Academic Training Partners – Lessons Learned

Background

The integration pilot sites have held 8 online meetings to date with varied attendance from international groups (see table below). The aim of the group is to encourage educational institutions to include or enhance wheelchair content in their courses and to use evidence-based open source resources as appropriate.

Meetings

<table>
<thead>
<tr>
<th>Date</th>
<th>No. of attendees</th>
<th>Link to recordings</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 31st 2016</td>
<td>4</td>
<td><a href="https://iswp.adobeconnect.com/p3ag5cgde5g/">https://iswp.adobeconnect.com/p3ag5cgde5g/</a></td>
</tr>
<tr>
<td>October 5th 2016</td>
<td>13</td>
<td><a href="https://iswp.adobeconnect.com/p6z0rfx87n0/">https://iswp.adobeconnect.com/p6z0rfx87n0/</a></td>
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<tr>
<td>November 16th 2016</td>
<td>8</td>
<td><a href="https://iswp.adobeconnect.com/p5hhw14b1gj/">https://iswp.adobeconnect.com/p5hhw14b1gj/</a></td>
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<tr>
<td>January 11th 2017</td>
<td>5</td>
<td><a href="https://iswp.adobeconnect.com/p88qzea2601/">https://iswp.adobeconnect.com/p88qzea2601/</a></td>
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<tr>
<td>February 23rd 2017</td>
<td>5</td>
<td><a href="https://iswp.adobeconnect.com/p35udaesywv/">https://iswp.adobeconnect.com/p35udaesywv/</a></td>
</tr>
</tbody>
</table>

The following presentations are from the pilot sites’ members:
<table>
<thead>
<tr>
<th>Date</th>
<th>No. of attendees</th>
<th>Link to recordings</th>
<th>Presenter’s Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 23rd 2017</td>
<td>11</td>
<td><a href="https://iswp.adobeconnect.com/p7nu4wmm969/">https://iswp.adobeconnect.com/p7nu4wmm969/</a></td>
<td>Nekram Upadhyay, Indian Spinal Injuries Center (ISIC), India</td>
</tr>
<tr>
<td>April 19th 2017</td>
<td>7</td>
<td><a href="https://iswp.adobeconnect.com/p869q26yo5/">https://iswp.adobeconnect.com/p869q26yo5/</a></td>
<td>Barbara Crane, University of Hartford, USA</td>
</tr>
<tr>
<td>June 21st 2017</td>
<td>12</td>
<td><a href="https://iswp.adobeconnect.com/pxset406rc91/">https://iswp.adobeconnect.com/pxset406rc91/</a></td>
<td>Paula Rushton, University of Montreal, Canada</td>
</tr>
<tr>
<td>August 29th 2017</td>
<td>10</td>
<td><a href="https://iswp.adobeconnect.com/plo9c8h63epj/">https://iswp.adobeconnect.com/plo9c8h63epj/</a></td>
<td>Lee Kirby and Cher Smith from Nova Scotia Health Authority, Canada along with Edward Giesbrecht from University of Manitoba, Canada</td>
</tr>
<tr>
<td>September 27th 2017</td>
<td>9</td>
<td><a href="https://iswp.adobeconnect.com/pq98s9vzgwr/">https://iswp.adobeconnect.com/pq98s9vzgwr/</a></td>
<td>Lori Rosenberg, Hebrew University, Israel</td>
</tr>
<tr>
<td>October 31st 2017</td>
<td>11</td>
<td><a href="https://iswp.adobeconnect.com/ptnp0y9lq42z/">https://iswp.adobeconnect.com/ptnp0y9lq42z/</a></td>
<td>Maria Toro, Universidad CES, Colombia</td>
</tr>
<tr>
<td>December 14th 2017</td>
<td>7</td>
<td><a href="https://iswp.adobeconnect.com/pz8isoltbz/">https://iswp.adobeconnect.com/pz8isoltbz/</a></td>
<td>Eliana Ferretti, Federal University of São Paulo (UNIFESP), Brazil</td>
</tr>
<tr>
<td>March 13th 2018</td>
<td>9</td>
<td><a href="https://iswp.adobeconnect.com/piyo252y074f/">https://iswp.adobeconnect.com/piyo252y074f/</a></td>
<td>Dr. Hassan Sarsak from Al Batterjee Medical College, Saudi Arabia</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Link</td>
<td>Presenters</td>
</tr>
<tr>
<td>--------------------</td>
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<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>July 11th 2018</td>
<td>10</td>
<td><a href="https://iswp.adobeconnect.com/p0x594le9u2g/">https://iswp.adobeconnect.com/p0x594le9u2g/</a></td>
<td>Kamrunnaher, Nayan Kumar Chanda and Shamima Akter from the Center for the Rehabilitation of the Paralysed (CRP), Bangladesh</td>
</tr>
<tr>
<td>September 12th 2018</td>
<td>9</td>
<td><a href="https://iswp.adobeconnect.com/pnlrk6obmu26/">https://iswp.adobeconnect.com/pnlrk6obmu26/</a></td>
<td>Hasan Al-kawaldeh from University of Jordan</td>
</tr>
<tr>
<td>April 26th 2019</td>
<td>5</td>
<td><a href="https://iswp.adobeconnect.com/peay50siaxf7/">https://iswp.adobeconnect.com/peay50siaxf7/</a></td>
<td>Manon Bloemen from HU University of Applied Sciences, Master program Physiotherapy for children from the Netherlands</td>
</tr>
<tr>
<td>July 10th 2019</td>
<td>8</td>
<td><a href="https://iswp.adobeconnect.com/pknc3hm49o61/">https://iswp.adobeconnect.com/pknc3hm49o61/</a></td>
<td>Mr. Bocar Thiam from Ecole Nationale De Developpement Sanitaire et Social (ENDSS), physiotherapy program, Senegal (Dakar)</td>
</tr>
<tr>
<td>September 25th 2019</td>
<td>11</td>
<td><a href="https://iswp.adobeconnect.com/p3w5yd2nyaeb/">https://iswp.adobeconnect.com/p3w5yd2nyaeb/</a></td>
<td>Dr. Mary Goldberg from the University of Pittsburgh presented on the ISWP Wheelchair Service Provider (WSP) Certification – Basic Level</td>
</tr>
<tr>
<td>November 21st, 2019</td>
<td>6</td>
<td><a href="https://iswp.adobeconnect.com/p2tpe5bdyljd/">https://iswp.adobeconnect.com/p2tpe5bdyljd/</a></td>
<td>Thais Pousada García from Universidad A Coruña, Spain.</td>
</tr>
</tbody>
</table>

