World Health Organization

USAID
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WHEELCHAIR SERVICE TRAINING PACKAGE

Trainer's Manual

INTERMEDIATE LEVEL

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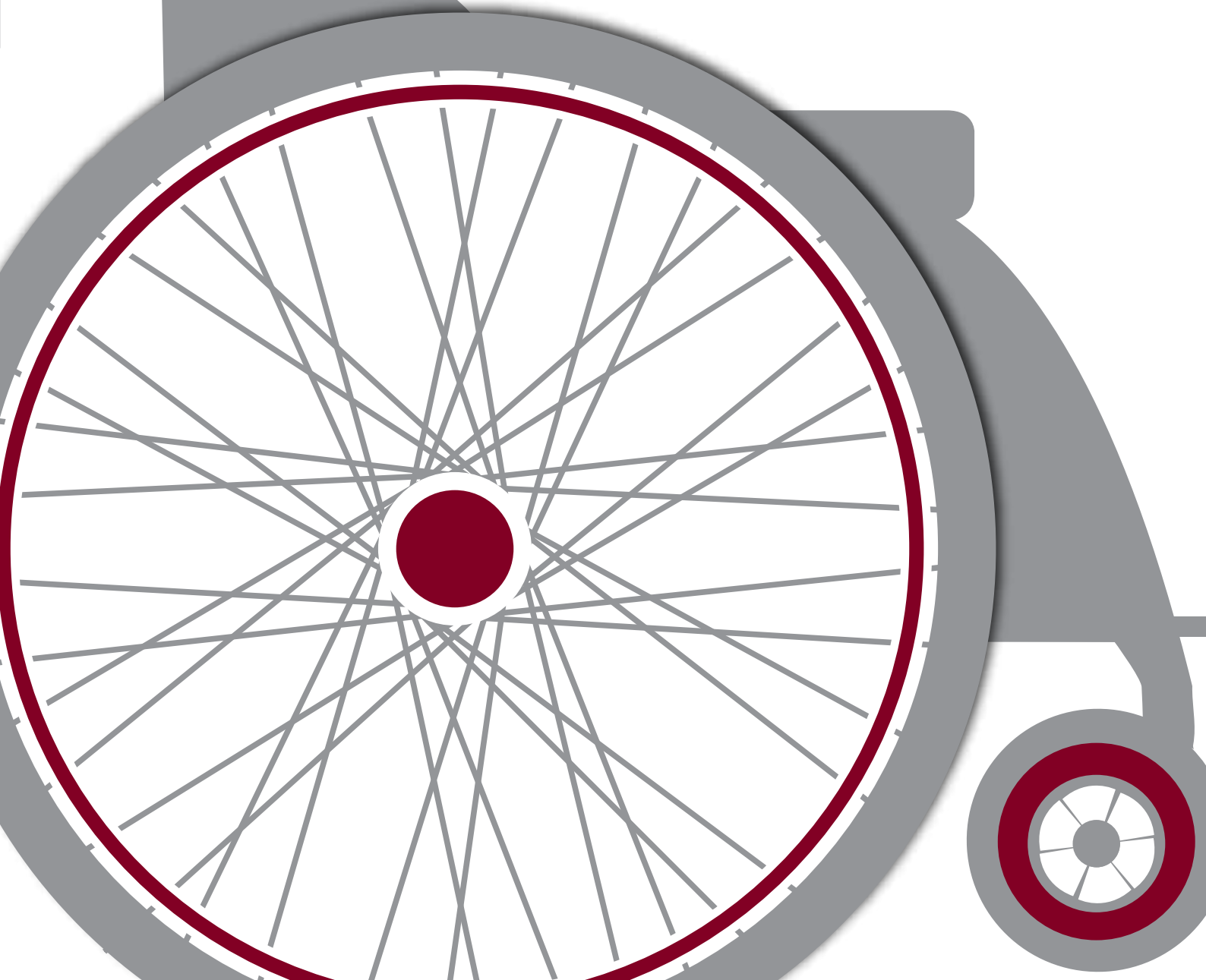

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Terminology

The following terms used throughout the training package are defined below.

Appropriate wheelchair	A wheelchair that meets the user's needs and environmental conditions; provides proper fit and postural support; is safe and durable; is available in the country; and can be obtained and maintained and services sustained in the country at an affordable price.
Manual wheelchair	A wheelchair that is propelled by the user or pushed by another person.
Postural support device (PSD)	A physical device that provides additional postural support – an essential element of intermediate level wheelchair service.
Wheelchair	A device providing wheeled mobility and seating support for a person with difficulty in walking or moving around.
Wheelchair modification	A change made to a wheelchair.
Wheelchair provision	An overall term for wheelchair design, production, supply and service delivery.
Wheelchair service	That part of wheelchair provision concerned with providing wheelchair users with appropriate wheelchairs.
Wheelchair service personnel	Persons skilled in the provision of an appropriate wheelchair.
Wheelchair user	A person who has difficulty walking or moving around and uses a wheelchair for mobility.

CONTENTS

About the Wheelchair Service Training Package: Intermediate Level

Introduction

Following the release in 2008 of the **Guidelines on the provision of manual wheelchairs in less resourced settings**[1] and in 2012 of the **Wheelchair Service Training Package–Basic level (WSTP-B);** the World Health Organisation (WHO) in partnership with United States Agency for International Development (USAID) has developed this **Wheelchair Service Training Package–Intermediate Level (WSTP-I).** The WSTP Intermediate Level is the second part of the WHO **Wheelchair Service Training Package (WSTP)** series focussing more on addressing the needs of people who have severe difficulties in walking and moving around and also poor trunk control. While developing this training package, special attention was given on provision of appropriate wheelchair for children who have poor trunk control and cannot sit upright on their own.

The wheelchair is one of the most commonly used assistive devices for enabling personal mobility, but there are often very few training opportunities for service providers to ensure that wheelchair users can attain personal mobility with the greatest possible independence, be productive and enjoy a good quality of life.

The need for wheelchair personnel is universal. The **Wheelchair Service Training Package–Intermediate Level** is intended to support the training of personnel fulfilling the clinical and technical roles in a wheelchair service (see *Guidelines on the provision of manual wheelchairs in less resourced settings,* Table 4.2) at intermediate level. The Training Package supports the delivery of the theory and practice needed to begin working with wheelchair users who require additional postural support in order to be able to sit upright. The training package includes how to assess individual needs; assist in selecting and setting up the most appropriate wheelchair with additional postural support; train users and caregivers how to use and maintain their wheelchair and carry out follow up.

The training package can be delivered in 35–40 hours, although this period may be extended or reduced according to the specific needs and resources available in

1 World Health Organization. *Guidelines on the provision of manual wheelchairs in less resourced settings*. Geneva, 2008 (http://www.who.int/disabilities/publications/technology/wheelchairguidelines/en/index.html, accessed 15 December 2011).

each context. Further practise with a mentor is encouraged to build competencies and enhanced capacity for independent work.

Wheelchair Service Training Package – Intermediate Level is intended to be delivered as a stand-alone short training programme for personnel already working in the field as well as integrated into the curricula of training programmes for health and rehabilitation personnel.

Target audience

This training package is for all personnel or volunteers working who are expected to carry out intermediate level wheelchair service delivery in their place of work. This may include health, rehabilitation or technical personnel, community health-care workers, community-based rehabilitation (CBR) workers, occupational therapists, physiotherapists, prosthetists, orthotists, local craftsmen, technicians and wheelchair users.

Previous experience in wheelchair service delivery is essential for participants to gain the most from this intermediate level training. The intermediate level training programme has been designed assuming that participants are able to demonstrate the competencies taught in the Wheelchair Service Training Package – Basic Level and have practical experience in basic level wheelchair service delivery.

Purpose

The Intermediate Level Training Package is designed to support the training of personnel or volunteers to provide an appropriate manual wheelchair and cushion for girls, boys, women and men *who need additional postural support to sit upright.*

The main purpose of this training package is to develop the skills and knowledge of personnel involved in wheelchair service delivery. Delivery of this training package will help to:

- increase the number of wheelchair users who receive a wheelchair, which meets their needs;
- increase the number of personnel trained in intermediate level wheelchair service delivery;
- improve the competencies of wheelchair service delivery personnel;
- increase the quality of wheelchair service delivery for people who need comparatively a higher level of intervention than basic level;

- include this training package in regular paramedical/rehabilitation training programmes and
- achieve greater integration of wheelchair service delivery within rehabilitation services.

Scope

The training package includes:

- how to assess mobility and posture support needs of children and adults who need wheelchair with additional postural support
- how to work with them to identify the best possible mobility solution;
- knowledge and practical tips necessary to provide a manual wheelchair with an appropriate cushion and additional postural support;
- training of wheelchair users and where appropriate their family members/ caregivers to make the best use of their wheelchair;
- following up wheelchair users to ensure that their wheelchair continues to meet their needs.

Trainers

Skills: Trainers delivering this training package should be skilled in the assessment and prescription of wheelchairs for people who need additional postural support. Trainers should also be able to carry out or direct the preparation of a manual wheelchair with postural support devices using locally available products, materials and tools. Trainers should have considerable clinical skills in the field of wheelchair service delivery themselves, enabling them to draw on their own practical experience in the delivery of this training. Previous experience as a trainer will also be beneficial.

Wheelchair users: Inclusion of a wheelchair user on the training team is highly recommended. Wheelchair users are able to draw on their own experiences to teach others with similar disabilities. Being trained by a wheelchair user will help the participants to appreciate the central role that wheelchair users play in the selection of their own wheelchair.

Number of trainers: It is recommended that there are two trainers for every 8–10 participants. This ratio is particularly important for practical sessions, so that trainers can give participants good support and feedback and ensure that all involved can practise safely. Having an experienced wheelchair user, who knows the subject and training package well, can be an asset during the training programme.

Technical support: In order to manage the practical sessions that are an important component of this course, trainers are encouraged to have at least one wheelchair technician experienced at intermediate level available to assist during practical sessions.

How to get started

1. Copy the disc (inside the folder) to the hard drive of the computer to be used during training. At least 6GB of free storage space is needed on the hard drive.
2. Click on the file titled 'START'. From here, trainers can navigate to the different WSTP Intermediate resources. Trainers may also access the same resources through the folder hierarchy.
3. Open the Trainer's Manual

   3.1 Read the sections About the Wheelchair Service Training Package and Guidance Notes for Trainers and

   3.2 Order or print and bind one copy of the Trainer's Manual for each trainer (where printed copies are not already available).

4. Open the timetable and click the hyperlinks of each session, to access the session presentations and videos. Review each session working through the presentation and session plan (trainer's manual) to become very familiar with the content, resources and methodology.
5. Follow the guidance notes in the section 'How to prepare to deliver the training package' to ensure that all necessary preparations are made well in advance of delivering the training. Prepare all training resources and materials, as suggested in the section "How to Prepare to Deliver the Training Package".
6. The best way to deliver the training is to proceed through the lessons in sequential order respecting time allotted for each session as much as possible.
7. At the beginning of the training – give the participants a full set of training materials including: the Reference Manual (1 per participant), Participant's Workbook (1 per participant) and a set of posters (1 set per participant). If you do not have these in stock, they can be printed from the disc.

1. Guidance notes for trainers

1.1 Training overview

			Minutes	Day
Welcome, introduction and overview		Introduction	60	One
A: Core knowledge				
Sessions , which give participants the background knowledge needed to undertake the wheelchair service step sessions.	A.1	Wheelchair users who benefit from additional postural support	60	
	A.2	Children with disabilities	60	
B: Wheelchair service steps				
Assessment	B.1	Assessment overview and assessment interview	90	
	B.2	Physical assessment – sitting posture without support	90	
	B.3	Physical assessment – pelvis and hip posture screen	120	
	B.4	Physical assessment – hand simulation	60	Two
	B.5	Physical Assessment – taking measurements	60	
Prescription (selection)	B.6	Selecting of wheelchairs and cushions	60	
	B.7	Prescription (selection) of PSDs – introduction	30	
	B.8	Prescription (selection) of PSDs – stabilizing the pelvis	90	
	B.9	Prescription (selection) of PSDs – supporting the hips	45	
	B.10	Prescription (selection) of PSDs – supporting the trunk	105	
		Prescription (selection) of PSDs – supporting the trunk	45	Three
	B.11	Prescription (selection) of PSDs – supporting the head, thighs and lower legs	120	
Practical One: Assessment and prescription (selection)			**120**	
Product (wheelchair) preparation	B.12	Product (wheelchair) preparation	60	
Practical Two: Product (wheelchair) preparation			**150**	
Fitting	B.13	Fitting	60	Four
User training	B.14	User training	60	
Practical Three: Fitting and user training			**150**	
	B.15	Putting it all together	120	
Maintenance, repairs and follow up	B.16	Maintenance, repairs and follow up	60	Five
Practical Four: Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training			**300**	
	B.17	Trainer's feedback, discussion and closing ceremony	60	

1.2 Training package timetable and duration

This training package may be delivered on consecutive days or in blocks over a period of time. The minimum length of time needed to teach the complete intermediate level training package is 35–40 hours. An estimate of the time needed to teach each session is included in the session plan.

Note: The actual time taken to teach each session will vary depending on the following factors:

- the experience and skills of participants;
- the overall number of participants;
- the number of locally available wheelchairs;
- the amount of time required to adjust and prepare wheelchairs;
- whether there is a need for translation during sessions; and
- whether additional material is included.

Depending on these factors more or less time may be needed to complete the training programme.

A sample five day timetable is provided in Annex 1. This timetable and a blank timetable template are also available on the DVD.

Trainers are strongly encouraged to adapt and modify the timetable to suit the local context and the learning needs of participants. For example:

- sessions from the training package may be incorporated into existing health or rehabilitation programmes;
- wherever rehabilitation personnel already have training in some aspects of the training programme, the corresponding sessions may not be required;
- where preparation of wheelchairs requires additional time (for example full assembly is required) it may be necessary to reduce the number of wheelchair users seen in the practical sessions or increase the time allowed.

1.3 Session plans

For each session there is a session plan, which guides trainers in delivering the session. At the beginning of each session plan is the following information:

- **Objectives:** what the participant should be able to do at the end of the session;
- **Resources:** what resources are needed for the session;
- **Context and prior learning:** how the session may need to be adapted for different contexts (or situations) and what prior learning or competencies are expected of participants;

- **To prepare:** how to prepare for the session;
- **Outline:** an outline of the main parts of the session.

The rest of the session plan is divided into topics. For each topic, the session plan gives instructions on how to teach the information for that topic. Note:

- words in bold are actions for the trainer (for example: **ask, demonstrate, explain, show DVD**)
- shaded boxes give answers to questions asked by the trainer – encourage participants to think of the answers themselves.

At the end of every session plan is a summary of the key points. Instead of reading the key points, trainers may ask participants questions to encourage them to identify the key points.

By following the session plans carefully, trainers will be able to teach each session well and on time. Session plans provide all of the necessary key points and practical skills that should be covered. Trainers are encouraged to bring their own knowledge, skills and style to the session.

1.4 PowerPoint presentations

There are PowerPoint (PPT) slide presentations for almost every session. Trainers should note that only the key points are written on the slides. Trainers should provide the information given next to each slide in the Trainer's Manual to make sure that every point is covered. Try to avoid reading out the slides. Instead refer to the Trainer's Manual.

1.5 Observing/monitoring participants' progress

Trainers should monitor closely the progress of each participant. The best opportunity to observe progress is during practical sessions.

A trainer's observation checklist for each practical session can be found on the DVD.

Trainers should use this checklist to:

- Help them observe the progress of each group of participants during each practical session;
- Record examples of good practice and practice needing improvement – to be discussed during each feedback session.

The Trainer's observation checklist may be modified and/or further developed by trainers wishing to gather more detailed information about the progress of each participant.

1.6 Evaluating the training programme after each delivery

It is a good practice to evaluate the training programme after it has been delivered. Trainers can gather feedback from participants regularly throughout the training programme. Trainers may also record their own thoughts about the training programme as it is delivered. This information can help them to evaluate the training programme at the end, including identifying strengths and weaknesses. This will help trainers to improve both the training package itself and their own skills for delivery in their context for the future.

Training programme evaluation forms are available on the DVD. Trainers may wish to adapt or build on these forms in order to meet their needs.

1.7 Good practice training tips

Be prepared	• read each session plan carefully before training starts; • make sure you are confident of the material you are delivering; • gather training resources and prepare the training room well.
Model good practice for a wheelchair service	• respect for participants and wheelchair users; • show care in your work; • be aware at all times of safety in the training room; • be punctual and run sessions according to the timetable.
Present information clearly	• speak clearly and calmly; • check to make sure everyone in the training room can hear you; • ask questions to check that you have been understood; • make sure your writing on the whiteboard can be read by everyone; • repeat important points to reinforce them.
Manage session time	• note the time allowed for each session and work to keep to time; • if it is likely that additional time will be needed, plan for this at the beginning; • be sure to complete all the sessions planned for a given day.
Give clear and careful demonstrations	• make sure everyone can see clearly; • explain what will happen and describe what you are going to do; • demonstrate slowly and repeat if necessary.

Build participants` skills	• always follow demonstrations with an opportunity for participants to practise; • remember that new learners need time to understand new information.
Build success in the small group activities	• observe group activities closely and give help if needed; • ensure that you circulate between the small groups and check the progress of each group.
Be aware of language differences	• if participants are learning in their second language, check they understand – slow down if necessary; • be aware of language differences among wheelchair users and their caregivers; • use interpreters where necessary.
Encourage participants to be active and engaged throughout the training	• use the different training styles and methods given in the session plans; • avoid talking too much – encourage participants to speak and discuss themselves; • ask questions to encourage participants to think about the answers themselves, rather than always telling them the answer; • encourage everyone to speak, don't let one participant dominate; • praise good work from participants and give positive feedback; • let participants know they can ask questions at any time; • link learning to real examples that the participants will recognize; • keep the training fun!
Use short "warm up" activities/games	• Use short warm-up activities (5–10 minutes) to help focus attention. Use activities that are inclusive of participants with disabilities.
Consider the needs of people with different abilities	• Think about the needs of any participants with visual, hearing or mobility differences. Some activities and teaching approaches may need to be adapted accordingly.

2. How to prepare to deliver the training package

2.1 Know the participants' wheelchair service network

Trainers need to be familiar with the wheelchair provision system at their place of work. This includes:

- the types of wheelchairs, cushions and postural support devices (PSDs) available locally and who supplies them;
- the materials, tools and facilities available for preparing wheelchairs and making PSDs;
- the wheelchair services in the area including the level of service they offer;
- referral networks in the area;
- resource personnel in the area, including wheelchair users who can assist in delivering the training;
- other rehabilitation services to which wheelchair service personnel may refer wheelchair users as required.

2.2 Clarify the participants' role in wheelchair service delivery

Find out how wheelchair service delivery fits within the participants' overall duties at their place of work. For example, will participants be working only in wheelchair service delivery, or do they have other duties as well?

Define the role participants will play in wheelchair service delivery. For example, some personnel may be required to carry out only the clinical or technical aspects covered in the training. Others may fulfil both the clinical and technical roles.

The expected role should be clear before training begins. Trainers can then relate the training directly to the duties expected of participants. Prior to delivering the training, local trainers may need to adapt the training to fit the role participants will carry out within their wheelchair service.

2.3 Review each session plan and adjust if necessary

Review each session plan and allocate a lead trainer for each session.

A number of the training sessions may need to be adjusted to suit the local context. Suggestions for adjusting sessions to different contexts are provided at the beginning of each session plan under the heading 'Context'.

2.4 Identify the wheelchairs, cushions and postural support devices that will be used

Identify which wheelchair types, postural support devices and cushions will be represented in the training. These should be the products available through the participants' place of work. If there is a large range of wheelchairs, select the best examples of different types of **appropriate** wheelchairs. Prioritize those that are most commonly available.

Make sure you are very familiar with the features of each product. Complete an intermediate wheelchair summary form for each wheelchair and gather product information from the supplier.

2.5 Invite wheelchair users for practical sessions

To give participants practice in the skills taught in this training package, it is necessary for them to practise with wheelchair users. Before the training programme, trainers need to identify and invite wheelchair users who are willing and able to attend the practical sessions.

Below is a checklist to help identify wheelchair users.

Checklist for wheelchair users to participate in practical sessions:	
Agree willingly to attend the training to assist in practical sessions	☐
Need additional postural support to sit upright – however are able to sit upright or close to upright with support	☐
Are fit and healthy enough to comfortably tolerate attending the training programme	☐
Do not have an open pressure sore	☐
Live close enough to be able to attend the practical session without having to travel far	☐
Have time available to attend the practical session	☐
Live close enough for the host organization to follow them up after the training programme	☐
Equal number of male and female wheelchair users	☐
A range of different physical needs represented	☐
Different ages represented	☐

How many wheelchair users are needed? The number of wheelchair users needed for the practical sessions depends on the number of participants. Usually, participants will work in groups of two or three with one wheelchair user. It is better to not have more than four wheelchair users for any one practical session, as this would become difficult for trainers to manage, monitor and observe.

The table below shows how many wheelchair users would be needed for a training programme with 6–8 participants, or 8–12 participants. Participants would be divided into groups of 2–4, working with one wheelchair user.

Ideally there should be a ratio of one trainer to two groups of participants working with a wheelchair user. This is to ensure that trainers are able to manage, monitor and observe the practical sessions to ensure safety for the wheelchair users and good learning.

