

# Оценка и обучение навыкам кресла-коляски (WSAT): от исследований к клинической практике

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Конференция: “Комплексная реабилитация инвалидов на современном этапе. Отечественная и международная практика”

Новокузнецк, Россия.

## Political Map of the World, April 2006



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- Отдел медицинской и социально-профессиональной реабилитации
- ФГБУ "Новокузнецкий научно-практический центр медико-социальной экспертизы и реабилитации инвалидов" Минтруда России

# Основные аспекты

- Выражение признательности:
  - Участникам совместных исследований
  - Финансирующим организациям
- Раздаточный материал:
  - pdf-файл презентации
  - [www.wheelchairskillsprogram.ca](http://www.wheelchairskillsprogram.ca)
- Конфликт интересов: отсутствует

# Цели презентации

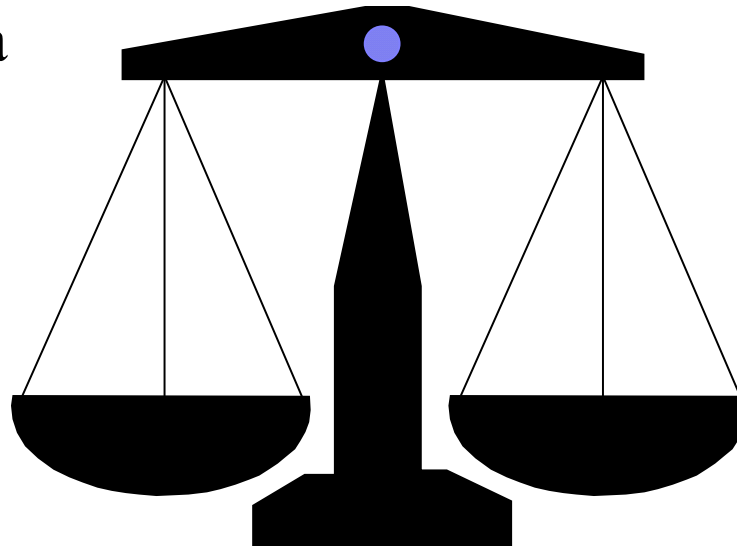
По завершении презентации,  
участники смогут:

1. Описать компоненты WSP (WSP - программа навыков кресла-коляски)
2. Получить доступ к бесплатным онлайн материалам WSP
3. Обобщить исследовательские данные о WSP
4. Инициировать WSP в условиях своих учреждений

# Кресла-коляски

## Преимущества

- Мобильность
- Участие
- Нагрузка на ухаживающего
- Помещение в учреждение длительного лечения и содержания



## Проблемы

- Неправильная посадка
- Ремонт
- Травмы от чрезмерного пользования
- Острые травмы

# Падение из-за заднего антипрокидывающего устройства

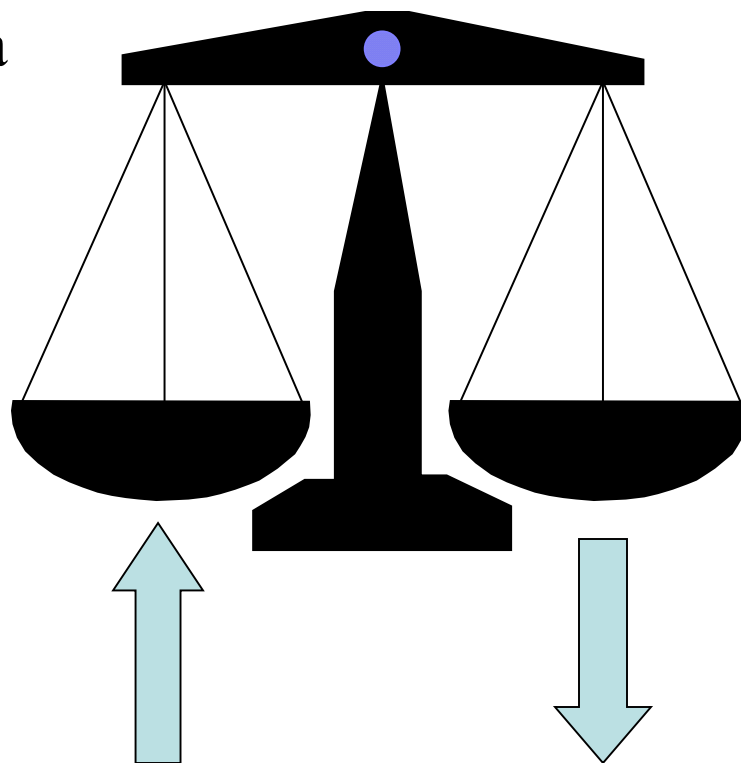


Routhier F. Personal communication 2007.

# Кресла-коляски

## Преимущества

- Мобильность
- Участие
- Нагрузка на ухаживающего
- Помещение в учреждение длительного лечения и содержания



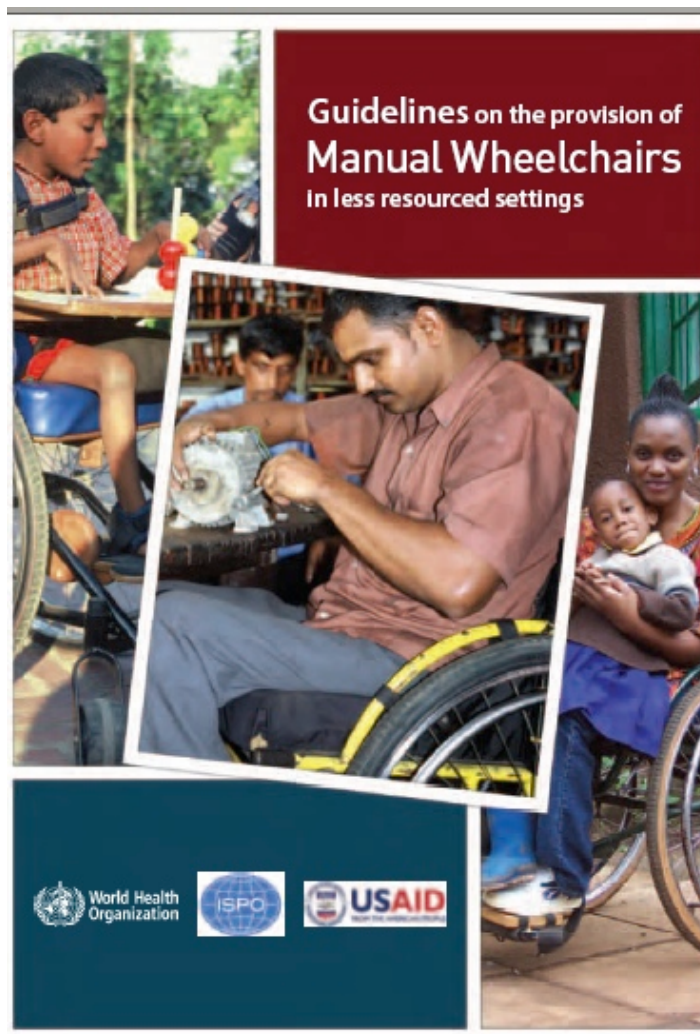
## Проблемы

- Неправильная посадка
- Ремонт
- Травмы от чрезмерного пользования
- Острые травмы