The 20th academic partners meeting is scheduled to take place in January 2020. We welcome presenters for this meeting, please contact krithikak@pitt.edu if you are interested. Here is the meeting room link: [https://iswp.adobeconnect.com/training_wg_sc/](https://iswp.adobeconnect.com/training_wg_sc/)
General learnings and observations

Based on the feedback from the pilot sites as of February 2017, the following are the general learnings and observations. Feedback from all the pilot sites can be found here: https://drive.google.com/drive/folders/0By9K14wVjdJGOVNiEFoV01fOG8

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Importance of ISWP Support*</td>
<td>• Language barriers</td>
</tr>
<tr>
<td>• The group is looking forward to the development of the ‘integration</td>
<td>• Lack of trainers in country</td>
</tr>
<tr>
<td>toolkit’.**</td>
<td>• Modifications to the curricula is based on a curriculum</td>
</tr>
<tr>
<td>• Knowledge sharing</td>
<td>committee which usually meets once in 5 or 3 years.</td>
</tr>
<tr>
<td>• Building a resource repository</td>
<td>• Lack of awareness of why PTs need to learn about wheelchairs</td>
</tr>
<tr>
<td>• Interest among students to include wheelchair content as a part of</td>
<td>• Lack of resources such as wheelchairs and other equipment</td>
</tr>
<tr>
<td>the program (after introducing them to the available resources).</td>
<td>in the facility.</td>
</tr>
</tbody>
</table>

*Importance of ISWP Support: The members stressed the vital role of ISWP in providing resources and for organizing a learning platform. Some of the quotes from the members are:

- “A much needed initiative, for the sake of continuity, continued consultations with ISWP for the wheelchair curriculum.”

- “It has been very importance to us to have ISWP support (basic test, online materials, feedback and experience from other.”
**The group is looking forward to the development of the ‘integration toolkit’ to help them guide on the process/challenges during integration. Some of the quotes from the members are:

- “It is great if ISWP discuss at the High Level meeting and finalize what are the recommended topics for WSTP-b and WSTP-I; including teaching hours, class practical hours and clinical placement hours to integrate to the school of physiotherapy.”

As a feedback from one of our pilot site’s PT students, they had expressed the importance of learning wheelchair courses. Some of the quotes from the students are:

- ‘All students should need to take this course.’
- ‘We suggest having a course earlier (in 2nd year)… an intensive week long course or a full day, so that every student has a base [of wheelchair knowledge].

**Presentation by academic partners**

**March 23rd, 2017 - Indian Spinal Injuries Center (ISIC) (India)** - Presented by Nekram Upadhyay on March 23rd, 2017. His presentation can be found here: [https://drive.google.com/drive/folders/0By9K14wVjdJGXzFLZVUwbS14ZIU](https://drive.google.com/drive/folders/0By9K14wVjdJGXzFLZVUwbS14ZIU)

Nekram described the current programs offered in ISIC Institute of Rehabilitation Sciences. He also mentioned about the programs that are in the pipeline that are to be launched soon.

- Bachelor in Physical Therapy
• Bachelor in Occupational Therapy
• Bachelor in Prosthetics and Orthotics

WHO Basic and Advanced training is done with ICRC, for rehab professionals from various institutions from across the country, as well as the ISIC center rehab staff. They are ramping up training in their centers.

Nekram will be presenting to universities locally. Presented at engineering institute and applied health sciences seminar on disability and assistive technologies. Many students wanted to learn more about the program and how to prescribe wheelchairs because it is not part of their PT and OT coursework; rather, the type of wheelchairs available. None of the universities are running courses because of lack of awareness, availability of trained professionals and resources.

Lori Rosenberg mentioned about the Seated Postural Control Measure for Adults (SPCMA) tools and that she uses to teach OT and PT students.

Learnings and observations:
• ISIC is including new professional programs apart from the existing programs.
• More students are interested to pursue careers in the rehabilitation sciences sector.
• The online meetings are an opportunity for the members to share tools that they using with a larger audience.
• Opportunities for others to learn about the rehabilitation sciences programs offered in other countries/institutions.

April 19th, 2017 - University of Hartford (USA) – Presented by Barbara Crane on April 19th 2017. She presented on an open-source wheelchair seating and position course that they have developed here: https://www.anptsynapsecenter.com/public/course-detail/?id=38
This is a grant funded project by the Craig H. Neilsen Foundation and the scope is to develop a hybrid course that could be used by the Physical Therapy (PT) and Physical Therapy Assistant (PTA) training programs in the US for pre-professional education in basic
wheelchair seating. They have developed curriculum plan, activities for the hybrid course and some in-class materials for instructors. The name of the course is ‘An Introduction to Practice in Wheelchair Seating and Mobility’. World Health Organization (WHO) approved a copyright release to use their materials. Craig-H Nilsen Foundations has a program every year called the ‘Quality of Life’ grant – they do an annual call for the proposals.