	Number of participants:	**6–8**	**8–12**
Wheelchair users for assessment, prescription, fitting and user training	Practical One and Three	3	4
	Practical Four	3	4
Total number of wheelchair user volunteers needed:		**6**	**8**

What do wheelchair users attending practical sessions need to know?
Wheelchair users attending the practical sessions need to know:

- what will happen when they attend the session;
- when they will need to attend and for how long;
- that they are welcome to attend with a family member/caregiver;
- whether they will receive a wheelchair through their attendance at the training.

Trainers and host/training organizations are strongly encouraged to ensure that all wheelchair users attending practical sessions are offered transport or money to cover transport and participation costs. Meals and refreshments should be available while they are on the training programme. Trainers and host/training organizations may also provide wheelchair users with some payment as honorarium for the time that they spend participating in the training.

A sample invitation letter and consent form for wheelchair users is available within the Training Package (see DVD: Forms and checklists). This should be adapted for the specific context, translated and sent to each wheelchair user (volunteer) to help him/her to make an informed choice about participating in the training.

Follow up:

- Trainers or host/training organizations need to plan for follow up for any wheelchair user seen during the training, as it is possible that not everything will be complete by the end of the training for each wheelchair user.
- Any wheelchair user who receives a wheelchair during the training should be followed up by the host/training organization within 6–8 weeks of receiving their wheelchair.

Where to carry out practical sessions: Set up a quiet and private space for each participants' group to work with their wheelchair user. Portable privacy screens can be used to divide the space and provide some privacy.

Trainers may choose to organise at least one practical session to be carried out in the community. This may be in the home of a wheelchair user who has volunteered to have participants visit.

Community visits will help to reinforce for participants the practical issues wheelchair users face in their own environment. Trainers need to decide if this is possible, considering:

- the availability of transport for participants,
- whether there are enough trainers to monitor and observe all participants at different locations,
- whether wheelchair users are comfortable having participants visit them in their home,
- additional time that may be needed to travel to the community location.

2.6 Plan groups for practical sessions

Each group should consist of no more than three participants. It is better to have two groups of two than one group of four. This ensures that participants have a good opportunity to apply their learning and develop their skills.

Trainers need to decide who is in which group. Do not leave this to participants to decide. Depending on the skills of participants and the context, trainers may choose their groups as follows.

- Team up more confident participants with less confident participants. The more confident participants may help to guide the less confident participants. Monitor/observe the groups closely to ensure that everyone is participating.
- Team together people who will work together in the future, so that they can develop their skills as a team.

For Practical One, Two and Three, keep the same participants in the same groups. For Practical Four, the groups may be changed around, depending on how well they are working together.

For each practical session, appoint a "lead" person from the group. Make sure that every participant has an opportunity to be the lead person. Ask the lead person to be responsible for making sure that all steps are carried out. The lead person should be the main person communicating with the wheelchair user and his/her family member/caregiver if needed.

2.7 Prepare facilities

To run the training one large training room (or space) may be used. The space needs to be large enough to allow for participants and wheelchair users participating in practical sessions to move around comfortably and to break into small groups. Also required are workbenches; a separate space for lunch and refreshments; and clean toilets. **All areas, including toilets, must be wheelchair accessible.**

The following checklist can be used to assess and prepare training facilities.

Facilities checklist:	
Training room	
Lecture area	☐
Chairs for each participant – with facility for participants to write notes	☐
Space for participants to break into small groups of 2–3	☐
Space to display and move around at least three wheelchairs	☐
Screens to provide wheelchair users with privacy during practical sessions	☐
Adequate lighting and ventilation	☐
Lockable/secure	☐
Workbenches/workshop facilities	
One workbench for each small group	☐
Lunch/refreshment area	
Clean area for eating	☐
Tables and chairs	☐
Nearby space for washing hands – clean towels and soap	☐
Toilets	
Clean toilets supplied with water, toilet paper, hand washing facilities and bins	☐

2.8 Prepare the training resources and materials

Printed resources

Resource	Quantity	✓	Comments/instructions
Manuals, workbook and posters:			
Trainer's Manual	1 per trainer	☐	Order from WHO or print and bind.
Reference Manual	1 per participant	☐	Order from WHO or print and bind.
Participant's Workbook	1 per participant	☐	Order from WHO or print and bind.
Set of posters	1 per participant	☐	Order from WHO or print.
Training programme forms:			
Participants register form	1 per programme	☐	Use this form to keep a record of participants attending.
Name tags	1 per participant and per trainer	☐	
Timetable	1 per participant	☐	Sample available on DVD; adjust to suit local context.
Photo consent form	1 per participant and 1 per wheelchair user (volunteer)	☐	Adapt this form for the **host/training organization**; translate into local language; ensure any person who is photographed signs this form.
Invitation letter and consent form for wheelchair users	1 per wheelchair user	☐	Adapt the sample letter provided to invite each wheelchair user for the practical sessions.
Wheelchair user list for practical sessions	1 per trainer	☐	Use this form to plan wheelchair users' attendance at practical sessions and to keep a record of who is attending and when.
Participant certificate	1 per participant	☐	Prepare participant certificates or adapt the template provided.
Training programme evaluation forms:			
Training programme evaluation form for participants	1 per participant	☐	**Sample training programme evaluation forms; these may be adapted by trainers as needed.**
Training programme session evaluation form for trainers	1 per session	☐	
Training programme evaluation form for trainers	1 per trainer	☐	

Trainer's observation checklists for practical sessions:			
Practical One	1 per trainer	☐	Print.
Practical Two		☐	
Practical Three		☐	
Practical Four		☐	

Wheelchair service forms:			
Provide **a complete set of all wheelchair service forms for each participant** at the beginning of the training. Additional copies are needed for practical sessions as follows:			
Intermediate wheelchair referral form	—	☐	Adapt to suit local context or use local referral form if available.
Intermediate wheelchair assessment form	1 per wheelchair user	☐	Adapt to suit local context – for example add wheelchair service name or additional information required by local service.
Intermediate wheelchair prescription (selection) form	1 per wheelchair user	☐	Finalize depending on available wheelchair sizes, types and set-up.
Intermediate wheelchair summary form	1 per wheelchair (completed)	☐	Complete one for each locally available wheelchair before the training programme begins.
Wheelchair follow up form	—	☐	Adapt to suit local context – for example add wheelchair service name or additional information required by local service.
Checklists:			
Laminated intermediate wheelchair fitting checklist	1 per participant	☐	Checklists can be found in the printed resources under "Forms, checklists and tables".
Laminated intermediate wheelchair user training checklist		☐	
Laminated intermediate wheelchair safe and ready checklist		☐	
Table:			
Laminated Postural Support Device (PSD) Table	1 per participant	☐	Table can be found under "Forms, checklists and tables".

Posters:			
Children and Wheelchairs	1	☐	1 per participant
Different Positions	1	☐	
Postural Support Device (PSD) Table	1	☐	
Intermediate wheelchair user training checklist	1	☐	

Equipment

General training equipment:

Item	Quantity		Comments/instructions
Large whiteboard	1	☐	
Whiteboard marker pens	3–4	☐	
Data projector	1	☐	
Computer	1	☐	
Portable speakers	1 set	☐	To assist in hearing the DVDs
Stack of paper cups	1 per participant	☐	For drinking activity
Ball	1 per 2 groups	☐	For throwing a ball activity

Assessment and prescription equipment: *Equipment for demonstrating and practising wheelchair assessment, prescription and fitting.*

Item	Quantity		Comments/instructions
Blocks of firm foam 30 mm x 150 mm x 300 mm	10–15 depending on the number of groups	☐	
Wedges of firm foam 30 mm X 150 mm X 200 mm (approximately)	10–15 depending on the number of groups	☐	See diagram in Annex 11
Cardboard/plastic goniometer/goniometers	1 per group	☐	
Tape measure	1 per group	☐	Firm retractable tape measure (not soft dress maker's tape measure) in mm.
Caliper (if available)	1 per group	☐	
Assessment beds	1 per group	☐	A bench/assessment bed or plinth. The height should be level with average wheelchair seat height. Avoid a hard surface if possible – if using benches provide a thin foam layer and cover or yoga mat.
Digital camera	1	☐	If available
Privacy screens	1 per group	☐	Screens to provide privacy for wheelchair users being seen during practical sessions.
Set of foot blocks	1 per group	☐	Wooden blocks to provide support for wheelchair users' feet when sitting on the assessment bed. Several different heights are needed.
Disposable gloves (if available)	1 per participant	☐	

Wheelchairs: *for training and practical sessions with wheelchair users*

Item	Quantity		Comments/instructions
Wheelchairs for training	At least 1 of each locally available wheelchair. Ideally 1 wheelchair per 2 participants.	☐	Ensure all wheelchairs are in good working order and have a cushion.
Wheelchairs for provision to wheelchair user volunteers	1 per wheelchair user attending the practical sessions	☐	There should be enough wheelchairs to be able to prescribe the most appropriate wheelchair for wheelchair users attending the practical sessions.

Cushions: *for demonstrations*

Item	Quantity		Comments/instructions
Cushion that has been modified to support fixed unlevel pelvis	1	☐	
Cushion that has been modified to support a hip that cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)	1	☐	
Cushion that has been modified to support one hip or both hips that cannot open to neutral for sitting posture (trunk to thigh angle less than 90 degrees)	1	☐	

Workbench and tool kit: *To make PSDs for wheelchair users attending the practical sessions, work benches and basic tools will be required. Trainers should modify this list depending upon the availability of pre-fabricated PSDs and locally available materials. Below is a suggested list:*

Item	Quantity		Comments/instructions
Workbench	1 per 3 participants	☐	This could be a workbench or strong table. A vice on each bench is very helpful.
Foam knife/electric knife	1 per 6 participants	☐	A fine hacksaw blade can be used as a foam knife.
Scissors	1 per 6 participants	☐	Large (if possible)
Safety glasses	1 per participant	☐	Safety glasses should be worn during any activity involving cutting.

Item	Quantity		Comments/instructions
Hand tools (saw, file, hammer, screwdriver)	1 set per 3 participants	☐	Hand tools will be required to make PSDs. The specific tools needed may vary depending on the materials used.
Industrial sewing machine, or needles and thread.	1	☐	An industrial sewing machine is needed to make covers for cushions and/or PSDs. Using a sewing machine is a skill that not everyone has. Possible options: • Find a local sewing shop that can carry out work quickly. • Have a person available with good sewing skills for all product preparation sessions. • Ensure the sewing machine is in good working order before the training begins.
First aid kit	1	☐	

PSD kit: *Locally available examples of the following PSDs will assist in demonstrating the different supports taught in this training programme. Below is a suggested list. Trainers should aim to have a sample of any commonly available pre-fabricated PSDs.*

Item	Quantity		Comments/instructions
Pelvis side pads	2	☐	
Outside thigh pads	2	☐	
Knee separator pad	1	☐	
Tension adjustable backrest	1	☐	
Trunk side pads	2	☐	
Headrest	1	☐	
Pelvis strap	1 per group	☐	
Calf strap	1	☐	
Foot straps	2	☐	
Shoulder harness	1	☐	

PSD Materials: The following materials are recommended to make PSDs for wheelchair users attending the practical sessions. This list below is a guide only. The exact list of materials will depend upon:

- solutions needed by wheelchair users;
- availability of any pre-fabricated PSDs;
- materials available locally to make PSDs; and
- technical solutions chosen.

Item	Quantity		Comments/ instructions
Firm foam (e.g. chip foam)	Quantities will vary as noted above. However a suggested amount is: • Firm foam – one sheet each of 1000 mm x 1500 mm x 50 mm and 1000 mm x 1500 mm x 20–30 mm. • Soft foam – half the above quantity.	☐	If foam is not available in 50 mm thicknesses – two thinner layers can be glued together. Soft foam should give some resistance when compressed. See reference manual for more information.
Soft foam		☐	
Webbing strap	• 20 metres of wide webbing (50 mm width) • 20 metres of narrow webbing (25 mm width)	☐	Widths may vary depending on supply.
Webbing buckles	• 10–12 (to match the webbing strap widths)	☐	
Wood	Quantities will vary as noted above.	☐	See Reference Manual for more information.
Contact glue for wood and foam.		☐	
Upholstery fabric		☐	
EVA or sandal rubber		☐	
Metal L-brackets if available		☐	
Variety of screws, nuts, bolts and washers.		☐	
Velcro or string and eyelets	For modifications to slung backrests.	☐	

3. Detailed session plans

Introduction

OBJECTIVES	By the end of this session, participants will: ☐ know the objectives of the training programme; ☐ know the names of trainers and participants; ☐ have an overview of the training programme timetable; ☐ know any important rules to remember during the training programme.	
RESOURCES	For the session: ☐ PPT slides: Introduction; ☐ Reference Manual for each participant; ☐ Participant's Workbook for each participant; ☐ a complete set of all wheelchair service forms – 1 set for each participant; ☐ DVD: Wheelchair service delivery; ☐ DVD: Wheelchair service steps; ☐ copy of the timetable for each participant; ☐ name tags for trainers and each participant.	
CONTEXT	Adapt this session to suit the local context in which the training is being given. Think about: ☐ including an opening ceremony appropriate to the culture/context; ☐ changing or adapting the section 'Introduction of trainers and participants' to suit the trainers and participants; ☐ changing, adapting and/or adding to the list of 'Housekeeping and expectations'; ☐ changing the overview slide if the training programme has been modified.	
TO PREPARE	☐ Gather resources, review PPT slides, watch DVDs and read through the session plan.	
OUTLINE	1. Opening ceremony (if any) 2. Introduction of trainers and participants 3. Training programme overview 4. Training programme timetable, Reference Manual, Participant's Workbook and wheelchair service forms 5. Housekeeping and expectations	15 15 10 10 10
	Total session time	**60**

1. Opening ceremony (estimated length 15 minutes)

The training programme may be opened with an opening ceremony as per local culture and customs.

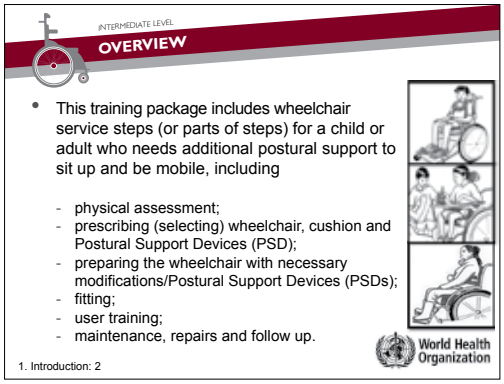
2. Introduction of trainers and participants (15 minutes)

Trainers: Introduce yourself/yourselves. Provide a brief overview of your background and experience of wheelchair delivery.

Ask participants in turn to introduce themselves, stating their name, the organization they come from, and what they hope to learn from the training programme.

Give out name tags, if these have not already been provided during registration.

3. Training programme overview (10 minutes)



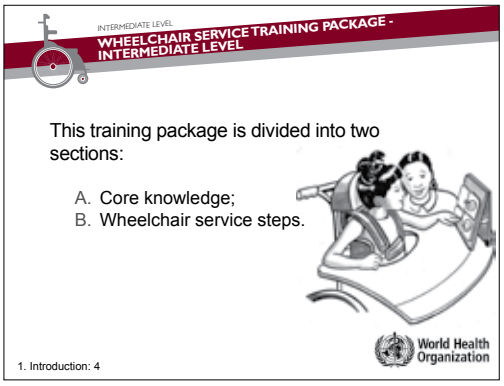
Explain: The aim of this training programme is to provide each participant with knowledge and skills that will help them to begin or improve their ability to provide an appropriate manual wheelchair, cushion and postural support for girls, boys, women and men who need additional postural support to sit upright, including:

- physical assessment;
- prescribing (selecting) wheelchair, cushion and Postural Support Devices (PSD);
- preparing the wheelchair with necessary modifications/Postural Support Devices (PSDs)
- fitting;
- user training;
- maintenance, repairs and follow up.

Introduce DVD: Wheelchair service delivery. This DVD provides a brief introduction to the WHO Wheelchair Service Training Package.

Show DVD.

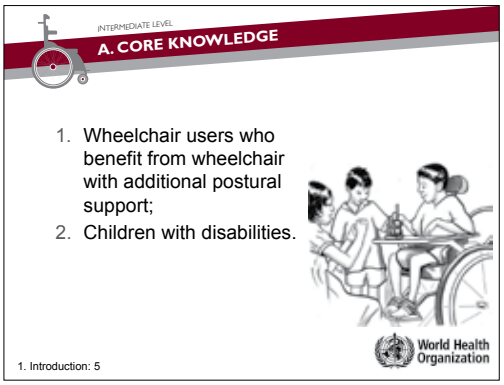
Ask if there are any questions.



Explain: The Wheelchair Service Training Package – Intermediate Level is divided into two sections:

A: Core knowledge;

B: Wheelchair service steps.

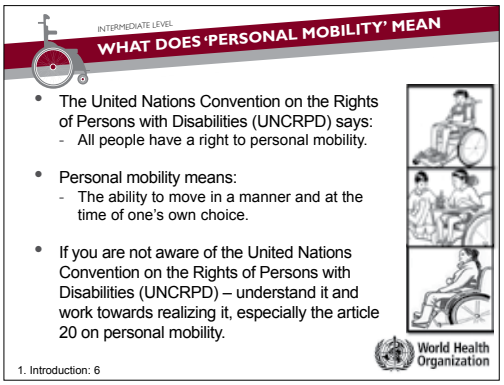


Explain: Core knowledge section consists of two sessions:

A.1: Wheelchair users who benefit from wheelchair with additional postural support, and

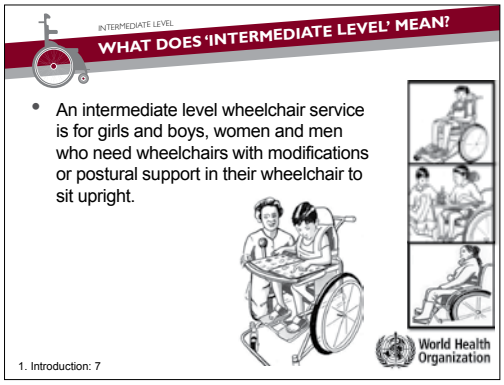
A.2: Children with disabilities

Explain: There are human rights that apply to everybody. The focus of the UNCRPD (United Nations Convention on the Rights of Persons with Disability) is to make sure that everybody recognizes that these rights also apply to people with a disability.

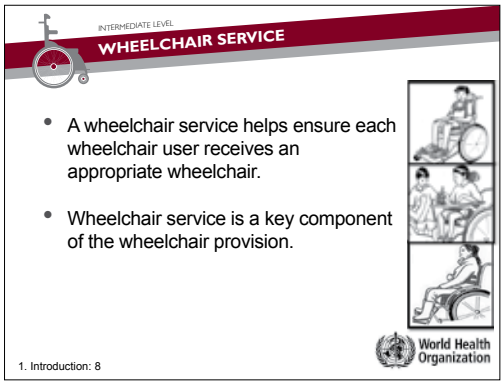


Explain:

- There are 50 different articles in the Convention.
- Article number 20 is about personal mobility.

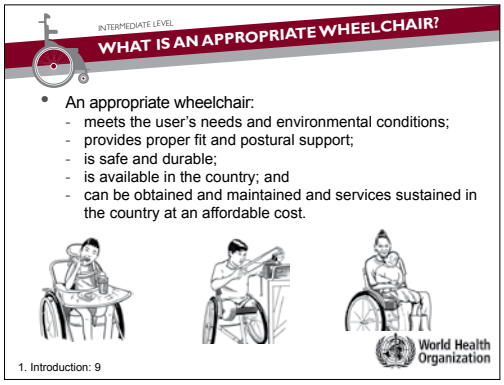


Explain: An intermediate level wheelchair service is for girls and boys, women and men who need wheelchairs with modifications or postural support in their wheelchair to sit upright.



Explain:

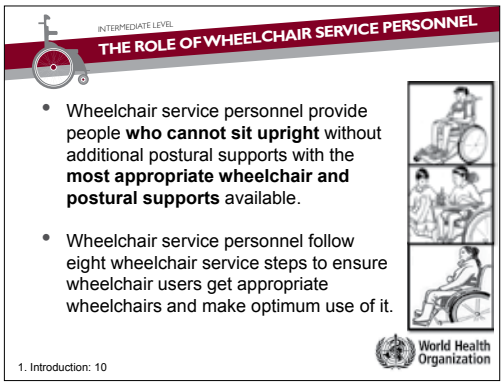
- As participants know – a wheelchair service works with wheelchair users to ensure that each wheelchair user receives an appropriate wheelchair.
- Wheelchair service is a key component of the wheelchair provision.



Read the definition of an appropriate wheelchair.

Explain:

- The "appropriate wheelchair" for each wheelchair user will always depend on their individual needs and environmental conditions.
- The "appropriate wheelchair" for each wheelchair user will also always depend on how well the wheelchair provides proper fit and postural support.



Explain:

- Wheelchair service personnel provide people **who cannot sit upright** without additional postural supports with the **most appropriate wheelchair and postural supports** available.
- Wheelchair service personnel follow eight wheelchair service steps to ensure wheelchair users get appropriate wheelchairs and make optimum use of it.