Эффективное назначение кресла-коляски

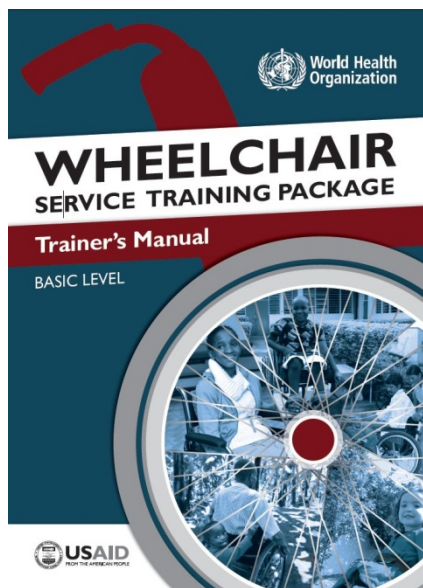


# Всемирная Организация Здравоохранения

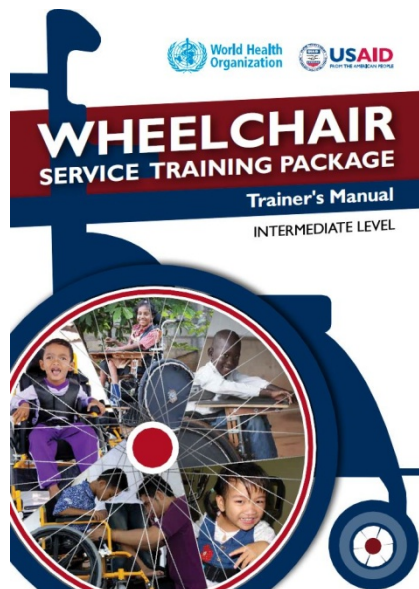


2008: [www.who.int/disabilities/publications/technology/wheelchairguidelines/en/index.html](http://www.who.int/disabilities/publications/technology/wheelchairguidelines/en/index.html).

# Обслуживание и эксплуатация кресла-коляски: учебно-тренировочный комплекс (от ВОЗ)



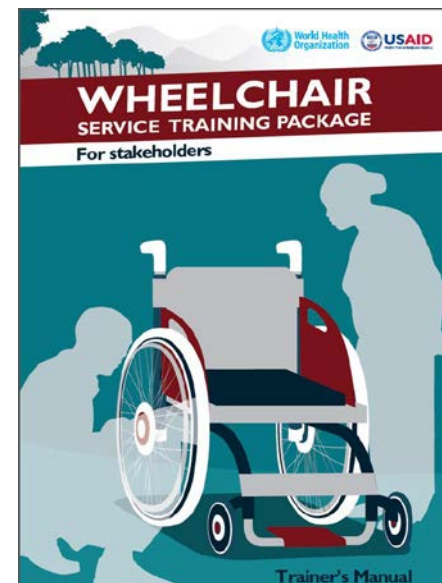
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(2012)  
5 дней



Средний  
(2013)  
10 дней



Для  
управляющих  
(2015)  
2 дня



Для партнёров  
(2015)  
.5 – 2 дня

# Модель назначения кресла-коляски

1. Направление и приём
2. Оценка
3. Назначение
4. Финансирование и заказ
5. Подготовка продукта
6. Посадка (подгонка)
7. Обучение пользователя
8. Последующее наблюдение, техническое обслуживание и ремонт

## WHEELCHAIR SKILLS PROGRAM



“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.

# Модель назначения кресла-коляски

1. Направление и приём



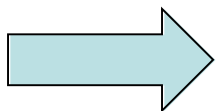
2. Оценка

3. Назначение

4. Финансирование и заказ

5. Подготовка продукта

6. Посадка (подгонка)



7. Обучение пользователя

8. Последующее наблюдение, техническое обслуживание и ремонт


# Wheelchair Skills Program (WSP) - программа навыков пользования кресло-коляской

- Wheelchair Skills Test (WST) - тест по навыкам пользования кресло-коляской
- Wheelchair Skills Training Program (WSTP) - программа обучения (*тренировки*) навыкам пользования кресло-коляской

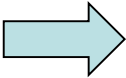
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Established 1996



# Wheelchair Skills Program (WSP) Manual and Forms

## Manual

- 
- Wheelchair Skills Program Manual 5.0

## Forms

- Wheelchair Skills Test (WST) 5.0 Form – Manual Wheelchair
- Wheelchair Skills Test (WST) 5.0 Form – Powered Wheelchair
- Wheelchair Skills Test Questionnaire (WST-Q) 5.0 Form – Manual Wheelchair
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- Wheelchair Skills Test Questionnaire (WST-Q) 5.0 Form – Powered Wheelchair
- Wheelchair Skills Test Questionnaire (WST-Q) 5.0 Script – Powered Wheelchair



# Wheelchair Skills Program Manual 5.0

## Editorial Committee

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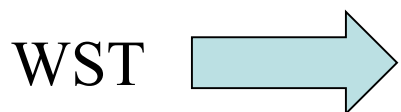
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**Suggested citation:** Kirby RL, Rushton PW, Smith C, Routhier F, Best KL, Cowan R, Giesbrecht E, Koontz A, MacKenzie D, Mortenson B, Parker K, Smith E, Sonenblum S, Tawashy A, Toro M, Worobey, L. The Wheelchair Skills Program Manual. Published electronically at Dalhousie University, Halifax, Nova Scotia, Canada.

