DO YOU HAVE AN ALTERNATIVE EQUIPMENT MAINTENANCE / MANAGEMENT (AEM) PROGRAM FOR YOUR FACILITY?

A 10-step Process for a Successful AEM Program Deployment.

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Do you have an AEM Plan for your Facility?

Introduction:

Do you have an Alternative Equipment Maintenance/Management (AEM) Plan for your Facility? Such a simple question, but not so simple in terms of an answer. The implication of either a "yes" or a "no" answer has, or will have, a profound impact on how you are managing your facility and how you will respond to accreditation surveys with The Joint Commission.

There is a lot of discussion in the HealthCare industry right now about AEM, as it relates to both clinical and utility assets, and similarly a lot of confusion and misunderstanding. That confusion and misunderstanding is in some cases preventing HealthCare providers from taking the necessary steps to implement the program, simply out of the fear of doing it wrong. The purpose of this paper, is to not only explain the "What" of an AEM plan, but also to outline the "How" so that you, as a facility manager, can move forward in a meaningful way and with the confidence that you are doing it correctly.

The benefits of an AEM plan extend far beyond just the compliance aspect, it's an opportunity to rethink how you approach the management of your facility. The disciplined approach of accurately identifying asset inventory, assigning the appropriate risk classification, the process of identifying, maintaining and optimizing preventative maintenance strategies, and the overall proactive approach of facility management represents a positive cultural change that will serve you well for years to come.

At the highest level, the intent of an AEM plan is to have and maintain a thorough understanding of the performance of your clinical and utility assets and to make proactive and predictive management decisions regarding those assets. The outcome of that proactive approach is an improved physical environment, which serves to benefit the patients, the caregivers, and in the end, the human experience of all who make use of the HealthCare facility. It begs the question, are you managing your facility, or is your facility managing you? With an AEM plan in place, you can achieve the former, and eliminate the latter. It's time we took control of our facilities. Let's dig a little deeper.

How did the AEM Plan Originate?

There is a common misconception that the AEM Plan requirements began as a Joint Commission Requirement. Not true. To fully understand the AEM Plan requirements, we need to start with the Centers for Medicare and Medicaid Services (CMS). Since 2011, there have been a series of updates in the CMS guidelines for equipment maintenance, and The Joint Commission and other accreditation entities have been working to interpret and deploy the standards required to meet those guidelines. The following timeline demonstrates the progression of that effort.

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Dec. 2, 2011:

- **Revision of State Operations Manual (SOM) Hospital Appendix A: 482.41(C)**
- **CMS issues Survey and Certification notification (S&C 12-07 2011), acknowledging that manufacturer recommended preventative maintenance schedules were restrictive and excessive, and allowed for "Alternative equipment maintenance schedules".**
    - Scope included "some facility and medical equipment."
    - Allowed for alternative maintenance schedules below manufacturer recommendations based upon assessment by qualified personnel of the risk to patient and staff health and safety.
    - Required manufacturer-recommended maintenance frequency for:
        - All equipment critical to patient health and safety; and
        - Any new equipment until sufficient maintenance history has been acquired.
- **Allowed deviation to the frequency of maintenance activity, but did not allow for any deviation from the manufacturer recommended methods (activities) of maintenance.**

Dec. 20, 2013:

- **CMS, in coordination with the Joint Commission, issues 2013 Revision (S&C 14-07) to clarify (S&C 12-07)**
- **Scope modified to "Hospital facilities, supplies, and equipment."**
    - Specifically excludes equipment requiring manufacturer recommendations by law or Hospital Conditions of Participation (COP). (These would include NFPA life safety inspection, testing and maintenance requirements)
    - Specifically excludes medical laser devices.
    - Requires organizations must develop and adhere to policies and procedures relating to an "AEM" plan.

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- Adds reference to 42 CFR 485.623(b)(1) and states that a Critical Access Hospital (CAH) may adjust its maintenance, inspection, and testing frequency and activities for facilities and medical equipment…

- ***42 CFR 485.623: (b)Standard: *Maintenance.* The CAH has housekeeping and preventive maintenance programs to ensure that (1) All essential mechanical, electrical, and patient-care equipment is maintained in safe operating condition.**

Aug. 8, 2014:

- **CMS issues 2014 CAH Revision (S&C 14-41-CAH)**

- **Scope changed again to "Facility and Medical Equipment."**

    - Provides additional definition of scope restrictions, providing NFPA LSC requirements as an example.

