Training and Education for Novice Wheelchair Users

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Disclosures

• Theresa Crytzer
  – No conflicts to disclose
• Alexandra Bennewith
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What is Knowledge Translation

• From research findings to clinical practice: evidence based practice
• From health care professionals to consumers: health education
Process of Knowledge Translation

- Identifying knowledge gap
- Refine and adapt knowledge to audience needs
- Assess barriers/facilitators to knowledge use
- Select, tailor, implement interventions
- Monitor knowledge use
- Evaluate outcomes
- Sustain knowledge use

Issues in the real world: Accessibility

- Pamphlets from clinics: great prints, but cannot find it when needed
- PDFs or articles online
  - No access or ability to use computers
  - Use computer, but do not read online
  - Use computer and read online, but do not know key search words
  - Use computer, read online, find info, but gulp down anything or misinterpret
- Instruction in person: forgotten or twisted

Issues in the real world: Readability

- Text heavy
- Length
- Complexity
- Quick Guide to action: I just need an answer
Issues in the real world: Circumstance

• When will people receive the most information
  – Just after injury
  – Just being diagnosed
  – Just being prescribed a wheelchair

Efforts from government funded projects

• Knowledge translation projects at Human Engineering Research Laboratories (HERL)
  – Wheelchair maintenance project, Wheelchair skills training project, and Wheelchair transfer assessment tool project
    • Instruction manual for clinicians
    • Manual and tools (checklists or maintenance tool kit) for users
    • Course, evaluation of knowledge, and follow-up
  • Community participation

About United Spinal Association

United Spinal is a national 501(c)(3) nonprofit membership organization celebrating its 71st anniversary.

Formed in 1946 by paralyzed veterans, United Spinal is dedicated to improving the quality of life for all Americans with spinal cord injuries and disorders (SCI/D), including multiple sclerosis, spina bifida, ALS and post-polio.

Over 50 chapters, over 180 support groups, 105 rehabilitation hospitals.
We played a significant role in writing the Americans with Disabilities Act, and made important contributions to the Fair Housing Amendments Act and the Air Carrier Access Act.

United Spinal was instrumental in getting New York City to create sidewalk curb ramps and accessible public transportation that has been used as a model for many United States cities.

Membership is free to all individuals with SCI/D, their family members, friends, and healthcare providers.
About United Spinal Association
• Accessibility Services
• Advocacy/Policy
• Affiliate Service Providers/Spinal Network
• Medical and Scientific Advisory Committee
• New Mobility Magazine, Free Publications
• SCI Resource Center
• USA Tech Guide

Mobility Map
– Mobility Map – United Spinal’s online resource to help wheelchair users navigate wheelchair, funding and therapy options
• Checklists
• Lots of material online
• Organizations/entities to contact

More on Mobility Map
https://www.unitedspinal.org/ask-us/
1.4. Step 1: Self-Assessment

Step 1: Self-Assessment

Information about the importance of assessing your wheelchair needs

• Using the Wheelchair Checklist to conduct a self-assessment
• Fill out your Wheelchair Checklist online

First things first, you must ask yourself – what do I want to do with my wheelchair?
• Answering this question can seem obvious or it may seem complex. But, by doing so it will help you and your wheelchair team match your life activities and physical abilities with specific features of a wheelchair.
• And, it may make the wheelchair process easier. For example, if you use a manual wheelchair and you have shoulder issues, a possible match for your needs may be a lightweight wheelchair.
• The Wheelchair Checklist was created to make this process a little easier by helping you identify what you want to do with your wheelchair.
• You can complete the Wheelchair Checklist online here or download and print this checklist below.
• It may be helpful to refer to your Wheelchair Checklist during your wheelchair evaluation.
Knowledge Translation

Strategies to Disseminate Knowledge
• Multi-modal and multi-platform communications/press; national/local; different audiences/different interests/levels of understanding within our network