It’s free of charge and will be broadly available so any other interested programs can use it too and it is based on the platform of WHO materials – a mix of the basic and the intermediate content and it was adapted to meet the needs of the pre-professionals and the US practice setting. The course uses a hybrid methodology with online modules and materials for in-class activities (what kind of labs to plan, equipment needed, etc). They gathered information from various focus groups including PT and PTA’s in US on what’s currently done to develop certain modules.

There current curriculum includes 12-14 modules:

<table>
<thead>
<tr>
<th>Modules</th>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Complete and available</td>
</tr>
<tr>
<td>2</td>
<td>Sitting Posture</td>
<td>Nearly complete</td>
</tr>
<tr>
<td>3</td>
<td>Pressure Injuries</td>
<td>Next to be completed</td>
</tr>
<tr>
<td>4 &amp; 5</td>
<td>Evaluation process</td>
<td>End of May</td>
</tr>
</tbody>
</table>

Plan to complete 6 modules and conduct 2-3 pilots by summer 2017. The grant period ends at the end of September 2017, but plan to continue to work until complete. The software used was Articulate Storyline.

**June 21st, 2017 - University of Montreal (Canada)** – Presented by Paula Rushton on June 21st 2017. She presented on her course which she teaches in French, course is focused on manual wheelchair use. She requested her university to do an optional course in the fourth year program with much more detail. She also presented on the syllabus in French which also includes lab sessions. Her course content is based on WHO 8 steps wheelchair service provision process, she also used contents from both the basic and the intermediate packages. It also includes wheelchair skills content and developed other assessments – all culturally sensitive to the situation in Quebec, Canada. Very specific wheelchairs are funded by the province. Each student is evaluated by one formal
presentation; encouraged to do informal presentations at end of labs.

Groups of 3-4 people were given one wheelchair to practice, the students liked this approach. In each group, one student would be a user, another caregiver and another clinician and they would rotate roles with case studies provided throughout the course.

**a. Barriers and Facilitators:** Information was presented at February’17 meeting in Geneva as a case study pilot site. Paula mentioned one pertinent for her during this year’s class was lack of space. The course is taught at a rehab center, where her lab is. In first year, there were 31 students which was feasible to have all students in groups to go through wheelchair skills training. In the corresponding year, there were 51 students and so the space was not feasible to accommodate students, chairs and instructors.

They needed to find a different way to overcome this barrier and so created online modules where students would complete them ahead of time. Lectures were replaced for four courses. Students were divided into two groups; they would come in at different times to do the lab sessions. The lab sessions are repeated twice—same cases and information. Students had access to the electronic version of WHO materials through the online learning platform which were required reading.

**b. Process to develop online modules:** Used Articulate Storyline (Barbara Crane used it, too, coincidentally), shows effectiveness of the software. Research assistant helped to develop the modules. Articulate does a good job to provide templates, but it was a learning curve to use the software and to develop online modules. Took 200 hours to develop 5 modules with lots of information from Dr. Kirby’s Wheelchair Skills Program. Most of the time, it was a learning on how to use the software and to determine which content was most important and best way to present for effective learning.

Paula then gave a demonstration on the course, it also includes knowledge tests. Tests are not part of the student’s final mark, but formative assessments to facilitate knowledge.

**c. Student feedback:** The online platform helps in knowing if students had completed the modules, how long it took them to complete and their scores. Took 20-25 minutes to complete each module. If they didn’t get perfect score on the knowledge tests,
they often retook to get better scores, even though it was not part of the final grade. Students liked going back to review materials again online.

Paula mentioned that in September’17, there will be a continuing education program through OT department – a one-day boot camp similar to wheelchair skills program. She might incorporate online modules into the boot camp, to let the participants complete them ahead of time.

**August 29th, 2017 – Dalhousie University and University of Manitoba (Canada)** - Lee Kirby and Cher Smith from Nova Scotia Health Authority, Canada along with Edward Giesbrecht from University of Manitoba, Canada presented to the group during this meeting

**Dalhousie University:**

Cher Smith provided the group with an overview of the MSc (OT) Program (Masters entry-to-practice) Year 2, the referral and appointment, product preparation and the follow-up maintenance topics are not extensively covered. They are moving towards a provisional assessment form which will look at assessment, funding and ordering. They have added the standardized language which came out in 2013 (Link: http://www.ucdenver.edu/academics/colleges/Engineering/research/AssistiveTechnologyPartners/resources/WheelchairSeating/Pages/WheelchairGuideForm.aspx) and some of the topics has been included, for example in the primary device, the equipment is divided into primary and secondary support.

<table>
<thead>
<tr>
<th>Course Name and Content</th>
<th>Delivery</th>
<th>Evaluation</th>
</tr>
</thead>
</table>
| Enabling: Wheelchair Provision Assessment and Rx of temporary manual wheelchair | **Lecture:** 8-Step Structure- mix of western and less-resourced country examples  
• 3 hours | Written exam |
| Enabling: Wheelchair Provision | Lab: hands-on with simulation and one case study  
• 3 hours | Written exam |
| Wellness and Inclusion: Introduction to seating and mobility solutions and training | Lecture: largely videos of users to express options and importance of component selection and wheelchair skills training  
• 2 hours | Written exam |
| Wellness and Inclusion: Wheelchair Skills Training | Bootcamp: interactive lab with 6 skill stations following progression  
• 1.5 hours | Written exam and IPE |
| Wellness and Inclusion: Inter-professional Education | Lab: reciprocal training with SLP students 4 wheelchair items  
• 1.5 hours | Reflection Paper |
| Mobility Day: Introduction to mobility devices and support surfaces | Expo: manufacturing representatives bring in equipment and users and make brief presentations  
• ~3 hours | NA |