Ask: What are the eight wheelchair service steps? **Acknowledge all correct answers (the terms do not need to be exact).**

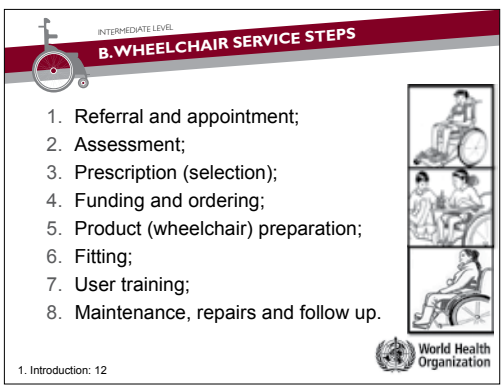
Answers:

- referral and appointment;
- assessment;
- prescription (selection);
- funding and ordering;
- product (wheelchair) preparation;
- fitting;
- user training;
- maintenance, repairs and follow up.

Introduce DVD: Wheelchair service steps. This DVD will show the eight steps of wheelchair service delivery that were covered in the Wheelchair Service Training Programme – Basic Level. **Ask** participants to watch the DVD and note each wheelchair service step.

Show DVD.

Ask if there are any questions.



Explain:

- The role of the wheelchair service personnel is to provide the most appropriate wheelchair, cushion and postural supports for people who need additional postural support to sit upright using the following eight wheelchair steps.

Explain: At the intermediate level, some of the wheelchair service steps may take longer or need to be repeated. **Ask:** When providing a wheelchair user who needs additional postural support with a wheelchair, which wheelchair service steps may take longer, or may need to be carried out more than once?

Answers:
• assessment may take longer; • product (wheelchair) preparation may take longer; • wheelchair fitting may take longer and may need to be repeated; • assessment may continue into the fitting if solutions are not clear at the first appointment; • user training may take longer.

Explain:

- This intermediate level training will build on knowledge gained in the basic level training.
- It will cover:
  - How to assess a wheelchair user who needs additional postural support to sit upright in order to find the best possible mobility and seating solution for them.
  - How to prescribe (select), prepare and fit a manual wheelchair with an appropriate cushion and postural support devices, which are any addition or modification to a wheelchair, which provide additional postural support.
  - User training – the intermediate level training programme will cover some additional information or skills wheelchair users who use postural support devices (or their family members/caregivers) need to know to be able to use their wheelchair safely and effectively. Participants will also be provided with an opportunity to practise this step with wheelchair users who need additional postural support.
  - Follow up – the intermediate level training programme will briefly review the process of follow up and provide participants with an opportunity to practise this step with wheelchair users who need additional postural support.
- Step 1 – referral and appointments; step 4 – funding and ordering; and part of step 8 – maintenance and repairs are not covered in this training programme.

Ask each participant in turn to give a very brief summary of their role in wheelchair service delivery. **Ask** participants to include:

- whether they are already providing wheelchairs and postural support devices;
- whether the children and adults they work with need additional postural support in their wheelchairs.

Acknowledge each participant's summary, and **ask** questions to clarify their role in wheelchair service delivery.

4. Training programme timetable, Reference Manual, Participant`s Workbook and wheelchair service forms (10 minutes)

Give a copy of the training programme timetable to each participant. **Explain:**

- The training programme will begin with theory/classroom sessions.
- Participants will then practise some of the skills they have been taught in the theory sessions with wheelchair users who have volunteered to assist.

Give a copy of the Reference Manual to each participant. **Ask** participants to write their name on the manual. **Explain** that they may write any additional notes in this manual.

Give a copy of the Participant's Workbook to each participant. **Ask** participants to write their name in the workbook. **Explain** that they will use this Workbook throughout the training and they should bring it to each session.

Give a complete set of all wheelchair service forms to each participant. **Explain** that participants will use these forms throughout the training and they should bring them to each session.

5. Housekeeping and expectations (10 minutes)

Explain the following, as required:

- location of toilets;
- who to talk to about accommodations;
- who to talk to about return travel for individual participants (do not go into details);
- what to do if there is an emergency.

Explain the expectations placed on training programme participants, as required:

- each session will begin on time – participants need to make sure that they arrive on time at the beginning of each day and return back to sessions on time after breaks;
- participants should always ask questions if they are not sure of something;
- treat all wheelchair users equally and respect their dignity;
- turn off mobile phones during the sessions;
- have fun!

A: Core knowledge

A.1: Wheelchair users who benefit from additional postural support

OBJECTIVES

By the end of this session, participants will be able to:

- ☐ list physical and/or functional reasons why a wheelchair user may need additional postural support;
- ☐ list four benefits of additional postural support;
- ☐ describe possible reasons why wheelchair users may reject a wheelchair with additional postural support and how to make sure additional postural support will be used by the wheelchair user.

RESOURCES

For the session:

- ☐ PPT: A.1: Wheelchair users who benefit from additional postural support;
- ☐ Reference Manual;
- ☐ Participant's Workbook;
- ☐ DVD: The benefits of an appropriate wheelchair;
- ☐ DVD: People using postural support devices;
- ☐ stack of paper cups and jug of drinking water, chairs, assessment bed and ball.

PRIOR LEARNING

Prior learning:

- ☐ understanding that there are differences in wheelchair service delivery for people who *can* and people who *cannot* sit upright without additional postural supports.

TO PREPARE

- ☐ Gather resources, review PPT slides, watch DVDs and read through the session plan.
- ☐ Set-up for small group activity at two or four different locations (depending on number of participants) around or near the training room:
  - location 1: place a chair and a ball;
  - location 2: place a chair, assessment bed, jug of drinking water and stack of paper cups.

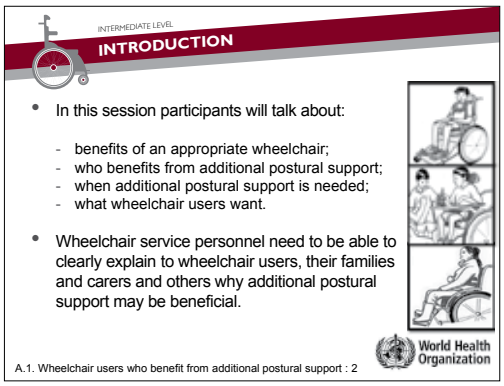
OUTLINE

1.	Introduction	2
2.	Wheelchair users who benefit from additional postural support	6
3.	When is additional postural support needed?	35
4.	What do wheelchair users want?	15
5.	Key point summary	2
	Total session time	**60**

1. Introduction (2 minutes)

Explain:

- Every well-fitting wheelchair provides the wheelchair user with some postural support. The backrest, cushion, footrests and armrests provide postural support when adjusted to suit the wheelchair user's size.
- However many children and adults need **additional** postural support in their wheelchair. Additional postural support can be provided by a postural support device. This is any addition or modification to a wheelchair, which is prescribed to provide additional postural support. Throughout this Manual, a postural support device is referred to as a PSD.



In this session we will talk about:

- the benefits of an appropriate wheelchair;
- who benefits from additional postural support;
- when additional postural support is needed;
- what wheelchair users want.

This information is useful for participants to be able to clearly explain to wheelchair users, their families and caregivers and others why additional postural support may be beneficial.

2. Wheelchair users who benefit from additional postural support (6 minutes)

Introduce DVD: The benefits of an appropriate wheelchair. This DVD will show a range of different wheelchair users carrying out different activities. Most of them have additional postural support built into their wheelchair. This may be easy to see, or hidden in the cushion/backrest.

Ask participants to watch closely to see the activities that people are doing; and the different additional postural supports provided in the wheelchair. Notice that the wheelchairs and supports are different for each wheelchair user.

Show DVD.

Ask if there are any questions.

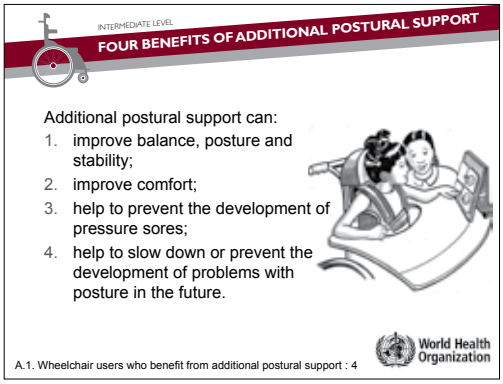
Ask: What are some of the activities people on the DVD were doing?

Answers:	
• cooking; • dancing; • going to school/doing crafts; • throwing a ball; • weight lifting/training;	• walking the dog; • using a computer; • working; • hairdressing.

3. When is additional postural support needed? (35 minutes)

Ask: Why do some children or adults need additional postural support? Think about the different physical or functional reasons that children or adults come to a wheelchair service for a wheelchair and additional postural support. **Encourage** answers.

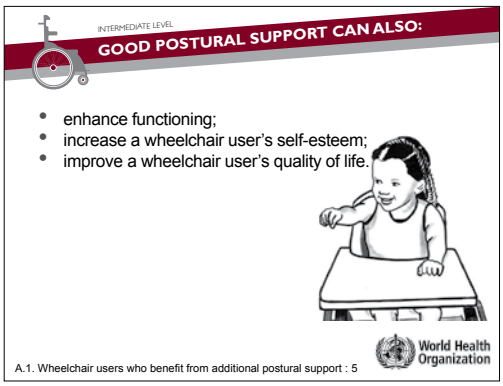
Answers:	
Physical reasons:	
• cannot sit upright; • poor balance; • feeling unstable; • uncontrolled movements or spasms; • developing pressure sores;	• joint stiffness; • muscle tightness; • weakness; • fatigue; • pain or discomfort.
Functional reasons:	
• find it hard to do things without additional postural support; • find it difficult to eat or drink independently and safely;	• get tired easily; • family finds it hard to carry/give additional postural support.



Explain:

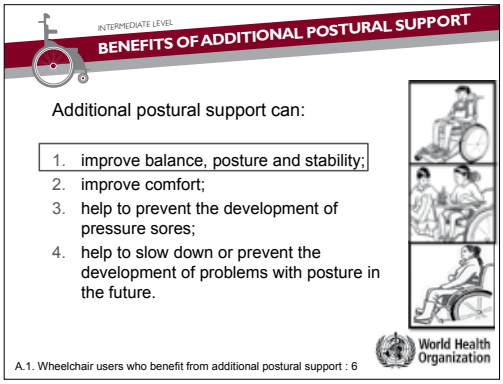
- People need additional postural support for different reasons.
- Four very important ways that additional postural support can benefit wheelchair users are listed here:
- Additional postural support can:

1. improve balance, posture and stability;
2. improve comfort so they can sit for longer time periods;
3. help to prevent the development of pressure sores;
4. help to slow down or prevent the development of problems with posture in the future.



Explain:

- Good postural support can also help to enhance functioning and increase a wheelchair user's self-esteem.
- Overall – good postural support can help to improve a wheelchair user's quality of life.



Explain: One of the important benefits of postural support is improvement of balance,
posture and stability.

Ask: What are some activities that need good balance, posture and stability?
Encourage answers.

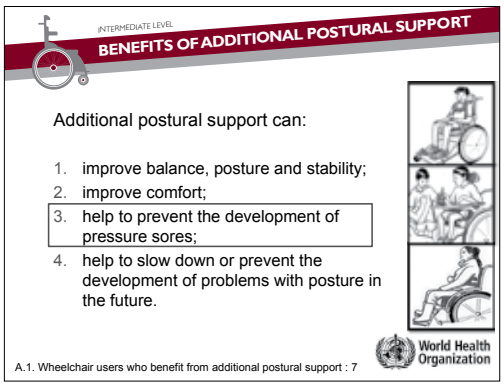
Answers:

- Writing;
- propelling a wheelchair;
- cooking;
- eating and drinking;
- communicating.

Explain: We are now going to try two activities (throwing a ball and drinking), which will help participants to feel what it might be like to carry out these activities with good balance, posture and stability; and then with poor balance, posture and stability.

Small group activity:	
Groups:	**Divide** participants into groups of 3.
Instructions:	**Ask** participants to look at Participant`s Workbook (A.1: Wheelchair users who benefit from additional postural support). **Explain:** There are two activities – throwing a ball and drinking. **Explain** that each group should carry out the activity in the locations set-up (point out the locations). **Ask** participants to write down the answers to the questions in their workbook. **Explain** that the participants should complete both activities in 10 minutes..
Monitor:	**Monitor** the groups closely. **Ensure** each group understands the activity. **Remind** participants to consider the questions in their workbook: • How easy is it to throw and catch the ball? • Does it get harder with steps 2 and 3? • How does the different position and posture affect how easy it is to drink? Once each group has finished an activity, **move** the groups around. Keep the groups moving quickly so that each group carries out each activity within the time available. **Guide** participants if necessary.
Time:	**Allow** 10 minutes for activity and 10 minutes for feedback

Feedback:	1. Throwing a ball: **Ask:** Did it become harder to throw and catch the ball as your stability changed (with your chair being tilted, and then rocked)? **Encourage** responses (throwing the ball should become harder, and require more concentration and effort). **Explain:** Postural support helps to increase stability, by providing support at the pelvis, and wherever else the person needs support. With increased stability, it is easier to do many things – including propelling a wheelchair, writing, cooking, even speaking. 2. Drinking: Ask: • What did it feel like trying to drink in the different sitting postures? • Did anyone feel like he/she would choke or get water in their airways? **Encourage** responses (drinking in the different postures would feel uncomfortable and possibly frightening). Explain: • For people who have difficulty sitting upright – eating and drinking can be uncomfortable, sometimes frightening, and often dangerous. • When people have difficulty swallowing safely, small pieces of food and drink may go into the lungs. This can cause a chest infection, making the person very ill. Additional postural support in a wheelchair to ensure that the person can sit upright when eating and drinking can really help. • Providing good postural support should improve head control, which will make it easier and safer to swallow and eat. **Note:** Improving postural support is just one part of the solution for anyone who has problems with swallowing. Children or adults with problems swallowing should be referred to someone who has experience in managing this. This may include a paediatrician, speech language therapist or community health worker who has knowledge and training in managing swallowing problems.



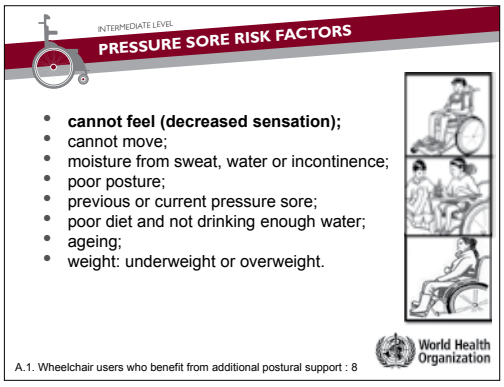
Explain:

- Another important benefit of additional postural support is preventing the development of pressure sores.
- Pressure sore risk factors are covered in the WSTP Basic Level.

Ask: What are the main risk factors for pressure sores
(the things that make it more likely a wheelchair user could develop a pressure sore?)

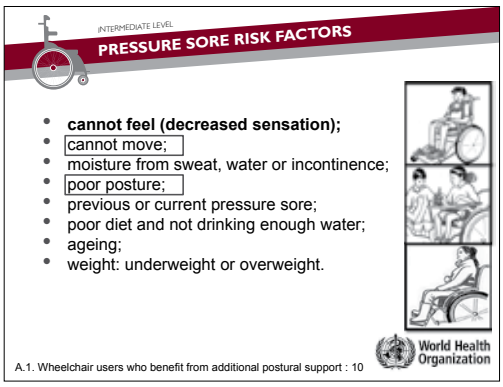
Acknowledge correct answers

Answers:	
• Cannot feel (decreased sensation); • cannot move; • moisture from sweat, water or incontinence; • poor diet and not drinking enough water; • ageing; • weight: underweight or overweight;	• poor posture; • previous or current pressure sore; • trauma, bumps or knocks; • heat/fever; • insect bite.



Explain:

- Here is the list of risk factors that are covered in the WSTP Basic Level.
- 'Cannot feel (decreased sensation)' is in bold – as any wheelchair user who has reduced sensation is automatically at risk of developing a pressure sore.
- A wheelchair user with three or more other risk factors may also be at risk of developing a pressure sore.



Explain:

- Many wheelchair users who need additional postural support may be unable to move, and are likely to have poor posture.
- These are two pressure sore risk factors.
- This means that many wheelchair users who use additional postural support could be at risk of developing a pressure sore.
- Improving posture will help to reduce this risk.

Ask: Why is poor posture a pressure sore risk? (How can poor posture contribute to a pressure sore?)

Answers: Poor posture can cause:
• Sliding in the wheelchair – which can cause 'shearing' forces • Uneven weight distribution causing high pressures under one area (for example more pressure under one seat bone than the other) and can quickly lead to a pressure sore.

Explain: Assessing the risk of pressure sores, prescribing solutions that help to prevent pressure sores and providing wheelchair users with good information about how to prevent pressure sores is an important part of wheelchair provision at intermediate level.

4. What do wheelchair users want? (15 minutes)

Explain:

- We have talked about different ways that additional postural support can help wheelchair users.
- However, sometimes wheelchair users find it hard to get used to a wheelchair that has been prescribed with additional postural support. Sometimes the wheelchair is rejected.

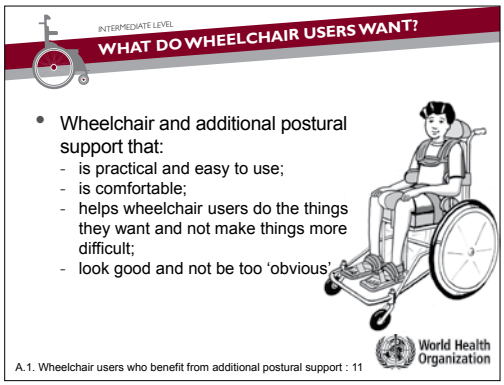
Ask: Does anyone have experience of providing a wheelchair with additional postural support and the wheelchair user does not use it? What do they think the reasons for this may be?

Encourage answers. As reasons are provided, **ask** participants if there is anything that could be done to avoid that problem. **Supply** some examples if necessary.

Answers:	
The reasons why the wheelchair users may reject a wheelchair with additional postural support:	*What could be done to prevent this:*
• The wheelchair user finds the wheelchair or additional postural support uncomfortable.	• Involve the user as much as possible in the process. • Try to arrange a short trial of equipment before it is finalized. If there are problems these can be fixed after the trial.
• The wheelchair user's posture changes; and the wheelchair / additional postural support is no longer comfortable.	• Regular follow up can help to ensure that equipment still fits and is comfortable.
• The wheelchair user finds that he/she cannot function as well with the additional postural support. • This can be a problem for different reasons. Two common reasons are: - The additional postural support may be impractical and makes functioning harder. For example – the postural support may make it more difficult to get in and out of the wheelchair. - The wheelchair/additional postural support may be 'over supporting' the wheelchair user (bringing them too far from their habitual posture) and the wheelchair user feels uncomfortable/ unbalanced in the new posture;	• Check before finalizing equipment that the wheelchair user can carry out the things he/she wants to do (for example transferring). • Avoid making very significant changes to the posture of a person who has been sitting in one way for a long time. Consider making changes over time rather than all at once.
• The wheelchair user does not like the look of the additional postural support.	• Try to make sure that wheelchairs and any additional postural supports are as small and neat as possible.

Answers:	
The reasons why the wheelchair users may reject a wheelchair:	*What could be done to prevent this:*
• The wheelchair user (or their family) believes it will make them 'lazy' or weaker.	• Explain the benefits of additional postural support. • Reassure wheelchair users (and their family) that when correctly prescribed, additional postural support should not make someone weaker. • Wheelchair service personnel can explain that if a person sits in poor posture, muscles and joints are being pulled out of alignment. This causes the muscles to be stressed and stretched and makes them weaker. Good posture support keeps the body in good alignment. This helps to keep the muscles and joints in the correct position to work well.

Answers:	
The reasons why the wheelchair users may reject a wheelchair:	*What could be done to prevent this:*
• The environment (home, immediately outside the home or community) is in-accessible.	• Wheelchair service personnel can provide some information to the wheelchair user and family about how to make the home and immediate environment more accessible. • Refer the wheelchair user to any organisation that may be able to assist in increasing access – for example community based rehabilitation programme/personnel.



Explain: In summary–a wheelchair and additional postural support should always:

- be practical and easy to use;
- be comfortable and not cause additional discomfort;
- help wheelchair users to do the things they want to do and not make them more difficult;
- look good and not be too 'obvious'.

Explain:

The best way to make sure additional postural support will be used by wheelchair user is to:

- fully involve the wheelchair user in their assessment, prescription and fitting;
- help the wheelchair user to understand why and how additional postural support will help them;
- always let the wheelchair user make the final decision.

Introduce DVD: People using postural support devices. This DVD shows some of the same wheelchair users in the DVD shown earlier. The wheelchair users and some family members talk about why they feel that a wheelchair with the right postural support is helpful to them.

Show DVD.

Ask if there are any questions.

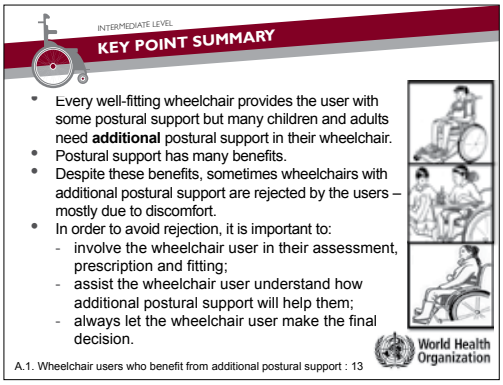
Ask: What were some of the reasons that wheelchair users (or their caregivers) gave for postural support being useful for them? **Encourage** answers.

