Wheelchair Skills Training: What in the World is Going On!?

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Setting the Stage

- Conflicts of interest: None
- Acknowledgements:
  - Wheelchair Research Team
  - Collaborators
  - Funding bodies
- Caveats:
  - Late starter (2005)
  - Parachute-style experiences
  - Personal opinions

Session Objectives

On completion of the session, participants will be able to describe the complementary aspects of the:

1. Wheelchair Skills Training Program
2. World Health Organization Guidelines
3. International Society of Wheelchair Professionals

UN Convention on the Rights of Persons with Disabilities (2006)

- Article 20 – Personal mobility
  - States Parties shall take effective measures to ensure personal mobility with the greatest possible independence for persons with disabilities, including by… Providing *training in mobility skills* to persons with disabilities and to specialist staff working with persons with disabilities…

Prevalence of Manual Wheelchair Skills Training

- 17% UK children: Whizz-Kidz 2004
- 18% US veterans: Karmarkar AM et al. JRRD 2009;46:567-76
- 66% US paraplegia: Zanca JM et al. Phys Ther 2011;91:1877-91
- 29% Bangladesh: Borg J et al. BMC Health Services Res 2012;12:330
- 11% Canada stroke: Charbonneau R et al. Arch Phys Med Rehabil 2013;94:1707-13
- 55% Canada: Kirby RL et al. RESNA 2013.

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WHEELCHAIR SKILLS PROGRAM

nova scotia health authority

"Low tech, high impact"

This website deals with the Wheelchair Skills Program (WSP). The WSP includes the Wheelchair Skills Test (WST), the questionnaire version of the WST (WST-Q) and the Wheelchair Skills Training Program (WSTP). It is used to assess and train wheelchair users and/or their caregivers and clinicians.

Warning

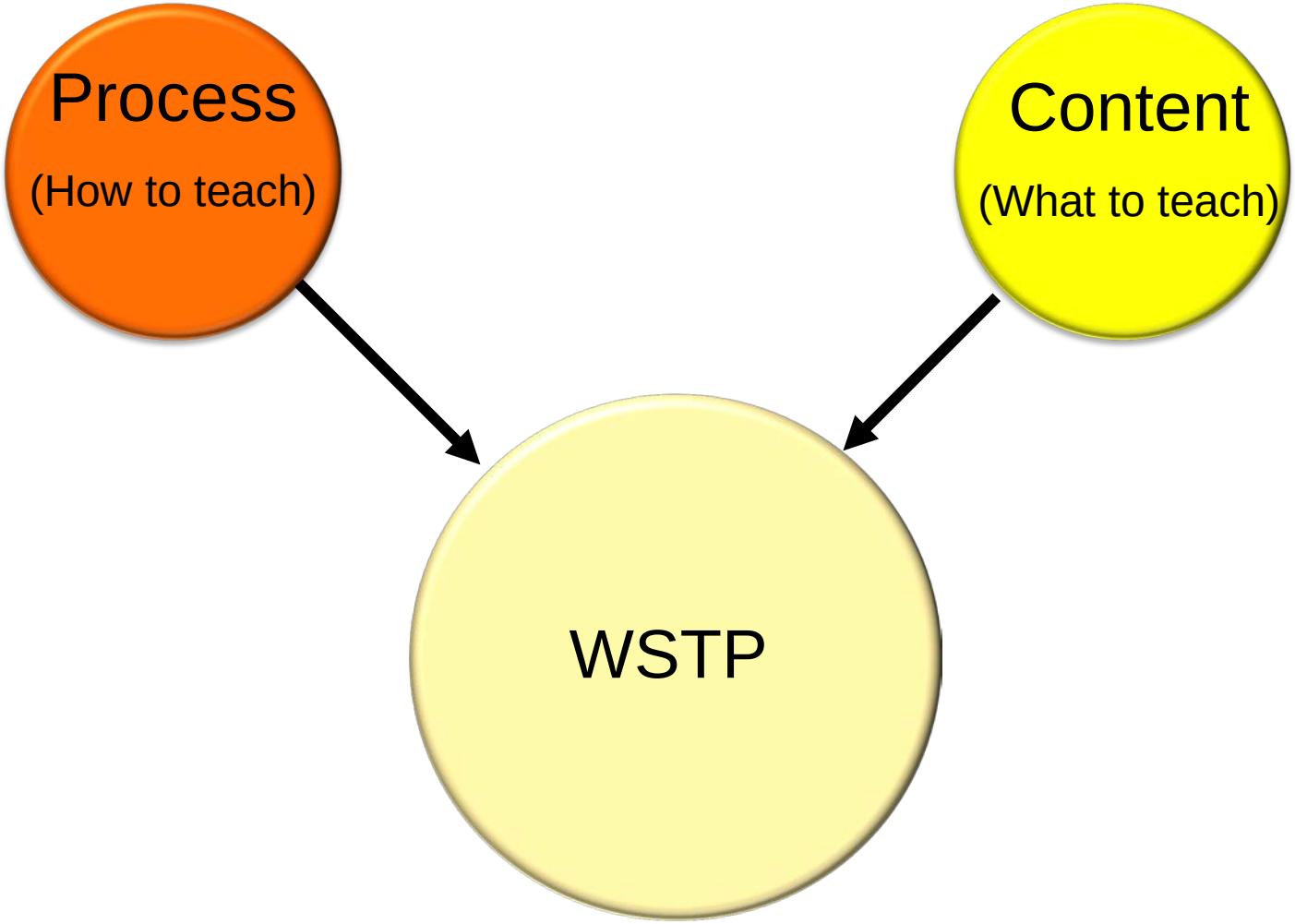
The wheelchair skills described and illustrated on this website can be dangerous and result in severe injury if attempted without the assistance of trained personnel.

Established 1996

What's Different About the WSP?

