the PMs and strategies and things like that. But how is the medical equipment management program really laid out and understood in their organization? Finally, have they established a good, solid quality assurance (QA) process? Do they have a way to really measure the effectiveness of the work that they do in such a way they can present it to the C-Suite and show the value of their department to leadership in their organization. If they have senior leadership support, they will have their buy-in when they make future recommendations and will be invited to the table when the equipment is being purchased or being

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considered to be purchased. I think that when they have this QA process in place and are sharing with leadership, their input will be sought. That’s another way, again, to develop a relationship to C-Suite level.

**Jena Passut:** George, if you had one piece of advice to give to hospitals when it comes to PM, what would you say?

**George Mills:** I am becoming more and more of a fan of dashboarding. I think looking at our entire program, including our PM process and coming up with metrics to measure and then roll it into a dashboard is a powerful tool. Not just PM completion rates, but also doing assessments of the reliability of equipment after its service. Do we experience call backs on equipment? I think we really need to be looking at opportunities to do dashboarding, again, to display to the C-Suite how effective our program is, building our credibility in our organizations. I would look at dashboarding and move that forward as a priority.

**Alan Lipschultz:** Of course the assumption is that the data underlying the dashboard is valid.

**George Mills:** Exactly; as I mentioned earlier, they may be blinded by their own documentation.

**Jena Passut:** For the hospital-based professionals on the call, what are the biggest challenges to implementing a thorough and effective PM program at your facility?

**Mark Heston**: The biggest challenge at CCF is the pace technology is changing and our ability to keep up with it.

**Stephen Grimes:** One of the challenges is that, with the new CMS regulations and accreditation standards related to maintenance, there is renewed and increased focus on manufacturers’ documentation and its use in scheduled maintenance programs. Obtaining manufacturer support of maintenance provided by other than the manufacturer has always been something of a challenge. Some manufacturers provide very good support for others who wish to take it upon themselves to provide scheduled maintenance while other manufacturers don’t. So getting manufacturer support, service documentation, training, parts, and maintenance recommendations is one area that’s a significant challenge. And then the other challenge I alluded to earlier is collecting a meaningful service history. Meaningful service histories include those that identify which maintenance calls involve wear and tear issues that would benefit from better or more frequent maintenance versus maintenance calls that involve spontaneous failures that would instead benefit from training or process redesign. So, getting more meaningful service histories can be a challenge particularly when you’re interested in using data from those histories to adjust your maintenance activities and your maintenance frequency.

**Paul Kelley:** I totally agree with what Steve said. I guess the biggest challenge here, and for a lot of my peers, is proper documentation that makes sense.

**John Brown:** One thing we found out early on, too, is that a common language is important. We’ve actually gone to the level of making drop-down menus for most our repair tickets so that we can compare data and pull data very quickly. We even put links between parts used and activities that would require those parts to be replaced or that would identify those parts. So, again, a common language across your staff is important so they use common verbiage, they use common terms, and you can search the data to find the information you need.

**Jena Passut:** John, it sounds like that’s really leading us into the next question, which asks how you would mitigate the challenges that we’re talking about.

**Stephen Grimes:** To address the challenge of service histories, mitigation would take the form of better work order documentation...
yielding data that’s meaningful and actionable. With respect to the challenge of getting meaningful maintenance recommendations from manufacturers, for mitigation we might look to a previous industry initiative that facilitated a process where manufacturers shared data with medical equipment owners in a meaningful format. Some of you may have heard of the MDS2 or the Manufacturer Disclosure Statement from Medical Device Security. One of the challenges we had many years ago on the data security issue was getting a standard set of data on device security features from the manufacturer. The idea with the MDS2 standard was to have a reporting format that essentially addressed 80% or 90% of what both the hospitals and manufacturers agreed would meet the need. It became a standard format for manufacturers to report useful information. So perhaps we need an industry effort to define a format for manufacturers to report maintenance requirements and frequencies in some sort of a uniform way as they do for data security features with the MDS2. Finally, successful mitigation of all these challenges depends on informing the organization’s leadership, and make sure that they are fully informed of the current regulations and risks and that they understand what resources will be required to fully comply with those regulations and mitigate those risks. The leadership needs to consider what risks they’re willing to accept and what resources will be necessary to reduce the risk to a level that they are willing to accept. So engaging your organization’s leadership is the final point I have in terms of mitigating these challenges.

