

Proper Patient Transport & Standard of Care

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Everyday EMS providers are called to scenes involving patient movement from assisting a patient back in bed, to intricate runs, each with a degree of risk for dropping a patient. According to EMS WORLD (April 2018), “Patient drops not only put patients at risk, they can also seriously injure EMS staff, resulting in reduced staffing, recovery times, and additional costs. With an estimated 42,000 patient drops occurring every year, it is critical for everyone working in emergency services to stay abreast of the latest and most effective patient-handling procedures.”

The National Highway Traffic Safety Administration (NHTSA) is responsible for developing training courses that are responsive to the standards established by the Highway Safety Act of 1966. NHTSA developed the curriculum, *Emergency Medical Technician-Basic: National Standard Curriculum*, as the foundation of EMS pre-hospital training. [1] The EMT-Basic curriculum is a core curriculum of minimum required information to be presented in an approximately 110-hour training program. [2] This basic curriculum is intended to prepare an EMT to work in the field while continuing education during the course and scope of work as an EMT supplements specific needs for the EMT’s education. Specifically, after successful completion of the training program, the student will be capable of performing the following: [3]

1. Recognize the nature and seriousness of the patient’s condition or extent of injuries to assess requirements for emergency medical care;
2. Administer appropriate emergency medical care based on assessment findings of the patient’s condition;
3. Lift, move, position and otherwise handle the patient to minimize discomfort and prevent further injury; and,
4. Perform safely and effectively the expectations of the job description.

The EMT course curriculum is divided into sections including preparatory, medical, patient assessment, trauma, and operations.

The Preparatory continuing education includes Introduction to Emergency Medical Care, The Well-Being of the EMT, Medical / Legal and Ethical Issues, The Human Body, and Baseline Vitals. The medical portion of training includes General Pharmacology, Respiratory Emergencies, Cardiovascular Emergencies, Diabetic Emergencies, Allergic Reactions, Poisoning/Overdose Emergencies, Environmental Emergencies, Behavioral Emergencies, and Obstetrics. The patient assessment portion of training includes Scene Size-up, Initial Assessment, Focused History and Physical Examination, On-Going Assessment, and Communications, and Documentation. The trauma portion of the training includes Bleeding and Shock, Soft Tissue Injuries, Musculoskeletal Care, and Injuries to

the Head and Spine. The operations portion of the training includes an overview of the knowledge needed to function in the pre-hospital environment. Topics covered include emergency vehicle operations and transferring patients to include lifting and moving. Lifting and moving includes carrying techniques, principles of moving patients, and an overview of transport equipment. During an ambulance run, EMTs move patients to provide medical care in the field and transport the patients to the emergency department.

In both emergencies and non-emergencies, Emergency Medical Service (EMS) personnel are required to safely transport patients. There are varying types of patient moving devices available in the EMS community. Each piece of transport equipment has been designed with a specific transport purpose. Proper training in the use of each piece of equipment available for patient movement is required. Adequate training will reduce incidents of equipment misuse and ensure employees utilize the proper piece of transport equipment for the task. The most common method of transport is a stretcher.

A Stretcher is available in a number of different models with various features. Common names include gurney, stretcher, cot, and pram. The stretcher is used to transport a patient from the scene of the emergency to the ambulance and from the ambulance to a hospital bed. It is secured in the back of an ambulance by way of a simple locking mechanism. There are many brands and types of wheeled stretchers. Some of them are:

1. **Single-operator stretcher.** This type of stretcher allows a single operator to load the stretcher into the ambulance without the assistance of a second person. The undercarriage is designed to collapse and fold up as the stretcher is pushed into the ambulance.
2. **Electric/pneumatic-lift stretcher.** This is the newest type of stretcher on the market and is equipped with an electric or pneumatic mechanism that will lift and lower the stretcher at the touch of a button. It minimizes the need for rescuers to lift a stretcher with a patient on it, thereby significantly reducing the risk of back injury.
3. **Dual-operator stretcher.** This type of stretcher requires a second person to lift the undercarriage prior to pushing it into the ambulance.

