



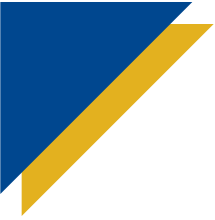
EQUIPMENT MANAGEMENT

MEDICAL EQUIPMENT: EC.02.04.01, EC.02.04.03

UTILITY SYSTEMS: EC.02.05.01, EC.02.05.05

ONLY APPLIES TO
HOSPITAL & CAH
PROGRAMS

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The Joint Commission



UTILITY MANAGEMENT

EC.02 05.01

EC.02.05.05

EC.02.05.01



Standard EC.02.05.01

The hospital manages risks associated with its utility systems.

EC.02.05.01 EP 1

The hospital designs and installs utility systems that meet patient care and operational needs. (See also EC.02.06.05, EP 1)


EC.02.05.01 EP 2

- ▶ The hospital maintains a written inventory of all operating components of utility systems or maintains 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. **For hospitals that use Joint Commission accreditation for deemed status purposes:** **The hospital maintains a written inventory of all operating components of utility systems.** (See also EC.02.05.05, EPs 1, 3-5)

UTILITY SYSTEMS & OPERATING COMPONENTS

- ▶ Utility Systems are those systems that support the use and function of the physical environment, such as the
 - ❑ heating system
 - ❑ the cooling system
 - ❑ water distribution system
- ▶ Components on the inventory would include the equipment that is performance-related and delivers a measurable outcome.
 - ❑ For example, the heating system may have the following components:
 - boiler, DA tank (de-aeration tank), feed water pumps, distribution (including circulation pumps, piping, and condensate return).
 - ❑ Support parts to the components, such as belts, filters and steam traps, might not need to be individually listed, although they would likely be part of a preventive maintenance program.
 - Support parts of components such as pumps and motors might also be considered sub-components and may or may not be reflected on the inventory, depending on the maintenance strategies used.

EC.02.05.01 EP 3



The hospital 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.

Note: High-risk utility system components include life-support equipment.

EC.02.05.01 EP 4

The hospital identifies the activities and associated frequencies, in writing, for inspecting, testing and maintaining all operating components of 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) program.

Note 1: The strategies of an AEM program must not reduce the safety of equipment and must be based on accepted standards of practice.

- An example of guidelines for physical plant equipment maintenance is the American Society for Healthcare Engineering (ASHE) book *Maintenance Management for Health Care Facilities*.


Note 2: For guidance on maintenance and testing activities for Essential Electric Systems (Type I), see NFPA 99, 1999 edition (Section 3-4.4).

EC.02.05.01 EP 5

For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital's activities and frequencies for inspecting, 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

EC.02.05.01 EP 5 (CONTINUED)

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- ▶ Note: Maintenance history includes any of the following documented evidence:
 - ❑ Records provided by the hospital's contractors
 - ❑ Information made public by nationally recognized sources
 - ❑ Records of the hospital's experience over time

MEDICAL EQUIPMENT EC.02.04.01 EP 5

For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital's activities and frequencies for inspecting, 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
- Medical laser devices
- Imaging and radiologic equipment (whether used for diagnostic or therapeutic purposes)
- New medical equipment with insufficient maintenance history to support the use of alternative maintenance strategies


EC.02.05.01 EP 6

For hospitals that use Joint Commission accreditation for deemed status purposes: A qualified individual(s) uses written criteria to support the determination 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 back-up equipment in the event the equipment fails or malfunctions
- Incident history of identical or similar equipment
- Maintenance requirements of the equipment

For more information on defining staff qualifications, refer to Standard HR.01.02.01

EC.02.05.01 EP 7



For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital identifies operating components of utility systems on its inventory that is included in an alternative equipment maintenance program.



The hospital minimizes pathogenic biological agents in cooling towers, domestic hot-and cold-water systems, and other aerosolizing water systems.


EC.02.05.01 EP ~~9~~ 15

In areas designed to control airborne contaminants (such as biological agents, gases, fumes, dust), the ventilation system provides appropriate pressure relationships, air-exchange rates, and filtration efficiencies.

Note: Areas designed for control of airborne contaminants include spaces such as


- operating rooms
- special procedure rooms
- delivery rooms for patients diagnosed with or suspected of having airborne communicable diseases (for example, pulmonary or laryngeal tuberculosis)
- patients in "protective environment" rooms (for example, those receiving bone marrow transplants), laboratories, pharmacies, and sterile supply rooms

EC.02.05.05 EP 1



The hospital tests utility system components on the inventory before initial use and after major repairs or upgrades. The completion date of the tests is documented. (See also EC.02.05.01, EP 2)

EC.02.05.05 EP 3




The hospital inspects, tests, and maintains the following: ~~life-support~~ High-risk utility system components on the inventory. These activities are documented. (See also EC.02.05.01, EPs 2 and 4)

- ▶ Note: High-risk utility system components includes life-support utility system components.