- Evidence-based
- Both assessment and training
- Both wheelchair users and caregivers
- Manual wheelchairs, power and scooters
- The process and sequencing used
- Updated often
- It's FREE! ("open source")

Wheelchair Skills Training Program



Example of motor-learning principles: segmentation and feedback

Example of training tip: backwards method for foot propulsion

Charbonneau R et al. Arch Phys Med Rehabil 2013;94:707-13

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Wheelchair Related Publications

by the Dalhousie University Wheelchair Research Team

Wheelchair Skills Publications

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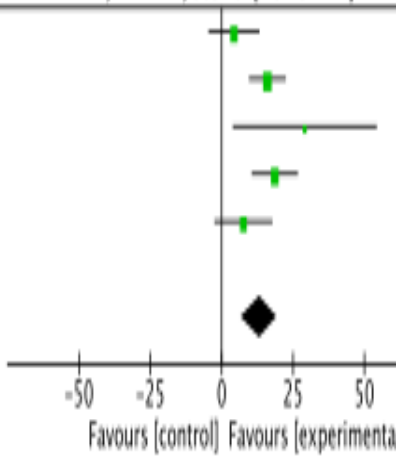
17 papers*

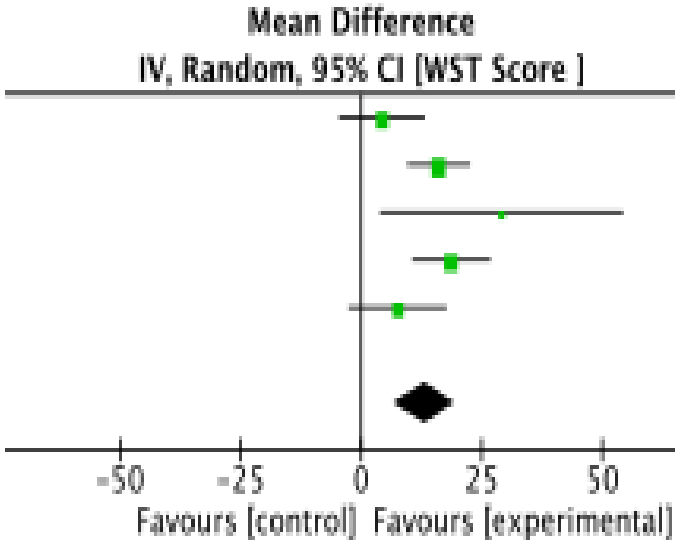
*June 4, 2015

Study or Subgroup	Experimental Mean [WST Score]	SD [WST Score]	Total	Control Mean [WST Score]	SD [WST Score]	Total	Weight	Mean Difference IV, Random, 95% CI [WST Score]
Best et al. 2005.	78.5	8.3	10	74.2	11.8	10	22.3%	4.30 [-4.64, 13.24]
MacPhee et al. 2004.	80.9	5.6	15	64.9	13.3	20	28.1%	16.00 [9.52, 22.48]
Mountain et al. 2014.	83.9	23.8	9	54.8	28.7	8	5.6%	29.10 [3.86, 54.34]
Ozturk & Dokuztug. 2011.	83.3	12	14	64.7	8.3	10	24.2%	18.60 [10.48, 26.72]
Routhier et al. 2012.	77.4	13.8	19	69.8	18.4	20	19.8%	7.60 [-2.58, 17.78]
Total (95% CI)			**67**			**68**	**100.0%**	**13.08 [6.62, 19.54]**

Heterogeneity: $Tau^2 = 27.77$; $Chi^2 = 8.90$, df = 4 (P = 0.06); $I^2 = 55\%$

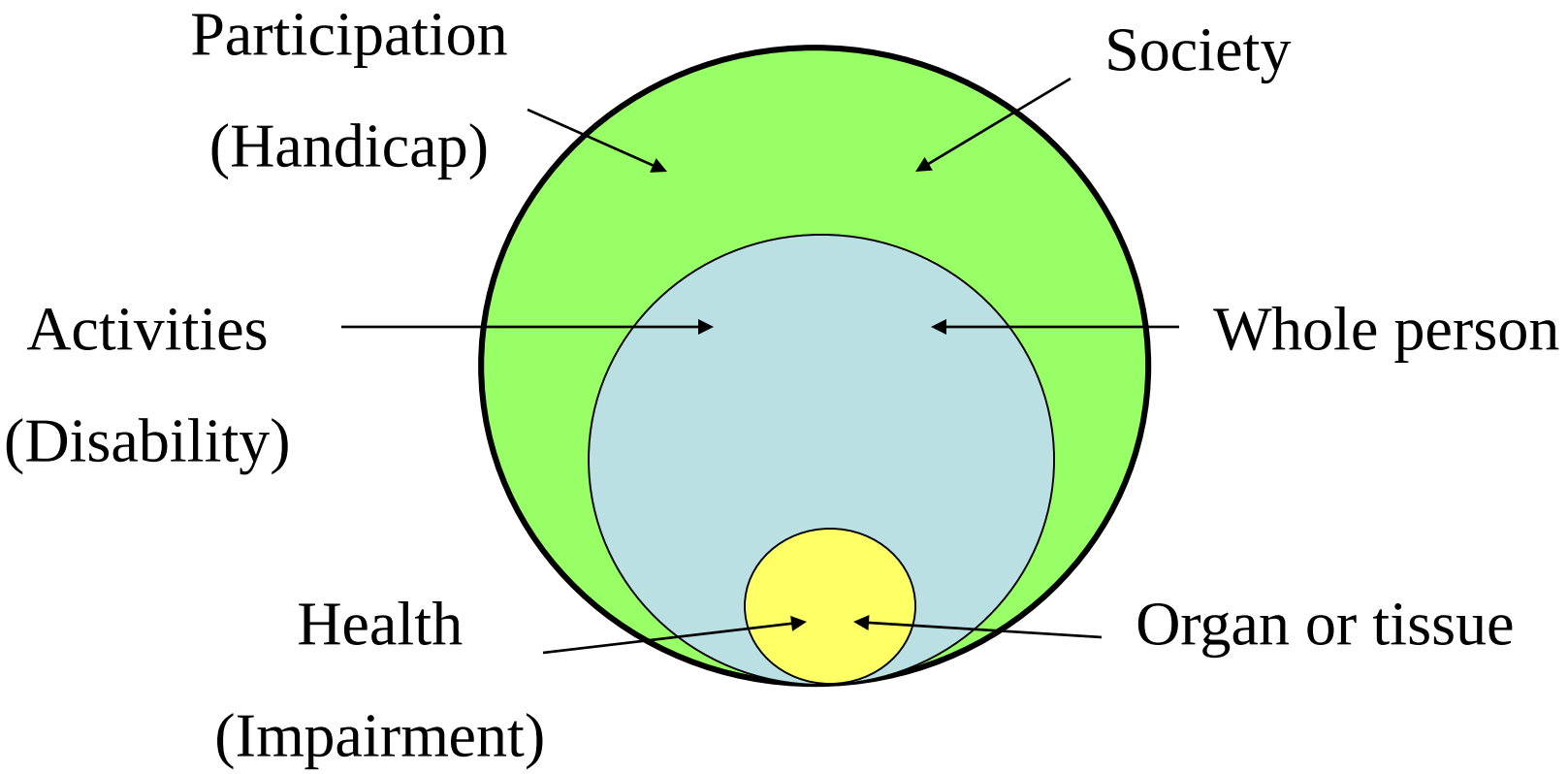
Test for overall effect: Z = 3.97 (P < 0.0001)