    - Adds imaging/Radiologic equipment to restrictions.

    - Adds requirement that "Qualified Personnel" perform a risk assessment and make decisions regarding the AEM program.

- **Effective July 1, 2017 (per TJC communications):**

- **EC.02.04(.01,.03, and .05) will require 100% completion/compliance of AEM preventative maintenance (up from 90%).**

- **Note: EC.02.04 relates to medical equipment, but mirrors EC.02.05 (utility systems) with regards to AEM programs. Because of this, it is anticipated that the 100% compliance requirement will be included in EC.02.05 as well, bringing the EOC up to par with CMS SOM requirements.**

July 1, 2017:

- **100% completion/compliance of AEM defined preventative maintenance is required.**

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"What" are The Joint Commission AEM Requirements?

- **EC.02.05.01-The organization manages risks associated with its utility systems.**

1. The organization designs and installs utility systems that meet patient care and operational needs.

2. The hospital maintains a written inventory of all operating components of utility systems or (for hospitals that do not use TJC for Deemed Status) a written inventory of selected operating components of utility systems based on risks for infection, occupant needs, and systems critical to patient care (including all life-support systems). The hospital evaluates new types of utility components before initial use to determine whether they should be included in the inventory.

3. The organization identifies high-risk operating components of utility systems on the inventory for which there is a risk of serious injury or death to a patient or staff member should the component fail.

4. The organization identifies the activities and associated frequencies, in writing, for inspecting, testing, and maintaining all operating components of the utility systems on the inventory. These activities and associated frequencies are in accordance with manufacturers' recommendations or with strategies of an alternative equipment maintenance (AEM) plan.

    - **Note: The strategies of an AEM program must not reduce the safety of the equipment and must be based on accepted standards of practice.**

5. The Organization's activities and frequencies for inspection, testing, and maintaining the following items must be in accordance with manufacturers' recommendations:

    - Equipment subject to federal or state law or Medicare Conditions of Participation in which inspecting, testing, and maintaining be in accordance with the manufacturers' recommendations, or otherwise establishes more stringent maintenance requirements.
    - New operating components with insufficient maintenance history to support the use of alternative maintenance strategies.
    - **Note: Maintenance history includes any of the following documented evidence:**

        - **Records provided by the organizations' contractors**
        - **Information made public by nationally recognized resources**
        - **Records of the organizations' experience over time.**

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6. A qualified individual(s) uses written criteria to support the determination of whether it is safe to permit operating components of utility systems to be maintained in an alternate manner that includes the following:

    - How the equipment is used, including the seriousness and prevalence of harm during normal use.
    - Likely consequences of equipment failure or malfunction, including seriousness of and prevalence of harm.
    - Availability of alternative or backup equipment in the event the equipment fails or malfunctions.
    - Incident history of identical or similar equipment.
    - Maintenance requirements of the equipment.

7. **The organization identifies the operating components of utility systems on its inventory that are included in an alternative equipment maintenance program.**

    - **Note: Under 42 CFR 482.41 (c)(2) of the CMS State Operations Manual, "Hospitals comply with this regulation when they follow the manufacturer-recommended maintenance activities and schedule. … A hospital may, under certain conditions, use equipment maintenance activities and frequencies that differ from those recommended by the manufacturer. … The hospital is expected to adhere strictly to the AEM activities or strategies it has developed."**

    - **Note: "Strict adherence" is generally interpreted by CMS to mean completing 100% of the activities in a frequency identified by the organization.**

So… "How" do you Create a Compliant AEM Program?

Now that we understand what is required, it's time to get to work. In simple terms, developing and deploying an AEM plan is like digging a ditch. The concept of the ditch is simple enough. But the real work starts when you put your shovel in the ground. At some point, you must stop talking about it, and start digging. And once you do, with each shovel full of earth, you find out what's underneath the ground, you learn, you adapt, you modify the plan, and you keep going until the work is done. The work gets done incrementally, and over time.

