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Standard Guide for Spinal Immobilization and Extrication (SPINE) Device Characteristics [1]

This standard is issued under the fixed designation F 1556; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

The objective of this guide is to begin to address the recognized need to support and immobilize the components of the spine or spinal cord. Although this guide does not quantitatively address performance standards for this device, it does address the characteristics of the device(s) used to provide support and immobilization of the components of the central nervous system for the patient suspected of receiving trauma to that body system.

1. Scope

1.1 This guide covers minimum standards for devices, designated here as spinal immobilization and extrication device(s) (SPINED), commonly referred to as short spine board. The SPINED is designed to be used as the platform for immobilization and extrication of a patient with potential spine or spinal cord injury by emergency medical service personnel.

1.2 This guide does not identify specific degrees of limitation of motion achieved by placement of a SPINED on a patient. Definitive requirements for immobilization of the spine, and, in particular, the degree of limitation associated with the use of a SPINED, have not been established in the medical literature.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

F 1177 Terminology Relating to Emergency Medical Services[2]

2.2 *Centers for Disease Control Standard:*

Guidelines for Prevention of Transmission of HIV and HBV to Healthcare and Public Safety Workers[3]

2.3 *OSHA Standard:*

29 CFR 1910.1030 Occupational Exposure to Bloodborne Pathogens; Final Rule[4]

3. Terminology

3.1 *Definitions:*

3.1.1 *retention system*—a retention system is an adjunct to or an integral part of the primary platform that allows the patient to be securely attached to that platform used in whatever configuration and size necessary to accomplish the goal, while still allowing reasonable and necessary access to the patient.

3.1.2 *spinal immobilization*—spinal immobilization shall refer to immobilization of the spine and its contiguous structures, the pelvis, and skull.

3.1.3 *spine*—the spine shall include the cervical, thoracic, lumbar, and sacral vertebrae.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *directions of movement*—directions include flexion, extension, rotation, distraction, lateral motion, and axial compression motion.

3.2.2 *immobilization*—limitation of motion.

3.2.3 *spinal immobilization and extrication device*—a platform to which the patient can be secured, which will support the patient's spine during immobilization and transportation.

3.3 For definition of other terms used in this guide, refer to Terminology F 1177.

4. Significance and Use

4.1 The intent of this guide is to identify characteristics that a SPINED shall possess.

4.2 As opposed to a full body spinal immobilization device, the SPINED incorporates additional features that assist in the extrication of a victim from a confined space.

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[1] This guide is under the jurisdiction of ASTM Committee F30 on Emergency Medical Services and is the direct responsibility of Subcommittee F30.01 on EMS Equipment.

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[2] *Annual Book of ASTM Standards*, Vol 13.02.

[3] Available from Centers for Disease Control and Prevention (CDC), 1600 Clifton Rd., Atlanta, GA 30333.

[4] Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

4.3 It is not expected that the SPINED will be used alone to provide the entire scope of required immobilization. Clinical situations may require differing combinations of devices for adequate total spinal immobilization. A SPINE device may be one of the devices.

4.4 A device intended for use with adult patients shall accommodate the 95th percentile adult American male.

4.5 Devices that are labeled as intended for pediatric use shall not be required to accommodate adult patients.

4.6 The device shall be able to be used by the practitioner in an ergonomically sound manner.

5. Characteristics

5.1 The SPINED, when lifted in accordance with manufacturer's instructions, shall support the 95th percentile adult American male patient.

5.2 There shall be a retention system used in conjunction with the immobilization platform.

5.3 The SPINED shall incorporate a means to accommodate the ergonomically sound handling and lifting of the immobilized patient.

5.4 The SPINED shall allow X-ray to be taken through it, and be MRI compatible.

6. Durability

6.1 The SPINED shall maintain stated characteristics throughout its lifetime as indicated by manufacturer's recommendations.

7. Maintenance

7.1 The SPINED shall be disposable or easily cleaned consistent with CDC and OSHA decontaminated procedures, without deterioration of the product or the retention of cleaning agents that may be harmful to the patient.

7.2 The cleaning/decontamination procedure shall be explained in the manufacturer's product information.

8. Capability

8.1 This guide does not presently quantify the limitation of motion expected to be imposed upon a patient as a result of the application of a SPINED. This capability has not been omitted due to a lack of need, but as a result of the fact that such quantitative requirements have not been identified in the medical literature. It is hoped that such requirements can be developed, and included in this guide at its next review.

9. Keywords

9.1 extrication device; short spine board; spinal immobilization