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Standard Guide for Decommissioning and Disposal of Medical Equipment¹

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1. Scope

1.1 This standard guide addresses decommissioning and disposal of medical equipment.

1.2 Decommissioning and disposal of medical equipment is done when equipment is no longer needed due to obsolescence, is inoperable, or has met a scheduled replacement milestone. Decommissioning is the first physical process in the disposition process and includes proper identification, authorization for disposition, and sanitization of the equipment, as well as removal of Patient Health Information (PHI) or software, or both. Disposal method is dependent upon many factors that will be described in this standard guide.

1.3 This guide does not include detailed disposal method procedures or sales requirements or restrictions specific to any regulatory body or the various levels of government in which an entity may operate. This guide also provides practices that are common to many operations and provides flexibility to best integrate external requirements.

1.4 *While this standard describes common safety and environmental considerations associated with the decommissioning and disposal of medical equipment, it does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the entity using this standard to establish and apply appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This guide is under the jurisdiction of ASTM Committee E53 on Asset Management and is the direct responsibility of Subcommittee E53.30 on Decommissioning and Disposal of Medical Supplies, Medical Equipment, and Hospitals. Current edition approved July 1, 2018. Published July 2018. DOI: 10.1520/E3173-18.

2. Referenced Documents

2.1 *ASTM Standards:*²

E2135 Terminology for Property and Asset Management

E2306 Practice for Disposal of Personal Property

E2858 Practice for Sales of Personal Property

3. Terminology

3.1 *Definitions*—For additional definitions for property and asset management, see Terminology E2135.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *decommission*, *v*—to remove from active service.

3.2.2 *medical equipment*, *n*—non-expendable, tangible, moveable property needed for the performance of, primarily or uniquely, a medical task.

3.2.3 *sanitization*, *n*—the process of removing undesired features such as chemical, biological contaminants from all surfaces, and personal or sensitive data from data storage devices.

4. Summary of Guide

4.1 Hospitals and medical organizations decommission and dispose of many types of highly complex medical devices and equipment.

4.2 Entities must understand what equipment is to be disposed, ownership and use agreements, and restrictions on disposal as part of the decommissioning process.

4.3 An appraisal by an accredited member of the American Society of Appraisers (ASA)³ or the Association of Machinery and Equipment Appraisers (AMEA)⁴ should be performed prior to decommissioning expensive and complex medical or scientific equipment to better understand the potential value of

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ American Society of Appraisers (ASA), 11107 Sunset Hills Rd, Suite 310, Reston, VA 20190, <http://www.appraisers.org>.

⁴ Association of Machinery and Equipment Appraisers (AMEA), 315 South Patrick Street Alexandria, Virginia 22314, <http://www.amea.org>.

the equipment. In some cases, extensive decommissioning of medical equipment prior to sale or transfer can reduce the value of the equipment. When a certified appraisal is not available, an abbreviated or “desktop” appraisal can be performed.

4.4 Decommissioning should be conducted by authorized/trained personnel to ensure the safety of everyone concerned with the disposal process.

4.5 Disposal methods considered should maximize the benefit to the entity, minimize the risk subsequent to the disposal, and ensure compliance with regulations and restrictions on disposal method.

5. Significance and Use

5.1 This guide identifies common processes to safely decommission and dispose of medical equipment. The objective is to identify common challenges unique to medical equipment to help ensure that the identification, authorization for disposition, and proper sanitization of the equipment is completed prior to disposal teams getting involved in the process.

5.2 This guide provides information to consider when choosing disposal options in order to effectively manage the entity’s assets.

6. Decision Process

6.1 In many hospitals or medical organizations, the medical department associated with the equipment (that is, Surgery Department, Diagnostic Imaging, etc.) determines that a piece of medical equipment should be considered for replacement. Biomedical Engineering or Healthcare Technology and Management should be included in the decommissioning and disposal process.

6.2 Specific identification of what is to be replaced (an entire integrated piece of medical equipment or a component of a larger unit) is needed.

6.3 Identification of ownership of the piece of equipment is required as equipment may have been acquired under a grant and the grantor may have placed restrictions on the disposal method.

6.4 Analysis of disposal options should be considered prior to the decommissioning of the equipment since trade-in or reutilization within the organization is a beneficial option for replacements of equipment.

6.5 Decommissioning of the equipment must be conducted by trained personnel to ensure safety of everyone involved in the disposal process.

6.6 Disposal method must meet all regulatory requirements and restrictions for transfers of ownership.

7. Procedure for Initial Identification and Analysis of Equipment to be Disposed

7.1 Organizations should follow their official procedures for who has the authority to identify that a piece of equipment is no longer needed. The request for decommissioning and disposal should be forwarded to the property office.

7.2 The property office should review every request for the decommissioning and disposal of a piece of medical equipment and determine the condition and value of the equipment. The property office must also check the property records and coordinate with the department that has the equipment to verify ownership and if there are any restrictions on the disposal of the equipment.

7.3 Once ownership and disposal authorization has been verified, then internal transfer may be considered. A review to determine the best disposal method should be made prior to beginning the decommissioning process. Transfers or trade-in of equipment usually require coordination by the gaining department, organization, or vendor and should be done prior to the commencement of decommissioning.

8. Decommissioning of Medical Equipment

8.1 If transfer or trade-in is determined as the best disposition method, then decommissioning takes place through coordination with the disposing and receiving department or organization.

8.2 If disposal of the equipment is determined as the best method, then the disposing department should coordinate decontamination of any chemical hazards and patient health information removal from the equipment prior to property disposal personnel touching the equipment. These processes require certification as to how and by whom the decontamination was conducted and that all personal data has been removed from the equipment.

8.3 Decommissioning of medical equipment includes decontamination, sanitization, and in many cases, removal of nuclear sources, and update of the laser inventory database.

8.4 Speed of replacement equipment installation and preparation, as well as the minimization of medical care disruptions, must be taken into consideration and planned.

8.5 Method of movement and appropriate training must be included if movement of equipment is done with in-house resources.

8.6 If moved to disposal warehouse, equipment should be stored by size/type and intended disposal method. Equipment should be labeled to include nomenclature, description, status, and have accompanying certificates of sanitization and power source status attached.

9. Disposal of Medical Equipment

9.1 Generally the disposal of medical equipment follows the Standard Practice for Sales of Personal Property (ASTM E2858) and the Standard Practice for Disposal of Personal Property (ASTM E2306).

9.2 Particular attention should be given to ownership, authority for disposition, and manufacturer or regulatory restrictions of medical equipment prior to disposal.

9.3 Medical equipment being disposed must be reviewed to determine if licenses are required by the recipient of the equipment and if any export regulations may apply to the particular equipment.