[www.wheelchairskillsprogram.ca/eng/manual.php](http://www.wheelchairskillsprogram.ca/eng/manual.php)

# Модель назначения кресла-коляски



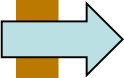
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# Wheelchair Skills Program (WSP) Manual and Forms

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  - Wheelchair Skills Test Questionnaire (WST-Q) 5.0 Script – Powered Wheelchair

## Wheelchair Skills Test (WST) Version 5.0 Form

### Powered Wheelchairs

Name of wheelchair user: \_\_\_\_\_

Caregiver assisting (if any): \_\_\_\_\_

Tester: \_\_\_\_\_ Date: \_\_\_\_\_

#	Individual Skill	Capacity (0-3)*	Comments
1	Positions and operates controller		
2	Operates body positioning options		
3	Rolls forward short distance		
4	Rolls backward short distance		
5	Stops on command		
6	Turns in place		
7	Turns while moving forward		
8	Turns while moving backward		
9	Maneuvers sideways		
10	Picks objects from floor		
11	Relieves weight from buttocks		
12	Performs level transfers		
13	Gets through hinged door		
14	Rolls longer distance		
15	Ascends slight incline		
16	Descends slight incline		
17	Ascends steep incline		
18	Descends steep incline		

General Scale for Scoring Skill Capacity*		
Advanced pass	3	The subject carries out the skill in a highly proficient or advanced manner.
Pass	2	The subject carries out the skill independently and safely, but with room for improvement.
Partial pass	1	The subject completes a majority of the evaluation criteria, but not all.
Fail	0	The subject does not complete a majority of the evaluation criteria, is unsafe or unwilling.
Not Possible	NP	The wheelchair does not have the parts to allow this skill.
Testing Error	TE	The tester cannot assess the skill for some reason.

Advanced pass	3	The subject carries out the skill in a highly proficient or advanced manner.
Pass	2	The subject carries out the skill independently and safely, but with room for improvement.
Partial pass	1	The subject completes a majority of the evaluation criteria, but not all.
Fail	0	The subject does not complete a majority of the evaluation criteria, is unsafe or unwilling.
Not Possible	NP	The wheelchair does not have the parts to allow this skill.
Testing Error	TE	The tester cannot assess the skill for some reason.

\* More details, including criteria specific to individual skills can be found in the WSP Manual.

**Formula for calculating total percentage score:**

Total WST Capacity Score =  $\frac{\text{sum of individual skill scores}}{(\text{number of possible skills} - \text{number of NP scores} - \text{number of TE scores}) \times 3} \times 100\%$

General comments including any suggestions for remediation:

# WST Заметки по поводу обучения




# Заметки по поводу диагноза



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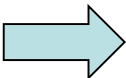
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**WHEELCHAIR SKILLS PROGRAM** 



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# Videos of Full Wheelchair Skills Tests (WSTs)

## Version 5.0 Manual Wheelchair Skills Tests

Show   entries

Search:

Video Description	Video Link	Report Form
Manual wheelchair WST 5.0	<a href="#">MWC example 1</a>	<a href="#">Example 1 report form</a>
Manual wheelchair WST 5.0	<a href="#">MWC Example 2</a>	<a href="#">Example 2 report form</a>
Power wheelchair WST 5.0	<a href="#">PWC Example 1</a>	<a href="#">Example 1 report form</a>

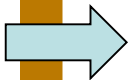
# Wheelchair Skills Program (WSP) Manual and Forms

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- Wheelchair Skills Test Questionnaire (WST-Q) 5.0 Script – Powered Wheelchair



# Wheelchair Skills Test Questionnaire (WST-Q) Version 5.0 Form

## Powered Wheelchairs

Name of wheelchair user: \_\_\_\_\_

Person completing questionnaire (if not user): \_\_\_\_\_

Tester: \_\_\_\_\_ Date: \_\_\_\_\_

#	Individual Skill	Capacity (0-3)*	Confidence (0-3)*	Performance (0-3)*	Goal? (Yes/No)*
1	Positions and operates controller				
2	Operates body positioning options				
3	Rolls forward short distance				
4	Rolls backward short distance				
5	Stops on command				
6	Turns in place				
7	Turns while moving forward				
8	Turns while moving backward				
9	Maneuvers sideways				
10	Picks objects from floor				
11	Relieves weight from buttocks				
12	Level transfers				
13	Gets through hinged door				
14	Rolls longer distance				
15	Ascends slight incline				
16	Descends slight incline				
17	Ascends steep incline				

<b>Capacity question: “Can you do it?”</b>		
<b>Answer</b>	<b>Score</b>	<b>What this means</b>
Yes, very well	3	Can do the skill safely and very well.
Yes, but not well	2	Can do the skill safely and completely, but not well.
Yes, in part	1	Can do the skill in part, but not completely.
No	0	Have never done the skill or could not do it right now.
Not possible with this wheelchair	NP	The wheelchair does not have the parts to allow this skill. (This option is only presented for skills where such a score is a possibility.)
Testing error	TE	When answers have not been recorded (e.g. inadvertently or because the test subject did not understand the question).
<b>Confidence question: “As of now, how confident are you?”</b>		
<b>Answer</b>	<b>Score</b>	<b>What this means</b>
Very confident	3	I am very confident that I can do this skill safely and consistently.
Fairly confident	2	I am fairly confident that I can do this skill safely and consistently.
Somewhat confident	1	I am only somewhat confident that I can do this skill safely and consistently.
Not confident	0	I am not confident that I can do this skill safely and consistently.
Not possible with this wheelchair	NP	As for capacity.
Testing error	TE	As for capacity.
<b>Performance question: “How often do you do it?”</b>		
<b>Answer</b>	<b>Score</b>	<b>What this means</b>
Always	3	Always when I need or want to do so.
Usually	2	Usually when I need or want to, but sometimes not.
Occasionally	1	Occasionally when I need or want to, but often not.
Never	0	Never or less often than once a year.
Not possible with this wheelchair	NP	As for capacity.