Answers:

- Hussein's father said that his (Hussein's) wheelchair fitted his body better. He was more comfortable and had no more injury as result of poor support from the wheelchair.
- Chaeli said that her trunk supports helped her to become stronger.
- Michelle's (Shelley's) mother said that Michelle's wheelchair helped her to have a better quality of life; she can breathe and eat safely; and her posture is well supported.
- Ruan's mother said it has helped her son to eat more easily.
- Basila said that her wheelchair helps her to work.

Ask participants to look at the checklist on page 12 of the Reference Manual. The checklist can help wheelchair service personnel ensure that any additional postural support they prescribe is most likely to be successful for the wheelchair user.

5. Key point summary (2 minutes)



Read the key points.

Ask whether there are any questions.

A.2: Children with disabilities

OBJECTIVES

By the end of this session, participants will be able to:

- ☐ describe at least five features of a wheelchair that are important for children;
- ☐ explain at least two reasons why early referral is important for children;
- ☐ list seven ways to work with children that demonstrate child safety and respect.

RESOURCES

For the session:

- ☐ PPT Slides: A.2: Children with disabilities;
- ☐ Reference Manual;
- ☐ poster: Children and Wheelchairs;
- ☐ poster: Different Positions;
- ☐ intermediate wheelchair referral form.

CONTEXT

Adapt this session to suit the context participants will be working in. Think about:

- ☐ Whether either the host/training organization or participants' organizations have a child safety policy. In some instances it will be important for all participants to receive and sign a copy of the child safety policy before practical sessions with children begin.

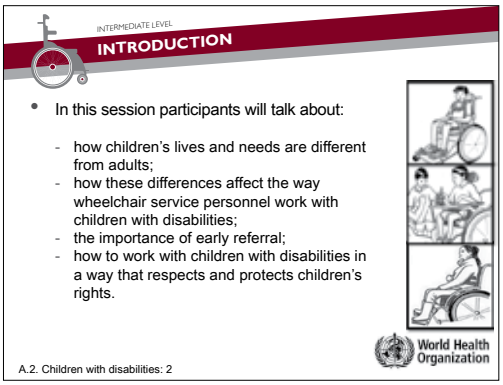
TO PREPARE

- ☐ Gather training resources, review PPT slides and read through the session plan.
- ☐ Pin up the Children and Wheelchairs poster.
- ☐ Pin up Different Positions poster.

OUTLINE

1.	Introduction	2
2.	Wheelchairs that meet children's needs	10
3.	Different positions	15
4.	Importance of an early referral for children	10
5.	Working with children	20
6.	Key point summary	3
	Total session time	**60**

1. Introduction (2 minutes)



Explain: Many children who need a wheelchair also may need additional postural support. For this reason, when talking about intermediate level wheelchair training programme, we need to think about what needs children may have.

In this session we will talk about:

- how children's lives and needs are different from adults and how an appropriate wheelchair can meet their unique needs;
- how these differences affect the way wheelchair service personnel work with children with disabilities and choices about wheelchairs and additional postural support;
- the importance of early referral;
- how to work with children in a way that respects and protects children's rights.

2. Wheelchairs that meet children's needs (10 minutes)

Explain: The lives of young children are different to adults. Children are in the care of adults. They make decisions with the help of those adults, depending on how old they are. Children change activities more frequently, move around a lot and play. Most importantly – children need to go to school.

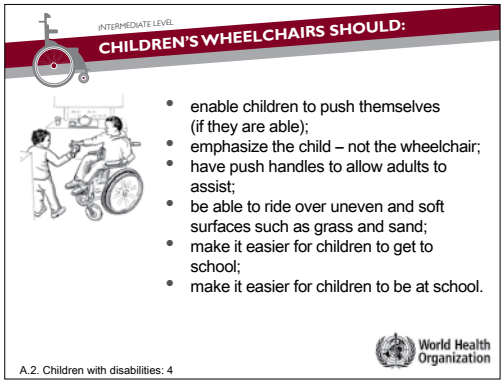
The wheelchairs that children use should help children participate in the normal activities that children carry out every day.

Ask: What are some features in a wheelchair that would be important for children?

Encourage answers.

Answers:

- If children push themselves, the wheelchair should:
  - fit well to allow them to reach the push rims with comfort;
  - be light enough for children to control, particularly going up or down hill.
- If possible, the wheelchair should emphasize the child – not the wheelchair.
- Extended push handles can help family member/caregiver to push the wheelchair without having to bend over.
- A wheelchair that can ride over uneven and soft surfaces such as grass and sand will make it easier for children to play with their friends.
- A child's wheelchair should make it easier for them to get to school:
  - if most children in the child's community walk to school – think about whether a wheelchair can travel on these paths? Does the child need a wheelchair, which is good for rough terrain?
  - if the child will go to school in transport (for example car, bus, rickshaw, taxi), think about how the wheelchair will be transported.
- The wheelchair should make it easy for them to be at school. Consider whether the wheelchair can go under a desk, or whether the child needs a tray on their wheelchair as a work surface.



Summarize:

Ideally, children's wheelchairs should:

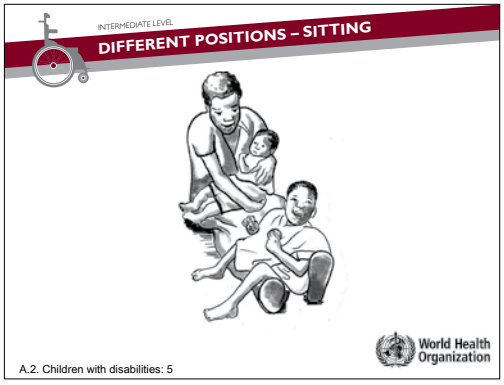
- enable children to push themselves (if they are able);
- emphasize the child – not the wheelchair;
- have push handles to allow adults to assist;
- be able to ride over uneven and soft surfaces such as grass and sand;
- make it easier for children to get to school;
- make it easier for children to be at school.

3. Different positions (15 minutes)

Explain:

- Children do not usually spend much time sitting down. They change the activity they are doing and their position many times during the day.
- This means that although a wheelchair is important, children should not spend all day in a wheelchair.
- Wheelchair service personnel need to work with children and their family members/caregivers to find different positions the child can use during the day.
- This is particularly important if the child has very limited movement, tends to sit or lie in the same posture all the time.

Sitting

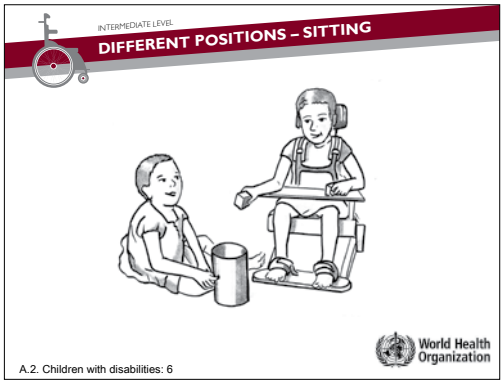


Explain:

As well as sitting in a wheelchair, children who need additional postural support to sit can be supported in different ways.

For example:

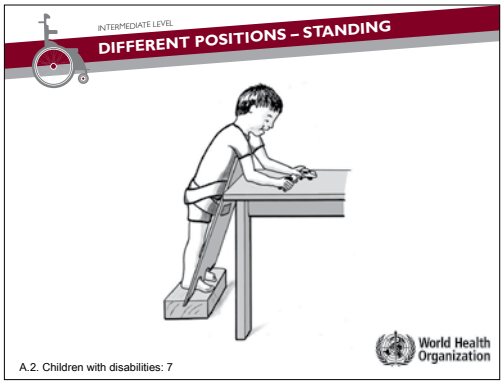
- Sitting astride a large roll or tightly rolled blanket.
- Sitting with support from a family member/ caregiver. The illustration on the slide shows a mother supporting her child with a disability between her legs to help him sit up to eat a biscuit while also supporting her younger child.



- Providing a supportive seat, which is low to the ground:
  - A seat like this is less expensive than a wheelchair with supportive seating and can be a good option for small children.

Standing

Explain: Standing is another important position for children.

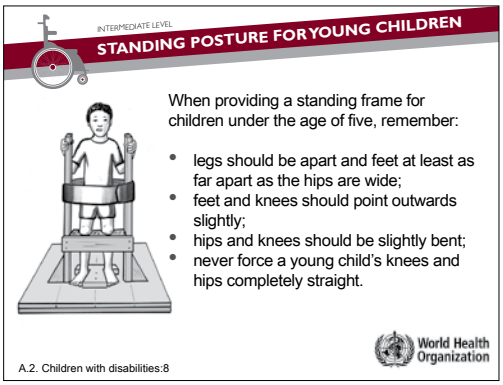


Explain:

- Standing is an important part of every child's development.
- Standing helps to form the hip joints and the normal curves of the trunk.
- Anyone who spends a lot of time sitting can develop stiff hip, knee and ankle joints. Standing stretches out the muscles around the hip, knee and ankle joints and helps to prevent these joints from becoming stiff.

Explain:

- When a child cannot stand independently, a standing frame can help.
- To prescribe a standing frame, wheelchair service personnel need to fully understand standing posture and the different ways that standing can be supported. This is not covered in this training programme.
- However, if providing a standing frame, always check that there is no pressure applied directly onto the child's knee caps. The best place to support the legs to prevent the knees from bending is just below the knee cap on the shin bone.



Explain:

When providing children under the age of five with a standing frame, there are some important things to remember:

- the child's legs should be apart and their feet at least as far apart as the hips are wide;
- the child's feet and knees should point outwards slightly;
- the child's hips and knees should be slightly bent;
- never force a young child's knees and hips completely straight.

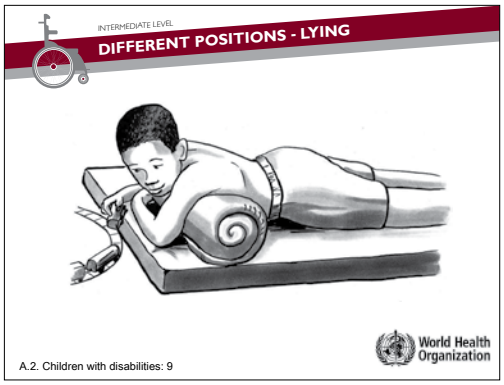
Explain:

- If a standing frame is used, wheelchair service personnel should advise family members/caregivers how long each day a child should use their standing frame. This is a general guide:
  - when first starting 5–10 minutes each day;
  - never leave a child in a standing frame for longer than 1 hour;
  - encourage family members/caregivers to find a fun activity that the child can do in their standing frame, and wherever possible provide a table or tray for activity.

Ask: Are standing frames available in the participants' location? Encourage answers.

Lying

Explain: Lying is another important position. For children lying on the floor to play is natural.



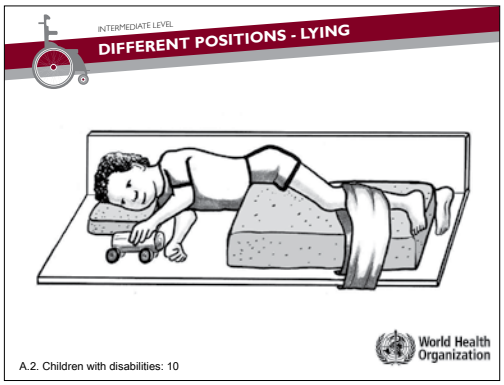
Explain:

- A child with a physical disability may need some support to lie comfortably on the floor:
  - in this illustration, the child is supported lying on their front.
- Children under the age of five who are lying on their stomach should be supported with a roll under their pelvis to keep their hips in a slightly bent posture.

Ask: What materials can family members/caregivers use to help support a child to play on the floor?

Answers:

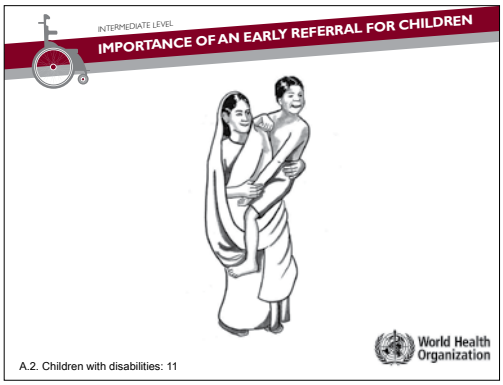
- blankets;
- foam;
- towels;
- pillows.



Explain:

- In this illustration, the child is supported lying on their side.
- Children spend a lot of time sleeping. If a child sleeps in the same posture every night, they may become fixed or stiff in that posture.
- Wheelchair service personnel can provide advice to family members/caregivers about how to position the child in different ways while he/she is sleeping.

4. Importance of an early referral for children (10 minutes)



Explain: Let's talk a bit now about how and when children are referred to a wheelchair service.

Ask: In the participants' experience, are children referred for a wheelchair when they are very young, or do parents/referral sources wait until the child becomes too heavy to carry?

Encourage answers.

Ask: Why are some parents reluctant to bring young children for a wheelchair assessment? **Encourage** answers.

Answers:

- parents may be hoping the child will be cured and begin walking;
- parents may think that if they give the child a wheelchair, he/she will no longer try to walk;
- while children are young and light, it is easier to carry them than manage a wheelchair over difficult terrain and inaccessible environments;
- parents may not have funds to pay for a wheelchair and will delay until it becomes too difficult to carry the child;
- the family may be experiencing guilt or fear that they will be seen in a bad light by others if their child is seen to have a disability.

Explain:

- Wheelchair service personnel can play a role in educating parents and referral sources about the importance of early referral.
- Here are some reasons why early referral is better than delaying:
  - Children who have difficulty sitting upright can develop postural problems if not well supported. If a child is referred late some postural problems may have become fixed [2]. This can make it difficult for the child to sit comfortably even with support.
  - Without the experience of sitting and being mobile, a child's development can be delayed [1, 3].
  - For children who have some ability to walk – using a wheelchair may make their daily life easier and allow them to do more things in a day [1].

2 World Health Organization. (1996). Promoting the development of infants and young children with spina bifida and hydrocephalus. Retrieved from http://whqlibdoc.who.int/hq/1996/WHO_RHB_96.5.pdf

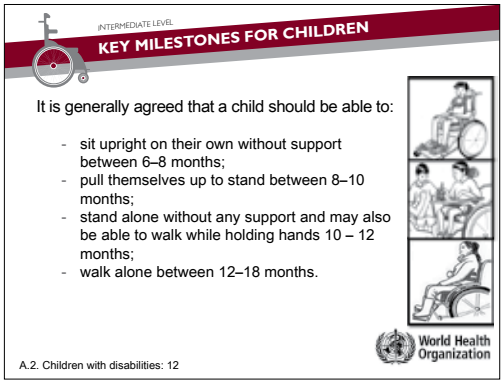
3 Muscular Dystrophy Campain. (2011). Wheelchair provision for children and adults with muscular dystrophy and other neuromuscular conditions: Best practice guidelines. Retrieved from http://www.muscular-dystrophy.org/

- It is important to reassure parents and referral sources that a wheelchair is unlikely to prevent a child from walking if this is possible for them. The experience of mobility through a wheelchair while the child is learning to walk will benefit their development in many other ways.

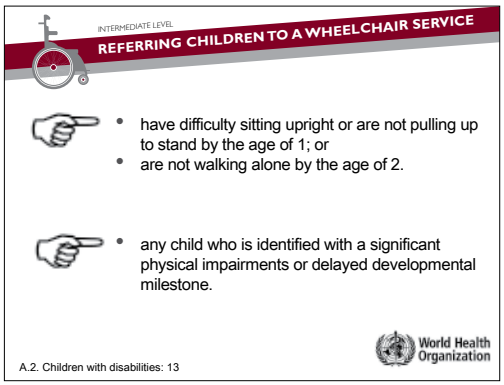
Ask: At what age are children without a disability usually able to:

- Sit upright independently and without support? Encourage answers.
- Pull themselves up to stand? Encourage answers.
- Walk alone? Encourage answers.

Answers:	
• Most children:	• sit upright on their own without support between 6–8 months; • pull themselves up to stand between 8–10 months; • stand alone without any support and may also be able to walk while holding hands 10–12 months and • walk alone between 12–18 months.



- **Explain:** These are key milestones for children that referral sources may identify.



Explain: Wheelchair services can encourage referral networks to refer children who:

- have difficulty sitting upright or are not pulling up to stand by the age of 1; or
- are not walking alone by the age of 2.

Where there is a programme of early intervention screening (for example where community health workers are trained to screen children for early intervention), wheelchair services can provide more detailed information to these networks. For example – wheelchair services can suggest that any child identified with a significant physical problem or delay could be referred to the wheelchair service.

Notes for trainers: Participants may ask for more information. Two additional indications that a young child may benefit from early provision of supportive seating are:

- *Very young children (under the age of one) who tend to be in one type of posture all the time (posture too straight (extended) or too curled up (bent)), who are not able to easily move their limbs, reach or roll, or who have uncontrolled movements.*
- *A child who is able to sit – however sits in the same posture and cannot move easily between postures. Sitting in the same position all the time can lead to problems.*

Ask participants to look at a copy of the intermediate wheelchair referral form.

Explain:

- this form can be used by referral organisations to refer wheelchair users to the wheelchair service;
- services may adapt this form to suit their service;
- the form includes the milestones discussed above.

Explain: For very young children who are still light to carry, wheelchair services may offer a supportive seat instead of a wheelchair. This can be used inside the home, and the child can still be carried when outdoors.

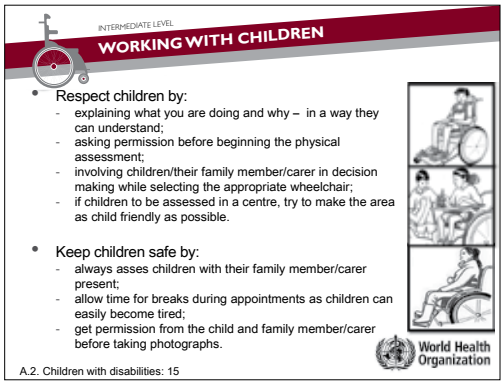
5. Working with children (20 minutes)

Explain: Whenever working with children it is important to work in a way that both respects and protects children.

Ask: What are some of the things that wheelchair service personnel can do to ensure children are respected and protected? **Encourage** answers.

Answers:

- always explain to children what you are going to do and why;
- involve children in decision making – in an age-appropriate way;
- speak with children in a way that they can understand – this means finding a way to explain to children what is happening that they can understand given their age and level of understanding;
- allow time for breaks during assessment and fitting;
- always have a child's family member/caregiver present when working with a child;
- make the space in which you will see children as friendly as possible – for example have some age appropriate toys/activities; posters/images that children enjoy on display;
- get permission from children and their family member/caregiver before photographing them.



Explain: Key things to remember are:

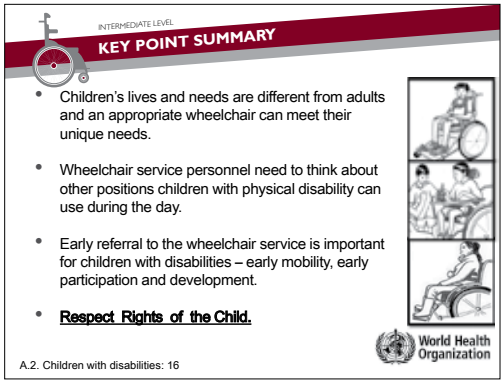
Respect children by:

- explaining what you are doing and why in a way that they can understand;
- asking permission before beginning physical assessments;
- involving children/their family member/ carer in decision making while selecting the appropriate wheelchair
- if seeing children in a centre, try to make the area as child friendly as possible.

Keep children safe by:

- always seeing children with their family member/caregiver present;
- allowing time for breaks during appointments as children can easily become tired;
- getting permission from the child and family member/caregiver before taking photographs.

6. Key point summary (3 minutes)



Read the key points.

Ask whether there are any questions.

B: Wheelchair service steps

B.1: Assessment overview and assessment interview

OBJECTIVES	By the end of this session, participants will be able to: ☐ give an overview of referral and appointment; ☐ give a brief summary of the two parts of an intermediate level assessment; ☐ list at least eight diagnosis or physical issues that may affect wheelchair users and describe the impact these issues may have on wheelchair provision; ☐ list different ways that wheelchair service personnel can improve their communication skills during an assessment.
RESOURCES	For the session: ☐ PPT Slides: B. Referral and Appointment and B.1: Assessment overview and assessment interview; ☐ Reference Manual; ☐ Participant's Workbook; ☐ DVD: Good communication; ☐ intermediate wheelchair assessment form.
CONTEXT AND PRIOR LEARNING	Prior learning: ☐ Understanding of the characteristics of different diagnosis/physical issues including: brain injury, cerebral palsy, muscular dystrophy, polio, spina bifida, spinal cord injury, stroke, lower limb amputation. ☐ Understanding of the Step 1 of 8 wheelchair service steps – "Referral and appointment" of the Wheelchair Service Training Package–basic level. ☐ Basic level assessment including: • understanding the relationship between a wheelchair user's lifestyle and environment and wheelchair prescription – refer to Wheelchair Service Training Package – Basic Level; • assessing an existing wheelchair to identify whether it meets the wheelchair user's needs. Adapt this session to suit the context participants will be working in. Think about: ☐ Whether a particular type of disability/physical issue is common locally and should be added to the wheelchair assessment form and explained in the session.

