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Accessible Home Modifications

Rob Horkheimer, MPT, CAPS, CEAC, ECHM

Physical Therapy Magazine Webinar - 2014

My Background

- Rob Horkheimer, MPT, CEAC, CAPS, ECHM
- Masters in physical therapy - Marquette University (1999)
- Certified environmental access consultant (through VGM/AHIA)
- Certified aging in place specialist (through NAHB)
- Executive certificate in home modifications (through U.S.C.)
- Physical therapist - Evanston Hospital & RIC (1999-2000), Froedtert Hospital Milwaukee, WI/Spinal Cord Injury Center - since 2000
- Continuing education instructor for Summit professional education on the topic of accessible home modifications - since 2013
- Owner/Accessibility Consultant with BILD - Bridgeway Independent Living Designs, LLC since 2009 (Wisconsin/Illinois)

My Experience

Clinical experience:

- Adults with neurological diagnoses
- Elderly with neuro and general diagnoses

Accessible Modifications:

Working collaboratively with:
- designers (interior and architectural)
- tradesmen
- lift specialists
- handymen
- therapists
- patients
- families
- caregivers and project managers
Course Objectives:

1) describe the difference between ADA design, and individualized accessible design.

2) provide and design effective ramp and lift options for stair management in the home.

3) utilize effective instruments and tools for home accessibility assessments and reports.

4) provide effective grab bar recommendations for safety in the bathroom.

The value of a therapist’s perspective: Person before Product

“Knowledge about available accessible products is the single LEAST important aspect of a successful home modification project. Instead of considering what products are available or what you used in the last project, think about what features and attributes are needed to help the client meet his or her needs and realize his or her goals.”

- John Pynoos

Therapist based perspective for a customized plan versus ADA

- ADA provides standards for commercial design for accessible construction in public settings. They are general principals but do not necessarily best meet the needs of individual situations.

- We are not typically bound to ADA guidelines for residential remodeling/codes.

- Therapist perspective looks at the individual first and incorporates their unique physical requirements, sensory needs, cognitive ability, and psychological state.

- Accounting for requirements for support vs space, prognosis, physical requirements, caregiver needs, and individualized requirements.
Doing modifications the right way: a functional task analysis based approach

- The greatest tool of the accessibility specialist is a well done TASK ANALYSIS
- Need to understand the unique abilities and limitations of that person for the best person-environment fit
- No cookbooks
- Do not rely on ADA - it is more important to customize the solution based on the functional needs and task analysis

The Experts in Task Analysis

Physical/Occupational Therapists:

Experts in task analysis and functional progression

See the range of abilities and limitations for the individual

Identify cognitive, sensory, endurance and physiological limitations and future prognosis

Importance of reconciling the individual's functional needs and values, along with environmental limitations.

Balancing Values

Aesthetics

Function

Cost
Cost of care - Setting

<table>
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<tr>
<th>Setting</th>
<th>Range</th>
<th>Median</th>
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<td>Private Nursing home</td>
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<td>$85-$948</td>
<td>$207/day</td>
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<td>Assisted Living</td>
<td>$670-$9300</td>
<td>$3450/mo</td>
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<td>Adult Daycare</td>
<td>$15-$420</td>
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Learn more about the cost of care for your specific care needs and compare the data from the Genworth 2013 Cost of Care Survey.

Cost of care - Assistance

- Cost can vary by individual/situation
- Home care assistance average cost
  - National Average = $19/hr (range $10-$37)
  - 4hrs/day x $19/hr = $76/day ($27,750 annually)
  - 12hrs/day x $19/hr = $228/day ($83,180 annually)

Reducing the cost of care

- Caregiver-related adaptations:
  - Protect the safety of the individual being cared for as well as caregivers
  - Protecting the health of the caregiver protects the needs of the individual being cared for
  - Proper modifications can reduce the amount of care required
    - E.g. - ceiling lift system vs. hoyer
  - Increased cognitive cues and increased level of mobility improves overall level of health and activity

Learn more about the cost of care for your specific care needs and compare the data from the Genworth 2013 Cost of Care Survey.
Preventing the cost of injury

- Reduce fear of falling
- Factors to address:
  - Physical requirements - balance, strength, mobility
  - Sensory cues
  - Cognitive cues
  - Emotional health
  - Emergency responsiveness plan

Accessibility as wellness

Environment affects the well being of the whole person

- Mobility and ADLs - activity level
- Psychological health
- Safety and security
  - Reduced fear of falling
  - Social inclusion
  - Sense of control
- Avoidance of trauma
- Emergency preparedness
- Financial Security
- Emotional ties to home and community

Accessibility Evaluations

- Tools for Evaluations:
  - Instruments:
    - Tape measure
    - Inclinometer
    - Photovision device
    - Pen and paper device for layout
    - Section grab bar
    - Tape for marking grab bar locations
    - Images for informing the client
The Process

1 - Gather Information/Background
2 - Listen to the client's needs/concerns
3 - Observe misc. activity, movements & behaviors
4 - Break down the task and watch them.
5 - Take pictures and/or video
6 - Take Measurements, sketches

Tools for Accessibility Evaluations

- Rebuilding Together Evaluation Assessment
- ABCs of Accessibility
- CHER
- SCOPE Access Assessment Instrument (an interdisciplinary instrument for patient, contractor and therapist)

Useful Apps for Evaluation & online tools

- Inclinometer/level - iHandy level
- Photosynth
- One note - completenote
- Panoramic photography - Photosynth by Microsoft
- Photo Measures app
Options for bathroom access

“Barrier Free” showers

- Importance of zero threshold entry shower
- Consideration of materials/type
  - Tile
  - Fiberglass surround
- Backing for future grab bar placement and shower seat placement

