Basic wheelchair maintenance training for manual and power wheelchair users

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You will be able to recognize the importance of maintenance and recommended inspection and action items.

[www.usersfirst.org]
A wheelchair is the most enabling technology but may negatively impact a person’s life if it does not enable him/her to participate fully.

3.6 million
273,000 SCI

[USCB, 2012], [NSCISC, 2009]
Injuries occur more frequently when wheelchairs are not maintained or repaired.

[Chen, 2011]
Wheelchair durability found lower than required in laboratory settings and repairs needed increased in the community.

ANSI/RESNA wheelchair double-drum test

Percentage of wheelchair users reporting needing repairs in the past 6 months

[Worobey et al., 2012], [McClure et al., 2009], [Gebrosky et al., 2013]
Wheelchairs needing repairs has been reported as a cause of adverse consequences for wheelchair users.

[Wheelchairs need repairs...]

- Missing work
- Missing medical appointments
- Being stranded
- Being injured

[Worobey et al, 2012], [McClure et al, 2009]
Wheelchair check-ups are likely to reduce adverse events related to wheelchair breakdowns.

- Cleaning caster axles
- Patching a flat tire
- Tightening loose bolts
- Listening to motor noises

All wheelchairs require periodic maintenance to operate properly.
Scarce of wheelchair maintenance is likely related to the lack of wheelchair training provided to individuals with SCI.
The Wheelchair Maintenance Training Program (WMTP) was based on existing materials and experts review through an iterative process.

- **What tasks and frequency to include?**
  - 19 experts completed survey

- **WMTP 1st draft**
  - 5 experts reviewed

- **WMTP 2nd draft**
  - 3 experts reviewed

- **WMTP Program pilot**
  - 2 clinicians, 1 MWU, and 4 PWUs participated in the pilot
Training programs train clinicians who then train wheelchair users in a group setting.

6-hour training course

Maintenance

2 two-hour group training sessions
Inspection and action items are included in the maintenance schedule.

Inspection

- No problems
  - Continue using the wheelchair
- Found a problem
  - Action
The WMTP for clinicians includes rationale, hands-on maintenance practice, and overview of materials to train users.

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:00 AM</td>
<td>Introduction</td>
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<tr>
<td>10:05 AM</td>
<td>Objectives and relevance</td>
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<tr>
<td>10:15 AM</td>
<td>Manual wheelchair maintenance video</td>
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<tr>
<td>10:30 AM</td>
<td>Manual wheelchair maintenance hands-on</td>
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<td>Lunch</td>
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<td>Summary</td>
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Improperly inflated tires wear quickly and make a wheelchair difficult to maneuver and propel.

Tire depresses more than 5mm

Inflate to recommended pressure

Types of valves

Presta

Schrader

INSPECT WEEKLY
The second session is mostly hands-on practice and discussion.

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Maintenance cards, a toolkit, and reminders are take-home resources.
Wheelchair Maintenance Training
Manual Wheelchairs

This is the wheelchair maintenance video for manual wheelchairs.
Weekly inspect the condition of the cushion and the pressure in the pneumatic tires.
Monthly inspect the wheelchair alignment and all the wheel components.
Monthly inspect all the wheelchair supports.
Monthly inspect the condition of the front and anti-tip casters.
Inspect monthly all the frame components.
Once a month clean the wheelchair.
Four times a year lubricate moving parts like the wheel locks and the folding back support mechanism.
Have the wheelchair professionally serviced at least once a year.
Wheelchair Maintenance Training
Power Wheelchairs

This is the wheelchair maintenance video for power wheelchairs.
Daily pay attention that the wheelchair works reliably.
Charge the wheelchair daily if you use it daily.
Weekly inspect the condition of the cushion and the pressure in the pneumatic tires.
Monthly pay attention to the wheelchair alignment, wheel bearings, and tire condition.
Monthly inspect all the wheelchair supports.
Have the wheelchair professionally serviced at least once a year.
Have the wheelchair professionally serviced at least once a year.
Clean the wheelchair frame, cushion and power seat function mechanisms monthly.
Have the wheelchair professionally serviced at least once a year.
We have trained clinicians at 4 sites, are currently recruiting wheelchair users, and planning on more dissemination.

Maintenance

6-hour training course

2 two-hour group training sessions

15 clinicians WMTP
29 pwc users WMTP

Questions?
This project has been supported by many people and organizations!

- Volunteers for training materials
- Study participants
References

• United States Government Accountability Office. (2008). Testimony Before the Subcommittee on Health, Committee on Ways and Means, House of Representatives: Medicare competitive bidding for medical equipment and supplies could reduce program payments but adequate oversight is critical.