The dual operator stretcher is the most frequently used device for transporting patients. Dual operator stretchers have a horizontal, metal main frame to which all other parts are attached. The stretcher is pulled, pushed, or lifted by this main frame or its handles. The undercarriage frame allows the stretcher to be adjusted to varying elevations and locked into place. The stretcher remains locked at its present height when the controls are not being activated. Controls are located at the foot end and at one or both sides of most stretchers. Training and practice with the stretcher are required so that an EMT is familiar with all of the stretcher's features and knows how to properly load and unload the device.

When EMT's move a patient, they must take care that injury does not occur to the EMT, to the EMT team, or to the patient. Knowledge of correct body mechanics,

grips, and devices is important. The safety of the EMT, the EMT team, and the patient depends on the using proper lifting techniques and maintaining a proper hold when lifting or carrying a patient. If the EMT fails to have a proper hold, the EMT will not be able to properly distribute the weight and may lose their grasp.

The EMT team should know how much they can comfortably and safely lift and not attempt to lift more than this amount. Adults often weigh 120–220 pounds and two EMTs should be able to safely lift this weight. The EMT should consider that a wheeled stretcher weighs 40–145 pounds, not including the weight of the patient. If the patient weighs over 250 pounds, EMTs should summon additional help to lift and carry the patient.

EMTs should secure the patient to the stretcher so that the patient cannot slide significantly when the stretcher is at an angle. A retractable guardrail is attached along the central portion of the main frame. The guardrail can be lowered when a patient is being loaded onto or out of a stretcher and should be restored to its upright position after the patient is loaded to prevent the patient from rolling off the stretcher. The patient should be moved in an orderly, planned, unhurried manner to protect all persons involved from injury and reduce risk of worsening the patient's condition. To move patients without injury to the EMT team or the patient, EMTs should be trained on lifting directions and commands.

Directions and commands are an important part of safe lifting and carrying. The EMT team must anticipate and understand every move and execute these moves in a coordinated manner. The team leader is responsible for coordinating the moves. EMT team actions must be coordinated by a team leader who indicates where each team member should be located and describes the sequence of steps to perform before lifting. For example, preparatory commands might include:

1. Team leader says, "All ready to stop," to get team's attention.
2. Then the team leader says, "Stop!" in a louder voice.

Countdowns are often used to lift a patient. For example, the team leader says "One, two, three."

Once a patient has been placed onto the stretcher, one EMT must hold the main frame to prevent unexpected movement. When the stretcher is elevated, the main frame and the patient extend considerably beyond the wheels at both the head end and foot end of the stretcher. Therefore, whenever a patient is on an elevated stretcher, an EMT must ensure that the stretcher is held firmly. Typically, the stretcher can be held by two hands so that even if the patient moves, the stretcher cannot tip. The stretcher is designed to be rolled on flat surfaces. The stretcher must be moved to the ambulance in sometimes challenging environmental conditions that may include rough, uneven, smooth, icy, wet, firm, or muddy conditions. The EMT must ensure the intended travel path is free from debris and potential obstacles. If the patient must be moved over a lawn or other irregular surface, the EMT should lift and carry the stretcher over the terrain. A

four-person carry is safer if the stretcher must be moved over rough ground. After arrival at the hospital, the patient is unloaded, and the patient is transferred to a hospital bed.

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In summary, national standards of care were developed to ensure proper patient transportation to reduce injuries to both EMT teams and patients. When the standard of care is followed, patients can be lifted and moved with minimized discomfort and without additional injuries.

[Jeff Jannarone](#) has supervised and performed the work of an Emergency Medical Technician for over 30 years. He provides technical investigations, analysis, reports, and testimony toward the resolution of civil and criminal litigation requiring this specialized knowledge.

[1] National Emergency Medical Services Educational Standards, Emergency Medical Technician Instructional Guidelines, United States Department of Transportation, National Highway Traffic Safety Administration.

[2] National EMS CORE Content, United States Department of Transportation, National Highway Traffic Safety Administration.

[3] National EMS Scope of Practice, United States Department of Transportation, National Highway Traffic Safety Administration