



## Safe Transportation of People in Wheelchairs

### DID YOU KNOW

- 43% of wheelchair-related accidents, and 19% of all injuries, occur while getting on or off the vehicle.<sup>1</sup>
- In 2003, data from the National Electronic Injury Surveillance System (NEISS) found that **tips and falls** accounted for 65–80% of injuries across all age groups of wheelchair users.<sup>2</sup>
- Brakes should be applied **any time** the wheelchair is not in motion.
- Riding on a wheelchair lift while standing is incredibly risky. People should always sit in a chair while on the lift. Consider keeping a folding wheelchair in the van for this purpose.
- The use of hard lap trays during transportation is discouraged. These should be removed. Consider other postural supports if needed.

**Safety is the goal.** Everyone strives to safely transport people, but accidents do happen. People who use wheelchairs are especially vulnerable in accidents due to an increased risk of head and spinal cord injuries. Staff must ensure that proper vehicle loading and unloading procedures are followed and that adequate supervision and support is provided during transportation times. Routine processes should be followed, but be careful not to become too complacent.

**What can go wrong?** Since August of 2015, there have been a number of accidents involving people in wheelchairs falling while getting on or off vehicles or while waiting to transport. Staff should be aware of the inherent risks involved in transporting people in wheelchairs. These include:

- Risk of rolling off vehicle lifts if the wheelchair brakes are not applied or the power chair is not off and in gear.
- Risk of rolling out of an open vehicle door.
- Risk of rolling down hills while waiting to transport.
- Risk of falling while going to or from vehicles.
- Risk of injury in a car accident if wheelchairs are not tied down properly.

Advanced planning and preparation can prevent accidents and make the transportation process much safer. Many of these strategies are covered in this brief. Provider agencies are encouraged to develop their own protocols for safe wheelchair transportation. DDS developed some recommendations for good practice guidelines that providers may want to incorporate into their own protocols. These recommendations are available here: <http://bit.ly/DDSwcrecs>

# Risk Assessment – What could go wrong?

## The Person

**Assess support needs:** Evaluate people's ability to operate their own wheelchair safely, indoors and outdoors, including general awareness of environmental risks such as traffic, uneven terrain, and community parking lots where they are not easily seen.

**Assess loading and unloading procedures:** Consider the best order for loading depending on where people are going and who is best able to wait safely and patiently for others to get in.

**Assess supervision needs:** Safe loading and unloading takes time and requires the full attention of staff.

- How many staff are needed to ensure safety of all passengers?
- What other tasks are staff being asked to do during transportation?
- Where do people wait?

## The Equipment

Vehicles used to transport people in wheelchairs should be regularly inspected to ensure that parts are in good working order. This includes:

- Tie-downs
- Shoulder harnesses
- Lift mechanisms. Train staff to operate lifts manually in case the power fails.

Additionally, safety gates on vehicle lifts should automatically deploy when lift is engaged and retract when level to ground.

Wheelchairs must also be in good condition:

- Frames are intact with no cracks or missing screws/bolts.
- Brakes are in good working order.
- Tires are in good shape.
- Seat hardware is intact.
- Seat belts work properly.
- Power mechanisms work.

Consider this wheelchair maintenance checklist to help identify faulty or missing parts:  
<http://bit.ly/WheelchairMaintCheckListPDF>

## The Environment

**People:** Assess weather conditions to determine if extra support is needed to navigate safely, i.e. in snow and ice. Some people may have had an initial Physical Therapy (PT) evaluation for wheelchair use that is no longer applicable to their current living environment.

**Vehicles:** Ensure that vehicles are parked on level, stable surfaces and that lifts are level to the ground. In winter months, ensure that vehicles are loaded on a cleared, level spot and that there is plenty of room to operate the lift. If the vehicle is a rear loading vehicle, be certain to allow enough loading room at the rear.

**Inclines:** Inclines and hills are particularly risky. People should not wait on inclines because of the many possible risks, including brake failure, someone unlocking their own brakes, or staff forgetting to lock the brakes. The safest place to wait is inside the house or building.