The Wheelchair Skills Training Program (WSTP) fits into the user training step. They use a bootcamp approach and this method has shown to provide the following outcomes:

1. High satisfaction, positive perceptions
   b. Kirby et al. Proc RESNA 2011
2. Improved wheelchair-skill abilities
3. Improved knowledge
   a. Kirby RL et al. 4th SCI Conference, Niagara Falls Oct 30, 2010

4. All outcomes

More information on Wheelchair Skills Training Program (WSTP) can be found online here:
http://www.wheelchairskillsprogram.ca/eng/index.php

The Wheelchair Skills Training Program (WSTP) has two components, the process (how to teach) and the content (what to teach). The process uses the motor learning principles and using the concepts evidence based examples (wheelie) are taught in the content. The bootcamp method is held annually with a number of professionals (OTs, PTs, Nursing, Recreational therapy, Health science and Physical Medical & Rehabilitation) to build capacity.

**University of Manitoba:**
Edward presented an overview of his program as below:
He also mentioned about the mobility skills-weekend bootcamp with 50 students, 3 sessions and 2 instructors. A example timetable of the sessions can be found below.

<table>
<thead>
<tr>
<th>Experiential</th>
<th>Year 1 Sept: 24 hours in a MWC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical overview/context</td>
<td>Year 1: Intro lecture</td>
</tr>
<tr>
<td>Wheelchair transfers</td>
<td>Year Assessment lab User training</td>
</tr>
<tr>
<td>Seating Assessment</td>
<td>Year Referral + lab (malt Assessment)</td>
</tr>
<tr>
<td>Wheelchair components</td>
<td>Year Prescription</td>
</tr>
<tr>
<td>Advanced Seating</td>
<td>Year Assessment lab Funding/ordering</td>
</tr>
<tr>
<td>Advanced Mobility</td>
<td>Year Prescription lab Fitting</td>
</tr>
<tr>
<td>Wheelchair Configuration</td>
<td>Year Product prep Follow-up, mtnce</td>
</tr>
<tr>
<td>Advanced Mobility Skills</td>
<td>User training bootcamp</td>
</tr>
<tr>
<td>Advanced Pressure Management</td>
<td>Year 2: Lecture/lab</td>
</tr>
<tr>
<td>Power mobility</td>
<td>Year 2: Lecture + lab</td>
</tr>
</tbody>
</table>

He then mentioned about the breakdown of sessions where the instructors will give a demo and then the students are free to try it on their own.

<table>
<thead>
<tr>
<th>Saturday 8:00 – 12:00</th>
<th>Saturday 1:00 – 5:00</th>
<th>Sunday 8:00 – 12:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Students</td>
<td>18 Students</td>
<td>16 Students</td>
</tr>
</tbody>
</table>

Intro, Safety, Spotting
- Propelling, turning, doors, reaching
- Caster pops, obstacles, gaps, soft surfaces
- Ramps & inclines
- High obstacles, stairs
- Wheelies (+ related advanced skills)
- Wrap up, practice advanced, questionnaires
Station 1: Propulsion, Turning, Doors and Reaching
Station 2: Caster pops, obstacles, gaps and soft surfaces
Station 3: Ramps and inclines
Station 4: High obstacles and stairs
Station 5: Wheelies...+related skills

**Positive Outcomes:**
The use the WST-Q, WheelCon-SF and SEATS as the measurements. Based on the outcomes of the measurements, he mentioned some of the positive outcomes as below:

- Positive experience from students
- Objective impact on skills/confidence ... clinical practice?
- Practical emphasis = real-life impact and issues in practice
- Collegial attitude among students

**Challenges:**
- Ensuring active participation
- More time with skills = proficiency
- Adding in more advanced skills

**Future Directions:**

- Use of video pre-learning
- Providing skills training (or more) to other disciplines (PT, OTA, Nursing ... challenges of geography)
- Inter-professional student teaching (consolidation of learning)
Some of the highlights from Lori’s presentation: Wheelchairs are funded by Israel’s Ministry of Health (exceptions are institutions, ministry of defense), PT/OT who finished course are accredited by MoH, basic level in university and continued ed courses have no accreditation. In the school of OT, 2nd year bachelor level is where AT (28 hours) is taught, for master and cont ed (its 28-30 hours). She then discussed about the subjects, components taught in each subject, duration, delivery and the evaluation. Overview of our program is as below:

<table>
<thead>
<tr>
<th>subject</th>
<th>Components taught</th>
<th>duration</th>
<th>Delivery</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to AT</td>
<td>Frames of references (HAAT, Scherer...) EBP Equipment abandonment Evaluations (AT, not WC) Switches EADL, AAC</td>
<td>2 hr</td>
<td>Lecture (univ)</td>
<td>test</td>
</tr>
<tr>
<td></td>
<td><strong>8 steps</strong> (emphasis: assessment, training and maintenance)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computers</td>
<td>Hardware and software adaptation tablets</td>
<td>6 hr</td>
<td>Lecture (univ)</td>
<td>test</td>
</tr>
<tr>
<td>Seating</td>
<td>Healthy sitting (Engstrom) 24 hour positioning Personal Posture (Menkel) Principles of seating (EBP + WHO+ bodypoint) Evaluations (SPCM/A, WSTP, SPS, pressure mapping....) Body segments- problems-solutions</td>
<td>4 hr</td>
<td>Lecture (univ)</td>
<td>test</td>
</tr>
<tr>
<td></td>
<td><strong>8 steps</strong> (emphasis: assessment, prescription, fitting)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elements of WSTP basic and intermediate (and illustrations)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>subject</td>
<td>subjects</td>
<td>Delivery</td>
<td>evaluation</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Wheelchairs (new format)</td>
<td>Configuring WC for seating needs, mobility needs, environment. Will use WSPT + EBP</td>
<td>4 hr</td>
<td>E-learning (home)</td>
<td></td>
</tr>
<tr>
<td>Wheelchairs (new format)</td>
<td>½ class: Groups of 3 Basic WC skills + effects of WC configuration “Round-robin”</td>
<td>2 hr</td>
<td>Workshop (Alyn hospital)</td>
<td></td>
</tr>
<tr>
<td>Power Mobility</td>
<td>EBP Configuration evaluations</td>
<td>2 hr</td>
<td>Lecture+ workshop (Alyn)</td>
<td></td>
</tr>
<tr>
<td>Seating and mobility</td>
<td>½ class: Groups of 3 “treasure hunt” in WC (power or manual) Seating evaluation on peer</td>
<td>2 hr</td>
<td>Workshop (Alyn)</td>
<td></td>
</tr>
</tbody>
</table>
The challenges are creating an e-learning module, EBP emphasis not in WSTP packages, large classes and lack of staff, limited workshop (access to equipment and space) - 1 day in bachelors, practical patient workshop only in cont-ed and teaching wheelchair skills training (reasons: workshop facilities, safety and not Lori’s clinical expertise).
October 31st, 2017 – Maria Toro, Universidad CES, Colombia

One of the highlights of the meeting was that the entire session was translated into Spanish live by Stephanie Vasquez. 40 students took the ISWP Wheelchair Service Provision Basic Test, of which the average % total score was 58% (70% needed to pass the test) and some of the problematic topics after analyzing the results were: Assessment, Prescription, Fitting, Production, User Training, Process, Follow Up Maintenance and Repair Domain.

The following is the timeline Maria presented for the Integration efforts by the department of physical therapy and school of medicine CES.
Overall, there were positive feedback from the students after the pilot completion. Maria then presented on some of the challenge, namely, lack of availability of trained instructors, time constraints, online engagement, access to appropriate wheelchairs and cushions, wheelchair user’s time and students are focused on the impartment rather than activity limitations and participation restrictions.

December 14th, 2017 – Eliana Ferretti, Federal of University of Sao Paula, Brazil

The AT class is offered once a year, students that attend belong to the third year of OT. The class runs for 80 hours (4 hours per week). The topics covered during the class are seating and mobility (12 hours), AAC devices, Adapted Computer Inputs, Adaptations for vehicles, Universal Design, architectural designs for accessibility and environmental control system.

In the seating and mobility topics, WHO Wheelchair Service Training Packages (WSTP), Service Delivery Systems for Assistive Technology in Europe, Ergonomic seating – a true challenge is some of the references shared with students.

The students are taught with the following steps in detail. The students are also encouraged to apply the theory knowledge with a real case study, and HAAT model for thinking solutions.

The importance of the process...

- **Initiative** (the first contact with the service delivery system)
- **Assessment** (evaluation of needs)
- **Selection of the assistive solution** (defining the individual AT programme)
- **Selection of the equipment** (choosing the specific equipment within the AT programme)
- **Authorisation** (obtaining funding)
- **Implementation** (delivering the equipment to the user, fitting and training)
- **Management and Follow up** (maintenance and periodic verification)
Some of the challenges, improvements and needs are

- Lack of resources such as wheelchairs and other equipment’s in the facility.
- Having a seating class.
- Continuing education and post-graduate training (practical) – Establish professional qualification.
- There is the need for seating clinics to address more complex needs.
- Research
- Recycling of assistive devices.

March 13th, 2018 – Dr. Hassan Sarsak from Al Batterjee Medical College, Saudi Arabia

In his presentation, he mentioned about the there is a lack of comprehensive wheelchair service provision training in Jordan. Clinical applications of wheeled mobility and seating interventions are not well-integrated into the rehabilitation curricula at many clinical and academic institutions due to lack of clinicians and faculty interest and expertise. In response to the need of more competent wheelchair professionals and to enhance the quality of service delivery to wheelchair users, a team of researchers at the Department of Occupational Therapy at the University of Jordan has developed the Wheelchair Training Program. (WTP).

The purpose of the WTP is for students (OT, PT, and OP students), to develop knowledge and hands-on skills in the process of identifying and providing wheeled mobility and seating intervention to people of all ages and disability type.

Below is the description of the program:
The WTP adapts the following teaching methods:

- Evidence-based practice learning
- Case-study approach (clinical scenarios)
- Interactive discussions
- Direct instruction, PPPs, handouts
- Group work
- Experimental and blended learning
- Simulated interviews
The WTP program procedure can be found below:

A pilot study sample result below confirms the hypothesis that the Wheelchair Training Program would enhance fundamental knowledge and clinical skills for occupational therapy students. Overall, 100% of the students in the WTP showed significant improvement in the Post-test ($p<0.001$). Another finding was that majority of students indicated an interest in integration the WTP into their curricula which was offered on an extracurricular and research basis. He also added that this promising finding suggests an opportunity for WTP to initiate partnerships for the integration of the wheelchair service provision educations into curricular of other universities in Jordan.
As the next steps:

- They are continuing to evaluate the WTP effectiveness following the successful pilot study.
- They will be launching an outreach campaign to raise local awareness about quality wheelchair services and the availability of the WTP.
- Inclusion of wheelchair users (encourage users to train in their wheelchair, better understand and meet their needs and qualitative focus groups).
- ISWP support (online tests and resources; feedback on the process).
- Positive significant impact on wheelchair users who are the first benefactors and the real motivation behind the work.
- WTP will also be included in the Batterjee Medical College’s (Saudi Arabia) curriculum.