Outcomes/Barriers
• Language, technology, location, different disability conditions

Changes
– Section 508: What is it? What has United Spinal done?
– What changes are being made based on users’ feedback?
  • Development into a mobile application

Virtual Wheelchair Coach App project
• Purpose: a smartphone app to provide info a novice wheelchair user will need to know
• Target Users: Manual and power wheelchair users who get their 1st or 2nd wheelchairs
How we develop the app

- Refine and reorganize educational materials
  - Information from credible resources
  - Layout and length that are easy to read on a smartphone
  - Incorporate checklists to facilitate self-assessment and actions

- Incorporate multi-media
  - Illustration and videos to present hand-on skill content
  - Allow users to take notes by typing, voice-recording, or taking photos along with the app

- Prototyped reviewed by clinicians and wheelchair users
APP CONTENT AND HOW IT CAN HELP WHEELCHAIR USERS

7 Primary Sections about Wheelchairs

Get A Wheelchair
- Mobility Map as the primary reference
- 6 primary steps
Get A Wheelchair

- **Checklist of tasks in each step**
  - Calendar/Reminder
  - Supplement info
    - What to expect
      - e.g. Hand-on assessments in wheelchair evaluation
    - What can be done to facilitate the process
      - e.g. Bring the old device to the wheelchair evaluation, have a friend or caregiver with you for the home evaluation
    - Who will/should get involved
      - Therapists and suppliers
    - What to do if receive approval/denial
      - First steps
      - Troubleshooting denial

- **Facilitate self-advocate, e.g.**
  - Request a mat evaluation by a therapist
  - Request a home evaluation
  - Request a final fit assessment

- **Checklist to facilitate**
  - **Self-reflection**
    - My Wheelchair Checklist
      - Things the user needs to think through before getting a wheelchair
Get A Wheelchair

- Checklist to facilitate
  - User Involvement
    - Check the new wheelchair
      - Settings and functions that the user needs to go through before signing for a new wheelchair

Use A Wheelchair

- 3 primary subsections

Use A Wheelchair

- Wheelchair Components
  - Images & info
Wheelchair Components: Outline

- **Manual Wheelchairs**
  - Frame
    - Folding
    - Rigid
    - Ultralight
  - Backrest
    - Tension adjustable
    - Solid
  - Cushions
    - Contoured foam
    - Air foam
    - Air capsule
    - Gel

- **Power Wheelchairs**
  - Type
    - Front-wheel drive
    - Mid-wheel drive
    - Rear-wheel drive
  - Power seating functions
    - Tilt (anterior/posterior)
    - Recline
    - Elevating legrests
    - Passive standing
  - Controller
    - Conventional joysticks with various handle designs
    - Alternative controllers

Use A Wheelchair

- **Fit and Set-Up**
  - Images & info
    - Measurement
    - Considerations
    - Effects
    - Precautions
  - Self-Assessment
    - Facilitate awareness of how the personal wheelchair is set-up and solve problems

Fit and Set-Up: Outline

- **Backrest**
  - Height
  - Angle
- **Seat**
  - Depth
  - Angle
  - Width
  - Seat-to-Floor Height
  - Cushion
- **Footrest**
  - Angle
  - Length
- **Wheel (Manual)**
  - Position
  - Camber
- **Controller (Power)**
  - Hardware position
  - Software setting
    - Speed, acceleration, deceleration, torque, safety setting when using power seating functions
Use A Wheelchair

Wheelchair skills

- Videos & text
  - Basic skills
  - How to
  - Advanced skills
  - Benefits and Requirements
  - Work with experience therapists to receive training