Paul Kelley: As far as standardizing terminology, the CMMS vendors should be able to collect data from their users and come up with a standardized database of those answers like John said Steris does. The ones that I’ve had experience with give you an empty slate and you have to create your own. They should help, and they should share between themselves.

Stephen Grimes: That’s critical. I agree. I think we need to be aware that there’s got to be some sort of QC because while we can train people the quality of their documentation will drift without continuous feedback. The only way to get consistent results is to provide them with regular feedback—not only train them initially, but do some sampling of the data to ensure we are, in fact, getting what we think we’re getting and provide the staff with appropriate feedback when we are not.

Mark Heston*: We are collecting all the training we can acquire and working with vendors directly assisting with the development of new technology.

Jena Passut: John, What would you like hospitals to do when it comes to PM besides standardized terminology?

John Brown: We have a long list. Tell me when to stop. First, we want a quality PM program because it maintains the safety and effectiveness of the unit, reduces both our liabilities and then it protects the equipment reputation. I mean, at the end of the day, we want our equipment to perform better, we want it to perform well. We want people to continue purchasing it, so that’s near and dear to us. We hope that they follow OEM guidelines to start with at least so that we have data that’s consistent. And we see it even our cell repair data. When hospitals are following our standards, we know where we have gaps and where we have overlaps. We also hope HTMs get product training, especially if it’s a new technology coming out. If they’re just trying to work from the book, it can be a rather difficult process, and they can go the wrong direction. And the last thing that we also tend to see a lot of the industry, first year PMs get ignored. There’s a lot of equipment, especially sterilization equipment, needs to have oil changes done the first year. And a lot of hospitals tend to ignore that because it’s under warranty and figure it would get repaired by the OEM.

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**Jena Passut:** Do you find yourselves having to justify the cost of PM practices and what are some of the solutions to this challenge?

**Paul Kelley:** Well, I’m constantly having to justify staff, but not necessarily the PM practices and cost of supplies. So, not directly.

**Stephen Grimes:** Leadership has to be willing to fund the additional efforts required by the new CMS requirements and the accreditation standards, or they must be prepared to accept the consequences. But the big thing is, particularly in light of these regulatory changes, HTM must inform leadership of the resources that are going to be required to effectively achieve compliance. We need to educate them regarding that because that’s not going to be something they’re likely to figure out themselves.

**Alan Lipschultz:** If you’ve been running an HTM program that’s been humming along, and everybody’s been happy and now all of a sudden you need additional resources to comply because of the CMS dictum about manufacturers PM procedures, then your management is going to ask why, how much, and is this a temporary need or a long-term need? Maybe it’s a hump that will go away once the procedures are up-to-date.

**John Brown:** I don’t want to harp on data, but what we found too is, if you have to justify the cost, we do that weekly in meetings. And some legislations are you have to have data collection and a very thorough analysis of impact is what they already mentioned that what is the cost of not doing it. I mean, what’s the employee patient safety costs when PMs are minimized, what’s the downtime, is it going to impact your bottom-line? And you have to find some way to put it in dollars and cents to really get the extra staff or whatever is needed to get the change.

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**Jena Passut:** Another big debate has been how much leeway HTM departments can have in setting PM activities that differ from manufacturer’s recommendations. The memo from CMS in 2013 seemed to recognize the value of flexibility and experience and was more warmly welcomed than HTM community than the memo from 2011 which took a more restrictive position. Do you feel good about the CMS guidance as it stands?

**Paul Kelley:** I’ll say it was better than the 2011 one. I think there are just some things that look like they’re nothing, but they’re really, really problematic for us, like the tons of documentation that they’re now expecting us to keep.