### Descriptive Statistics
(Pre-WTP and Post-WTP Test)

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<td>1.403</td>
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July 11th, 2018 – Kamrunnaher, Nayan Kumar Chanda and Shamima Akter from the Center for the Rehabilitation of the Paralysed (CRP), Bangladesh

In their presentation, the team provided an overview of CRP wheelchair services and education; wheelchair professional practice in CRP and talked about the wheelchair skills training and use for spinal cord injury patients.

In Bangladesh, CRP provides rehabilitation service along with medical treatment. It promotes the development of skilled personnel in health care and rehabilitation in the country. Bangladesh Health Professions Institute (BHPI) is an academic institute of CRP. Here, OT course is affiliated to Faculty of Medicine of University of Dhaka and also approved by the World Federation of Occupational Therapists (WFOT) to ensure standard OT education and practice around the world.

CRP Spinal Cord Injury unit is a 100 bed rehabilitation unit where multi-disciplinary team based practice is ongoing. Here, OTs and Pts are providing therapy and wheelchair assessment, with wheelchair skills training, wheelchair fitting check and finally follow-up through home visit. Each year, CRP provides approximately 255 wheelchairs only for Spinal Cord Injury patients.

**Basic wheelchair education provided by BHPI:** In the first year, OT academic curriculum students the basics of wheelchairs (introduction, parts and purpose). During the 2nd year clinical placement, BHPI students get wheelchair skills training with the collaboration of clinicians and educator. On the other hand, lectures are taken on wheelchair measurement with practical demonstrations. In the 4th year curriculum, lectures are taken on advance level wheelchair skills with practical demonstrations. Recently, BHPI started 32 ours CPD course on wheelchair service provision with the help of expert clinicians.

The following are the types of wheelchairs provided by CRP

- Fixed wheelchair
- Folding wheelchair
- Three wheelchair
- Tricycle
• Low wheelchair
• Hemiplegic wheelchair

The team then elaborated on the different wheelchair skills that they teach along with transferring techniques.

Challenges:

• Their wheelchair is too heavy (approximately 30kgs) so it is difficult to carry.
• Their wheelchair seems to be high that users find it difficult to transfer from the floor to the wheelchair.
• Professionals are aware about basic level training but current need is intermediate level training.
• Less in-house trained staffs.
• Lack of opportunity to promote community based wheelchair skills training.
• Lack of funding.

September 12th 2018, Hasan Al-kawaldeh from University of Jordan, Jordan

Hasan presented on his wheelchair service training and research center project. He outlines the idea and the incentives of the project along with the benefits, main steps and challenges.

Because they have a larger refugee disabled population due to current and recent history of war, and the increased rate of growth of the elderly population. There is a lack of a particular research body and researchers specialized in development of wheelchair service in Jordan. Because little is known about the extent to which appropriate wheelchairs are available and provided according to international guidelines. It has been estimated that high percent of donated wheelchair goes unused in low-resource settings due to the lack of infrastructure to maintain such devices.

The project is to establish a professional trained team and high level standardized wheelchair service center for training and research able to carry out research and deliver wheelchair service professionally and as possible as low to no cost for different types
wheelchair users in north Jordan with collaboration of Jordan university of science and technology.

Benefits: Will increase the awareness of appropriately fit wheelchairs among students, professional and community and increase the effectiveness of using wheelchair as mobility aid in community. It will deliver a validated wheelchair training skills program, which help to increase numbers of people who in fact need wheelchair and can use it to be more mobility and participation with high level of safe and practical. Establish a research team with a mission to determine the needs of wheelchair users then contact with manufactures to determine the best manufacturing pathway for a specific environment after make research on the area they found and work to present data. Establish in basic community services (bike shops, basic workshop facilities) to provide continuing technical support, which can be used in harmony to create a smooth service delivery.

Steps of the Project:

1. Survey will be sent to directors of entry-to-practice OT and PT programs in different university in Jordan To describe the curriculum for manual wheelchair (MWC) skills training.

2. Choose numbers of physical therapists, and occupational therapists in addition numbers of academic doctors of physical therapist and academic doctors of occupational therapist and number of 4th year students from the universities.

3. Prepare workshop for selected persons to discuss about the project idea and also discuss about WSTP and ISWP benefits, roles, and the services offered.

4. Work to prepare a project proposal and try work on financial support provider

5. The project can be implemented in two phases

   1. The first phase is deliver a WSTP training for therapist, doctors, and the students.

   2. 2nd stage is looking for work on financial support provider for the center and start build the communication with other community sector.
April 26th, 2019, HU University of Applied Sciences, Master program Physiotherapy for children from the Netherlands

Dr. Manon Bloemen presented on behalf of the HU University of Applied Science, Master program Physiotherapy for children. She provided an introduction of the university and the program she teaches. She then gave an overview of the PAD Model that they are using.

**PAD Model**
She then briefly spoke about the facilitators and barriers in children with spina bifida. She shared videos about fitness tests in wheelchair. They also developed the wheelchair mobility skills training in Dutch Youth.

‘Wheelchair’ in Curriculum – Bachelor physical therapy (4 years)

- 1st year: Basic principles of fitness testing including adults in a wheelchair (Mobility lesson of 2 hours).
- 2nd year: Included in course ‘central nervous system disorders’ transfers in/out of wheelchair in adults with SCI or stroke.
- 3rd year: Transfers in/out of wheelchair in adults with MS
- Possibilities: New course ‘physical self-reliance’

‘Wheelchair’ in curriculum – Master Pediatric Physical Therapy (3 years, part time)

2nd year

- Fitness testing
- Wheelchair mobility skills assessment and training.
- Spina Bifida, Cerebral Palsy, Neuromuscular disorders.
- There are also several web lectures (available only in Dutch) available for the students.