### Questions on Specific Skills

#	Skill Description	<b>Questions</b> <b>(Pick only one answer for each question)</b>			
		Can you do it?	How confident are you?	How often do you do it?	Is this a training goal?
1	Moving the wheelchair straight forward for a short distance, for example along a short hallway.	<input type="checkbox"/> Yes, very well <input type="checkbox"/> Yes, but not well <input type="checkbox"/> Yes, in part <input type="checkbox"/> No	<input type="checkbox"/> Very <input type="checkbox"/> Fairly <input type="checkbox"/> Somewhat <input type="checkbox"/> Not	<input type="checkbox"/> Always <input type="checkbox"/> Usually <input type="checkbox"/> Occasionally <input type="checkbox"/> Never	<input type="checkbox"/> Yes <input type="checkbox"/> No
2	Moving the wheelchair straight backward for a short distance, for example to back away from a table.	<input type="checkbox"/> Yes, very well <input type="checkbox"/> Yes, but not well <input type="checkbox"/> Yes, in part <input type="checkbox"/> No	<input type="checkbox"/> Very <input type="checkbox"/> Fairly <input type="checkbox"/> Somewhat <input type="checkbox"/> Not	<input type="checkbox"/> Always <input type="checkbox"/> Usually <input type="checkbox"/> Occasionally <input type="checkbox"/> Never	<input type="checkbox"/> Yes <input type="checkbox"/> No
3	While moving the wheelchair, coming to a sudden stop to avoid people who do not notice you.	<input type="checkbox"/> Yes, very well <input type="checkbox"/> Yes, but not well <input type="checkbox"/> Yes, in part <input type="checkbox"/> No	<input type="checkbox"/> Very <input type="checkbox"/> Fairly <input type="checkbox"/> Somewhat <input type="checkbox"/> Not	<input type="checkbox"/> Always <input type="checkbox"/> Usually <input type="checkbox"/> Occasionally <input type="checkbox"/> Never	<input type="checkbox"/> Yes <input type="checkbox"/> No
4	Turning the wheelchair around in a small space so that it is facing in the opposite direction.	<input type="checkbox"/> Yes, very well <input type="checkbox"/> Yes, but not well <input type="checkbox"/> Yes, in part <input type="checkbox"/> No	<input type="checkbox"/> Very <input type="checkbox"/> Fairly <input type="checkbox"/> Somewhat <input type="checkbox"/> Not	<input type="checkbox"/> Always <input type="checkbox"/> Usually <input type="checkbox"/> Occasionally <input type="checkbox"/> Never	<input type="checkbox"/> Yes <input type="checkbox"/> No

# WST: Общий % подсчитанных баллов

## WST:

- Балл Способности =  $\# \text{ выполненные навыки} / \text{общий} \times 100\%$

## WST-Q:

- Балл Способности =  $\# \text{ выполненные навыки} / \text{общий} \times 100\%$
- Балл Эффективности =  $\# \text{ выполненные навыки} / \text{общий} \times 100\%$
- Балл Уверенности =  $\text{общий} / \text{общий возможный} \times 100\%$

Internet Explorer browser window showing the URL <https://wheelchairskillsprogram.ca/en/>. The browser tabs include Kirby, Lee - Outlook Web App, Wheelchair Skills Program, and Jazz24 Online Player. The address bar shows suggested sites like Web Slice Gallery, All files and folders - Box, Bookshelf Online Sign In, and The World Factbook.

The website header features the Dalhousie University logo and the Faculty of Medicine Wheelchair Skills Program. A navigation menu on the left lists various resources, with a large blue arrow pointing to "Upcoming Courses".

The main content area displays the "WHEELCHAIR SKILLS PROGRAM" logo, which includes the Nova Scotia Health Authority logo. Below the logo, the text reads: "Low tech, high impact".

The text describes the program: "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."

A photograph shows a man in a wheelchair being assisted by a woman, illustrating the program's focus on training and support.

The "Warning" section states: "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."

The Windows taskbar at the bottom shows icons for Internet Explorer, File Explorer, and other applications.

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### Google Custom Search – Wheelchair Skills Outside Sources

August 29, 2019



ORIGINAL RESEARCH

## Measurement properties of the Wheelchair Skills Test for scooters among experienced users

W. Ben Mortenson<sup>a,b,c</sup>, Laura Hurd Clarke<sup>d</sup>, Charlie H. Goldsmith<sup>a,e</sup>, Sharon Jang<sup>b,c</sup> and R. Lee Kirby<sup>f</sup>

<sup>a</sup>Department of Occupational Science and Occupational Therapy, University of British Columbia, Vancouver, BC, Canada; <sup>b</sup>International Collaboration on Repair Discoveries (ICORD), UBC Faculty of Medicine and Vancouver Coastal Health (VCH) Research Institute, Vancouver, BC, Canada; <sup>c</sup>Rehabilitation Research Program, VCH Research Institute, Vancouver, BC, Canada; <sup>d</sup>School of Kinesiology, University of British Columbia, Vancouver, BC, Canada; <sup>e</sup>Faculty of Health Sciences, Simon Fraser University, Burnaby, BC, Canada; <sup>f</sup>Division of Physical Medicine and Rehabilitation, Department of Medicine, Dalhousie University, Halifax, NS, Canada

### ABSTRACT

**Purpose:** To investigate the score distribution, reliability, and validity of the objective Wheelchair Skills Test (WST) for scooter users.

**Method:** A study using a test-retest design was conducted with 20 people who had mobility limitations that prevented them from ambulating more than one city block without a mobility aid, and who had owned a scooter for  $\geq 3$  months. Objective scooter skills, confidence, and physical accessibility were measured at both time points, while anxiety, depression, visual attention and task switching, functional independence, and visual acuity were measured only at baseline.

**Results:** The mean total WST scores at Time 1 and Time 2 were 86.3% and 87.5%. The WST ICC was 0.889. The WST had a SEM of 2.50 and a Cronbach's alpha of 0.74. The total WST scores were significantly correlated with total subjective WST-Q scores ( $r = 0.547$ ,  $p = 0.013$ ), scooter confidence ( $r = 0.466$ ,  $p = 0.038$ ), and were affected by gender ( $p = 0.005$ ).

**Conclusion:** The WST for scooters has good test-retest reliability and generally varies as anticipated with other measures. Although further study is needed, the WST for scooters appears to have promise for use in research and clinical practice.

### ARTICLE HISTORY


Received 17 June 2016  
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### KEYWORDS