**Stephen Grimes:** I think virtually all of us here on the call probably feel somewhat better about the 2013 CMS memo because it does allow now for some equipment to be considered for the alternate equipment maintenance (AEM) program after you do a risk assessment, rather than follow the manufacturers recommendations on all procedures as initially required in the 2011 memo. We feel better because our experience has shown that there are substantial numbers of equipment categories that benefit little from scheduled maintenance. After conducting the risk assessment on those categories, HTM should be allowed to focus on the real challenges associated with medical equipment today. I think a lot of us would probably agree those challenges are becoming less and less scheduled maintenance associated. However, I believe the latest CMS requirements are still onerous and were made largely without evidence of demonstrable benefit. The new regulations constrain organizations from considering alternatives to the manufacturers recommendations on things like the medical lasers, imaging and radiologic equipment. That group of equipment represents about half of what hospitals spend their medical equipment maintenance dollars on. By eliminating this group of equipment from AEM consideration, the regulations significantly limit our flexibility to move resources from maintenance where there’s no demonstrable benefit to the mitigation of technology risks of a
non-maintenance nature. So that’s why I still have significant reservations about the latest CMS memo.

Alan Lipschultz: I think the big thing right now is that everybody is going to try and reinvent the wheel because they’re all starting from scratch, and once there are sufficient models out there for AEM strategies with data to support them, other people will say, “Yes, I’m going to rely on their data to follow their alternate strategy,” it’ll be much easier for everybody else.

Matt Baretich: There are certainly some things that can be done to make it less onerous over time. EQ89 is a step in the right direction. But, even after all of those things are in place there are still requirements in the latest regulations from CMS that are, in my opinion, are the largest impediment to doing cost-effective maintenance on medical devices. CMS made changes that are expensive and difficult for no demonstrable benefit in terms of safety and effectiveness.

Stephen Grimes: The challenges that we have today in terms of medical equipment—new systems, increasingly complex systems, increasingly integrated systems—the mine fields that we’re beginning to see are not the maintenance related ones. Because we’re having to focus the limited resources we have on maintenance related issues, it doesn’t allow us to effectively move on to some of the new challenges that all of us are beginning to see associated with the new technologies we’re dealing with.

John Brown: It makes us a little nervous in some respects, not because people are going to do the wrong thing quickly, but we accept these maintenance practices based on sound design, controls, and testing, so we feel pretty solid that this is the right practice, although we’re cognizant of the fact that frequency can vary widely because of usage and environment. So, again, if they do the right approach we’re fine with it, but it does make us a little nervous that they might take this opportunity to actually lean it out to the point where they’re going to have issues and have to go to back up and create bigger problems for their hospital.

Matt Baretich: I can certainly appreciate what you’re saying, John. It makes sense from a manufacturer’s perspective, but what I look back on is that for decades the HTM community used risk-based inventory systems and developed their own processes for maintenance, and I don’t know of any evidence that that resulted in any compromise to patient safety or the effectiveness of medical equipment. CMS has put into place a “solution” to what has been shown by vast evidence to be a nonexistent problem. That’s just bad regulation.

George Mills: I actually think that the 2013 S&C letter is a major improvement from the 2011 S&C letter. For them to go from where they were to 2011 to where they went with 2013 certainly shows the field that CMS is willing to listen. Remember with the efforts of The Joint Commission and ASHE (a personal membership group of the American Hospital Association), AAMI and several other individuals in the medical equipment community that met with CMS and really helped them understand the impact of what the original 2011 S&C letter was going to do to the industry. I think for CMS to take another look at the 2011 S&C and come out with what they did was a major step in the right direction. There are some things that I wish they would have done as well. I was disappointed that they did not include a risk-based inventory that’s consistent with what we have allowed in our standards. I wish they had done that. Overall, though, I think that it’s a major step in the right direction. We hope that through advocacy we can still work with CMS on other issues and also maybe fine tune and clarify some of these things in the 2013 S&C letter.

Mark Heston*: I do not feel comfortable with this guidance. Let my organization be
responsible for the entire process to ensure each and every patient/family member is safe.