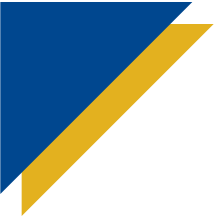
EC.02.05.05 EP 4

- ▶ The hospital inspects, tests, and maintains the following: Infection control utility system components on the inventory. These activities are documented. (See also EC.02.05.01, EPs 2 and 4)

EC.02.05.05 EP 5



The hospital inspects, tests, and maintains the following: ~~Non-life-support~~ Non-high-risk utility system components on the inventory. These activities are documented. (See also EC.02.05.01, EPs 2 and 4)



MEDICAL EQUIPMENT MANAGEMENT

EC.02.04.01

EC.02.04.03

EC.02.04.01



Standard EC.02.04.01

The hospital manages medical equipment risks

EC.02.04.01 EP 1

The hospital solicits input from individuals who operate and service equipment when it selects and acquires medical equipment.

MEDICAL EQUIPMENT DEFINED

Fixed and portable equipment used for

❑ Diagnosis

- The act or process of identifying or determining the nature and cause of a disease or injury through evaluation of patient history, examination, and review of laboratory data

❑ Therapeutic

- Of or relating to the treatment of disease or disorders by remedial agents or methods

❑ Monitoring

- usually electronic device used to record, regulate, or control a process or system

❑ Direct care

- Care delivered to the patient as part of treatment


MEDICAL DEVICE DEFINED

- ▶ Intended for use in the
 - Diagnosis of disease
- ▶ Intended for use in other conditions in the
 - Cure
 - Mitigation
 - Treatment
 - Prevention of disease
- ▶ Intended to affect the structure or other function of the body
- ▶ Recognized in the official National Formulary or the United States Pharmacopeia or supplement to either

EC.02.04.01 EP 2

- ▶ The hospital maintains either a written inventory of all medical equipment or a written inventory of selected equipment categorized by physical risk associated with use (including all life-support equipment) and equipment incident history. The hospital evaluates new types of equipment before initial use to determine whether they should be included in the inventory. **For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital maintains a written inventory of all medical equipment.** (See also EC.02.04.03, EPs 1 and 3)

EC.02.04.01 EP 3



The hospital identifies high-risk medical equipment on the inventory for which there is a risk of serious injury or death to a patient or staff member should the equipment fail.

Note: High-risk medical equipment includes life-support equipment.

EC.02.04.01 EP 4

The hospital identifies the activities and associated frequencies, in writing, for maintaining, inspecting, and testing all medical equipment on the inventory. These activities and associated frequencies are in accordance with manufacturers' recommendations or with strategies of an alternative equipment maintenance (AEM) program.

❑ An example of standards for a medical equipment program is the American National Standards Institute/Association for the Advancement of Medical Instrumentation handbook ANSI/AAMI EQ56: 2013, *Recommended Practice for a Medical Equipment Management Program*.

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

EC.02.04.01 EP 5

For hospitals that use Joint Commission accreditation for deemed status purposes: The hospital's activities and frequencies for inspecting, 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
- Medical laser devices
- Imaging and radiologic equipment (whether used for diagnostic or therapeutic purposes)
- New medical equipment with insufficient maintenance history to support the use of alternative maintenance strategies

EC.02.04.01 EP 5 (CONTINUED)

Note: Maintenance history includes any of the following documented evidence:

- Records provided by the hospital's contractors*
- Information made public by nationally recognized sources*
- Records of the hospital's experience over time*

EC.02.04.01 EP 6

For hospitals that use Joint Commission accreditation for deemed status purposes: A qualified individual(s) uses written criteria to support the determination whether it is safe to permit medical equipment 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 back-up equipment in the event the equipment fails or malfunctions
- Incident history of identical or similar equipment
- Maintenance requirements of the equipment

For more information on defining staff qualifications, refer to Standard HR.01.02.01

EC.02.04.01 EP 7

For hospitals that use Joint Commission

accreditation for deemed status purposes:

The hospital identifies medical equipment on its inventory that is included in an alternative equipment maintenance program.

EC.02.04.01 EP 8 & 9

EC.02.04.01, EP **5** **8**

The hospital monitors and reports all incidents in which medical equipment is suspected in or attributed to the death, serious injury, or serious illness of any individual, as required by the Safe Medical Devices Act of 1990.


EC.02.04.01, EP **6** **9**

The hospital has written procedures to follow when medical equipment fails, including using emergency clinical interventions and back-up equipment.

EC.02.04.03 EP 1

- Before initial use and after major repairs or upgrades of medical equipment on the medical equipment inventory, the hospital performs safety, operational, and functional checks. (See also EC.02.04.01, EP 2)

EC.02.04.03 EP 2



The hospital inspects, tests, and maintains all ~~life-support~~ high-risk equipment. These activities are documented. (See also EC.02.04.01, EPs 3 and 4; PC.02.01.11, EP 2)

Note: High-risk medical equipment includes life-support equipment.

EC.02.04.03 EP 3

- ▶ The hospital inspects, tests, and maintains ~~non-life-support~~ non-high-risk equipment identified on the medical equipment inventory. These activities are documented. (See also EC.02.04.01, EPs 2 and 4; PC.02.01.11, EP 2)

EC.02.04.03 EP 4 & 5




EC.02.04.03, EP 4

The hospital conducts performance testing of and maintains all sterilizers. These activities are documented. (See also IC.02.02.01, EP 2)

EC.02.04.03, EP 5

The hospital performs equipment maintenance and chemical and biological testing of water used in hemodialysis. These activities are documented.