Keeler L et al, 2015

International Classification of Function (ICF)



WHO, 2001

Impact of Wheelchair Skills

- Training increases confidence
- Training increases amount of wheelchair use
- Skills correlate with daily wheeled distance
- Skills correlate with return to work
- Skills correlate with participation measures

Levels of Scientific Evidence

I. Large randomized trials with clear-cut results (and low risk of error)

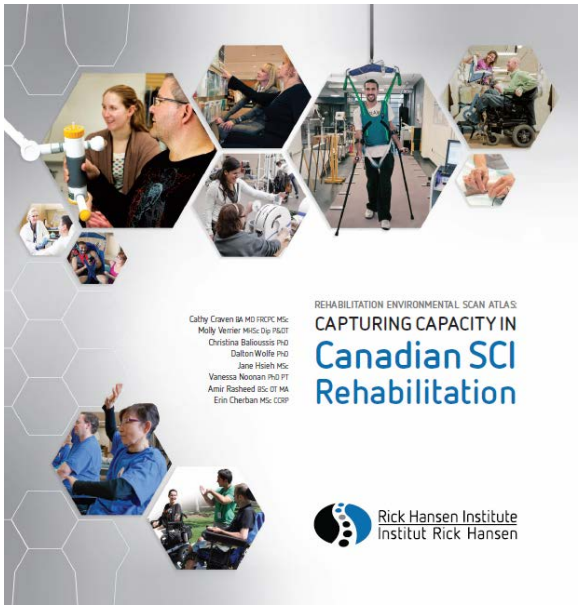
II. Small randomized trials with uncertain results (and moderate-high risk of error)