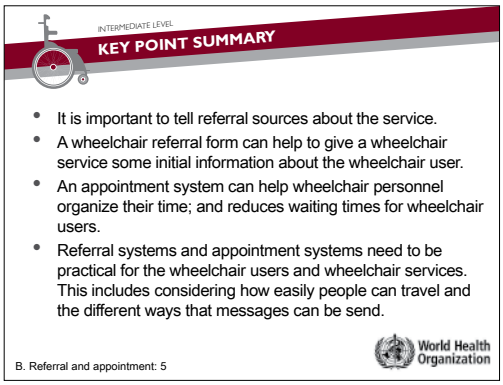
TO PREPARE

- ☐ Gather resources, review PPT slides, watch DVD and read through the session plan.
- ☐ Review the intermediate wheelchair assessment form thoroughly and practise carrying out assessment interview.
- ☐ Review the information on physical conditions on pages 120–125 of the Wheelchair Service Training Package – Basic Level Trainer's Manual.

OUTLINE

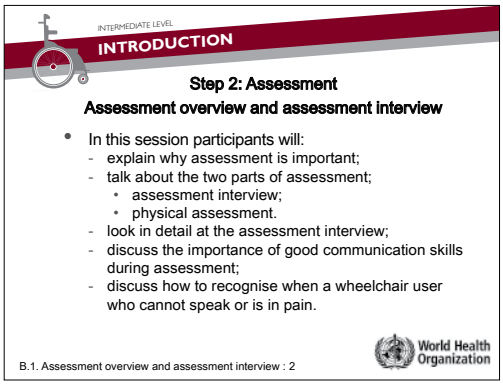
1.	Introduction	10
2.	Assessment	10
3.	Assessment interview	50
4.	Good communication skills during an assessment interview	15
5.	Key point summary	5
	Total session time	**90**

1. Introduction (10 minutes)



Explain: Referral and appointment is the first step in wheelchair service delivery.

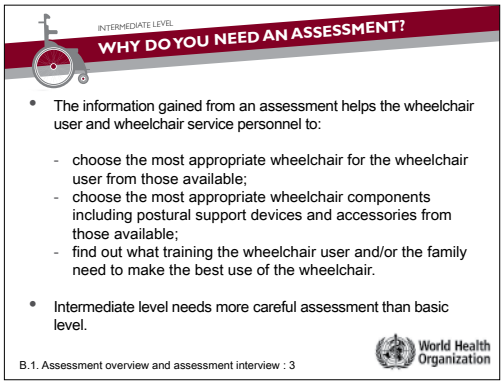
Show the slides of B.1. Referral and Appointment as outlined in the Wheelchair Service Training Package – Basic Level to refresh and reiterate the importance of step 1.



Explain: In this session participants we will:

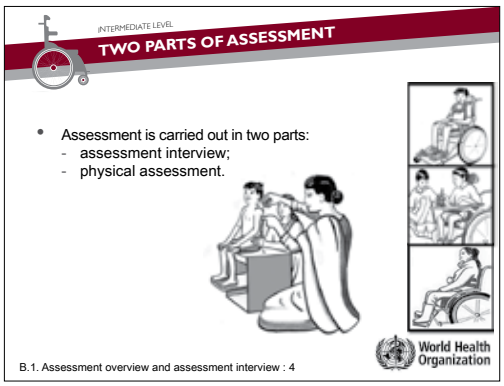
- introduce the two parts of assessment – assessment interview and physical assessment;
- look in detail at the assessment interview and how discuss how information gathered in the assessment interview will affect wheelchair prescription;
- the importance of good communication skills during an assessment;
- recognizing when a wheelchair user experiences pain.

2. Assessment (10 minutes)



Explain: Assessment is the second of eight wheelchair service steps. Information collected from the assessment is very helpful for the wheelchair service personnel and wheelchair user.

- Information gained from an assessment will help the wheelchair service personnel and wheelchair user to:
  - choose the most appropriate wheelchair from those available;
  - choose the most appropriate wheelchair components including postural support devices and accessories from those available;
  - find out what training the wheelchair user and/or the family need to make the best use of the wheelchair.

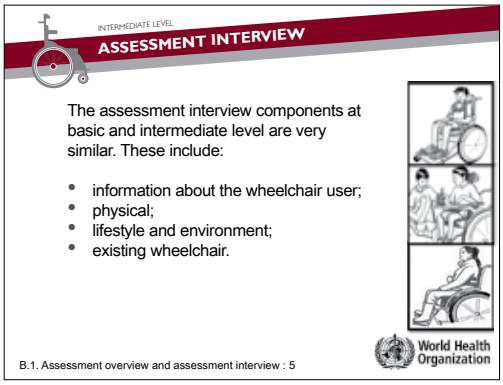


Explain: Assessment at both basic and intermediate level is carried out in two parts:

- assessment interview;
- physical assessment.

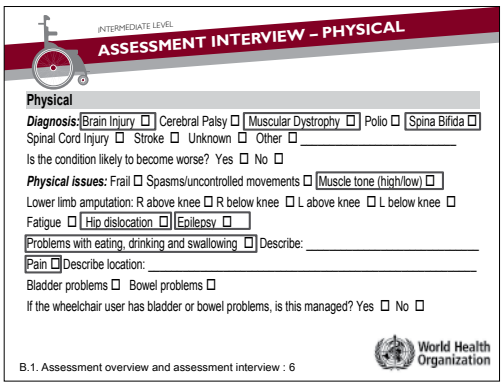
3. Assessment interview (50 minutes)

Explain: The first part of the assessment is the assessment interview. During this part of the assessment the wheelchair service personnel gathers information about the wheelchair user. This information will help to identify the most appropriate wheelchair for the wheelchair user.



Explain:

- The assessment interview components at basic and intermediate level are very similar. These include:
  - information about the wheelchair user;
  - physical;
  - lifestyle and environment;
  - existing wheelchair.
- In this intermediate level programme we will not go over any information that was covered in the Wheelchair Service Training Package – Basic Level.
- Participants should be familiar with gathering this information and how it affects wheelchair prescription.
- A brief summary is listed in the Reference Manual together with some additional intermediate level information.



Explain:

Even though the assessment interview components at basic and intermediate levels are very similar, there is more information gathered at intermediate level about the wheelchair user's diagnosis and any physical issues.

Small-group activity	
Groups:	**Divide participants into small groups of 2–4.**
Instructions:	**Give** each group a number (1–5) and assign appropriate assignment in the Participant's Workbook (B.1: Assessment overview and assessment interview). **Ask** participants to answer questions assigned to their group in their workbook. **Explain:** Participants may use the following to help them with the activity: • the Reference Manual; • their own knowledge and experience of working with and learning from people/wheelchair users who have different diagnosis/physical issues described. **Explain:** Participants have 20 minutes to answer assigned questions. Each group will give feedback to the whole group and provide up to three aspects to be aware of when prescribing a wheelchair for a person with a specific diagnosis/physical issues.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the questions. **Encourage** groups to use the Reference Manual and their own knowledge. **Guide** participants if necessary.
Time:	**Allow** 20 minutes for the groups to prepare. **Allow** 10 minutes for feedback and discussion from each group. Please note the time allowed for this activity is based on 4 groups participating, if there are less or more than 4 groups, adjust the time accordingly.
Feedback:	**Ask** each group to in turn describe three aspects to be aware of when prescribing a wheelchair for a wheelchair user with a specific diagnosis/physical issues. **Acknowledge** correct answers and **correct/clarify** any misunderstandings. **Allow** some discussion – however do not run over time. ***Note:*** *Trainers should use the notes provided in the Reference Manual to ensure that each group has identified appropriate answers.*

4. Good communication skills during an assessment interview (15 minutes)

Explain:

Using good communication skills is always important to help to gather the right information in a way, which is respectful and sensitive to the feelings and needs of the wheelchair user. Some ways to help make the assessment interview runs smoothly are:

- always address the wheelchair users unless they are small children or they are unable to understand or answer your questions;
- explain to the wheelchair user that the information they provide will help choose the most appropriate wheelchair to meet their needs;
- questions do not need to be asked in the order given on the intermediate wheelchair assessment form. Sometimes wheelchair users will volunteer information before asked, or it may be more natural to ask questions in a different order.
- sometimes, communicating through speech may be difficult. For example, the wheelchair user may not be able to hear or may not be able to speak clearly enough for you to understand.
- when communication is difficult, try to find a way to communicate directly with the wheelchair user. Ask the people who know the wheelchair user well, how you can communicate with them. Take the time to understand how the wheelchair user communicates.
- if you cannot find a way to communicate directly, make sure that you have someone who knows the wheelchair user well close by at all times. Ask this person to help you communicate with the wheelchair user.

Introduce DVD: Good communication. This video shows a range of different ways that people communicate with each other.

Divide the group into two halves based on where people are sitting (participants do not need to move).

Explain: Each group should watch the DVD closely and note the different ways that people communicate. Participants should look for:

- different ways of communicating (for example sign language);
- different examples of good communication technique (for example good eye contact).

Show DVD.

Ask if there are any questions.

Give each group few minutes to write a list of different ways of communicating and different examples of good communication techniques.

Ask: What are some of the different ways that people on the DVD communicate? **Ask** one group to call out their list. **Write** answers on a whiteboard. For each item – put a tick if the other group also had this answer. **Ask** the second group if they have any other answers.

Answers:

- Different verbal communication:
  - clear speech backed up with demonstrations;
  - explain and showing;
  - sounds (vocalisations).
- Different non-verbal communication:
  - gestures;
  - eye pointing;
  - nodding;
  - describing with hands;
  - connecting;
  - facial expressions;
  - sign language;
  - eye contact;
  - touch;
  - asking questions that the wheelchair user can answer with 'yes' or 'no'; using whatever system he/she can to indicate yes or no.
- Special communication systems:
  - communication board;
  - head pointing;
  - computer system.
- Different ways to make communication better:
  - good eye contact;
  - bending down/squatting down to be on the same level as the wheelchair user;
  - body language open and relaxed and responsive (facing the wheelchair user, showing interest);
  - giving people who have difficulty communicating enough time to respond to a question.

Introduce the DVD: Good communication. Participants will watch the DVD again and see how many examples they got right.

Show the DVD.

Acknowledge how many of the points participants identified on their first viewing.

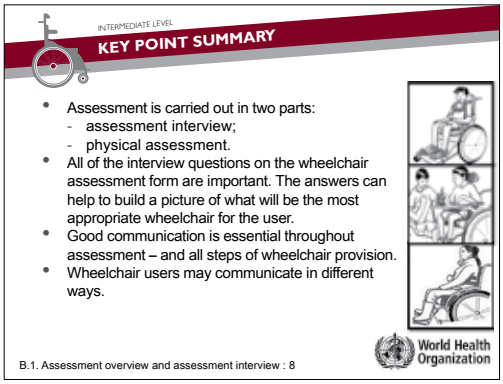
Explain: When a wheelchair users are unable to speak, it can be difficult for them to communicate that they are experiencing pain. Therefore, when working with a wheelchair user – wheelchair service personnel need to know if anything they are doing is causing or increasing wheelchair user's pain. Ask: How do people usually show that they are in pain? Encourage answers.

Answers:	
• crying; • shouting; • fidgeting; • sweating; • pushing the assessor's hand away or trying to move away;	• resisting a movement or being unable to maintain a specific posture; • expression on face – frowning and/or grimacing; • the way someone sits, stands or walks.

Ask: What can you do to make sure you do not cause pain or increase existing pain?

Answers:
• encourage the wheelchair user to let you know if he/she is experiencing pain during the assessment; • if communication is difficult – agree on a signal for pain before starting an assessment; • avoid positions that make pain worse; • use positions or movements that make pain less.

5. Key point summary (5 minutes)



Read the key points.

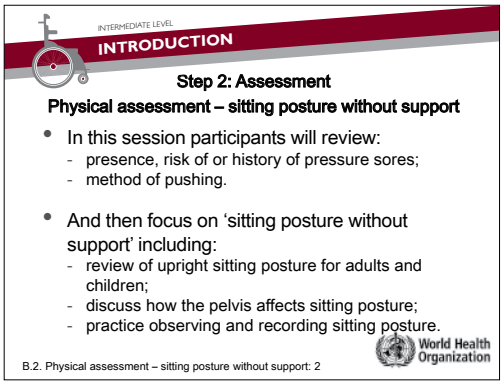
Ask whether there are any questions.

B.2: Physical assessment – sitting posture without support

OBJECTIVES	By the end of this session, participants will be able to: ☐ list three differences between child and adult upright sitting posture; ☐ observe and record sitting posture using words, drawings or both.
RESOURCES	For the session: ☐ PPT Slides: B.2: Physical assessment – sitting posture without support; ☐ Reference Manual; ☐ Participant's Workbook; ☐ DVD: Physical assessment overview; ☐ intermediate wheelchair assessment form; ☐ assessment bed – 1 per group; ☐ set of foot blocks.
CONTEXT AND PRIOR LEARNING	Prior learning: ☐ Completing the 'presence, risk of or history of pressure sores' part of physical assessment and understanding how information gained is likely to affect wheelchair provision. ☐ Completing 'method of pushing' part of the physical assessment and understanding how information gained is likely to affect wheelchair provision. ☐ Basic sitting posture: ☐ how to identify and describe an upright sitting posture; ☐ understand the benefits of a sitting upright. ☐ How to identify bony landmarks including the Anterior Superior Iliac Spine (ASIS), Posterior Superior Iliac Spine (PSIS) and Ischial Tuberosities (ITs). Adapt this session to suit the context participants will be working in. Think about: ☐ When asking participants to find the ASIS and PSIS on each other and demonstrating this on the volunteer – be aware of any cultural issues related to touching.

TO PREPARE	☐ Gather resources, review PPT slides, watch DVD and read through the session plan. ☐ Review the intermediate wheelchair assessment form thoroughly and practise describing or drawing sitting posture without support. ☐ Arrange an assessment bed at the front of the training room. ☐ Arrange the training room so that participants are seated in a semi-circle facing the front of the room. ☐ Place assessment beds around the training room (or outside the room/in adjacent rooms).	
OUTLINE	1. Introduction	5
	2. Review of presence, risk or history of pressures sores and method of pushing	5
	3. Overview of the physical assessment	5
	4. Upright sitting posture	20
	5. Upright sitting posture for young children	5
	6. The pelvis is the foundation for sitting posture	20
	7. Observing sitting posture	8
	8. Recording posture	20
	9. Key point summary	2
	Total session time	**90**

1. Introduction (5 minutes)



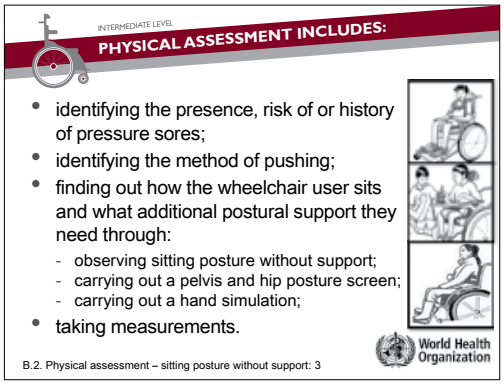
Explain: In this session we will introduce physical assessment, which is the second part of the assessment.

We will then briefly review two parts of the physical assessment that were introduced during the WSTP Basic Level:

- presence, risk of or history of pressure sores;
- method of pushing.

Explain: We will then focus on the 'sitting posture without support' part of physical assessment. We will:

- review upright sitting posture for adults and children;
- think about how the pelvis affects sitting posture;
- practise observing and recording sitting posture.



Explain: Physical assessment includes:

- identifying the presence, risk of or history of pressure sores;
- identifying the method of pushing;
- finding out how the wheelchair user sits and what additional postural support he/she may need through:
  - observing sitting posture without support;
  - carrying out a pelvis and hip posture screen;
  - carrying out a hand simulation;
- taking measurements.

Ask: Does anyone know what is meant by the term 'hand simulation'?
Encourage answers.

Answer:

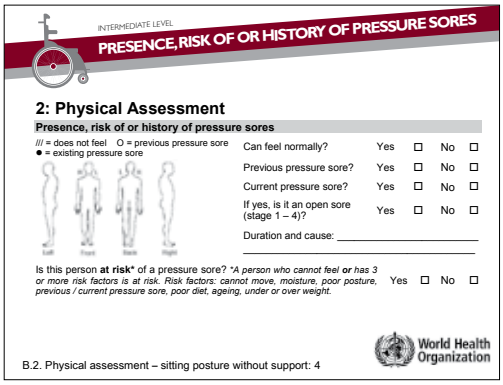
Hand simulation means using hands to act as the support that a wheelchair and additional postural supports may provide.

2. Review of presence, risk of or history of pressure sores and method of pushing (5 minutes)

Explain: The first two parts of intermediate physical assessment are the same as for the basic level assessment. This includes:

- presence, risk of or history of pressure sores;
- method of pushing.

Explain: In this intermediate level training programme we will not go over any information that was covered in the Wheelchair Service Training Package – Basic Level. Participants should be familiar with gathering this information and how it affects wheelchair prescription.

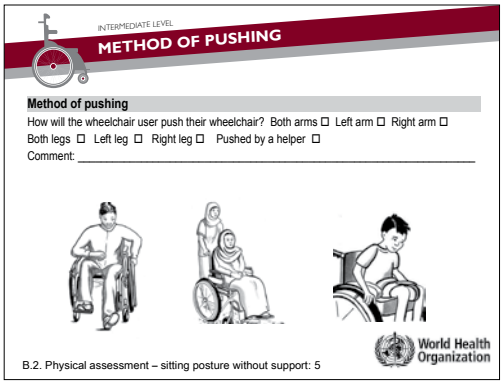


Explain: It is always important to find out whether a wheelchair user is at risk of developing a pressure sore.

Ask: Does anyone have any questions about this aspect of the assessment? **Answer** any questions.

Remind participants:

- If a wheelchair users say that they have had a pressure sore, or if they currently have a pressure sore – ask permission to see it.
- It is important to be sure that the wheelchair service personnel assessing, know exactly where the pressure sore is (or was) and whether a referral for a treatment is necessary.



Explain: Also just as for basic level wheelchair provision, it is important to identify the best way for the wheelchair user to push their wheelchair.

Ask: Does anyone have any questions about this aspect of the assessment? **Answer** any questions.

Remind participants:

- To be able to move with as much independence as possible is a basic human right. Even a small amount of independent pushing is worth having.
- Providing good postural support can enhance a wheelchair user's ability to push themselves – and this should be taken into account when assessing how, and how much, a wheelchair user can self-propel.

3. Overview of the physical assessment (5 minutes)

Introduce the DVD: Physical assessment overview. We will now watch a short DVD, which gives a brief overview of how wheelchair service personnel can work with a wheelchair user to find out how the wheelchair user sits and what additional support he/she may need. The young girl in the DVD is called Enith. After the interview, the assessor follows this sequence:

- observing sitting posture without support;
- carrying out a pelvis and hip posture screen;
- carrying out a hand simulation.

Show the DVD.

Explain:

- The DVD shows the wheelchair service personnel observing Enith's posture in her wheelchair. As Enith already has a wheelchair, it is important to know what posture support Enith already has and how well this is supporting her.
- We should assume that the wheelchair service personnel also observed Enith's posture when on the assessment bed, before beginning the pelvis and hip posture screen.

Ask if there are any questions.

4. Upright sitting posture (20 minutes)

Ask a volunteer to come to the front of the training room and sit on the assessment bed in an upright sitting posture.

Ask participants to describe the volunteer's posture from the side, starting with the pelvis. Participants may have to stand up and move to see.

Answers (cover all of these):

Side view:

- pelvis upright;
- trunk upright;
- back following its natural curves;
- head and neck upright and balanced over the body;
- hips bent to around 90 degrees;
- knees and ankles bent to around 90 degrees;
- feet resting flat on the floor (or foot support).

Ask participants to describe the volunteer's posture – this time from the front. Again, ask participants to start with the pelvis.

Answers (cover all of these):

Front view:

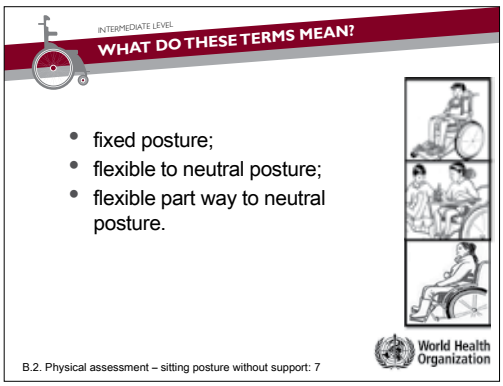
- pelvis level;
- shoulders level, relaxed and arms free to move;
- thighs parallel to each other or angled slightly outward;
- head upright and balanced over the body;
- trunk in a straight line (not curved or leaning to one side).

Thank the volunteer.

Explain: The upright posture just described should be used by participants as a guide. When working with wheelchair users, the aim is to support each wheelchair user as close to this posture as is comfortable, practical and functional for the wheelchair user.

Explain:

- we have talked about why it is important to sit in an upright posture – however not every person is able to sit upright;
- wheelchair users that are attending an intermediate level service may demonstrate a range of different sitting postures;
- the different sitting postures are caused by part (or parts) of the body not being positioned in neutral;
- during the assessment, the wheelchair service personnel and the wheelchair user need to find the most upright sitting posture that the wheelchair user can safely and comfortably achieve and maintain without losing function;
- the wheelchair and PSDs should support this posture;
- there are three different final results that can be found when assessing posture. These are:

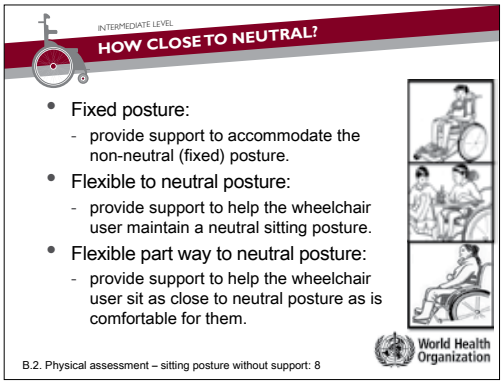


- fixed posture;
- flexible to neutral posture;
- flexible part way to neutral posture.