Barrier free showers

Containing water and minimizing slip/fall risk

- Flooring tile selection and addition of friction to flooring
- Options to contain water
  - Sloping of floor grade
  - Use of high friction materials
  - Weighted long shower curtain

continued
Fiberglass surround barrier free

- Importance of grab bar backing
- Low maintenance
- Quick to install
- Less bacteria, mold, and mildew

Other options for containing water and grading the floor

Collapsible Water Barrier
Linear Drain

Grab bar solutions
Color contrast – visual cues
Friction – gripability
Placement – customized for the individual
Bacterial resistance

Ponte Giulio Pinged grooves
Designer functional grab bars  

Invisia – Healthcraft Products

Grabcessories

Installation considerations

Vertical grab bars and bariatric options  

- Sometimes an only solution for grab bar placement in a non-backed fiberglass surround.
- Offers anchoring option to secure to ceiling.
Tub cutouts

- Lowered barrier height
- Reversible
- Optional water-tight door
- Can be utilized effectively with shower seat and hand held spray

Walk in tubs

Considerations:
- Accessible designs
- Heating elements
- Hydrotherapy options
- Maintaining body temperature when draining

Other options for minimizing slips in the bathroom

- Moen Traction Strips
- Roofing texture coating
Making stairs accessible:
Ramp Considerations

building a ramp

choosing the right material

- wood
- modular: aluminum, steel
- concrete/landscaping
- composite or wood

Modular ramp systems

- Composite modular system
  - Grated flooring
  - 4.5” ramp edging
  - Photoluminescent guides

Ramp design considerations

- Considerations to factor
  - Manual vs power wheelchair
  - Goal of use (independent vs dependent)
  - Ability level of wheelchair user
  - Capability of caregiver/attendant

- Choosing a grade –
  - 1:12 = Residential ramping in [specific context] does not mandate ADA Grade
  - 1:22 versus 1:24
  - Choosing the appropriate slope is dependent on individual needs and
caregiver considerations including: type of wheelchair, ability of wheelchair user
and ability of caregivers

- Layout
  - Top landing - 54” vs. 44” or larger
  - Intermediate landings

continued
Top landing considerations

Maintain as much space as possible towards the swing side of door for wheelchair approach of door swing.

Ramp Versus Lift

- Harmar
- Bruno
- Savaria
- TrueLift
- Mac Lift

Unique ramp systems

- Converta Step - 750# wt capacity & 31" internal width
- Uses remote control
- Limits ability to manage/avoid door swing
Stair management in the home:

- Stair lifts
  - Outdoor vs indoor
  - Top landing swivel
  - Safety sensors
  - Battery backup

Stair management in the home:

- Inclined platform lifts
  - Savaria, Harmar, Butler Mobility

Stair management in the home:

- Enclosed VPLs & Home elevators
Stair Management Options: portable caregiver assisted stair lifter

<table>
<thead>
<tr>
<th>Stair Management Options</th>
<th>Cap</th>
<th>Height</th>
<th>Cost</th>
<th>Interface Options</th>
<th>Travel Breakdown</th>
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<tr>
<td>Mobility Lifter</td>
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<td>8.25&quot;</td>
<td>$7700</td>
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<tr>
<td>Ruby</td>
<td>285#</td>
<td>7”</td>
<td>$6000</td>
<td>Wheelchair interface only</td>
<td>-</td>
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<tr>
<td>Great option for mobility</td>
<td></td>
<td></td>
<td></td>
<td>Single system</td>
<td>- travel breakdown</td>
</tr>
</tbody>
</table>

Scalamobil
- 308# cap
- 7.9” or 10” stair height
- $8,500 to $9,000
- Interface options
- Travel breakdown

Great option for community access

Floor Transfer Lift Technology

- Power Sit to Stand Lift Systems
  - Advantage for toileting - though not able to access tub for transfers
  - Promotes weight bearing
  - Requires ability of patient to assist with transitions
  - May utilize for safe ambulation

- Power Hoyer Lift
  - Easier for a single caregiver to assist
  - Allow for floor transfers
  - Consumes floor space
  - Top heavy - difficult for positioning - typically 2 caregivers

Manufacturer
- Arjo
- Liko
- Prism Medical
- Tollos

Sara Plus Use for exercise
Floor Transfer Lift Technology
- Manual sit to stand devices
- Endurance and Bathroom Access

Ceiling Lift Technology: Overview and Options

Advantages:
- Fewer caregivers required
- Options for safe exercise and mobility
- Conservation of space
- Increased safety
- Allows easiest option for positioning assistance for dependent patients particularly when using positioning strategies with tilt in space wheelchair

Ceiling Lift Technology
- Ceiling lifts for bathroom accessibility
- May achieve goal of transfer assistance without the need to remodel the bathroom for the patient who requires dependent assistance.
Ceiling Lift – Motor Options

- Fixed vs Portable Motor
- Option of Lateral traverse

Ceiling Lift – Track Options

Wall mounted lift

Utilizes Portable Motor – Mobility Lift system
Sling and Harness Options

- Sling options for: hygiene access, edging and repositioning in bed, elevating limb for wound care or personal cares.

Ceiling Lifts

- Harness and sling solutions for independence with transfers using a ceiling lift with "lateral traverse" motor.

Ceiling Lifts - Exercise and Mobility

- Ceiling lift usage for therapeutic exercise and safe ambulation with walking harness for weight bearing activities.
Whole Home Adaptations

- Offset or "swing clear" hinges vs. traditional

Accessible Kitchen Design

- Individualized measurements
- Functional design
- Appliances
- Safety
- Adaptability/modular designs
Whole Home Adaptations

Accessible laundry room

References:

http://gero.usc.edu/podcasts/podcast-sections/CHSS/podcast.pdf


http://www.youtube.com/watch?v=MyEzDB5S3eE