It's the same concept with an AEM plan. Instead of digging in the ground, it's about digging into the data. Incrementally, intelligently and following a prescribed plan of action. Complete each step in the following process before moving on, and you'll keep from overwhelming yourself and your team. Follow the data, learn, adapt, modify and keep going until the work is done.

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Recommended 10 Step Process for the Implementation of an AEM Plan:

1) **Communicate:** Define your plan of action and communicate that plan clearly, consistently and frequently with both your leadership and your staff.
   - The development of an AEM Plan will necessarily include a lot of questions. What maintenance are we doing (or not)? What should we be doing? Etc. Without clear communication from the very beginning, both staff and leadership alike may see this as a punitive effort. **Avoid that dialogue, and use this opportunity to motivate your team.**

2) **Validate Inventory:** Identify and tag all assets within your portfolio that require preventative maintenance.
   - Before doing anything else, either validate your existing CMMS asset inventory lists or act decisively to obtain it and document it. Utilize your staff, or hire appropriate industry experts to conduct a facility/asset condition assessment, properly tag and identify your assets. **If you don't know what you have, you can't manage it.**

3) **Build Your AEM Team:** With a complete understanding of your asset inventory, identify the qualified staff that will be responsible for making the AEM Plan decisions.
   - Proper construction of an AEM Plan requires documentation of the team members making risk and maintenance decisions, and the qualifications of those individuals. Build a team that is both large and capable enough to handle decisions surrounding different types of assets, but small enough to be nimble and manageable. **Understand who will be responsible for owning the AEM Plan. It's a team effort.**

4) **Assess Asset Risk:** Utilizing a standard risk classification structure, objectively and decisively assign and track risk for each clinical or utility asset. Some items to consider:
   - Risk of Failure: what is the impact of failure?
   - Risk of Service: criticality of what the asset serves?
   - Required Maintenance: frequency, intensity?
   - Asset Redundancy: How quickly can service be duplicated or restored?
   - **The risk classification drives everything from this point forward.** Maintain and document all risk decisions, including who (individual or team) made the overall assessment.

5) **Rank and Prioritize Assets Based on Highest Risk:** Identify which assets must be excluded from the AEM program based upon requirements in EC.02.04.01(EP5) and/or EC.02.05.01(EP5).
   - Life Safety Systems identified in NFPA Inspection, testing and maintenance requirements, Medical Laser equipment, Radiological/Imaging equipment.
   - Other criteria based on your individual facility threshold for risk.

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- This class of assets represent your most critical items. **All assets included in this category must be maintained based on manufacturer's recommended preventative maintenance tasks and frequencies.**
- **Validate that all critical asset PM tasks, frequencies and schedules are properly deployed in your CMMS system.**

6) **Rank and Prioritize Remaining Assets Based on Risk:** After life safety and other critical assets have been identified, look now to identify which assets will be included in the AEM program.
   - Understand which assets are applicable to, or appropriate for inclusion in the AEM program. Break assets down into logical and manageable classes and risk levels for easy review and focus on technical requirements. **Create your final AEM asset list.**

7) **Establish Criteria for AEM PM Definition:** Document the maintenance and repair history of assets that are applicable to, or appropriate for inclusion in the AEM program.
   - Use industry standards for new assets until sufficient data is available.
   - Develop asset enterprise standards and use CMMS data to track preventative maintenance and unplanned work events.
   - Review each asset or asset class in order of priority/risk. Look at manufacturer's recommended maintenance activities and either accept those standards, or create an alternative schedule. Exclude the lowest risk-ranked assets (run to fail) if desired, but do so very carefully and will full documentation. **Create your final AEM PM decision framework.**

8) **Define Desired PM Schedules:** Determine alternative preventative schedules and requirements that do not increase risk of failure or risk of harm to patients and staff.
   - Use industry standards for alternative PM schedules and requirements. Note that an AEM plan does not allow from manufacturer's recommended maintenance tasks (e.g. filter replacement, etc.) but does allow for an alternate frequency of performing those tasks.
   - **Document alternative schedules and validate that all tasks, alternative PM frequencies and schedules are properly identified in your CMMS system.**