<table>
<tr><th colspan="3">Small-group activity</th></tr>
<tr><td>Groups:</td><td colspan="2">Divide participants into groups of 3.</td></tr>
<tr><td>Instructions:</td><td colspan="2">Ask participants to discuss amongst themselves what these three terms mean:
• fixed posture;
• flexible to neutral posture;
• flexible part way to neutral posture.
Ask them to NOT check their Reference Manual – but to come to their own understanding of these terms.
Explain: Participants have 10 minutes as a group to do this activity and then the groups will come back together for feedback.</td></tr>
<tr><td>Monitor:</td><td colspan="2">Keep the slide with the three terms up to remind the groups of the question.
Monitor each group closely.
Ensure that the participants understand the question.
Guide participants if necessary.</td></tr>
<tr><td>Time:</td><td colspan="2">Allow 10 minutes for the activity.
Allow 5 minutes for feedback.</td></tr>
<tr><td>Feedback:</td><td colspan="2">Ask one group to offer their definition or description of fixed posture.
• If the definition/description is clear and correct – acknowledge the answer. If not – ask if any other group can help to clarify. If necessary, the trainer can clarify.
Ask a different group to offer their definition or description of flexible to neutral posture.
• If the definition/description is clear and correct – acknowledge the answer. If not – ask if any other group can help to clarify. If necessary, the trainer can clarify.
Ask a different group to offer their definition or description of flexible part way to neutral posture.
• If the definition/description is clear and correct – acknowledge the answer. If not – ask if any other group can help to clarify. If necessary, the trainer can clarify.</td></tr>
<tr><td></td><td colspan="2">Answers:</td></tr>
<tr><td></td><td>Fixed posture:</td><td>• The wheelchair user has a part of the body, which is ‘fixed’. With gentle force there is no movement (strong force should never be used).</td></tr>
<tr><td></td><td>Flexible to neutral posture:</td><td>• With gentle force the parts of the wheelchair user’s body that are not in neutral can be brought to neutral.</td></tr>
<tr><td></td><td>Flexible part way to neutral posture:</td><td>• With gentle force the parts of the wheelchair user’s body that are not in neutral can be moved only part way toward neutral.</td></tr>
</table>

Explain:

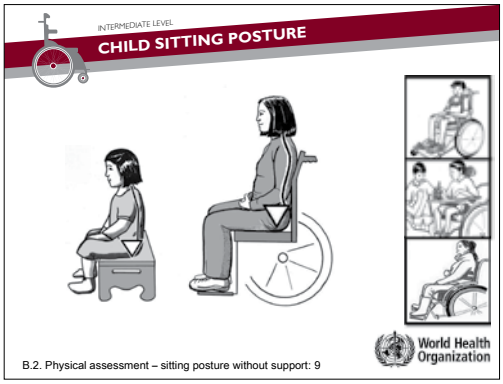
- These terms are described in the Reference Manual. It is important for wheelchair service personnel to consider carefully when supporting a wheelchair user how flexible towards neutral posture the wheelchair users are.



- For fixed posture – the wheelchair user has a part of the body, which is 'fixed'. With gentle force there is no movement (strong force should never be used). Wheelchair service personnel should provide support to accommodate the non-neutral (fixed) posture.
- For flexible to neutral posture – with gentle force the parts of the wheelchair user's body that are not in neutral can be brought to neutral. In this situation the right support should be given to help the wheelchair user maintain a neutral sitting posture.
- For flexible part way to neutral posture – with gentle force the parts of the wheelchair user's body that are not in neutral can be moved only part way toward neutral. In this situation support is given to help the wheelchair user sit as close to neutral posture as is comfortable and functional for them.
- Remember that new problems may be created if a wheelchair user is supported in a posture, which is closer to neutral than is comfortable or functional for them. Assessment is therefore very important and needs to consider the wheelchair user's comfort and function as well as how close to 'upright sitting posture' he/she can sit.

5. Upright sitting posture for young children (5 minutes)

Explain: Children under the age of five do not have the same upright sitting posture as older children and adults. The sitting posture develops over the first five years of the child's life.

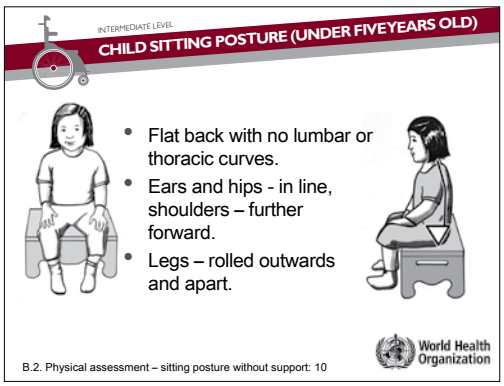


Explain: In this slide, the child is three years old. Both the child and the adult in the slide are in an upright sitting posture.

Ask: What differences can participants see between the child and the adult postures?

Encourage answers.

Answers:	
Child under five years old:	**Adult:**
• trunk upright, but there are no lumbar or thoracic curves; • the child's ear and hips are in line however their shoulders are slightly further forward; • legs are rolled outwards and apart – not parallel.	• trunk upright, with the back following its natural curves; • the ear, shoulders and hips are in line; • legs parallel to each other or angled slightly outward.



Explain:

The most important differences before the age of five are:

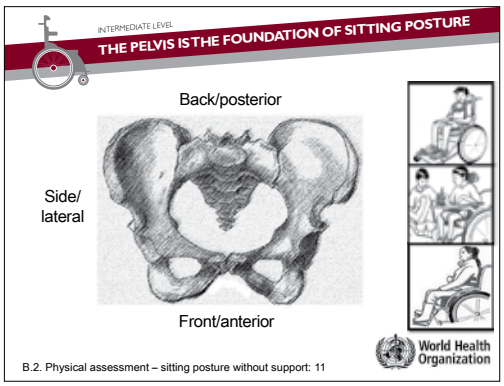
- the child's back is flat and there are no lumbar or thoracic curves;
- the child's ears and hips are in line however their shoulders are slightly further forward;
- legs are rolled outwards and apart – not parallel.

Explain: When working with children under the age of five, wheelchair service personnel need to remember that children under the age of five should not be given support to encourage an adult upright sitting posture. This would be uncomfortable and could cause the child harm.

6. The pelvis is the foundation of sitting posture (20 minutes)

Ask: Does a change in the posture of the pelvis affect the rest of the body?

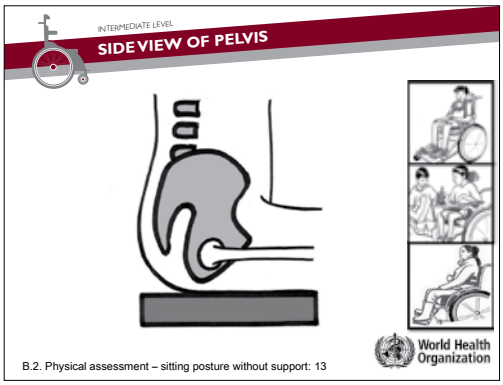
Answer:
• yes – movement or changes in posture of the pelvis always affect the rest of the body; • the pelvis is the 'foundation' of sitting posture.



Explain:

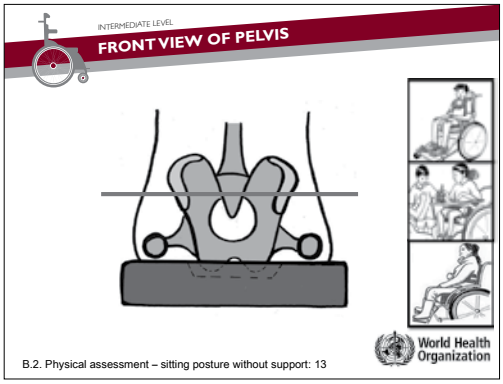
We will look at this in more detail now.

Understanding how the pelvis affects the rest of the body is a very important part of the intermediate level training programme.

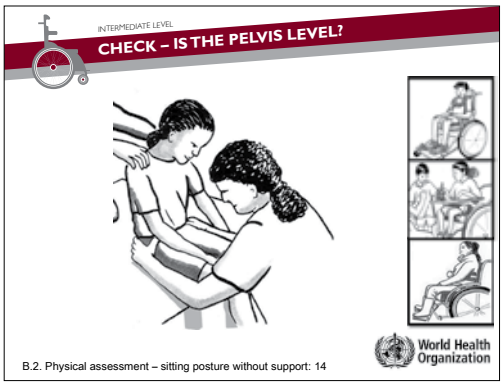


Ask: Where is the PSIS and the ASIS on this illustration?

Explain: From the side view – the ASIS and PSIS are at the same height.



Explain: From the front view – the left and right ASIS are level.



Ask a volunteer to come to the front of the training room and sit on the assessment bed in an upright sitting posture.

Demonstrate on the volunteer by pointing out the ASIS and PSIS. Place your hands on the volunteer's pelvis and show how you can gently hold the pelvis with both hands. Thumbs placed on each ASIS and fingers curved towards the back of the pelvis.

Ask participants to try this on each other (if not already familiar with this technique), ensuring that each person can find the ASIS and PSIS on their partner.

Thank the volunteer.

Ask: Apart from upright or neutral, what other pelvis postures are there?

Answers (cover all of these):

- anterior/forward tilt (ASIS is lower than PSIS – or top of pelvis moves forward);
- posterior/backwards tilt (PSIS is lower than ASIS – or top of pelvis moves backwards);
- lateral/sideways tilt (one side of the pelvis is lower than the other);
- rotation (one side of the pelvis is rotating forward/backward relative to the opposing side).

Common abbreviations in this section	
Anatomical structure	Abbreviation
Anterior Superior Iliac Spine	ASIS
Posterior Superior Iliac Spine	PSIS
Ischial Tuberosity	IT

Small-group activity	
Groups:	**Divide** participants into groups of 4.
Instructions:	**Ask** participants to look at Participant's Workbook (B.2: Physical assessment –sitting posture without support: foundation of sitting posture). **Explain:** Each group should work together to identify what changes happen to upright sitting posture when pelvis posture changes from upright to anterior tilt, posterior tilt, lateral tilt and rotation. **Explain:** Participants have 10 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the questions. **Guide** participants if necessary.
Time:	**Allow** 10 minutes for the groups to prepare. **Allow** 5 minutes for feedback and discussion.
Feedback:	**Ask:** Did each group find that with the different pelvis postures the rest of the posture changed? **Ask Group one:** What changes to posture happen with anterior tilt? **Ask Group two:** What changes to posture happen with posterior tilt? **Ask Group three:** What changes to posture happen with lateral tilt? **Ask Group four:** What changes to posture happen with rotation?

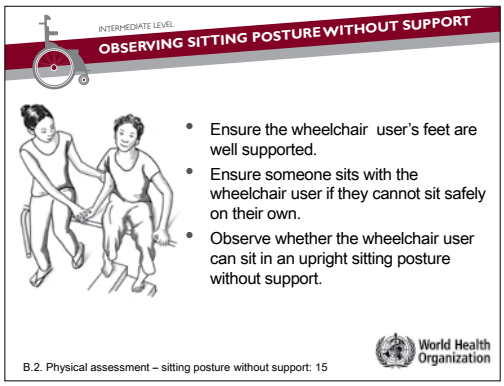
Answers:	
Pelvis posture:	*Whole body posture (main points around trunk):*
• anterior tilt	• trunk extended, increased curve in the lower back (lordosis);
• posterior tilt	• trunk rounds/bends, causes 'slumped' posture (kyphosis);
• lateral tilt	• trunk bends sideways (scoliosis);
• rotation	• trunk also rotates.

Explain:

- The most important point to remember is that the posture of the pelvis will always affect the rest of the body.
- When assessing a wheelchair user's posture, always begin with looking at what the pelvis is doing. When providing postural support, always work to support the pelvis first.

7. Observing sitting posture (8 minutes)

Explain: A starting point for understanding the wheelchair user's sitting posture and what support may be needed is to observe the wheelchair user's sitting posture – without support.



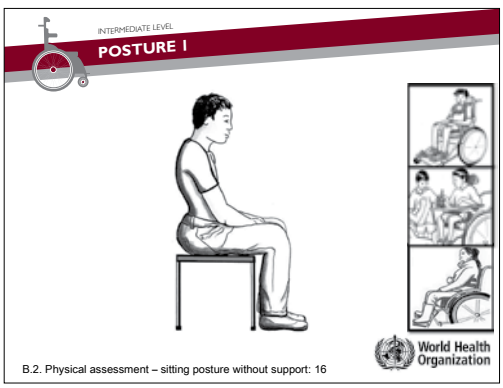
Explain:

- During assessment, wheelchair service personnel will begin observing the wheelchair user's posture even during the interview.
- At the beginning of the physical assessment, ask the wheelchair user to transfer to an assessment bed.

- Make sure the wheelchair user is safe and that their feet are supported.
- Provide enough support to ensure the person is sitting safely and cannot fall. An assistant or family member/caregiver may provide this support.
- The purpose of observing sitting posture without support is to understand the wheelchair user's postural tendency/habits.
- Observing posture is a skill, which takes time and practice to develop.
- We will now look at four different sitting postures – and see how good our skills are at observing different postures.

Notes for trainers:

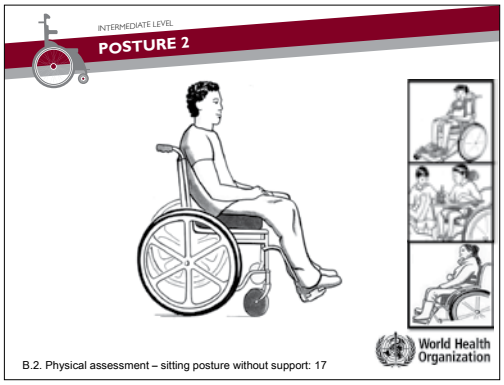
- emphasize observing the posture of the pelvis first – then trunk, head and neck, legs;
- if participants find this activity difficult, suggest that they mirror the posture themselves so that they can feel it. This may assist with their understanding and observation of each different sitting posture.



Ask: What do participants observe about this person's posture?

Answers:

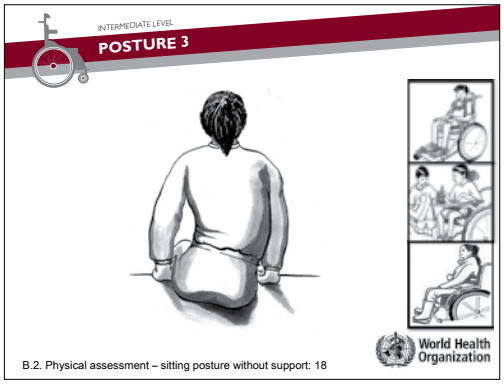
- pelvis tilted forward;
- lower back arched;
- shoulders back;
- neck extended.



Ask: What do participants observe about this person's posture?

Answers:

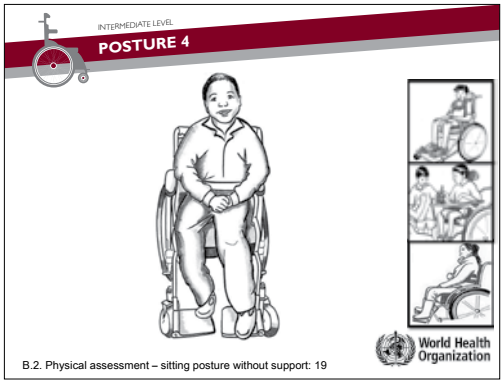
- pelvis rolled back;
- hips more open (trunk to thigh angle is more than 90 degrees);
- lower back rounded;
- neck extends slightly.



Ask: What do participants observe about this person's posture?

Answers:

- pelvis lower on right side (always name the lower side);
- pelvis appears to be rotated backwards on the right (rotation is often associated with an asymmetrical sitting posture, but not always);
- sideways curve in spine with peak of curve on the right;
- shoulders not level (lower on the right).



Ask: What do participants observe about this person's posture?

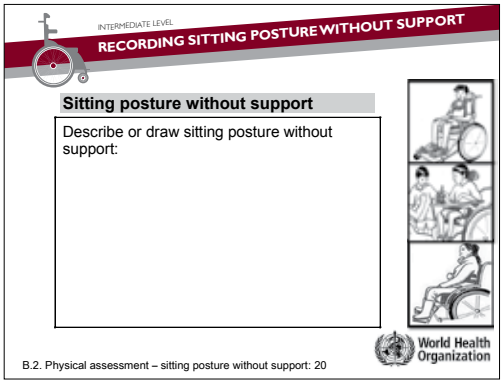
Answers:

- pelvis rotated backward on right side (always name the direction and side – e.g. back on the right side);
- some trunk rotation (back on the left side);
- right leg is falling and rolling outwards and the left leg has rolled inwards.

Notes for trainers: *For the last posture – if participants do not easily notice the trunk rotation,* ***ask:***

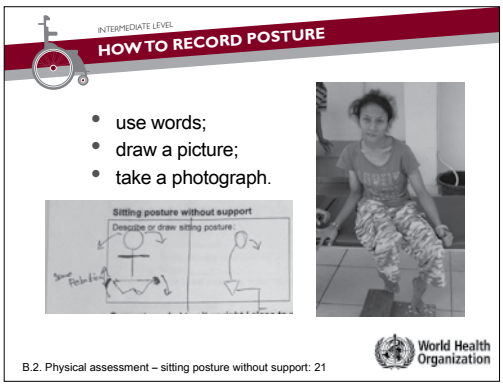
Does it look as though this boy's back would be flat against the backrest, with even pressure across his whole back?

8. Recording posture (20 minutes)



Explain:

- On the intermediate wheelchair assessment form there is space to record the wheelchair user`s sitting posture without support.
- This record can help the wheelchair service personnel:
  - to remember the wheelchair user's sitting posture after the assessment;
  - to track changes over time.

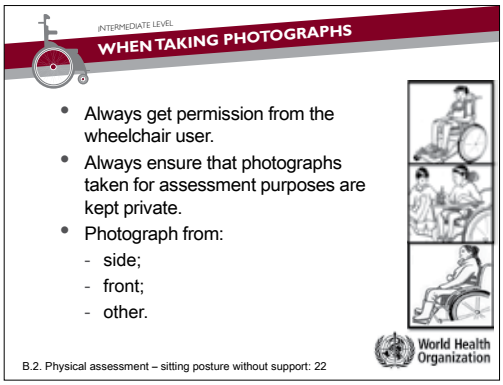


There are a few different ways to record sitting posture including:

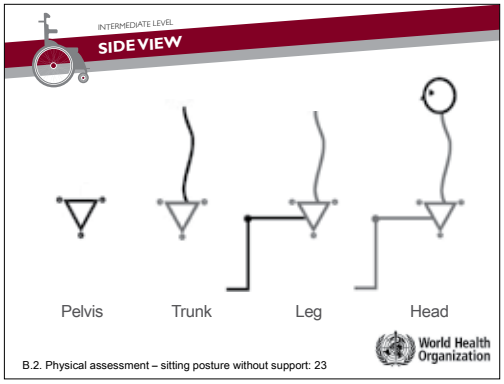
- describing posture in words – which is what we were just practising;
- drawing a picture;
- taking photographs (only with permission from the wheelchair user).

Explain:

- if it is possible to use photographs, wheelchair services need to establish a clear policy about taking and storing photographs;
- always get permission from the wheelchair users; or the wheelchair user's family member/caregiver if they are a child;
- always ensure that photographs taken for assessment purposes are kept private;
- do not use photographs for training purposes (or any other purpose) unless specific permission has been given by the wheelchair user;
- when taking photographs to record posture photograph from the side and front. Other views may also be helpful.

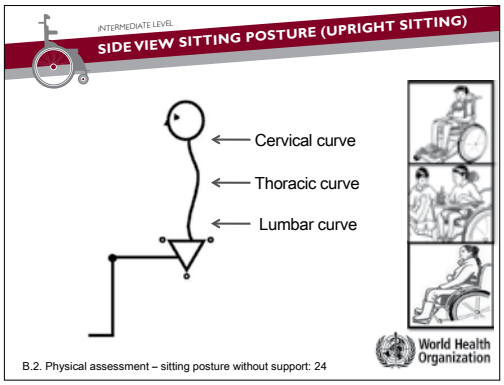


Explain: Drawing posture takes some practice. However here is a simple way to record posture using a basic line drawing system. Developing a line drawing method is very helpful for wheelchair service personnel, and can be used easily and effectively.



Explain: This is a simple way to draw upright sitting posture from a side view:

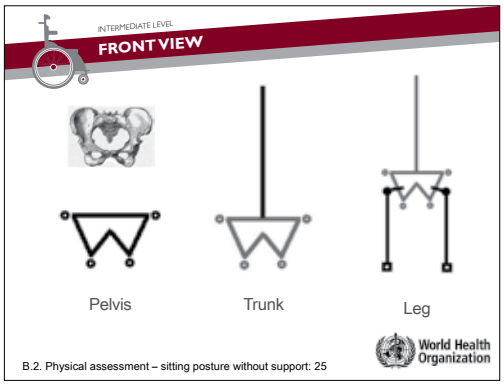
- use a triangle to represent the pelvis;
- use a wavy line to represent the spine;
- use straight lines for legs;
- add a circle for the head.