EC.02.04.03 EP 14



For hospitals that use Joint Commission accreditation for deemed status purposes: Qualified hospital staff inspect, test, and calibrate nuclear medicine equipment annually. The dates of these activities are documented.

EQUIPMENT SURVEY PROCESS

Documentation is completed for High-risk, life support and non-life support devices on the inventory

❑ Accuracy of Inventory

- All High-risk and Life Support equipment must be on the inventory and identified
- Preventive maintenance frequencies must be clearly defined in writing

❑ Confirm work done as per scheduled activities

- Ensure appropriate work is scheduled based on maintenance strategies
- Evaluate equipment failure and scheduled actions

SURVEY PROCESS: STAFF INTERVIEWS

Department Leader

- Evaluate the qualifications of the leader
 - Review appropriate documentation
- Evaluate how the inventory was created
- If an alternative maintenance program is in use, evaluate the inclusion process
- Evaluate the Monitoring processes
- Evaluate the effectiveness of the program
 - What criteria is used to evaluate
 - Evaluate the Completion rate of maintenance activities

SURVEY PROCESS: STAFF INTERVIEWS

Equipment Maintainers

- Evaluate their understanding of the maintenance process/strategies
- Evaluate staff knowledge related to the alternative maintenance program
- Evaluate assignment of maintenance activities
- Evaluate competencies based on repeat work orders
- Evaluate work scheduled against completed

SURVEY PROCESS: STAFF INTERVIEW


Users of the Equipment

- Evaluate equipment reliability
- Evaluate response time when equipment fails
 - Evaluate emergency response process
- Evaluate “Culture of Safety”
 - Appropriate training of staff related to equipment use
- Customer satisfaction with department

Contract Services

- Evaluate the process used to ensure contractors use qualified personnel
- Evaluate reliability of equipment serviced
- Evaluate integration of the process

EVALUATING PROGRAM EFFECTIVENESS




The equipment management programs must have written policies & procedures

▶ Evaluating the program:

- ❑ How is equipment evaluated to ensure no degradation of performance?
 - Consider mis-calibration of equipment
 - Consider test equipment calibration confirmation
- ❑ How are equipment-related incidents investigated?
 - Could the malfunction have been avoided?
 - Did the alternative maintenance strategy contribute to the malfunction?
 - How to sequester equipment deemed unsafe?

EVALUATING PROGRAM EFFECTIVENESS

- 
- ▶ Is there a performance process to evaluate if modifications to the maintenance strategy are needed?
 - ▶ Evaluate the accuracy of the inventory
 - ❑ High-risk equipment segregated in the inventory?
 - ❑ Equipment in an alternative maintenance program segregated?
 - ❑ Grouping of like equipment is acceptable
 - ❑ Are imaging/radiologic equipment and medical laser devices exempt from the alternative maintenance program?

EVALUATING PROGRAM EFFECTIVENESS: MISCELLANEOUS TOPICS

- ▶ Survey should focus on High-risk equipment
 - ❑ Are appropriate operation manuals and maintenance schedules available?
- ▶ Verify the inspection, testing & maintaining activities and frequencies are documented
- ▶ Evaluate the various maintenance strategies used
 - ❑ Are they appropriate?
 - ❑ Are they effective?
 - ❑ Is the equipment reliable?

HIGH-RISK MEDICAL EQUIPMENT



High-risk equipment


Includes Life Support

- Heart/lung bypass machine
- Anesthesia equipment
- Circulatory Assist Equipment
 - IABP
 - LVAD
- Ventilations
 - Adult; Infant; MRI-Compatible

Other High-risk equipment

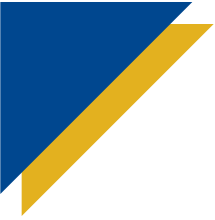
- Defibrillators
- Robotic surgery devices

HIGH-RISK UTILITY SYSTEMS

- 
- ▶ High-risk equipment
 - Includes Life Support
 - Isolation room air handlers
 - Operating room air handlers
 - Egress components
 - Other High-risk equipment
 - Emergency Generators
 - Medical Gas System
 - Air compressors and vacuum systems
 - Fire Alarm System
 - Sprinkler System
 - Elevators

DASHBOARD

Standard	Status	Action Plan	Q1	Q2	Q3	Q4
EC.02.05.01	OR 1, 4 & 5	Upgrade AHU controls; update monitoring software		Start		
LS.02.01.20	OK					
EC.02.06.01	2E, 2W	Patient rooms cold: Begin trap program	Start			
EC.02.03.05	OK					
LS.02.01.10	OK					
LS.02.01.30	Problematic	Attend Barrier Mgmt Symposium	OK			
LS.02.01.35	3W; 4N	Train 3W & 4N staff regarding shelved storage		OK	OK	
EC.02.02.01	OK					
EC.02.05.09	OK					
EC.02.05.07	OK					



QUESTIONS?

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