III. Nonrandomized trials with concurrent controls

IV. Nonrandomized trials with historical controls

V. Case series with no controls

Sackett DL. Chest (2 Suppl) 1989:2S-4S


REHABILITATION ENVIRONMENTAL SCAN ATLAS:
CAPTURING CAPACITY IN
Canadian SCI Rehabilitation
Cathy Craven BA MD FRCPC MSc
Molly Verrier MHSc Dip PT&OT
Christina Balioussis PhD
Dalton Wolfe PhD
Jane Hsieh MSc
Vanessa Noonan PhD PT
Amir Rasheed BSc OT MA
Erin Cherban MSc CORP
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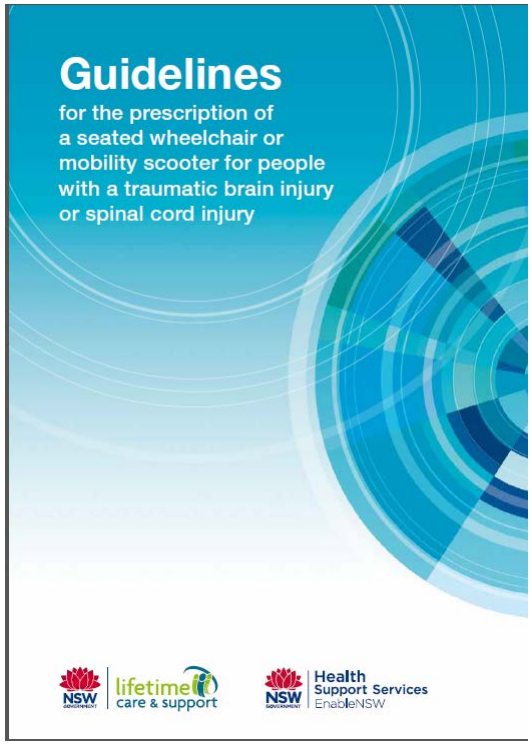
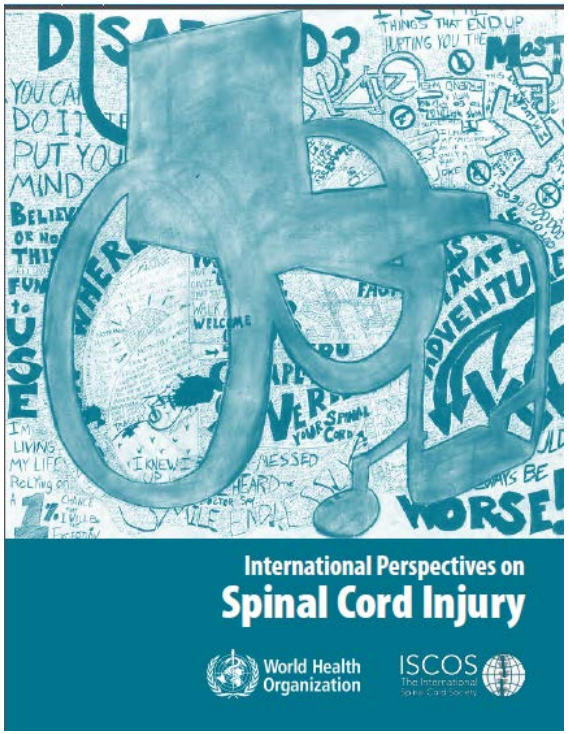
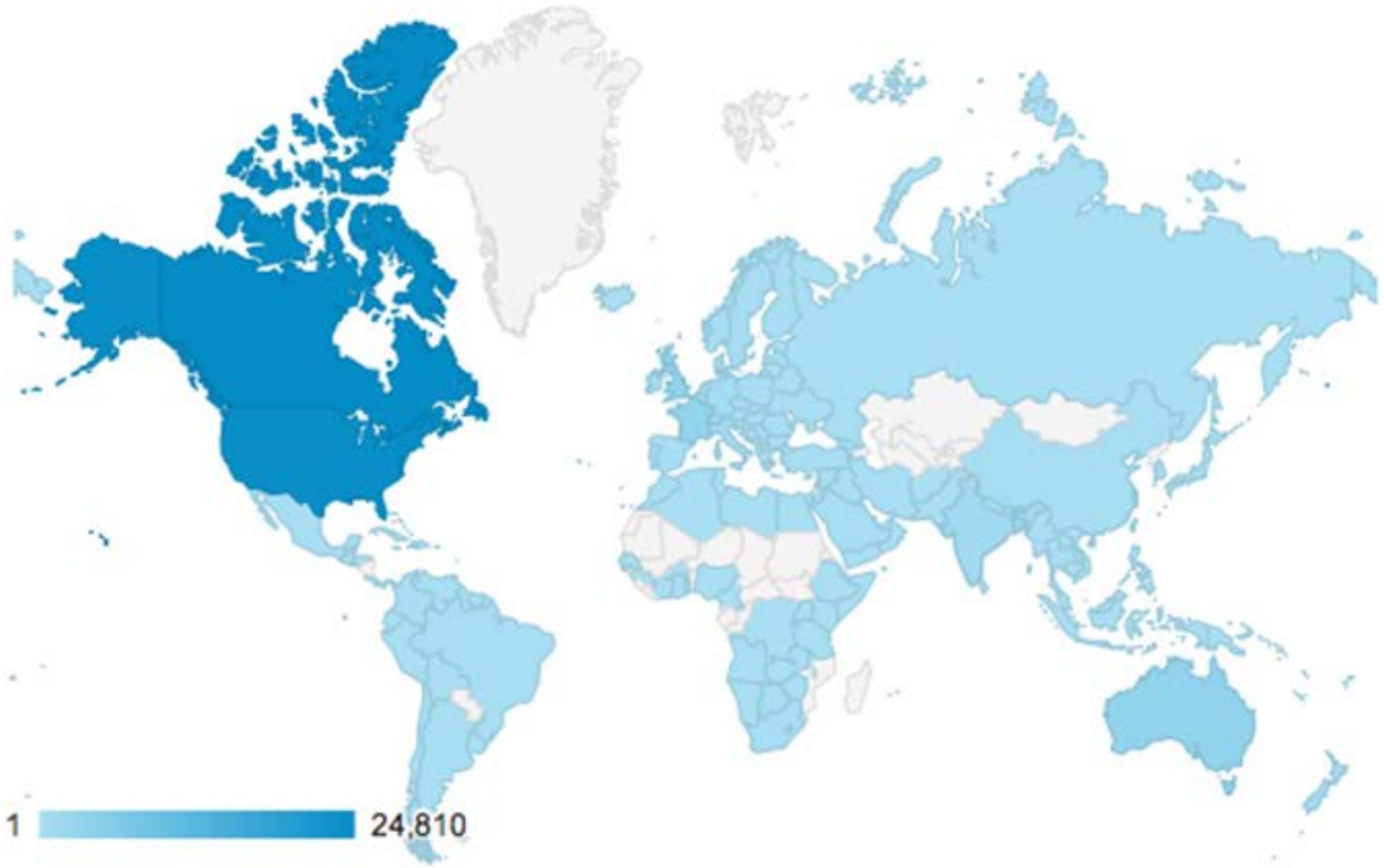

Guidelines
for the prescription of a seated wheelchair or mobility scooter for people with a traumatic brain injury or spinal cord injury
NSW GOVERNMENT
lifetime care & support
NSW GOVERNMENT
Health Support Services
EnableNSW


International Perspectives on
Spinal Cord Injury
World Health Organization
ISCOS

Web Site: December 31, 2015
(62,971 users in 175 countries)