Explain:

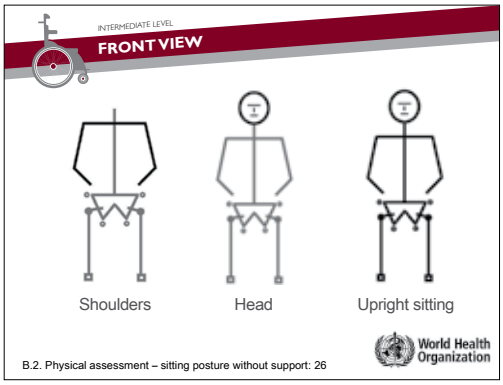
- The line for the spine shows the normal curves of the spine – (cervical, thoracic and lumbar).
- The IT, PSIS and ASIS are represented by the points of the triangle.

Ask participants to make the line drawings.



Explain: This is a simple way to draw an upright sitting posture from a front view.

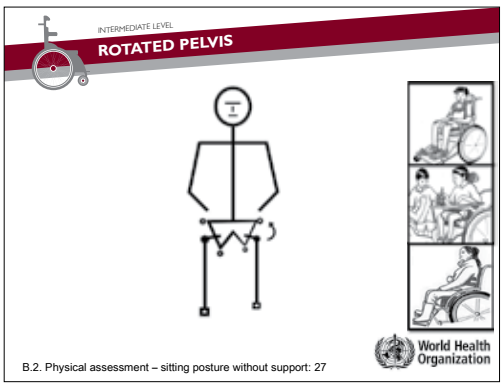
- use a double triangle to represent the pelvis;
- use a line to represent the trunk;
- use lines to represent the thighs (in this illustration the short line) and calves (see Notes for trainers below);
- in this illustration knees are shown with a small circle between the thigh and calf lines and feet are drawn with a small square.



- use a straight line across for shoulders;
- use a circle for the head.

Ask participants to look at Participant's Workbook (B.2: Physical assessment–sitting posture without support: posture drawing) and draw their own line drawing next to each drawing in their workbook.

Explain: Participants can use this simple way of drawing posture to record different postures and we will practise this during the rest of the session.



Explain: If a wheelchair user's pelvis is rotated, it is possible to draw a curved arrow like this to show, which side of the pelvis is rotated backwards.

Ask participants to copy this into their workbook.

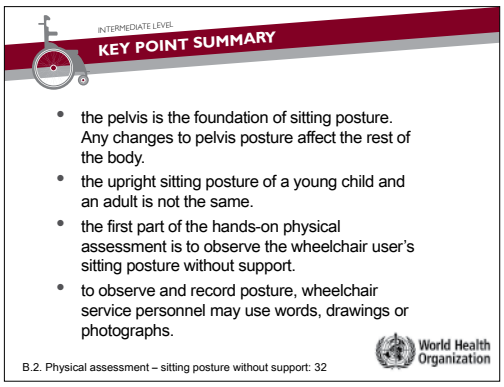
Notes for trainers: *The example line drawings used in this session can be adapted / modified to suit individuals. For example, some people may choose to draw leg postures from above. This avoids the effect of 'foreshortening' the legs when drawn from the front. In the system described – the thighs look shorter than the calves; and the thighs are slightly abducted.*

Small-group activity	
Groups:	Divide participants into the groups of 3.
Instructions:	**Ask** each group to look at the postures shown in Participant's Workbook (B.2: Physical assessment–sitting posture without support: posture drawing). **Explain** that these are illustrations of real people. Ask the group to work together to record the sitting posture shown with a line drawing on the 'sitting posture without support' part of the intermediate wheelchair assessment form provided in their workbooks. **Explain:** Participants have 10 minutes as a group to do this activity and then the groups will come back together for feedback.

Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Guide** participants if necessary.
Time:	**Allow** 10 minutes for the activity. **Allow** 5 minutes for feedback.
Feedback:	If a whiteboard is available, project each illustration (one at a time) onto the whiteboard. **Ask** a participant from each group to draw the line drawing over each projected posture. If the whiteboard in not available, **ask** participants to follow along on their copy while the trainer explains/ draws on the board. **Discuss** any difficulties participants had with using the line drawing system. **Explain** that it can be helpful to combine line drawing and words.

Example line drawings for trainer:

9. Key point summary (2 minutes)



Read the key points.

Ask whether there are any questions.

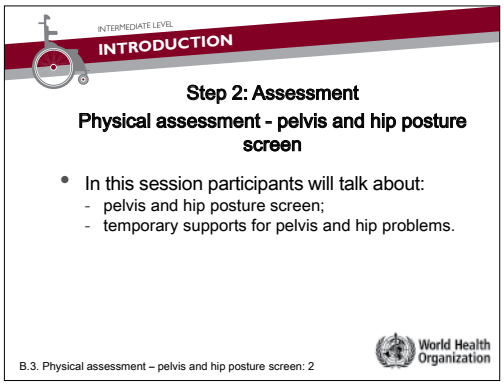
B.3: Physical assessment – pelvis and hip posture screen

OBJECTIVES	By the end of this session, participants will be able to: ☐ demonstrate a wheelchair user's pelvis and hips posture screen to find out: • if the wheelchair user's pelvis can be level; • if both hips can bend to neutral sitting posture. ☐ demonstrate making a temporary support to accommodate an unlevel pelvis and for when one or both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees).
RESOURCES	For the session: ☐ PPT Slides: B.3 Physical assessment – pelvis and hip posture screen; ☐ Reference Manual; ☐ Participant's Workbook; ☐ DVD: Pelvis and hip posture screen; ☐ DVD: Temporary supports; ☐ intermediate wheelchair assessment form; ☐ assessment bed – 1 for each group; ☐ goniometer/cardboard goniometer – 1 for each group; ☐ blocks of firm foam – 1 for each group; ☐ wedges of firm foam – 1 for each group; ☐ cushion that has been modified to support fixed unlevel pelvis; ☐ cushion that has been modified to support a hip that cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees); ☐ cushion that has been modified to support one hip or both hips that cannot open to neutral sitting posture (trunk to thigh angle less than 90 degrees).
CONTEXT AND PRIOR LEARNING	Prior learning: ☐ an ability to use a goniometer is helpful, however not essential. Adapt this session to suit the context participants will be working in: ☐ consider where assessments will be carried out; ☐ when demonstrating temporary supports on the volunteers and asking participants to carry out a pelvis and hip posture screen on each other – be aware of any cultural issues related to touching.

TO PREPARE	☐ Gather resources, review PPT slides, watch DVDs and read through the session plan. ☐ Review the intermediate wheelchair assessment form thoroughly and practise carrying out the pelvis and hip posture screen. Practise providing a temporary support. ☐ Arrange an assessment bed at the front of the training room. ☐ Place the blocks and wedges of firm foam on the assessment bed ready to use as demonstration. ☐ Arrange the training room so that participants are seated in a semi-circle facing the front of the room. ☐ Place assessment beds around the training room (or outside the room/in adjacent rooms) for participants to carry out small group activity.	
OUTLINE	1. Introduction	2
	2. Pelvis and hip posture screen	40
	3. Temporary supports for fixed unlevel pelvis or hips that cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)	5
	4. Demonstration of temporary support for fixed unlevel pelvis	10
	5. Demonstration of temporary support for the hips that cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)	30
	6. Practising temporary supports	30
	7. Key point summary	3
	Total session time	**120**

1. Introduction (2 minutes)

Explain: In this session we will continue learning about the physical assessment.



In this session we will talk about:

- the pelvis and hip posture screen;
- providing temporary supports for pelvis and hip problems.

2. Pelvis and hip posture screen (40 minutes)

Notes for trainers: The pelvis and hip posture screen that is taught in this training programme is NOT a full Range of Motion assessment.

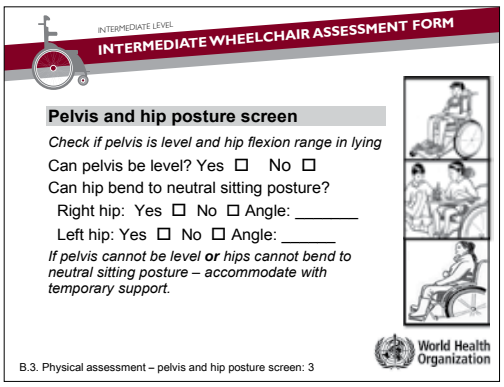
Pelvis:

- *the screen is only to identify whether the pelvis can be level or not;*
- *this is because it is difficult to carry out the next stage of physical assessment (hand simulation) without accommodating an unlevel pelvis.*

Hips:

- *only hip flexion is assessed;*
- *this is because it is difficult to carry out the next stage of physical assessment (hand simulation) without accommodating any fixed restrictions when the hip is bent;*
- *the reference or starting point is the bent hip neutral sitting posture (90 degree angle between the trunk and thighs). Participants are taught to identify:*
  - *Can the wheelchair user sit in neutral posture with support?*
  - *If not – how close to the neutral posture can he/she is able to sit?*
- *this then relates directly to the wheelchair seat to backrest angle.*

Ask participants to look at the 'pelvis and hip posture screen' part of their copy of the intermediate wheelchair assessment form.


INTERMEDIATE LEVEL

INTERMEDIATE WHEELCHAIR ASSESSMENT FORM

Pelvis and hip posture screen

Check if pelvis is level and hip flexion range in lying

Can pelvis be level? Yes ☐ No ☐

Can hip bend to neutral sitting posture?

Right hip: Yes ☐ No ☐ Angle: _____

Left hip: Yes ☐ No ☐ Angle: _____

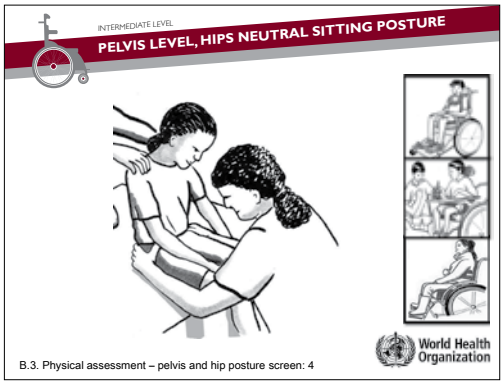
*If pelvis cannot be level **or** hips cannot bend to neutral sitting posture – accommodate with temporary support.*

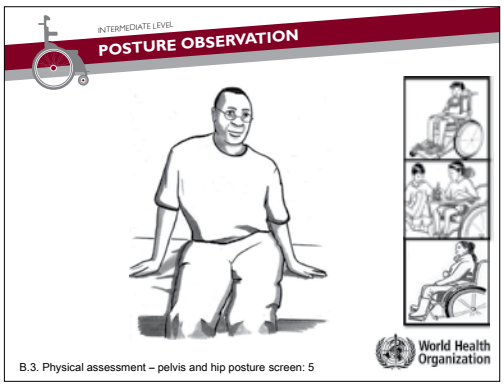
World Health Organization

B.3. Physical assessment – pelvis and hip posture screen: 3

Explain: We know that sitting posture is influenced by what is happening around the pelvis and the hips. In this part of the assessment wheelchair service personnel need to find out:

- if the wheelchair user's pelvis is level when viewed from the front. This may be with or without support;
- if the wheelchair user's hips are able to bend to a neutral sitting posture. This may be with or without support.





Explain:

- Here you can see that this child's pelvis is level and his hips are in neutral sitting posture.
- Note the wheelchair service provider assessing has her thumbs on the child's Anterior Superior Iliac Spine (ASIS) so that she can clearly see that the pelvis is level.

Ask: Is this man's pelvis level and his hips in neutral sitting posture?

Answer :
No

If the pelvis is not level or the hips not bent to neutral sitting posture (trunk to thigh angle more than 90 degrees), the wheelchair service personnel must find out more information. It is important to know:

- can the wheelchair user sit in neutral with the support?
- if not – how close to the neutral posture can he/she is able to sit?

Explain: We know that the pelvis can move in different ways including anterior tilt, posterior tilt, lateral tilt and rotation.

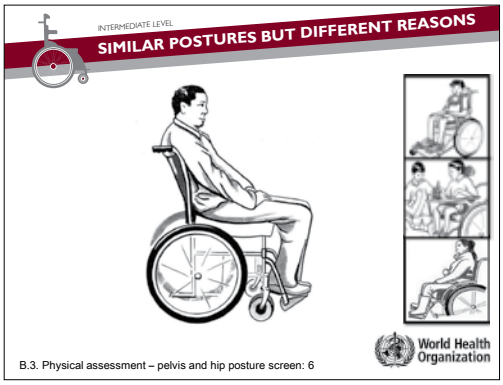
Ask participants to move their pelvis in different directions and think about where the movement actually occurs. They may place their hands under their seat bones or look at the person sitting next to them to help work this out.

Ask: Where does the pelvis movement happen? **Encourage** answers.

Most important answers:
• above the pelvis (in the lumbar spine); • at the bottom of the pelvis (at the hip joint).

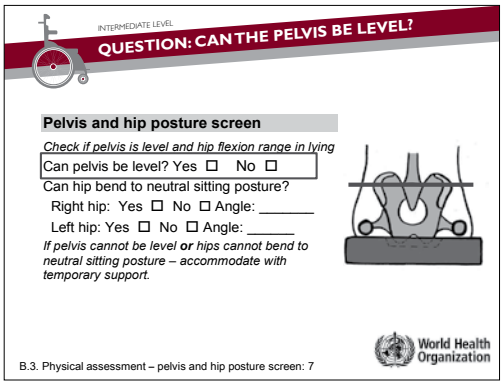
Explain:

If the wheelchair user cannot sit in a neutral sitting posture we need to find out whether this is due to a limit (or restriction) above the pelvis or at the bottom of the pelvis.



Explain: Here is an example:

- this man is sitting in a slumped posture and his pelvis is in posterior tilt;
- from just observing we cannot tell whether this posture is caused by limit (restriction) above the pelvis or below the pelvis (hip joint). This means that a pelvis and hip posture screen is necessary.



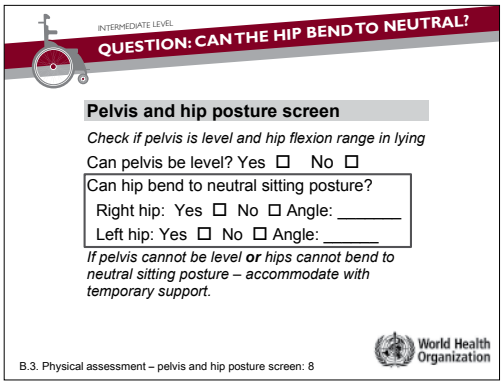
Explain: The first question on this part of the intermediate wheelchair assessment form is:

- Can the pelvis be level?

Ask: Why is it important to find this out?

Most important answer:

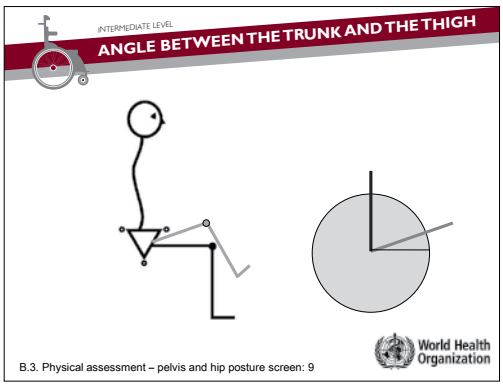
- if the person's pelvis cannot be level, this will affect their sitting posture.



Explain: After assessing if the pelvis can be level, wheelchair service personnel identify whether the hips can bend to neutral sitting posture.

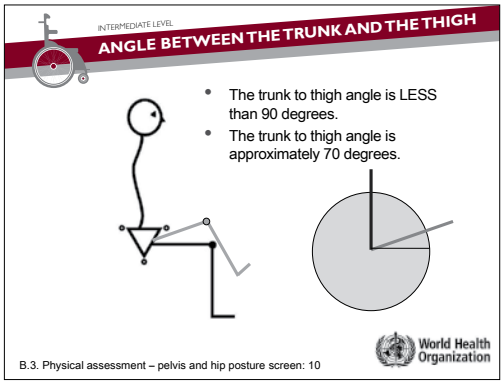
Emphasize: This assessment is not a full Range of Motion assessment. Only assess hip in bending position to find out:

- Can the wheelchair user sit in neutral posture with the support?
- If not – how close to the neutral posture can he/she is able to sit?



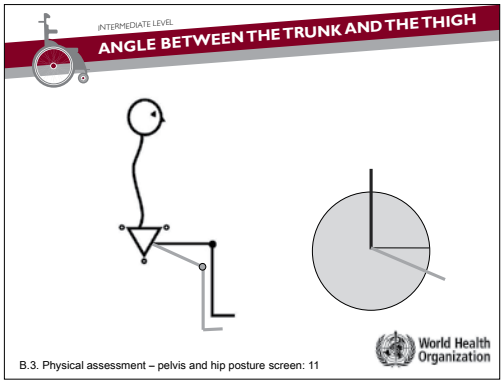
Explain: In this slide the line drawing shows one hip that is not in neutral sitting posture (leg shown in red).

Ask: Is the angle between the trunk and the thigh (red line) more or less than 90 degrees? **Encourage** answers.



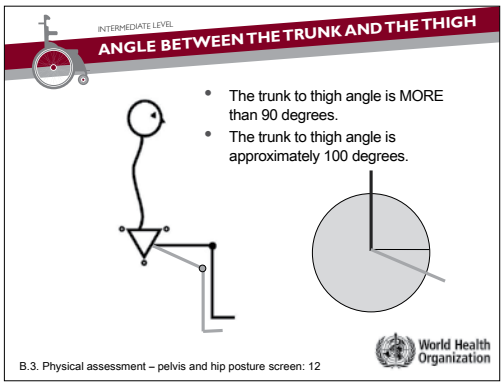
Answer:

- LESS than 90 degrees (approximately 70 degrees).



Explain: In this slide the line drawing shows one hip that is not neutral sitting posture (leg shown in red).

Ask: Is the angle between the trunk and the thigh (red line) more or less than 90 degrees? **Encourage** answers.



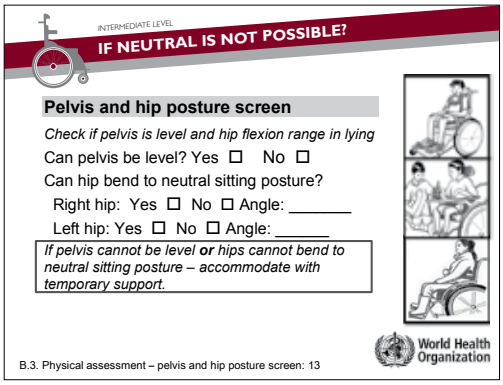
Answer:

MORE than 90 degrees (approximately 100 degrees).

Ask: Why is it important to find out if the hip can bend to neutral sitting posture? **Encourage** answers.

Answers:

- If one or both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees) – this will affect the wheelchair user's ability to sit upright.
- The hip(s) will need to be accommodated – so that the wheelchair user can sit with their pelvis upright (if this is possible for them).



- If the pelvis cannot be level or if either hip cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees), this will need to be supported in the non-neutral sitting posture in the final wheelchair.
- To continue the assessment, a temporary support should be made for the wheelchair user to sit on.
- This will be explained later in this session.

Introduce DVD: Pelvis and hip posture screen. This short DVD will show a pelvis and hip posture screen. **Ask** participants to watch closely because they will practise this on each other afterwards.

Show DVD.

Ask if there are any questions.

Small-group activity	
Groups:	**Divide** participants into groups of 3.
Instructions:	**Ask** participants to look at Participant's Workbook (B.3: Physical assessment – pelvis and hip posture screen: carrying out the screening). **Ask** participants to take turns being the wheelchair user, assistant and the wheelchair service personnel. Practise carrying out pelvis and hip posture screen. **Ask** participants to record the results for each person taking on the role of wheelchair user in the group on the 'pelvis and hip posture screen' part of the intermediate wheelchair assessment form in their workbooks. **Explain:** Participants have 20 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** each group closely and ensure that the person taking on the role of wheelchair service personnel: • positions themselves correctly; • places their hands on the wheelchair user's pelvis, hips and limbs correctly; • bends the wheelchair user's legs at the knee (placing a roll/support under the knees); • use hands that are "soft" and does not grip or pinch the wheelchair user. (Use the Notes for trainers under `carrying out a pelvis and hip posture screen` to check that the groups are following the correct steps). **Ensure** that each group understands the activity. **Guide** participants if necessary.

Time:	**Allow** 20 minutes for the activity. **Allow** 5 minutes for feedback.
Feedback:	**Ask** if anyone has any questions.
	Ask: For people who had no restrictions, how did the groups complete the `pelvis and hip posture screen` part of the intermediate wheelchair assessment form? (Project a blank intermediate wheelchair assessment form onto the white board).
	Answer: *Tick 'yes' for pelvis level;Tick 'Yes' for right and left hips.*
	Ask: Did anyone have any restrictions? If yes – ask for more information from the group.