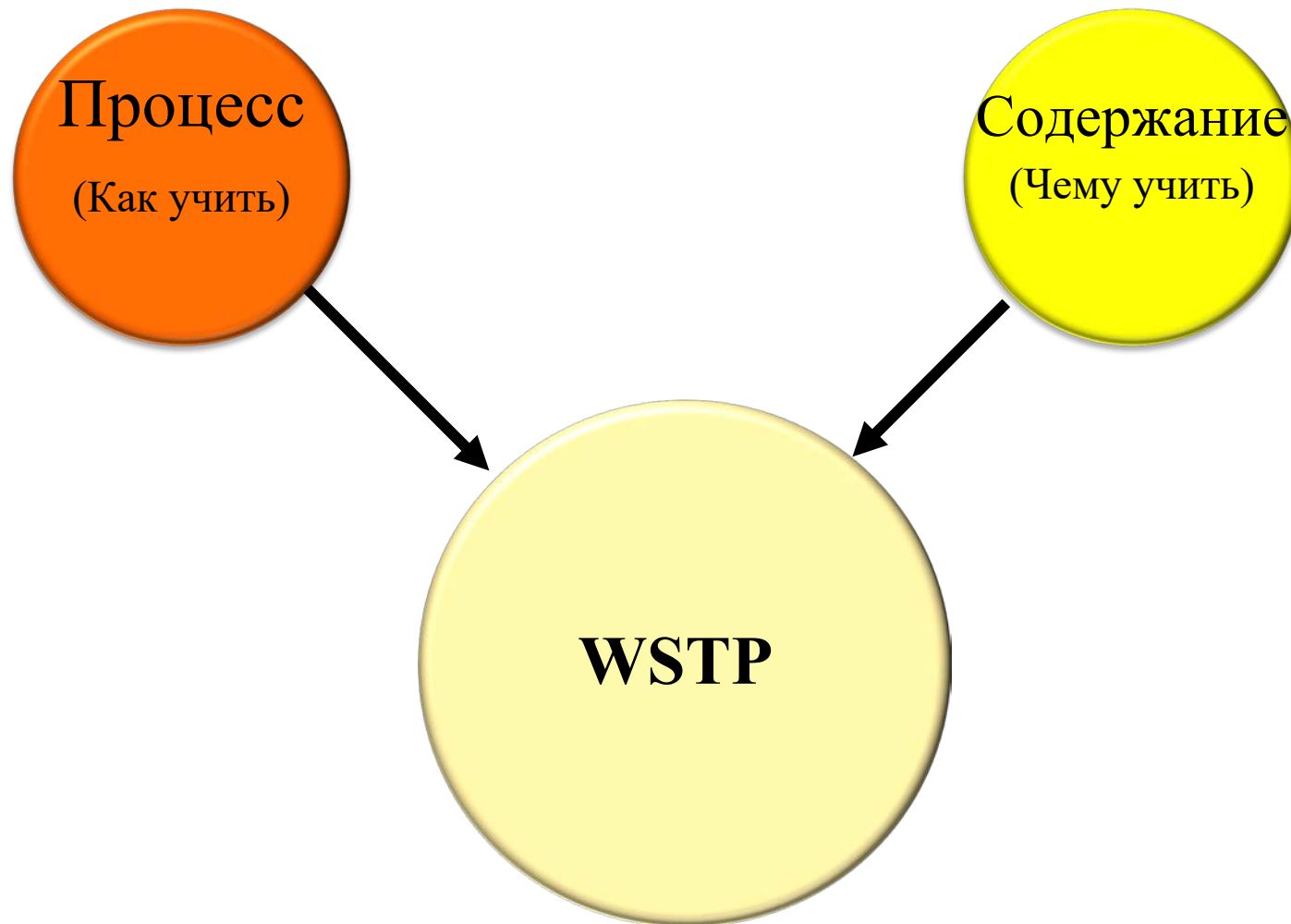
Mobility scooter; reliability; validity; mobility limitation

# Модель обеспечения кресло-коляской

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3. Назначение
4. Финансирование и заказ
5. Подготовка продукта
6. Посадка (подгонка)
7. Обучение пользователя
8. Последующее наблюдение, техническое обслуживание и ремонт

WSTP 

# WSTP - программа обучения навыкам пользования кресло-коляской



# WSTP Процесс





# WSTP Содержание




# WSTP Содержание



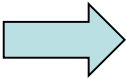
← → <https://wheelchairskillsprogram.ca/en/> Kirby, Lee - Outlook Web App Wheelchair Skills Program Jazz24 Online Player

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**Wheelchair Skills Program**

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# WHEELCHAIR SKILLS PROGRAM



“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.

Windows Taskbar: Internet Explorer, File Explorer, Media Center, Word, PowerPoint, System Tray (Network, Volume, Safely Remove Hardware)

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August 29, 2019





# Доказательная пирамида



REVIEW



# Effectiveness of the Wheelchair Skills Training Program: a systematic review and meta-analysis\*

Laura Keeler<sup>a</sup>, R. Lee Kirby<sup>a,b</sup> , Kim Parker<sup>c</sup>, Katie D. McLean<sup>d</sup>  and Jill A. Hayden<sup>a</sup>

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## ABSTRACT

**Objective:** To conduct a systematic review synthesizing the evidence for the effectiveness of the Wheelchair Skills Training Program (WSTP).

**Data Sources:** We searched PubMed, the Cochrane Library, CINAHL and Embase databases, as well as grey literature, up to 10 October 2017.

**Study Selection:** Randomized controlled trials (RCTs) assessing the effectiveness of the WSTP.

**Data Extraction:** Two independent reviewers screened articles and extracted data. Methodological quality was assessed using Cochrane's Risk of Bias Tool.

**Data Synthesis:** Meta-analyses (including sub-group analyses) were conducted for the Wheelchair Skills Test (WST) and WST Questionnaire (WST-Q) total capacity scores. We qualitatively assessed retention, WST/WST-Q subtotal and individual-skill capacity scores and other identified outcomes. The quality of evidence was determined using the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) approach. Thirteen articles (581 participants) were included for analysis. The level of evidence was of mod-

## ARTICLE HISTORY

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## KEYWORDS

Wheelchairs; motor skills; disabled persons; rehabilitation; disability evaluation; patient education; review; meta-analysis