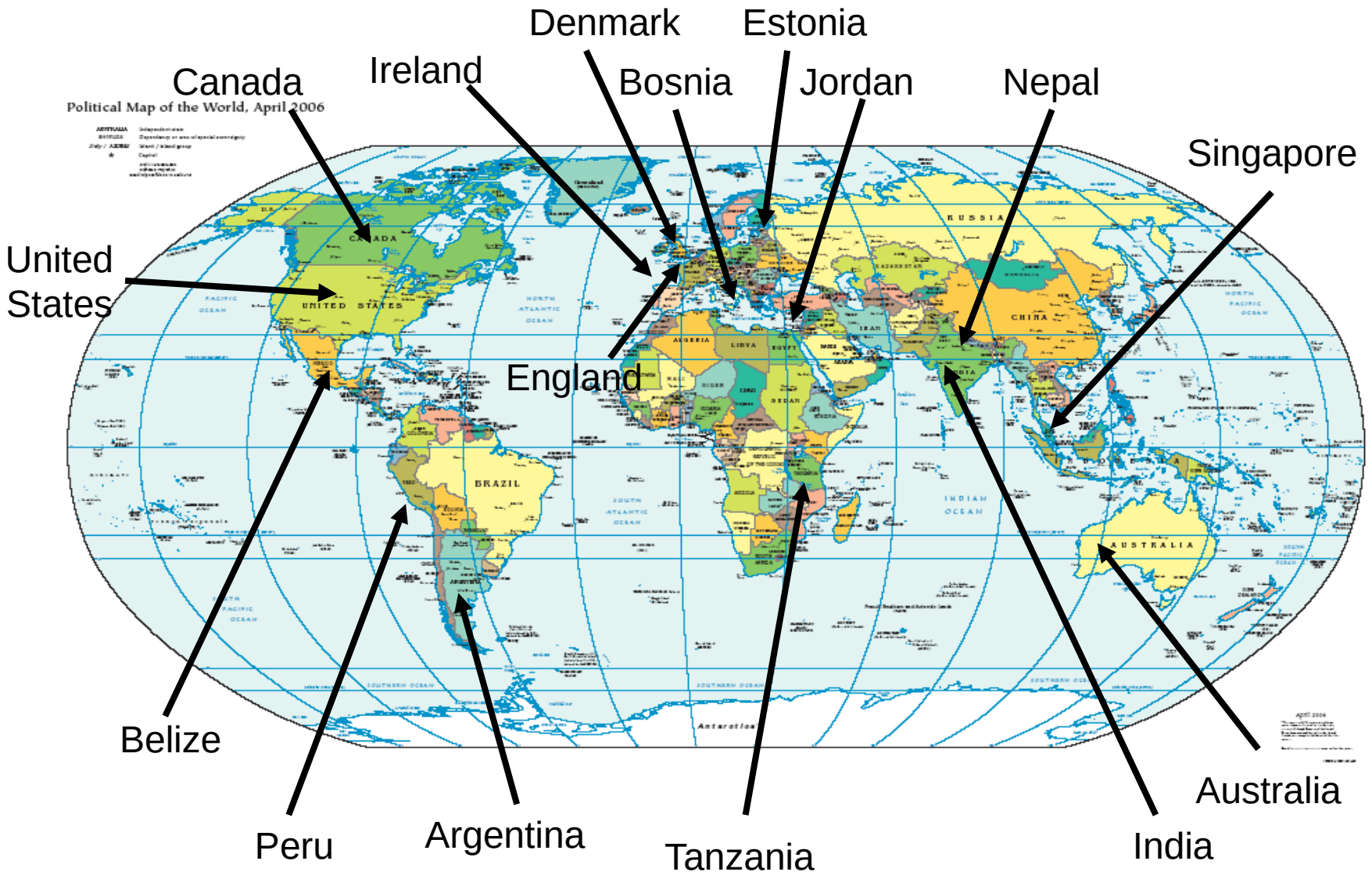


Wheelchair Skills Program

"Low tech, high impact"

Nenad Kostanjsek, WHO
ICF Conference, 2004

WSP Training Around the World



India (Kanpur) 2005

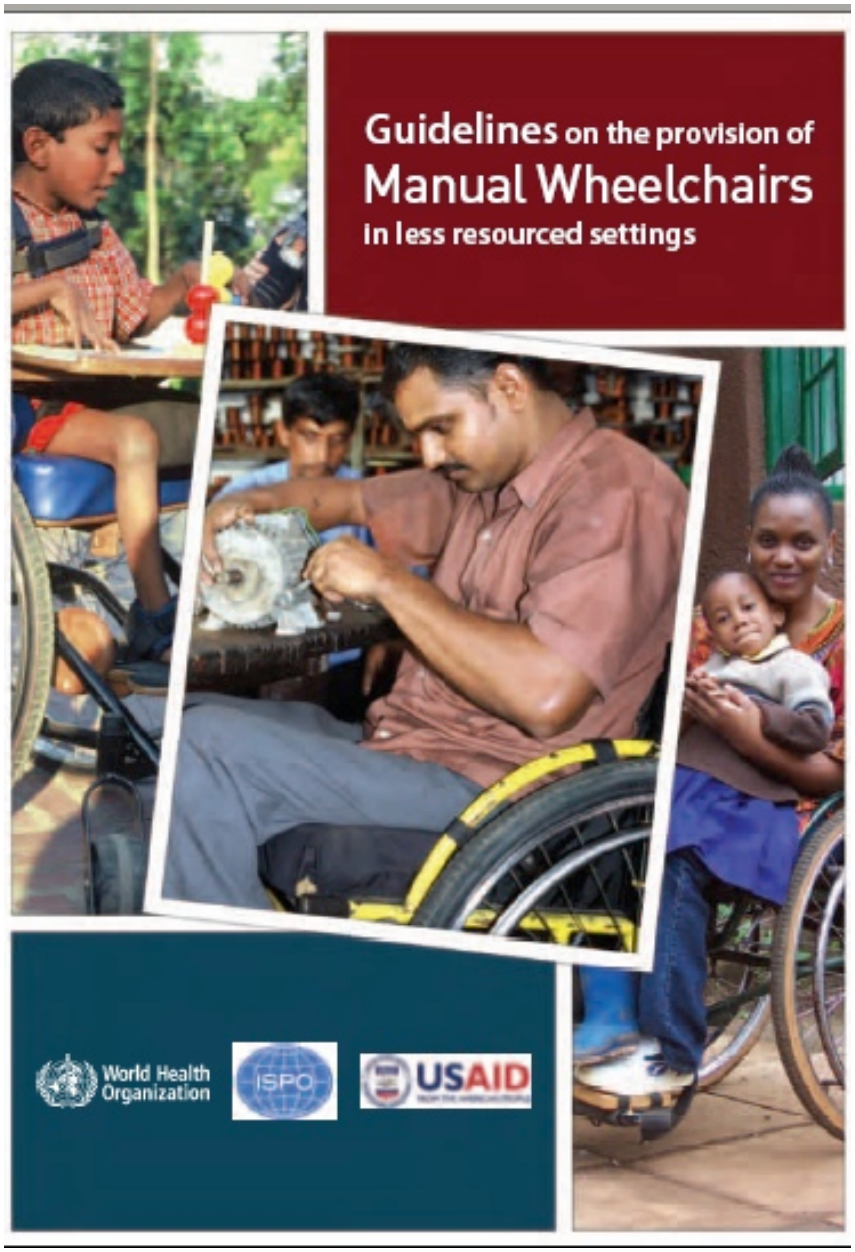
Tanzania (Dar) 2011

Tanzania (Moshi) 2011

India (Jaipur) 2005

Bosnia (Banja Luka) 2008

Nepal (Kathmandu) 2013



2008

www.who.int/disabilities/publications/technology/wheelchairguidelines/en/index.html.