**Matt Baretich:** I have to add in that TJC in general and George, you in particular, have done tremendous work of great value to the HTM community and its progress that I would say we need to not stop at this point. We need groups like ASHE and AAMI and continued support from TJC and the other accrediting organizations and from respected groups like ECRI Institute to take some more steps here. We’ve taken some good steps and are going in a good direction, but there’s a lot of things that need to be taken care of, and we should not let things stand as they are.

**Jena Passut:** OK, I’m going to change gears and ask, “Are PM stickers useful or a waste of time and why?”

**Paul Kelley:** Yes, they’re useful for us. Our nursing service actually requested we have stickers on devices. Our safety team, when they’re doing their safety survey, actually spot check our equipment. Nurses are actually trained in orientation to look at it as if it was a pharmaceutical with an expiration date. Do they? I can’t really say that, but they help us find missing equipment that way.

**Mark Heston:** Waste of time. If you look at most devices, there are stickers all over the device. Control number, asset number, internal service number, vendor service number, owning department, and so on. It’s sticker overload for the users, patients, and families. All these stickers become hard to decipher. And the device becomes unsightly.

**Stephen Grimes:** On the positive side they’re a means for the clinical staff to know that it’s equipment for which HTM services has some responsibility and that they can contact HTM for support when they have issues with the equipment. I have looked to see whether clinicians are using tags to inform us of when inspections are out of date, and frankly I don’t see it. I’ve looked at a large group of hospitals and I can’t say that I’ve ever really heard of that happening, although clearly that’s one of the reasons I’ve heard for people using stickers. On the negative side, something that I am concerned about is people may look to see if there’s current inspection date on the sticker to provide them with some assurance that the equipment is working properly. I’ve had to explain to people when we’re talking about the pros and cons of the tag that it doesn’t mean the equipment is working properly. It means that someone has looked at the equipment on such and such a date and it appeared to be working properly then. They should not be lulled into thinking that equipment must be working properly just because it has a current inspection sticker on it. They need to always approach equipment with some caution and use some common sense in terms of looking for things to indicate that there may be a problem with the equipment and not just rely on the inspection tag to tell them it’s OK.

**John Brown:** I think that goes back something what George said earlier about taking documentation verbatim. I think the other important thing is if we’re using stickers, you’ve got to monitor and audit what’s being done before the stickers are put on to make sure that they’re not just putting the sticker on.

**Mike Lane:** I think it is a great communication tool to the end user and helps engage them in the process of identifying equipment items that may not have been tested, but there are some certain pitfalls that exist that have been outlined.

**Jena Passut:** Final question. If each of you had one magic wish, what is the one thing you would change about PM practices?

**Paul Kelley:** My wish is that we can share information. We could come up with evidence-based programs with the terminology and the failures, et cetera.

**Stephen Grimes:** So first I wish that we all would have the latitude to take an evidence-based approach toward all scheduled maintenance. We need to encourage regulators to avoid requiring maintenance practices that don’t have a demonstrable benefit but only serve to increase cost without the benefit.”

— Stephen Grimes
challenges are associated with increasingly complex and integrated systems that maintenance has little or nothing to do with. So I also wish HTM would be given the latitude of using its limited resources to do a full technology risk assessment and be allowed to apply those limited resources in the most meaningful way. That would involve looking at all the things HTM can and should be doing which would include not only scheduled maintenance but other things that represent some of the most significant risks we need to address.

John Brown: Our magic wish would be to move to a predictive model, connecting equipment and tracking parameters to get ahead of the repair so that you watch your charge rates and your exhaust rates and things change you can predict when that next valve is going to fail as opposed to having to go in and proactively replace it.

Mark Heston: My wish would be to let my organization be responsible for the entire PM process to ensure each and every patient / family and staff member is safe.

George Mills: I think it’d be exciting if our equipment could be self-monitoring, which some equipment does now. By this, I mean if the equipment could evaluate the time between service and notify us when we are due. I think sometimes we schedule by the calendar rather than use/run time. Part of this has to be a partnership between manufacturers and us as maintainers to know what to expect and when to expect it. So, my wish is that manufacturers, users, and maintainers, could partner to look at what is really practical and reasonable in PMs and maintaining the equipment to be reliable, safe, and still economical. ■
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