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Standard Guide for Characteristics for Extremity Splints[1]

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INTRODUCTION

The objective of this guide is to begin to address the recognized need to support and immobilize the injured extremity. 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 extremities in a patient suspected of receiving trauma to that portion of the body.

1. Scope

1.1 This guide covers minimum standards for devices, designated here as extremity splint(s) (ES), commonly known as splints. Extremity splints are designed to be used for the immobilization of an extremity by emergency medical service personnel.

1.2 This guide does not identify specific degrees of limitation of motion achieved by placement of a extrication device (ED) on a patient. Definitive requirements for immobilization of extremities in the out of hospital environment, and, in particular, the degree of limitation associated with the use of an ED in the out of hospital setting, has 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 *extremity(ies)*—limb; arm or leg.

3.1.2 *extremity immobilization*—immobilization of the injury site and its contiguous proximal and distal joints or bones.

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

3.2 *Definitions of Terms Specific to This Standard:*

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

3.2.2 *extremity splint*—a device that can be secured to the extremity that will maintain the position and limit motion of the extremity.

3.2.3 *immobilization*—limitation of motion.

3.2.4 *pneumatic devices*—devices utilizing air pressure or vacuum to limit the motion of an extremity.

3.2.5 *traction device*—a device that aligns the extremity and limits its motion.

3.3 For definitions 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 an ES should possess.

4.2 Varied clinical situations may require differing combinations of devices for adequate extremity immobilization, including traction or pneumatic devices, or both.

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

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

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[1] This guide is under the jurisdiction of ASTM Committee F-30 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 13.01.

[3] Available from Centers for Desease Control, Atlanta, GA 30333.

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

5. Capability

5.1 The ES shall allow for the use of adjunct devices as necessary such that immobilization is provided in the planes of motion as noted in 3.2.1.

5.2 Traction splints should facilitate full orthopedic and vascular assessment.

6. Durability

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

7. Maintenance

7.1 The ES shall be disposable, or easily cleaned, consistent with CDC and OSHA decontamination procedures, without deterioration of the product or the retention of cleaning agents which 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 an ES. 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 extremity splint; immobilization; splint