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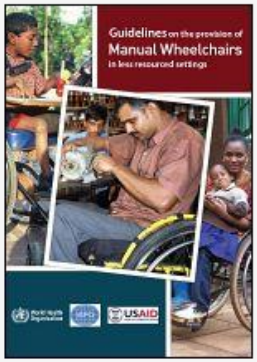
Guidelines on the provision of manual wheelchairs in less-resourced settings

Share Print

On the occasion of the 21st World Congress of Rehabilitation International, WHO, the US Agency for International Development, the International Society for Prosthetics and Orthotics and Disabled Peoples' International have launched an important new document: *Guidelines on the provision of manual wheelchairs in less resourced settings*.



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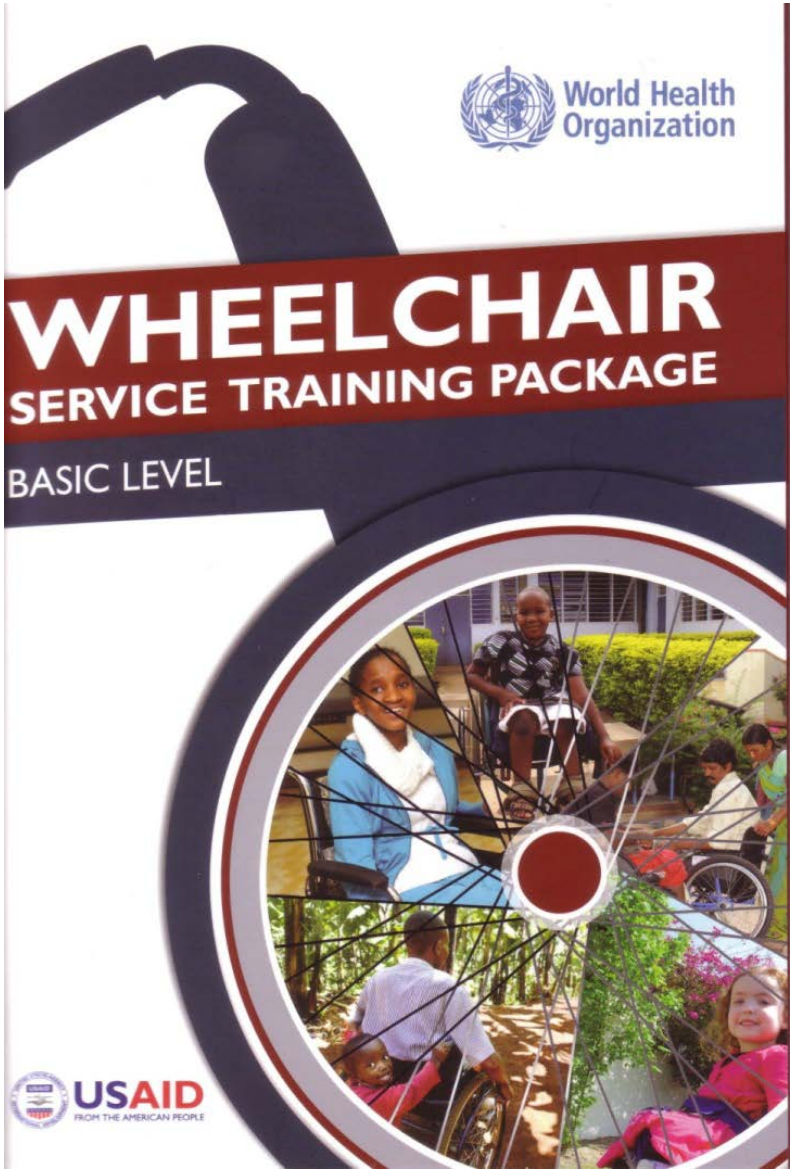
English
pdf, 2.47Mb

French

The wheelchair is one of the most commonly used assistive devices for enhancing the personal mobility of people with disabilities. An estimated 1% of the world's population, or just over 65 million people, need a wheelchair. In most developing countries, few of those who need wheelchairs have access, production facilities are insufficient and wheelchairs are often donated without the necessary related services. Providing wheelchairs that are appropriate, well-designed and fitted not only enhances mobility, but also opens up a world of education, work and social life for those in need of such support.

The guidelines, developed for use in less resourced settings, address the design, production, supply and service delivery of manual wheelchairs, in particular for long-term wheelchair users. The guidelines and related recommendations are targeted at a range of audiences, including policy-makers; planners, managers, providers and users of wheelchair services; designers, purchasers, donors and adapters of wheelchairs; trainers of wheelchair provision programmes; representatives of disabled people's organizations; and individual users and their families. By developing an effective system of wheelchair provision, Member States support

http://www.who.int/disabilities/publications/technology/wheelchairguidelines/en/



2012

www.who.int/disabilities/publications/technology/wheelchairguidelines/en/index.html.

WHO Wheelchair Provision

1. Design
2. Production
3. Supply
4. Service Delivery

WHO Guidelines 2008, Section 1.7, p 25

WHO Service-Delivery Model

1. Referral and appointment
2. Assessment
3. Prescription
4. Funding and ordering
5. Product preparation
6. Fitting
7. User training
8. Follow-up, maintenance and repairs

WHO Guidelines 2008, Section 3.2.1, p 76

WHO Wheelchair-Provision Service Model

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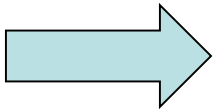
WSTP 

WHO Guidelines 2008, Section 3.2.1, p 76

Annals of Internal Medicine | Review

Wheeled Mobility (Wheelchair) Service Delivery: Scope of the Evidence

Nancy Greer, PhD; Michelle Brasure, PhD, MSPH, MLIS; and Timothy J. Wilt, MD, MPH

Identifying the appropriate wheelchair for a person who needs one has implications for both disabled persons and society. For someone with severe locomotive problems, the right wheelchair can affect mobility and quality of life. However, policymakers are concerned about the increasing demand for unnecessarily elaborate chairs. The Office of Inspector General, U.S. Department of Health and Human Services, issued 4 reports between 2009 and 2011 detailing fraud and misapplication of Medicare funds for powered wheelchairs, more than a decade after similar concerns were first raised by 4 contractors who process claims for durable medical equipment. Subsequent concerns have arisen about whether some impaired persons who need wheeled mobility devices may now be inappropriately denied coverage. A transparent, evidence-based approach to wheeled mobility service delivery (the matching of mobility-impaired persons to appropriate devices and supporting services) might lessen these concerns.

