

## Patient Transport Best Practices Priority Recommendations

The following best practices were identified by the FIIRE Ergonomics Committee. The best practices include some that are easier to put in place, such as changes to work methods or use of inexpensive pieces of equipment. There are also recommendations for apparatus design and more expensive equipment that will require more resources, but have a greater impact on crew safety and health.

### At the station

#### Apparatus design

- Gather input from staff on desired features for vehicles, and get design input from ergonomics specialists, to include in purchasing decisions.
- Retrofit safety features – handholds, steps, outside lighting – into vehicles or purchase new vehicles with these features included.
- Install a mirror or similar device to keep an eye on the patient while sitting facing forward during transport.
- Locate commonly used equipment and supplies within easy reach in the patient compartment of the rig.
- Use special equipment for bariatric patients.<sup>1</sup>

#### Equipment

- Gather input from staff on desired features for equipment, and get design input from ergonomics specialists, to include in purchasing decisions.
- Purchase and use power cots and power loaders.
- Purchase and use stair chairs with descent control tracks and adjustable handles.<sup>2</sup>
- Purchase slide sheets for lateral transfers and to move patient to better location for treatment and lifting.
- Limit weight and size (bulkiness) of medic bags, use a “jump bag” with essential supplies for most frequent types of calls.
- Trial small footprint inflatable lift aids (for example, Mangar CAMEL or ELK); purchase and use them if successful.
- Evaluate mechanical chest compression devices; purchase and use if appropriate.
- Install a monitor hanger on cot.
- Use waist straps for longer distance backboard carries.
- Store commonly used and heavier equipment for easy access.

<sup>1</sup> Lavender et al. (2007) examined Simple Strap, Binder Lift, and Slip Preventer in various 2-person lift situations. They demonstrated that the spine shear force can be reduced by 22% using the Binder Lift, and 53% using the Simple Strap compared to the no equipment condition.

<sup>2</sup> Kulich et al. (2020) tested three lift chairs (Stryker Prime TC, Staxi Medical, and Breezy Ultra 4) and found that the first two chairs reduce spinal loading during patient transport. Staxi resulted in higher wrist muscle activation and flexion so Stryker is a better choice for the wrist.

## At the station

### Policies and procedures

- Get all relevant information – weight of patient, location, use of mobility aids, etc. - from 911, during initial call and follow up while heading to scene.
- Advise personnel on the appropriate intensity of physical training sessions while on duty to avoid fatigue – “don’t trash yourself in the weight room.”
- Develop and use assessment tools for deciding if a patient can safely assist in their own transfer.
- Develop policies and procedures to make sure there are multiple personnel on scene to help with lifting and moving patients.
- Develop policies on the appropriate number of personnel for lifting patients in different weight ranges.

### EMS Training

- Train responders on assessment tools for deciding if a patient can safely assist in their own transfer.
- Train responders on the appropriate number of personnel for lifting patients in different weight ranges.
- Develop and deliver training on medic-friendly driving techniques for anyone who might drive the rigs.
- Develop and deliver training on safer techniques and proper body mechanics for vehicle entry and exit, lateral transfers, lifting, loading cots, and other physically demanding tasks.
- Develop and implement physical training protocols to keep personnel fit enough to handle the demands of the job; consult with a specialist to make sure physical training methods will not be a source of injuries.

## On an EMS call

### Work methods

- Park vehicles on level ground free from hazards and obstacles as much as possible. On uneven ground, position rig to avoid having to lift the head end of the cot to get it into the rig.
- For icy or snowy surfaces, spread grit and/or use traction devices.
- Use slide sheets or a slide board to move patient to better location for treatment and lifting, for lateral transfers between bed and cot, whenever possible.
- Locate medic bags close to the treatment area to avoid awkward reaching.
- Use soft stretchers with handles and multiple personnel to lift non-weight-bearing patients.
- Have patient hug a soft object like a pillow to keep them still while moving them.
- Load equipment separate from cot, or place at head end of cot.
- Team lifting for manual loading of cots.
- Secure equipment during transport.
- During transfers at the hospital, lock the wheels of the bed and the cot for stability, and adjust the bed and the cot to a good height for the transfer.
- If available, use the hospital's ceiling lift and get help from their staff, especially for transferring bariatric patients.