Challenges in Rehabilitation and Education:

Inter-professional working (PT&OT) in really important. PTs and OTs learn much better when they look at it together. One thing the children need to have is a good seating position and need to be more active. It’s important to train the kids and parents together.
July 10th, 2019, Ecole Nationale De Développement Sanitaire et Social (ENDSS), physiotherapy program, Senegal (Dakar)

The presentation was done by Mr. Bocar Thiam, director of the program (in French). This is the only PT school in the country. Translation into English was done by Mrs. Uta Prehl, Rehabilitation Technical Advisor from Humanity and Inclusion, West Africa Region.

Brief context of Senegal: there is no plan for national rehabilitation. Rehabilitation is not integrated in the health system. It is seen as a “luxury”. There is no continuum of health. Humanity and Inclusion supported the rehabilitation centers. These were handed over to the Ministry of Health. Progress has stall since then. Currently, HI is working with WHO to advocate to the government on the importance of creating a national rehabilitation plan, that includes assistive technology.

This integration work was done in the framework of SUDA’s project. A project funded through USAID to build the local rehabilitation capacity in 3 countries in the West Africa region.

Special attention and effort were done to understand the context. The topic of promoting appropriate access to wheelchairs was new to everybody. That is, there are no service providers, the public transportation is limited in availability with zero accessibility, most of the roads are rough terrain, and only hospital wheelchairs were available. To understand the context and the importance of the topic, a stakeholders workshop was held to reflect on the context and identify opportunities for capacity building. Stakeholders included representatives from the physiotherapy associations and schools (the slide below shows the list of participants). During the workshop current facilitators and barriers were identified. For instance, what schools (rehabilitation) were in place, what service(s) could, and would, take on the newly trained service providers, who were going to be the mentors, among others.
Rehabilitation professional available in Senegal include physiotherapists and prosthetic/orthotics technicians. The group of stakeholders decided that PTs were the professionals more suited in the context to take the lead of the appropriate wheelchair provision knowledge. A lot of discussion was conducted to identify the competencies and skills that a physio had to have.

The stakeholder workshop resulted in all parties agreeing that this was needed. Based on the current capacity (i.e. unavailability of wheelchairs and appropriate foam in the country), the integration into the physiotherapy program was proposed to be conducted in two phases. 1. 20 hours to cover the 8 steps process, with the goal of increasing awareness. 2. To fully integrate the basic (as in WHO) 40 hours content, with the goal of training professionals ready to practice. The final integration content was 34 hrs (without including the homework activities). A group of 12 rehabilitation professionals received training (WHO WSTP). Then, few of them were identified as having the skills to become a trainer. Therefore, to receive further training to acquire the pedagogical skills to
deliver the content in the integration effort. It is important to note that these new trainers were not part of ENDSS staff. Resulting in the need to have additional financial resources to compensate them. A budget for training materials was developed (aprox. €5000).

The following list summarizes the facilitators and barriers faced by the PT program at ENDSS to integrate wheelchair provision content.

**Facilitator**

- Strong partnership, with leadership from the interested school, between donors, local, national, and international stakeholders.
- Support of sector collaborators to put together the program concept and initial training
- Availability of WHO Training materials in French.

**Barriers**

- At the early stages, lack of understanding between the project operator (Humanity and Inclusion) and the National Rehabilitation Center.
- No wheelchairs (or cushions) in country. Relying on donations from LDS and others. This continues to be a barrier.
- Insufficient number of trainers. Trainers came from outside of the University.
- Funding to pay trainers, even for their transportation.
- Adequate space for practice (will use National Rehabilitation Center in future). This resulted in the exclusion of teaching wheelchair mobility skills.
- Limited/no opportunity for follow-up, monitoring/evaluation of work.
- On a larger scale, no national plan for rehab in the country; not integrated into the health system.
**25th September, 2019 – Dr. Mary Goldberg, University of Pittsburgh presented on the ISWP Wheelchair Service Provider Certification.**

ISWP’s Wheelchair Service Provider certification acknowledges that providers have appropriate wheelchair service provision knowledge at the basic level and have received appropriate training, which are valuable to both employers and wheelchair users. Certified providers are acknowledged as a Certified Wheelchair Service Providers for 2 years on ISWP’s Wheelchair International Network (WIN). At present, there are 58 certified providers from 20 countries.

**Required Activities:**

- Pass the [ISWP Wheelchair Service Provision Basic Test](http://wheelchairnetwork.org/registration/) in WIN *(takes about 90 mins)*
- Register for free in Wheelchair International Network (WIN) if you have not done so already: [http://wheelchairnetwork.org/registration/](http://wheelchairnetwork.org/registration/) *(takes about 5 mins)*.
- Complete an online training module in Ethics & Professionalism *(takes about 15 mins)*.
- Complete one additional test section on Ethics & Professionalism *(need to score 80% to pass; takes about 10 mins)*.
- Upload a letter from a supervisor or instructor that verifies sufficient training in wheelchair service provision: [https://wheelchairnetwork.org/get-certified/](https://wheelchairnetwork.org/get-certified/)
- Pay the required fees, more information about the fees can be found [here](http).

Soon to be available benefits for certified providers are moderated discussion boards (WIN, Facebook, WhatsApp); exclusive bi-monthly newsletter featuring career opportunities, WSP certified individual stories, information on new CE modules; bank of continuing educational modules; and access to online moderated forum and clinical mentorship.