This review describes the process of wheeled mobility service delivery for long-term wheelchair users with complex rehabilitation needs and presents findings from a survey of the literature (published and gray) and interviews with key informants. Recommended steps in the delivery process were identified in textbooks, guidelines, and published literature. Delivery processes shared many commonalities; however, no research supports the recommended approaches. A search of bibliographic databases through March 2011 identified 24 studies that evaluated aspects of wheeled mobility service delivery. Most were observational, exploratory studies designed to determine consumer use of and satisfaction with the process. The evidence base for the effectiveness of approaches to wheeled mobility service delivery is insufficient, and additional research is needed to develop standards and guidelines.

Ann Intern Med. 2012;156:141-146. www.annals.org

For author affiliations, see end of text.

"…no research supports the recommended approaches."

Evidence for WHO Process

The full package

vs

Individual steps

The Full Package

BMC Health Serv Res. 2016 Jan 22;16(1):26. doi: 10.1186/s12913-016-1268-y.

The impact of the World Health Organization 8-steps in wheelchair service provision in wheelchair users in a less resourced setting: a cohort study in Indonesia.

Toro ML[1,2,3], Eke C[4], Pearlman J[5,6].

Author information

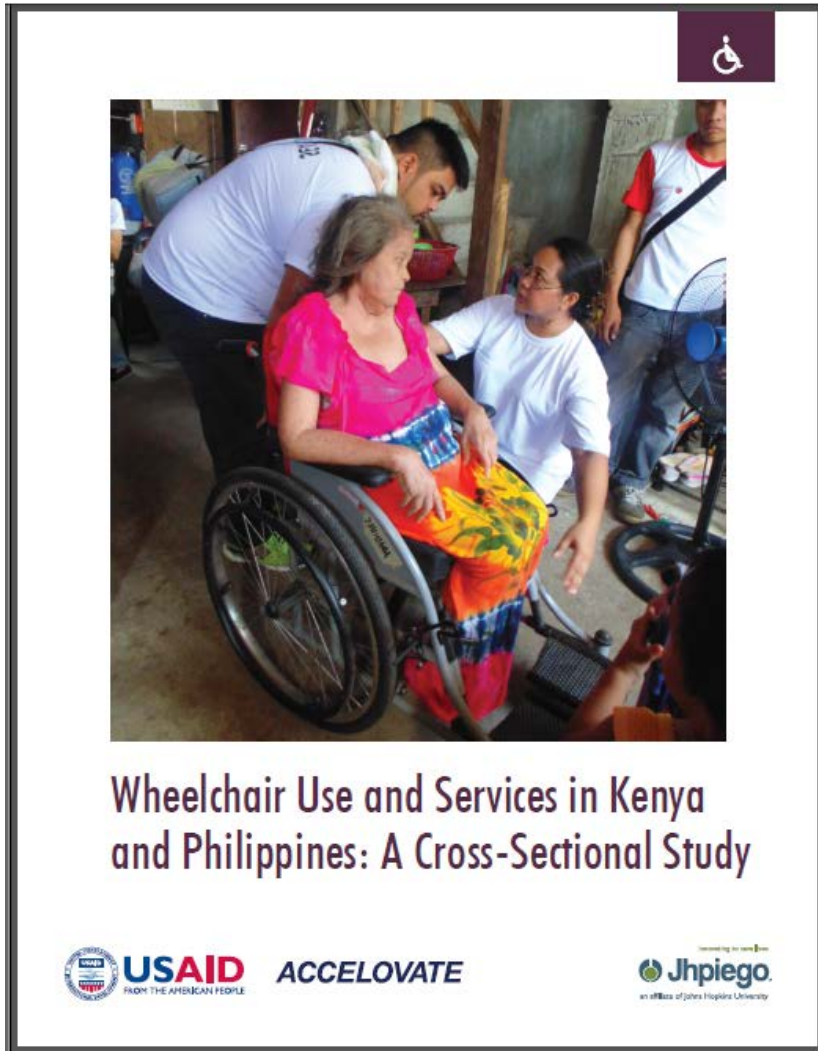
Abstract

BACKGROUND: For people who have a mobility impairment, access to an appropriate wheelchair is an important step towards social inclusion and participation. The World Health Organization Guidelines for the Provision of Manual Wheelchairs in Less Resourced Settings emphasize the eight critical steps for appropriate wheelchair services, which include: referral, assessment, prescription, funding and ordering, product preparation,fitting and adjusting, user training, and follow-up and maintenance/repairs. The purpose of this study was to investigate how the provision of wheelchairs according to the World Health Organization's service provision process by United Cerebral Palsy Wheels for Humanity in Indonesia affects wheelchair recipients compared to wait-listed controls.

METHODS: This study used a convenience sample (N = 344) of Children, Children with proxies, Adults, and Adults with proxies who were on a waiting list to receive a wheelchair as well as those who received one. Interviews were conducted at baseline and a 6 month follow-up to collect the following data: Demographics and wheelchair use questions, the World Health Organization Quality of Life-BREF, Functional Mobility Assessment, Craig Handicap Assessment Recording Technique Short Form. The Wheelchair Assessment Checklist and Wheelchair Skills Test Questionnaire were administered at follow up only.