- Self-assessment

Wheelchair Skills Test Questionnaire by Team of Dr. Kirby

- 32 questions
- Facilitate further actions to improve wheelchair skills

Wheelchair Skills: Outline

- Manual Wheelchair
  - On flat surface
    - Forward propulsion
    - Braking
  - Turning
    - Around a corner
    - In tight spaces
  - On a ramp
    - Ascending
    - Descending
  - Activities of Daily Living
    - Weight shift (for pressure relief)
    - Transfer
    - Reaching
  - Advanced Skills
    - Height
    - Steps and Thresholds
    - Steep ramps and curbs
    - From ground to wheelchair

- Power Wheelchair
  - On flat surface
    - Forward propulsion
    - Braking
  - Turning
    - Front wheel drive
    - Mid wheel drive
    - Rear wheel drive
  - On a ramp
    - Ascending
    - Descending
  - Activities of Daily Living
    - Weight shift (for pressure relief)
  - Transfer
  - Reaching
  - Power Seating Function Usage
    - General rules: tilt before recline backrest
    - Assist with daily activities
      - Weight shift (for pressure relief)
      - Transfer
      - Reaching
      - Precautions: turning radius and center of gravity
Maintain a Wheelchair

Task lists
- Quick guide
- Images, videos, and more info
  - How the condition of this component affects wheelchair use
  - Detail steps to perform the inspection/action
- Note function
  - Facilitate action and efficient communication

Outline

- **Weekly Inspections**
  - Tire pressure
  - Cushion cover and insert

- **Monthly Inspections**
  - Frame
  - Wheel
  - Wheel hardware
  - Seat
  - Casters
  - Anti-tippers
  - Footrests
  - Positioning accessories

- **Monthly Actions**
  - Check and tighten all the loosened bolts and nuts
  - Wipe down wheelchair frame
  - Clean caster axles and wheel-housing (manual)

- **Quarterly Actions**
  - Lubricate moving parts

- **Yearly Actions**
  - Professional service

Health Issues

- Related to wheelchair use, skills, and fit and set-up
Health Issues: Outline

- Pressure Ulcers
- Rotator cuff injury
- Tennis elbow
- Ulnar neuropathy
- Carpal tunnel syndrome
- Blisters and abrasions
- Lower limb swelling
- Neck pain and back pain

- What is it
- Symptoms
- Possible causes and risk factors
- Consequences
- How to treat
- How to prevent

Reviews

- My Reviews
  - Write review about personal wheelchairs
  - 10 survey questions about critical issues wheelchair users like to know
    - e.g. Ease of use, Durability, Maneuverability (indoor/outdoor), Comfort, Maintenance, Quality
  - Type text comments

- Reviews by others
  - Search based on type, make, and/or model
Current Status

• Fix minor editing and technical problems in content about manual wheelchairs
• Developing content about power wheelchairs
• Invite wheelchair users to review the app sections and provide feedback

User Feedback

• [Get a Wheelchair] section
  6 of 9 felt very useful or useful and 5 would use this app
  • “I would use the app if I was new to wheelchair. The app is very comprehensive, and I can find answers to many questions I might have as a new user.” 15 yr MWU, F
  • “The order tracking and process: it is easy to see (and) understand and very helpful” 1 yr PWU, M
  • “I would use this app because I was clueless when I got mine. I know now but chairs are expensive and hard to fund to make mistakes” 2 yr MWU, M
  3 of 9 felt neutral or useless and would not use this app
  • “I found it to be quite juvenile. It may be that the App is targeted to people new to the wheelchair acquisition process. The App didn't really provide any useful guidance in the wheelchair buying process.” 15 yr PWU, M
  • “Doesn't really apply to veterans. Doesn't apply to people in rural areas.” 11 yr MWU, M
  • “My recollection is that I was aware of most everything in the app, that I receive a thorough evaluation and assessment of my wheelchair needs at the Kessler Institute for Rehabilitation Wheelchair Clinic…. I can imagine there are many wheelchair users who would find the app very useful.” 34 yr PWU, M

Feedback and Questions

• Suggestions to add specific
  – Content
  – Function
• Suggestions to disseminate educational information
• Any questions