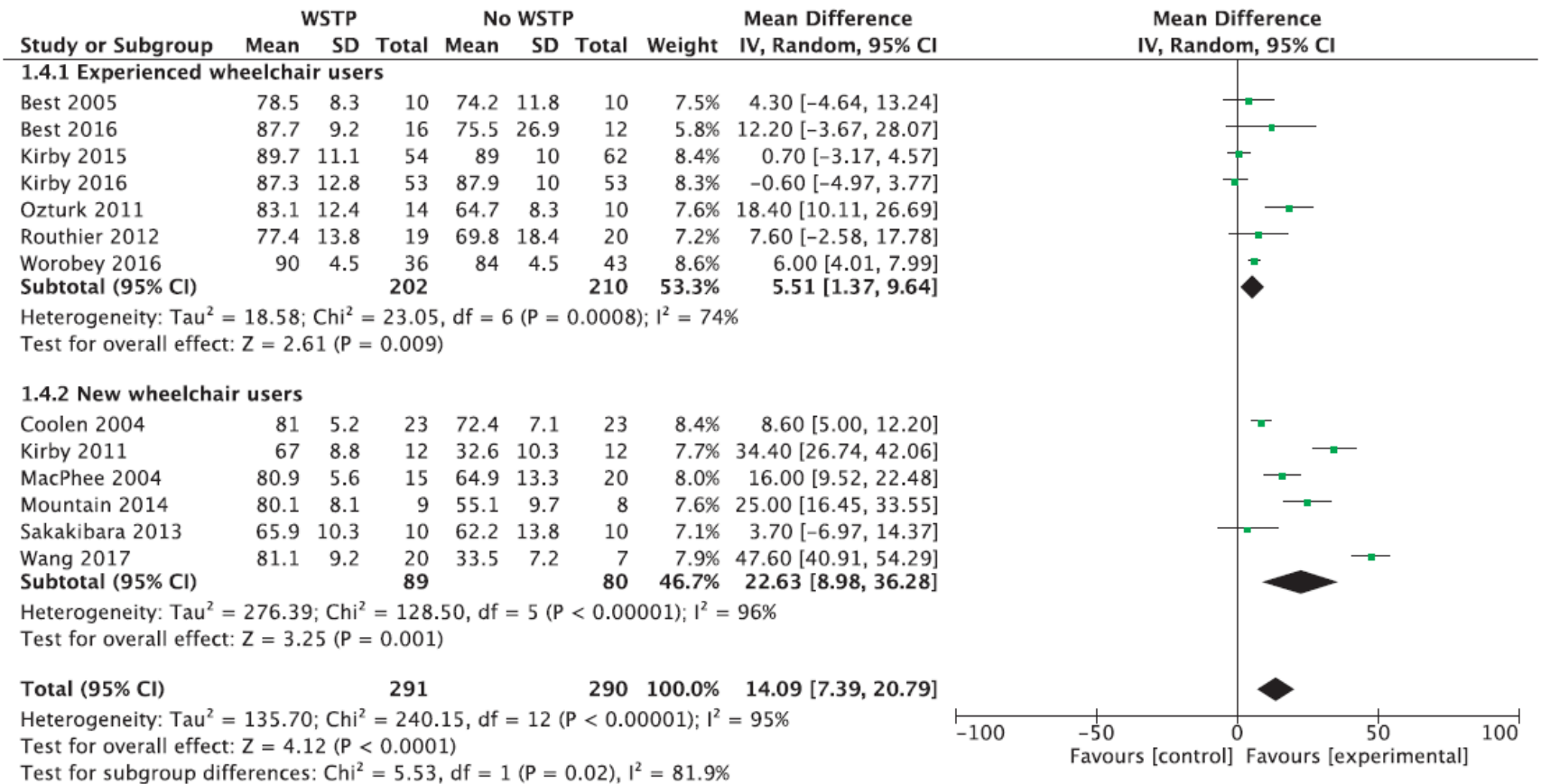


Figure 6. Meta-analysis by sub-group (experienced versus new wheelchair users).