The Professional Standards Board (PSB) is streamlining the re-certification process which will be available soon.

Dr. Goldberg requested the academic partners to prepare the students for the certification as there are bundle pricing available for organizations (more information [here](http)); promote the ISWP certification among their network; and include announcements in their social media, newsletters, etc.
20th November, 2019 – Thais Pousada García from Universidad A Coruña, Spain.

Thais started off her presentation with an overview of her school, faculty of health sciences school of OT. There are 3 main streams namely: Bachelor of OT, Master degree in Assistance and Research in Health and Master Degree in Geriatrics.

Bachelor of OT is 4 years. Master Degree has the possibility to involve in PhD program (needed 300 ETCS – European consortium). The OT program at UDC is the best one in Spain, its the only one with more than 1,000 hours for practice, they are currently waiting for WFOT recognition. Count of students in OT program: 222 (in total), normally 50 per year and there 8 full time OT faculties/ 26 are part-time. She then described about the OT program structure, infrastructure and resources available.

### Minimum Educational Standards

<table>
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<tr>
<th>Type of Program</th>
<th>Prosthetics &amp; Orthotics</th>
<th>Physiotherapy</th>
<th>Occupational Therapy</th>
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| Wheelchair-Related Topics | The training level aimed at the full breadth of clinical service, leadership, advancing models and/or methods of service delivery  
  • Wheelchairs named as a assistive products relating to prosthetic/orthotic services (p.22) | The areas of [patient/client care/management] and interventions that may be used in curriculum development may include but are not limited to: wheelchair training, assistive devices (wheelchairs), wheelchair propulsion programmes (p.22, 23, 26) | Analyzing, adapting and grading occupation  
  • Assistive technology scope and usage (p. 34) |

To improve the competences of OT’s students in terms of: assessment, selection and prescription of Wheelchair
Some of the barriers are:

- Unmet wheelchair user’s needs because of inadequate wheelchair education in rehabilitation professional; academic programs.
- Rehabilitation professionals are not trained in wheelchair service provision.

Efforts to overcome the barriers:

- Their integration snapshot is featured in SMART in both English and Spanish: http://smart.wheelchairnetwork.org/wheelchair-education-around-the-world/integration-snapshots/
- Included 5 hours sessions on WHO wheelchair service provision for BSc OT students of 3rd year.
- Need to teach wheelchair training content was detected in coordination meetings with OT faculties.

2019 is the first time they have implemented wheelchair curricula into their courses. Theoretical background, factors influencing wheelchair prescription, practical/lab sessions and case studies.

Some of the feedback from the students for including wheelchair curricula are:

- High level of satisfaction
- Increased knowledge and competencies
- Increase in knowledge for the faculties.
23\textsuperscript{rd} January, 2020 – Rishabh Gupta from Dr. Shakuntala Misra National Rehabilitation University, Lucknow (D.S.M.N.R.U.), India

Rishabh Gupta presented on his background and his recent achievements. He then shared information on the establishment of the university, its mission and vision, support for persons with disabilities and the courses offered.

He had mentioned that Masters in Prosthetics & Orthotics is of the newly proposed courses.

He then presented on the Bachelors of Prosthetics and Orthotics degree, the duration of the course is 4.5 years and about 25 students are enrolled per year. The course first started in 2015. There are a total of 6 faculties with 8 guest lecturers.

He listed the current wheelchair service status in the university:

- There are no separate space or manpower.
- Limited provision of services by one’s own interest.
- No availability of wheelchairs.
- No separate funding.
- Wheelchair and aids distribution in camps.

The following are some of the challenges:

- Lack of awareness
- Lack of resources – manpower, availability, materials
- No permanent staff appointments
- Less importance to rehab courses
- Negligence of higher/controlling authority
- Lack of technical analytical skills
- Lack of wheelchair content in general courses curriculum
- Taking as item/device to distribute directly to persons in camps and outreach activities as social work
- Not focusing on services as assessment
- Barriers - Environmental, Educational, Finance, Costs
- People interests
- No separate wheelchair workshop/room

These are some of the initiatives taken to overcome the barriers:

- Detailing about wheelchair clinical services as per WHO guidelines to the students as a part of course curriculum
- Identification & Referral of patients for appropriate wheelchair services in near centers
- Awareness & Sensitization of normal & physical challenged people about WHO guidelines
- Guidance and training of wheelchair user about correct Seating & Posture guidance
- Created provisions of Wheelchair Maintenance & Repair services with available resources
- Awareness among fellow staff and other senior staff about guidelines
- Getting opportunity to present on topics “Impact of appropriate wheelchair service provision” & WHO guidelines in Wheelchair Service Provision in upcoming National Conference of Prosthetics and Orthotics in Feb.2020

List of Integration Pilot Sites and Interview participants:
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<th>Country</th>
<th>Organization / Training Institution</th>
<th>Profession</th>
<th>Completed? Yes/No</th>
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<td>Lower-middle income</td>
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**Resources:**

1. The resources shared by the various integration pilot sites can be found here: [https://smart.wheelchairnetwork.org](https://smart.wheelchairnetwork.org)
2. Google + community: [https://plus.google.com/communities/107154671915954755355](https://plus.google.com/communities/107154671915954755355)
3. Presentations from academic partners here: [https://drive.google.com/drive/folders/0Bv9K14wVjdJGMHhQZmtMZhvM0k](https://drive.google.com/drive/folders/0Bv9K14wVjdJGMHhQZmtMZhvM0k)
4. ISWP Resources Hub: [http://wheelchairnetwork.org/iswp-library](http://wheelchairnetwork.org/iswp-library)

*3rd February 2020*