9) **Complete AEM Plan Documentation:** Create Policies and Procedures that clearly identify the AEM program, including detailed asset lists, resource information, and ongoing assurance that the plan is active, effective and maintained.
   - Summarize and record the results of steps 2 – 8 above in a central policy document that can easily be updated and maintained by the appropriate Facility Management leader, and presented to The Joint Commission surveyor, or other AHJ agency. **Do what you say, say what you do.**

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10) **Continuous Improvement:** Review assets continuously to monitor preventative maintenance performance along with trends in unscheduled repairs, and mitigate risk proactively. Act quickly if data trends indicate increased risk.
    - Annual review is required, more frequently is better, real-time-analysis and automation is best-practice. Utilize the reporting functions of your CMMS to obtain quality data to either drive manual reviews, or utilize other tracking solutions to do so in an automated manner.
    - Trend maintenance and repair history and adjust PM levels for each asset to ensure reliability, reduce risk, and manage costs. **Utilize data to continuously update and optimize your AEM Plan.**

Conclusion:

If you are maintaining all clinical and utility assets according to manufacturer's recommendations, and have up to date Preventative Maintenance (PM) records in your CMMS database to prove 100% performance, then you are good, although you may be missing opportunities to optimize performance. However, most Healthcare Systems today do not have the ability to meet those requirements, and so often must maintain equipment in a manner that is more suitable for their unique facility. This is also an acceptable strategy, IF the actual PM work that is done is based on a reasonable assessment of risk, is fully documented at a level that will satisfy TJC or other AHJ inspections, and can be supported with historical PM and unscheduled repair CMMS data. **If it is your strategy to deviate from manufacturer's recommended maintenance on any of your infrastructure assets, then an AEM plan must be used to document these decisions.**

The concept of the AEM is not hard. The implementation can be hard work, but it's not impossible. It's time to take control of your facility. **Understand the intent of an AEM Plan. Follow the process, document your actions and results, and achieve the desired outcome of improved patient care.**

For more information about how to construct an AEM plan for your facility please contact Brian Crum, VP Professional Services (b.crum@facilityhealthinc.com) or Mark Mochel, VP Sales and Marketing (m.mochel@facilityhealthinc.com) and we will be happy to answer any questions you might have.

DISCLAIMER: The information presented in the above white paper is based upon the interpretations and understanding of requirements by industry experts at Facility Health Inc., and should not be used as a substitute for official Joint Commission documentation. For a complete and official listing of AEM requirements, visit www.jointcommission.org

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About the Authors:

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With over 20 years of program management experience, Mark is passionate about the utilization of technology to drive predictive maintenance and compliance in HealthCare and improve facility performance. That means creating an objective, data-driven communication link between the technicians, the engineers, the facilities management team, and the executive leadership where the critical facility maintenance and capital investment decisions are made. Mark has a Bachelor's degree in Mechanical Engineering from Purdue University, and an MBA from The University of Michigan.

Brian Crum, CHFM, Vice-President Professional Services, Facility Health Inc.

With over 10 years of prior experience as Facility Manager at a major health system in Michigan, Brian is proud to be at the forefront of change in the HealthCare industry, and draws on his real-world experience to deliver complete, long-term solutions to clients. Throughout his career, Brian has managed over $30 million of infrastructure repair and replacement projects, and assessed 30+ million square feet of building space. He hopes to drive quality care by fostering better communication and collaboration between facility managers and the C-Suite. Brian has a Bachelor's degree in Facility Management from Ferris State University, and has been a Certified HealthCare Facility Manger since 2013.

About Facility Health Inc.

Founded in 2016, and based in Grand Rapids, Michigan, Facility Health Inc. is a Division of Synergy Consulting Engineers, a leading provider of facility engineering and critical environment expertise since 2005. We value our customer relationships and strive to help those customers achieve maximum facility performance. It is our vision to enhance the human experience in the HealthCare Industry through continuous improvement in the physical environment.

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