Kirkpatrick DL. 1994

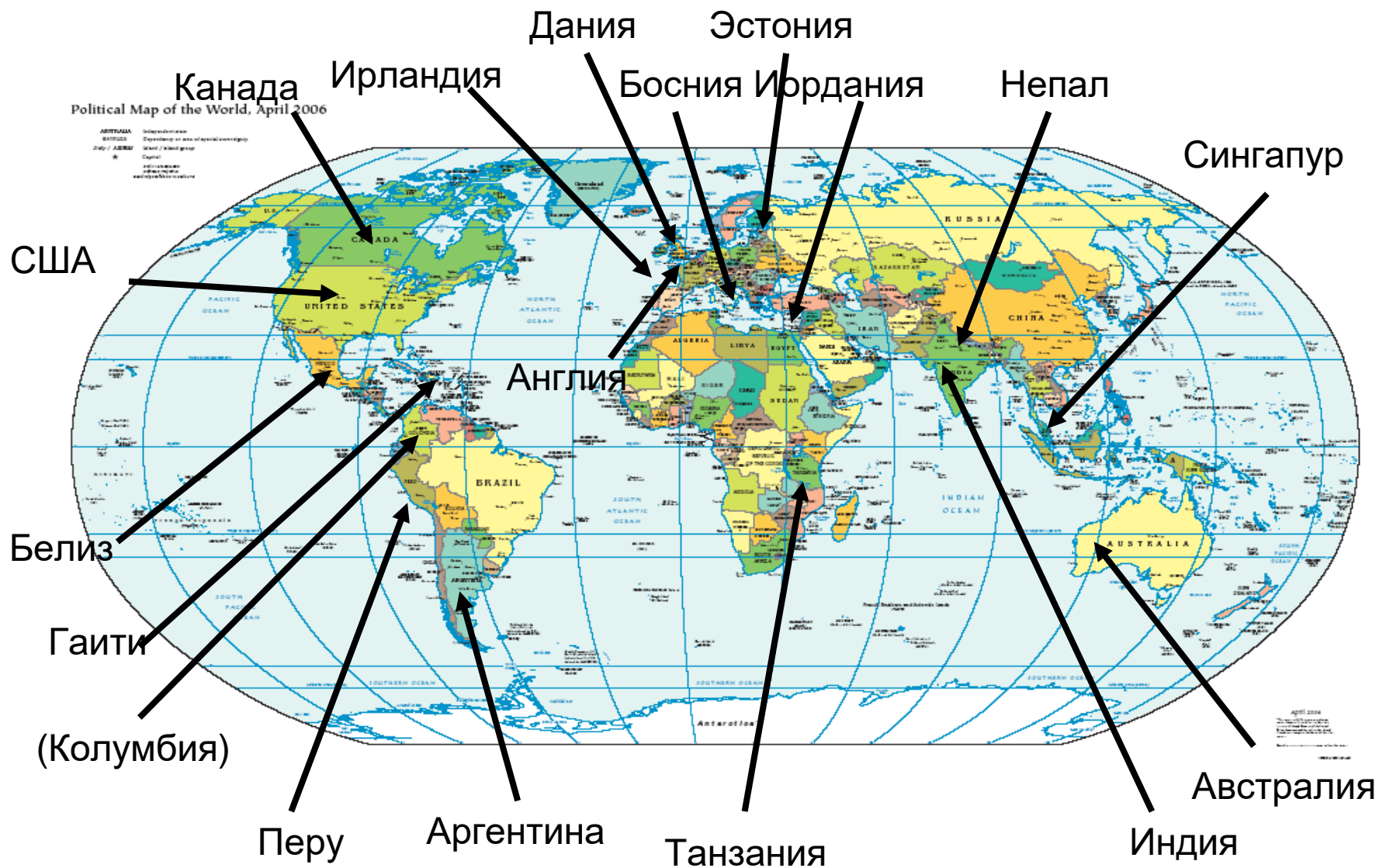
Уровни данных

# WSP - программа навыков пользования кресло-коляской

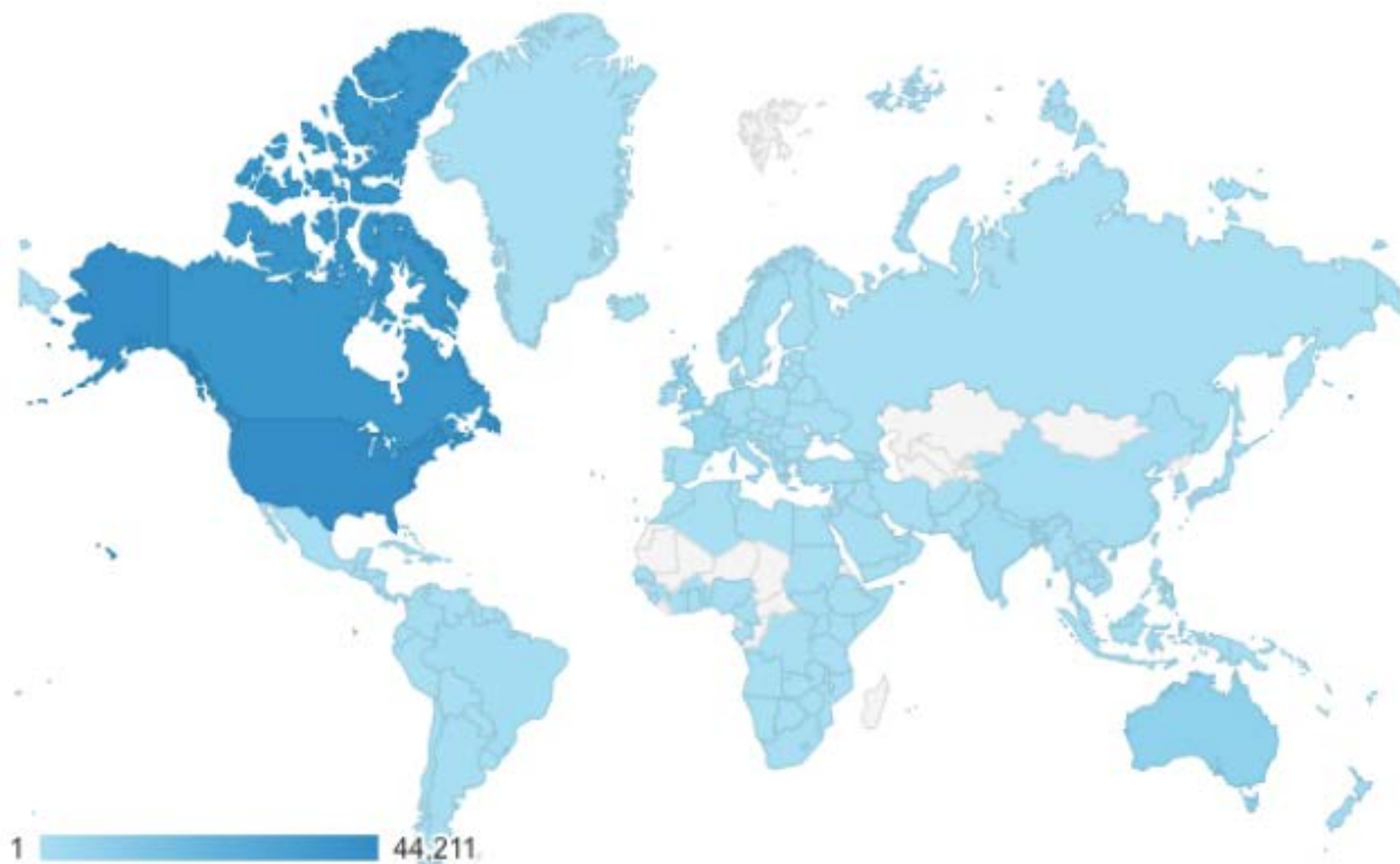
“Низкотехнологичная,  
высокопродуктивная”

Nenad Kostanjsek, WHO  
ICF Conference, 2004

# Обучение WSP в мире



Вебсайт: Август 26, 2019  
(113,287 пользователей из 186 стран)





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**ORIGINAL RESEARCH**

# **Relationships Between Wheelchair Services Received and Wheelchair User Outcomes in Less-Resourced Settings: A Cross-Sectional Survey in Kenya and the Philippines**



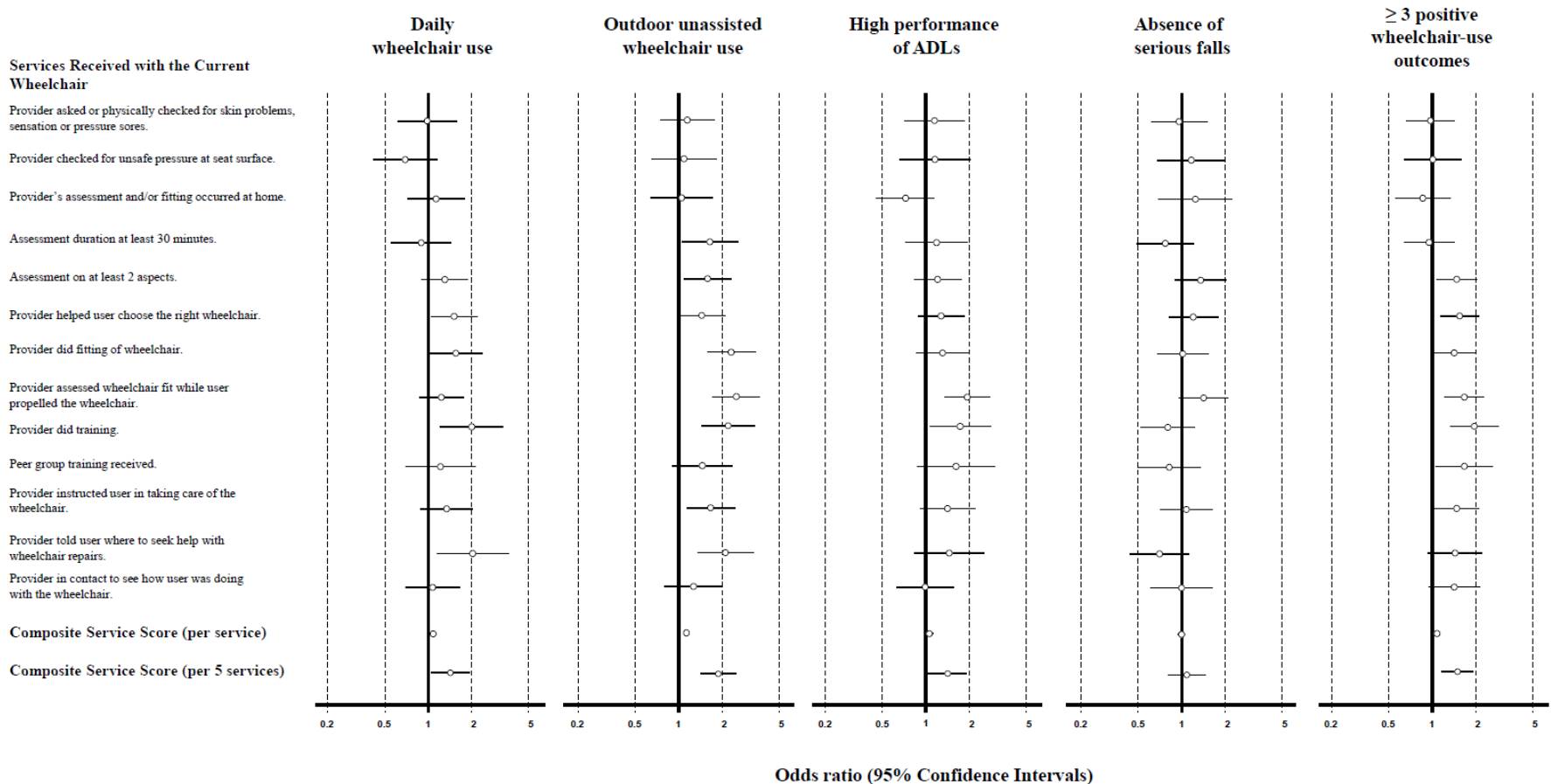
R. Lee Kirby, MD,<sup>a,b</sup> Steve P. Doucette, MSc<sup>b,c</sup>