# Staff and Program Recommendations

## Staff Training

- Train all staff involved in transportation to operate a vehicle lift in BOTH automatic and manual mode, tie-down a wheelchair, and load/unload passengers.
  - Ask staff to demonstrate the skills after training, and practice regularly. Checklists may help track that staff have mastered each step in the process.
  - Staff may need training on each individual chair if chairs are very different.
  - For ongoing reminders, create reminders that correctly list each step and post in vehicles.
  - Supervisors may wish to periodically spot check practices to see that staff continue to implement processes learned.
- Train staff to recognize problems with wheelchairs and/or vehicle lifts and alert supervisors immediately so that the vendor can be contacted and the problem fixed.
- Contact wheelchair vendors to see if they will provide training for staff and individuals on how to use a particular chair, i.e. how to power off and on, adjust speed, etc.
- Train staff on falls and emergency procedures. Staff may wish to conduct 'falls drills' to practice emergency responses.

## Transportation Protocols

- Develop transportation protocols for each agency, program, or house that includes supervision needs, loading/unloading logistics, and levels of support for people who navigate independently.
- Amend or create falls protocols to instruct staff how to respond to wheelchair falls and other emergency procedures (see page 4).
- Develop regular inspection protocols for vehicles and wheelchairs.

## Training Resources

DDS developed a comprehensive training on safe transportation for people who use wheelchairs. This training includes an awareness of the risks involved, video demonstration of safe loading and unloading procedures, and what to do after a wheelchair fall. This 26-minute video is available here: <http://bit.ly/DDSwcTransportTraining>

### Additional Resources

- Rehabilitation Engineering and Assistive Technology Society of North American (RESNA) [www.Resna.org](http://www.Resna.org)
- Ride Safe: Wheelchair Transportation Safety <http://wc-transportation-safety.umtri.umich.edu/ridesafe-brochure>
- Rehabilitation Engineering Research Center (RERC) [Guidelines for Use of Postural Support Devices in Vehicles](#)
- Wheelchair vendors

# Emergency Safety Procedures

Despite best efforts, accidents can happen. In the event of an accident, staff may become upset, anxious, and unable to remain calm or think clearly. It is important that staff know how to act after an accident.

- Staff should immediately call 911 if a person in a wheelchair is impacted by an accident, if they fall out of a wheelchair, or if they experience a fall.
- After calling 911, providers may have other protocols for staff to follow such as calling a supervisor or others at their agency for notification and back up, etc.

## Wheelchair Falls

What is a wheelchair fall? A wheelchair fall is when the chair tips over sideways, backwards, or forwards, regardless if the person falls out or not. This includes falling off a vehicle lift, curb, or hill.



Why is a wheelchair fall different than other falls? A wheelchair fall is not a typical fall where someone goes down and immediately gets up again. The chair is likely in motion at the time of the fall and this adds considerable momentum to the event. There is high risk of significant head and spinal cord injury after a wheelchair fall.

Is this a serious event? Yes! Every wheelchair fall should be treated as a potentially serious event.

Can't I stand the person back up? This is not recommended. People in wheelchairs are vulnerable to head and spinal cord injuries. People should not be moved unless they are in a dangerous situation (i.e. traffic). People should not be stood back up until they are evaluated for head, neck and other injuries by a medical professional.

What should I do? Call 911 and have the person evaluated for head, neck and other injuries; follow agency fall protocols.

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<sup>1</sup>Frost, K.L., Van Roosmalen, L., Bertocci, G., & Cross, D.J. (2012). Wheeled mobility device transportation safety in fixed route and demand-responsive public transit vehicles within the United States, *Assistive Technology: The Official Journal of RESNA*, 24:2, 87-101.

<sup>2</sup>Xiang, H and Chany, AM (2006). Wheelchair related injuries treated in US emergency departments. *Inj Prev*, 12:1, 8-11.