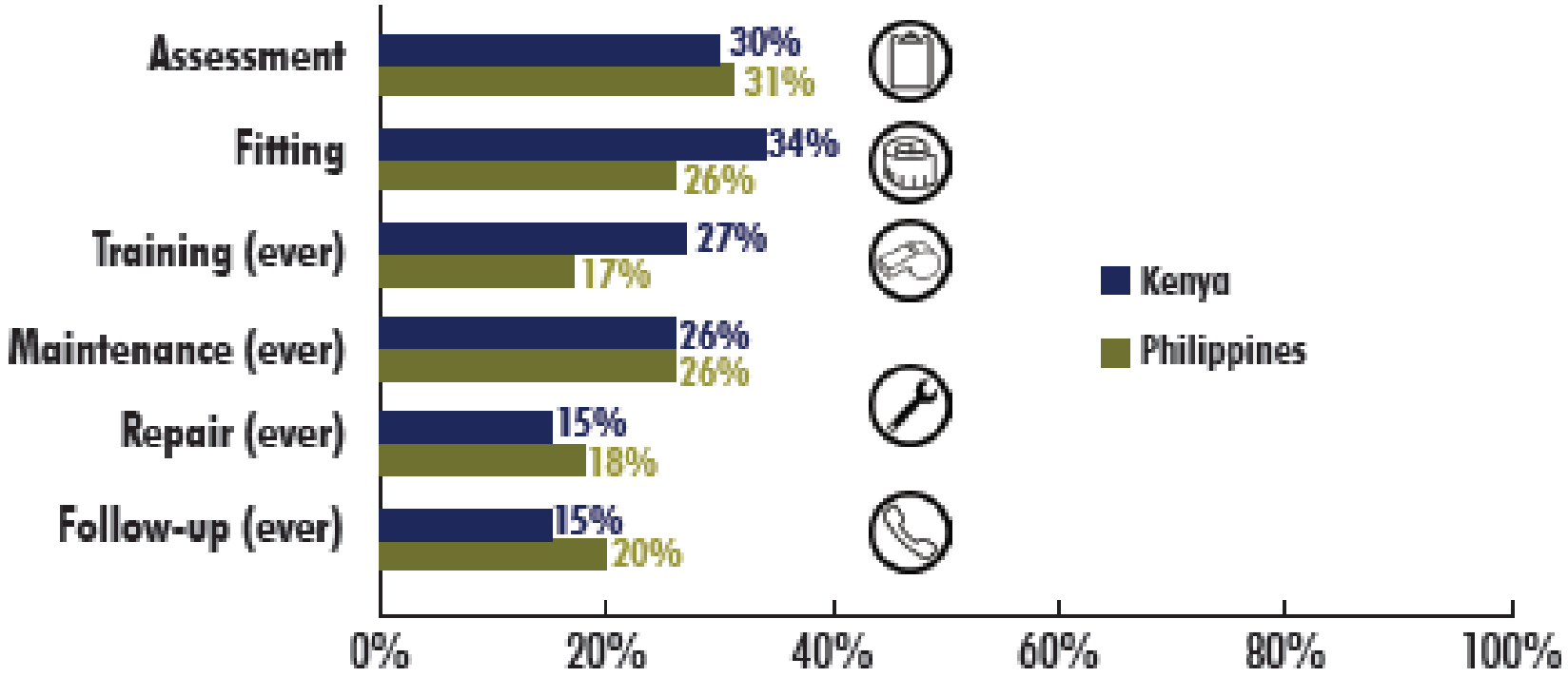
RESULTS: 167 participants were on the waiting list and 142 received a wheelchair. Physical health domain in the World Health Organization Quality of Life-BREF improved significantly for women who received a wheelchair ($p = 0.044$) and environmental health improved significantly for women and men who received a wheelchair as compared to those on the waiting list ($p < 0.017$). Satisfaction with the mobility device improved significantly for Adults with proxies and Children with proxies as compared to the waiting list ($p < 0.022$). Only 11 % of Adults who received a wheelchair reported being able to perform a "wheelie". The condition of Roughrider wheelchairs was significantly better than the condition of kids wheelchairs for Children with proxies as measured by the Wheelchair Assessment Checklist ($p = 0.019$).

The Full Package



www.jhpiego.org/accelovate, 2015

Figure 8. Wheelchair Service Receipt, Kenya and the Philippines[4]



www.jhpiego.org/accelovate, 2015, p 42

Most striking were the associations between successful use of the current wheelchair and two services: (1) ever receiving wheelchair user training, and (2) being fitted while propelling in the current wheelchair.

www.jhpiego.org/accelovate, 2015, p 57

WHO Content Review

- Need:
  - Less-resourced settings vs global focus
  - Accumulating experience and evidence
- Countervailing forces:
  - Growing investment in process
  - Competing priorities (e.g. GATE initiative)
- Process:
  - WHO 5-year plan
  - Need for funding

International Society of Wheelchair Professionals

ADVANCING PARTNERS & COMMUNITIES

Subaward No. APC-GM-0068

The University of Pittsburgh's Department of Rehabilitation Science and Technology has been awarded a grant from the US Agency for International Development (USAID) to develop the International Society of Wheelchair Professionals (ISWP). ISWP will be built around a federation of regional and international Affiliate Members and Partners which will help ensure ISWP activities are culturally relevant, timely, and focused on the most important wheelchair-related issues.

ISWP will initially be led by a group of wheelchair experts at University of Pittsburgh, with strategic partnerships that have already been established with USAID & The World Health Organization (WHO). ISWP's mission will be that wheelchair users are provided the best technology with the best service worldwide. This will be accomplished by promoting the WHO Guidelines on the provision of manual wheelchairs in less resourced settings, promoting training and research activities and improving wheelchair design, manufacturing and coordinating services. To that end, ISWP Affiliates will be representative of all of the stakeholders with the addition of research institutions dedicated to improving wheelchair services through evidence-based practice.

The current website is being developed, however we still would like to hear from you as please join our contact list below.

http://www.wheelchairnet.org/

ISWP Organization Chart

- ISWP Central
- Advisory Board
- Working Groups:
  - Advocacy
  - Evidence-Based Practice
  - Membership and Coordination
  - Training
  - Standards

ISWP Training Working Group

- Subcommittees:
  - Competency testing
  - Integration
  - Hybrid (Blended) Course
- Training of Trainers

Emerging Training Issues

- Understudied mobility devices
- Training of caregivers
- Role of peers in training
- New educational methods:
  - Tablet-based applications
  - Virtual reality
  - Asynchronous training

Session Objectives

On completion of the session, participants will be able to describe the complementary aspects of the:

1. Wheelchair Skills Training Program
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3. International Society of Wheelchair Professionals

“Half the world knows not how the other half lives.”

George Herbert, 1593-1633