*From the <sup>a</sup>Division of Physical Medicine and Rehabilitation, Department of Medicine, Dalhousie University, Halifax, Nova Scotia; <sup>b</sup>Department of Community Health and Epidemiology, Dalhousie University, Halifax, Nova Scotia; and <sup>c</sup>Research Methods Unit, Nova Scotia Health Authority, Halifax, Nova Scotia, Canada.*

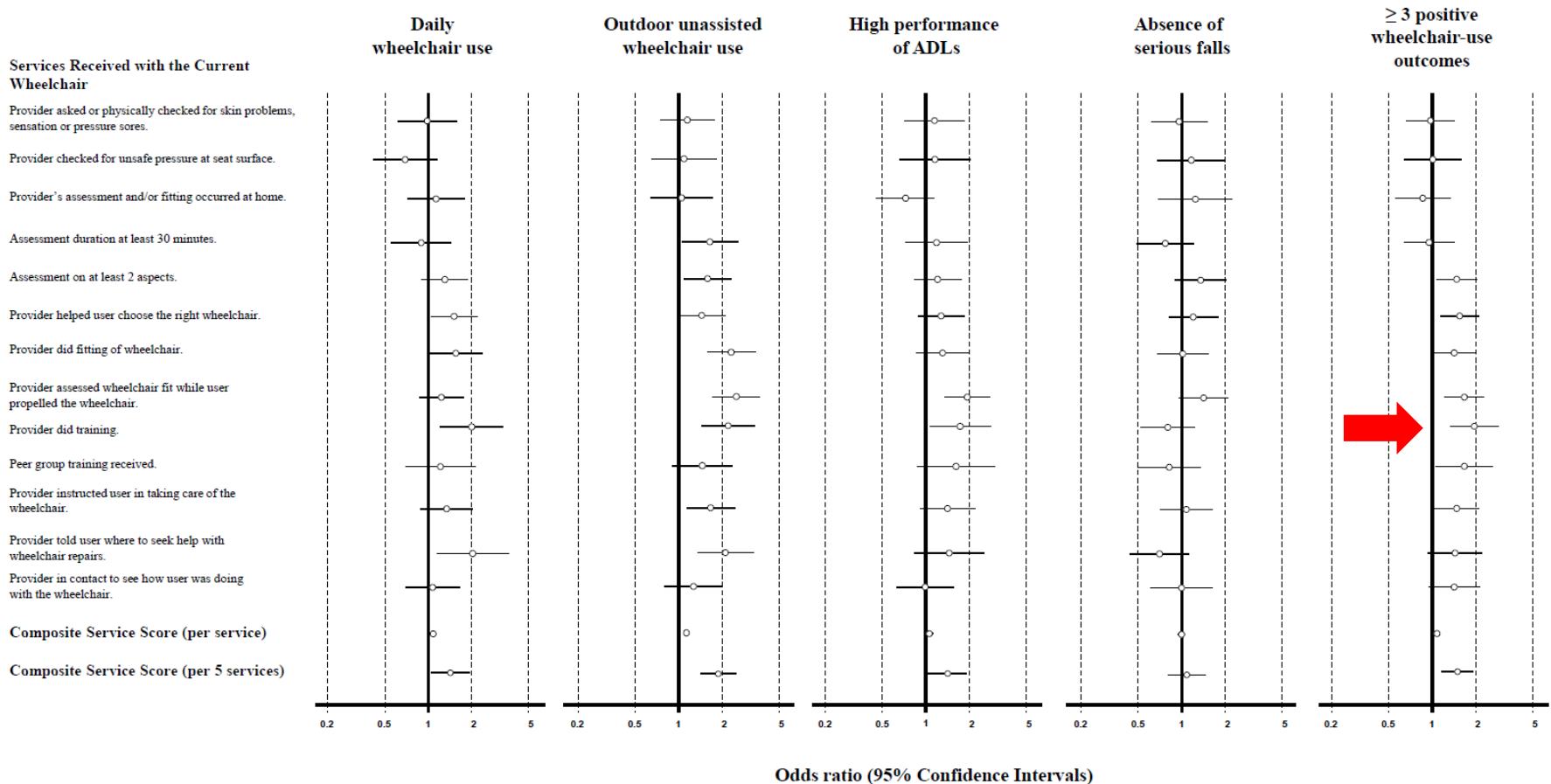
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# Kirby RL, Doucette SP. Relationship between wheelchair services received and wheelchair-user outcomes in less-resourced settings: a cross-sectional survey in Kenya and the Philippines. Arch Phys Med Rehabil 2019;100:1648-54.



# Kirby RL, Doucette SP. Relationship between wheelchair services received and wheelchair-user outcomes in less-resourced settings: a cross-sectional survey in Kenya and the Philippines. Arch Phys Med Rehabil 2019;100:1648-54.



# Цели презентации

По завершении презентации,  
участники смогут:

1. Описать компоненты WSP
2. Получить доступ к бесплатным онлайн материалам WSP
3. Обобщить исследовательские данные о WSP
4. Инициировать WSP в условиях своих учреждений

**Вопросы: Kirby@dal.ca**