OBSERVATIONS AND INSIGHTS

Is an Alternative Equipment Maintenance Program Difficult to Develop?

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About the Author

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Ever since the Centers for Medicare & Medicaid Services (CMS) restricted the ability of hospitals (and anyone else money receiving from the agency) to deviate from manufacturer-recommended procedures and schedules for the scheduled maintenance and care of medical devices, everyone is talking about the only way out of this myopic rule: the alternative equipment maintenance (AEM) program.

AEM is a program whereby a logical and justifiable approach is made concerning the real-world maintenance needs of medical equipment. It has long been recognized by professional maintainers that the procedures and frequencies of maintenance that are called for by the manufacturers are, in many cases, not realistic, necessary, or beneficial to the patient or to the user or owner of the equipment.

These procedures that appear in the service manuals are developed before the equipment is released for sale and before any data about how it performs in a live situation are available. The procedures and frequencies are usually written by the engineers who design and build the equipment. They are overly cautious and tend to err on the side of maintenance that is too rigorous and too frequent. This is done for a couple of reasons. First, they are trying to save the company from liability from lawsuits and the costs of equipment failures if the equipment should fail and/or someone should be injured. Second, too many planned maintenance (PM) inspections can only make the manufacturer more money, because they are the ones who are usually paid to perform them. This possible financial incentive for frequent PMs was noted by ECRI Institute in the 1980s.

So how does one develop an AEM? It really isn’t too hard. First, we need to start with a really good inventory—one that has very consistent descriptions for all devices. Manufacturers and models help the process but aren’t as critical as device description.

Second, we flag all items that are not eligible for the AEM program. This includes lasers, imaging devices, and ultrasounds. These are defined by CMS in its letter of Dec. 20, 2013.

Third, we identify all items that are on a manufacturer’s service contract (with the manufacturer who made it). These do not need to be evaluated, because the original manufacturer is maintaining them, hopefully, to the original specifications.

Fourth, we need to take the remaining items and subject them all, one at a time, to a risk analysis evaluation. The most popular is the
Four-dimensional model of risk assessment, which assigns a numeric value for equipment function, patient risk associated with clinical application, maintenance requirements of the device, and maintenance history.

An additional factor that must be evaluated, though item by item and not globally by device type, is use environment. If an item is to be used on an ambulance, it probably should be checked more frequently than one that sits in a quiet hallway and sees little action or use.

Step 5 is to set a threshold. Below this number, items will receive no scheduled maintenance. This often applies to items that are simple, have no PM-preventable items, or for which the operator can easily tell if it is working properly. The most typical example of this is the wall-mounted otoscope. If the scoring system goes from 5 to 26, maybe everything under 13 receives no scheduled PM.

Step 6 is to set the cut-off points for semiannual (6 month) and annual (12 month) PMs. If the scale goes to 25, maybe everything over a score of 19 receives a 6-month interval PM and everything that scores 13 to 19 receives a 12-month PM.

Step 7 is to review each of the equipment types one by one with one or more expert biomedical equipment technicians, in order to discuss and debate the scoring and arrive at a final PM frequency decision. Even at 6 minutes per item, 600 items could take 60 hours. But this is important to make sure that no items get through the scoring process with longer-than-necessary PMs.

Now, you have your default PM frequencies for all of your medical equipment. Three major tasks remain: 1) writing the actual alternative PM procedure, 2) determining how long each alternative PM procedure will take to accomplish, and 3) deciding the months in which the work will be done.

In the next installment of Observations and Insights, I will be discussing PM procedures.