Notes for trainers: *Trainers may choose whether to teach the hip posture screen part of the assessment using a goniometer, or a cardboard goniometer. If participants are already familiar with using a goniometer, then this is the most sensible choice. If participants have not used a goniometer before, the use of a simple cardboard goniometer with angles marked at 45 degree intervals is sufficient.*

Notes for trainers: Carrying out a pelvis and hip posture screen: *When monitoring the small-group activity above, ensure participants carry out the pelvis and hip posture screen as described below:*

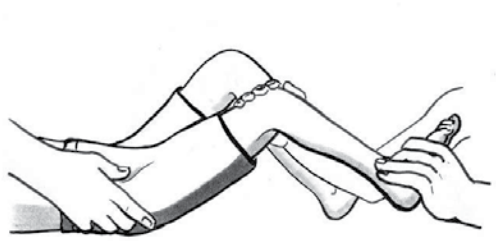
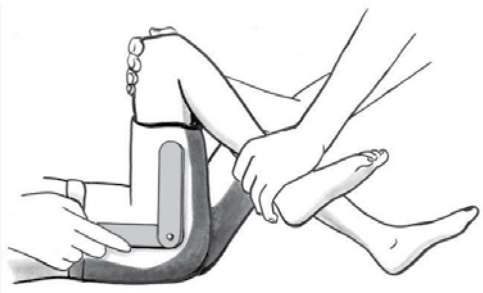
Prepare:

- explain to the wheelchair user what you are going to do and why it is important;
- ask the wheelchair user to lie down on their back on an assessment bed.

Please note the person carrying out a pelvis and hip posture screen is called the 'assessor' and the person who assists the assessors is called 'assistant', who could be a co-worker, trained assistant, family member or caregiver).

Pelvis posture screen:

- assessor bends both the wheelchair user's knees slightly and provides some support, which helps to relieve tension on the hips;
- assistant places their hands firmly on the wheelchair user's trunk, around their lower ribs;
- assessor grips the pelvis gently with thumbs on the ASIS;
- assessor checks if thumbs/ASIS are level;
- if not level, assessor gently but firmly tries to align the pelvis so that both ASIS are level;
- assistant reports if he/she feels the trunk move, which means that there is some restriction to the movement;
- note how close to neutral/level it is possible to bring the pelvis;
- assessor records if the pelvis can be level on the intermediate wheelchair assessment form.

Hip posture screen:	
	• assistant gently but firmly holds the wheelchair user's pelvis; • assessor bends the leg that is not being tested slightly at the knee, resting the foot on the mat. This helps to reduce the tension in the hip being tested. This leg may need to be supported.
	• assessor gently moves the leg being tested into the neutral sitting posture; • assistant reports if he/she feels the pelvis move, which means that there is some limit(restriction) to the movement; • assessor feels how freely the hip joint can move; • assessor repeats on the other side and compares; • assessor records if right and left hip can bend to neutral sitting posture on the intermediate wheelchair assessment form.
	• assessor records how close to neutral posture each hip can reach with a goniometer with the help of an assistant; • assessor places the pivot point of the goniometer on the hip joint. Assessor positions one arm of the goniometer along the thigh bone and one arm in line with the trunk; • assessor holds the two arms together firmly; • assessor records right and left hip angle degree measurements on the intermediate wheelchair assessment form. Assessor can also draw the angle of the goniometer on a separate piece of paper or on the back of the intermediate wheelchair assessment form.

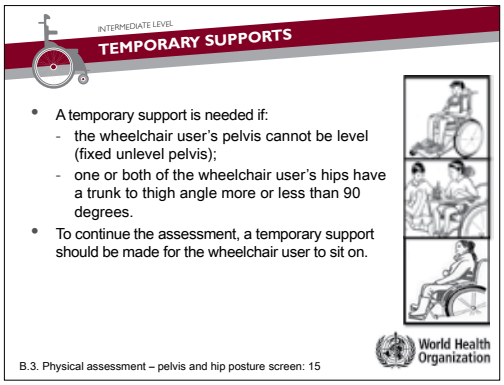
3. Temporary supports for fixed unlevel (lateral tilt) pelvis and hips that cannot bend to neutral sitting posture (5 minutes)

Explain: If the pelvis cannot be level or one or both hips cannot bend to a neutral sitting posture (trunk to thigh angle more than 90 degrees), this will need to be supported in the non-neutral posture in the final wheelchair. To continue the assessment, a temporary support should be made for the wheelchair user to sit on.

Ask: Why is it necessary to have the wheelchair user sit on a temporary support to continue with the rest of the assessment?

Answers:

- During an assessment, the temporary support will:
  - help the wheelchair user to sit with more stability and balance;
  - stop the wheelchair user from compensating for the unlevel pelvis or hips that cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees);
  - allow the wheelchair service personnel to carry on the assessment and concentrate on the rest of the wheelchair user's posture including pelvis, trunk, head, neck and legs.



Explain: Temporary supports are needed for:

- fixed unlevel pelvis (lateral tilt);
- hip that cannot bend all the way to neutral sitting posture (trunk to thigh angle more than 90 degrees);
- both hips that cannot bend all the way to neutral sitting posture (trunk to thigh angle less than 90 degrees);
- one or both hips that cannot open all the way to neutral sitting posture (trunk to thigh angle less than 90 degrees).

After the assessment, this temporary support will be made permanent and will be built into the wheelchair user's cushion.

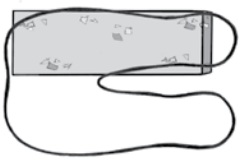
Explain:

- a temporary support can be made from a block of firm foam;
- ideally it should be made from the same material as the base of the cushion;
- by using the same material, the exact dimension of the material can be decided during the assessment as the compression of the material will be the same;
- for this reason it is helpful to have available during assessment blocks and wedges of firm foam;
- different height pieces (for example 10 mm, 20 mm, 30 mm) can be combined to make different overall height pieces.

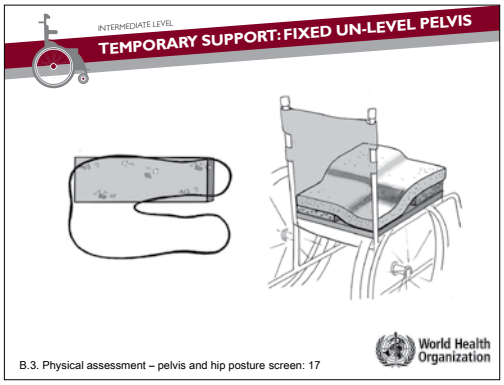
Show example blocks and wedges of firm foam.

4. Demonstration of temporary support for fixed unlevel pelvis (10 minutes)

Ask a volunteer to come to the front of the training room and sit on the assessment bed.

	Demonstrate:	Explain:
	• ask the volunteer to sit with a fixed unlevel pelvis (lateral tilt).	For a wheelchair user who has a fixed unlevel pelvis: • one side of the pelvis and one thigh carry more weight than the other side. This causes a pressure sore risk. The wheelchair user is also not stable as he/she only sits on one side; • the aim is to raise the seat surface to support the higher seat bone.
	 • place the temporary support under the high seat bone of the volunteer. • make sure temporary support extends forward to support the thigh (to just behind the knee).	• The temporary support forms a build-up under the high side. • The temporary support should be under the seat bone and thigh. The support will not change the pelvis posture. • However now there is support under the raised seat bone and the wheelchair user will feel more balanced with even pressure under both seat bones.
	• demonstrate testing the pressure with fingers placed under both seat bones (palm up) and on top of the seat surface.	• This can be tested by placing fingers under each seat bone (palm up) simultaneously with the trunk supported and aligned.

Thank the volunteer.



Explain:

- the wheelchair service personnel can now assess the rest of the pelvis and trunk posture;
- in the final wheelchair this support will be built into the cushion.

If available – show a cushion that has been modified to support a fixed unlevel pelvis.

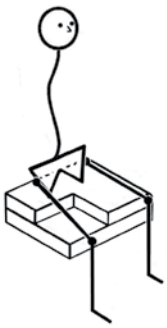
Notes for trainers:
• *When a person has a fixed unlevel pelvis, the temporary support is accommodating the posture. It is not correcting the posture.* • *In the final product, the wheelchair user will continue to have an asymmetrical posture. The pelvis and thigh on the one side will be higher than the other. The knee and the footrest will also be higher on that side as well.* • *When providing temporary support for a fixed unlevel pelvis:* - *make sure that the support extends under the length of the thigh. Without extending the support forward, there is a danger that weight bearing will not be equal under both thighs;* - *make sure that there is still a pre seat bone shelf. This will help to reduce the tendency to slide forward, which can cause shear and lead to pressure sores.*

5. Demonstration of temporary support for the hips that cannot bend or open to neutral sitting posture (30 minutes)

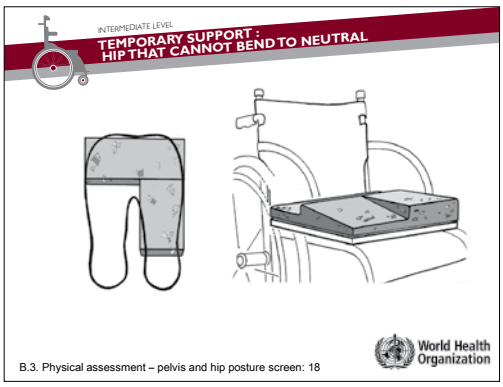
Explain: Now we will look at temporary support for hip that cannot bend all the way to neutral sitting posture (trunk to thigh angle more than 90 degrees).

Ask a volunteer to come to the front of the training room and sit on the assessment bed.

	Demonstrate:	Explain:
	• Ask volunteer to sit with their RIGHT hip fixed with a trunk to thigh angle MORE than 90 degrees.	• When sitting with one stiff hip that cannot bend to neutral (trunk to thigh angle more than 90 degrees) – the pelvis will tilt to the side and may also roll back and rotate. • This causes poor posture of the pelvis and trunk and uneven weight bearing under the seat bones.

		• Place the temporary support under both seat bones and the LEFT thigh (the side where the hip bends to neutral sitting posture)	• A build-up is made under both seat bones and the thigh of the hip that can bend to neutral sitting posture. The hip that is fixed at an angle more than neutral is then able to rest down. • The height of the build-up should be high enough to support the degree of restriction in the hip.
	• Show the triangular gap created between the RIGHT thigh and the assessment bed.		• There will be a triangular gap between the thigh and the assessment bed. • This should be the same as the angle recorded during the hip posture screen. • The stiff hip is now accommodated and will not cause non-neutral pelvis posture. The wheelchair service personnel can now assess the rest of the pelvis and trunk posture.

Thank the volunteer.



Explain:

- In the final wheelchair this temporary support will be built into the cushion to provide permanent support.
- A wedge is made in the cushion supporting the thigh at the trunk to thigh angle identified in the assessment. The illustration shows one example of how this can be done. Note – a soft foam layer should be placed over the top of this firm foam shape. Make sure no sharp edge in the cushion.

If available – **show** a cushion that has this modification.

Notes for trainers:
• *Participants may want to know why a wedge shaped support is not used as the temporary support. Explain that if the wheelchair user sits on a flat surface with no accommodation, then it would be necessary to cut a wedged shaped support away from under the thigh, which has a limited hip range. It is not practical of course to cut into the assessment bed. Therefore the wheelchair user is raised off the surface to accommodate the stiff hip.*
• *To save time and material, a gap is left under the thigh and the temporary support will therefore just be under the seat bones and opposite thigh. The thigh drops down at an angle into the gap in the temporary support. In the final cushion the gap under the thigh will be filled and there will be a wedged shaped support under the thigh.*
• *The permanent support is an asymmetrical cushion. This means the knee and the footrest on one side are lower than the other. This can cause slight instability and shear and other PSDs such as a pelvis strap should be considered. This is discussed later in this training programme.*

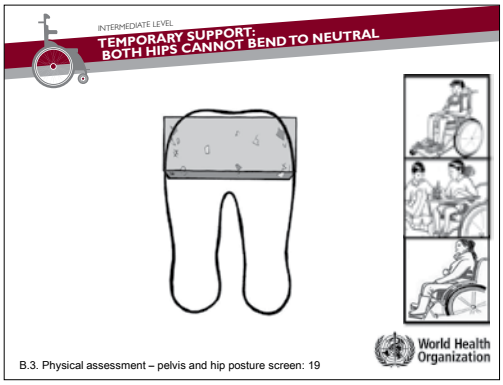
Explain: Now we will think about temporary supports for a wheelchair user who has both hips that cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees).

Ask: What temporary supports would be used when both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)?

Encourage one or two volunteers to come forward and demonstrate. The rest of the group can assist by offering suggestions.

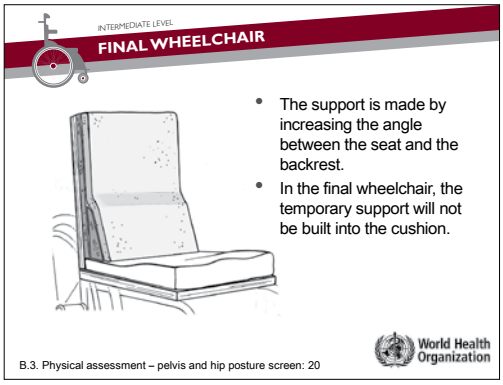
Ensure that the participants arrive at the correct answer.

Answer:
Temporary supports when both hips cannot bend to neutral sitting posture (both more than 90 degrees):
• a build-up is made under both seat bones to temporarily support the amount of restriction in the hips; • the height of the build-up should be high enough to support the degree of restriction in the hips; • there will be a triangular gap between the thighs and the assessment bed; • this should be the same as the angle recorded with the help of the goniometer; • the assessment can then continue.



Explain:

- If both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees), then this can be temporarily supported by a build-up under both seat bones.



Explain: In the final wheelchair, this support **will not be built into the cushion**. The support is made by increasing the angle between the seat and the backrest.

Ask: Why would the permanent support not be built into the cushion, in the same way as the temporary support?

Answer:

The wheelchair user would tend to slide forward out of their seat. This would make it difficult for them to stay in their wheelchair and could cause shear – which could lead to the development of a pressure sore.

Ask: What temporary supports would be used if one or both hips cannot open to neutral sitting posture (trunk to thigh angle less than 90 degrees)?

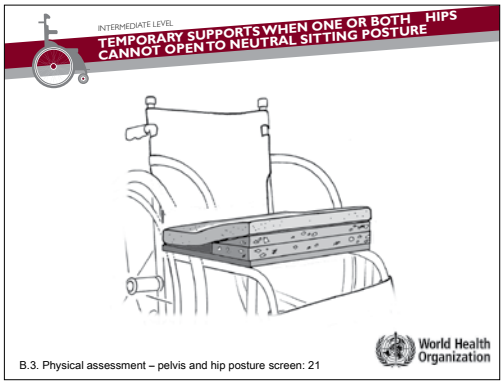
Encourage one or two volunteers to come forward and demonstrate. The rest of the group can assist by offering suggestions.

Ensure that the participants arrive at the correct answer.

Answer:

Temporary supports when one or both hips cannot open to neutral sitting posture (trunk to thigh angle less than 90 degrees):

- provide temporary support ***in front*** of the seat bones and under the thighs;
- a wedge of firm foam would be best;
- the assessment can then continue.



Explain:

- if one or both hips cannot open to neutral sitting posture (trunk to thigh angle less than 90 degrees), provide temporary support in front of the seat bones and under the thighs;
- a wedge of firm foam can be used if available;
- if not – for a temporary support – a rectangular block of firm foam is fine.

Explain:

- The illustration on the slide shows what this would look like built into a cushion on a wheelchair.

If available – show a cushion that has this modification.

Notes for trainers:

Participants may want to know why provide support under both thighs if only one hip has a restriction.

Answer:

- *the cushion is usually wedged under both thighs as this helps the wheelchair user to stay symmetrical;*
- *however in some cases it may be best to place the wedge only under the leg with the restriction, for example – if the wedge shape makes it difficult for the wheelchair user to transfer.*

Introduce DVD: Temporary supports. This short DVD introduces Richard. Richard has a level pelvis; however both of his hips cannot bend all the way to neutral sitting posture (trunk to thigh angle is more than 90 degrees). In the DVD you will see how the wheelchair service personnel work with Richard to carry out the pelvis and hip screen; and then how temporary supports are provided.

Show DVD.

Ask if there are any questions.

6. Practising temporary supports (30 minutes)

Small-group activity	
Groups:	**Divide** participants in groups of 2 or 3.
Instructions:	**Ask** participants to read each wheelchair user's story in Participant's Workbook, (B.3: Physical assessment – pelvis and hip posture screen: practising temporary supports). **Explain:** For each wheelchair user the participants will need to decide if the wheelchair user's pelvis can be level and hips bend to neutral sitting posture. **Ask** participants to complete the `pelvis and hip posture screen` part of the intermediate wheelchair assessment form and decide if the wheelchair user needs temporary support. **Ask** participants to set-up temporary support to accommodate each wheelchair user. **Ask** participants to check each temporary support. Each participant should sit on the temporary support to see what it feels like. **Explain:** Participants have 20 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** each group closely. **Ensure** that each group understands the activity. **Guide** participants if necessary. **Ensure** that participants set up the temporary supports correctly.
Time:	**Allow** 20 minutes for activity. **Allow** 10 minutes for feedback.
Feedback:	**Ask** one group to describe the temporary support set-up for Sam; **Ask** another group to describe the temporary support set-up for Martha; **Ask** another group to describe the temporary support set-up for Seren; **Ask** another group to describe the temporary support set-up for Joe; **Ask** if anyone has any questions.

Sam	Pelvis and hip posture screen
Sam is 4 years old. He has cerebral palsy and cannot sit upright on his own. Through the pelvis and hip posture screen you find out that: • Sam's pelvis can be level (both ASIS level); • Sam's left hip can bend comfortably to the neutral sitting posture. Sam has pain in his right hip and it does not bend all the way to neutral sitting posture (trunk to thigh angle more than 90 degrees). The angle between the trunk and thigh is approximately 105 degrees.	*Check if pelvis is level and hip flexion range when lying* Can pelvis be level? Yes ✓ No ☐ Can hip bend to neutral sitting posture? Right hip: Yes ☐ No ✓ Angle: 105 degrees Left hip: Yes ✓ No ☐ Angle: 90 degrees *If pelvis cannot be level or hips cannot bend to neutral sitting posture – accommodate with temporary support.*
Does Sam need temporary support?	**Yes ✓ No ☐**
The support fits under both seat bones and under the left thigh. There is no support under the right thigh and it rests at an angle.	

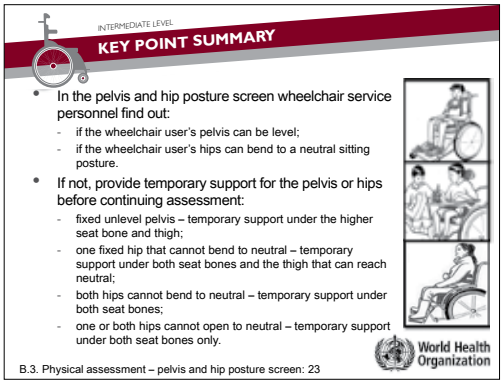
Martha	Pelvis and hip posture screen
Martha is 57 years old. She has severe arthritis. She can walk a few steps, however walking is very painful. Through the pelvis and hip posture screen you find out that: • Martha's pelvis can be level (both ASIS level); • both of Martha's hips cannot bend all the way to the neutral sitting posture (trunk to thigh angle more than 90 degrees). The angle between the trunk and thigh for both hips is approximately 100 degrees.	*Check if pelvis is level and hip flexion range when lying* Can pelvis be level? Yes ✓ No ☐ Can hip bend to neutral sitting posture? Right hip: Yes ☐ No ✓ Angle: 100 degrees Left hip: Yes ☐ No ✓ Angle: 100 degrees *If pelvis cannot be level or hips cannot bend to neutral sitting posture – accommodate with temporary support.*
Does Martha need temporary support?	**Yes ✓ No ☐**
The support only fits under both seat bones. There is no support under either thigh and both thighs rest at an angle.	

Seren	Pelvis and hip posture screen
Seren is 16 years old. She had polio as a child and now has severe contractures of both legs. Seren moves around by sitting cross-legged and scooting over the floor. Through the pelvis and hip posture screen you find out that: • Seren's pelvis cannot be level. The right side of her pelvis is 20 mm higher than the left; • both of Seren's hips can bend to neutral sitting posture.	Check if pelvis is level and hip flexion range when lying Can pelvis be level? Yes ☐ No ✓ Can hip bend to neutral sitting posture? Right hip: Yes ✓ No ☐ Angle: 90 degrees Left hip: Yes ✓ No ☐ Angle: 90 degrees If pelvis cannot be level or hips cannot bend to neutral sitting posture – accommodate with temporary support..

Does Seren need temporary support?	Yes ✓ No ☐
The support fits under the right side of the pelvis and the right thigh.	

Joe	Pelvis and hip posture screen
Joe is 25 years old. He had polio as a child and now has severe contractures of both legs. Through the pelvis and hip posture screen you find out that: • Joe's pelvis can be level (both ASIS level); • Joe's right hip can bend to neutral sitting posture comfortably. However his left hip cannot open all the way to neutral (trunk to thigh angle less than 90 degrees). The angle between his trunk and thigh is 70 degrees.	Check if pelvis is level and hip flexion range when lying Can pelvis be level? Yes ✓ No ☐ Can hip bend to neutral sitting posture? Right hip: Yes ✓ No ☐ Angle: 90 degrees Left hip: Yes ☐ No ✓ Angle: 70 degrees If pelvis cannot be level or hips cannot bend to neutral sitting posture – accommodate with temporary support.
Does Joe need temporary support?	**Yes ✓ No ☐**
A wedge shaped support fits in front of Joe's seat bones and under both thighs. The angle of the wedge should be close to 70 degrees (placing the wedge under the left thigh only could also be OK if Joe preferred this, or if a wedge under both thighs affects Joe's ability to transfer).	

7. Key point summary (3 minutes)



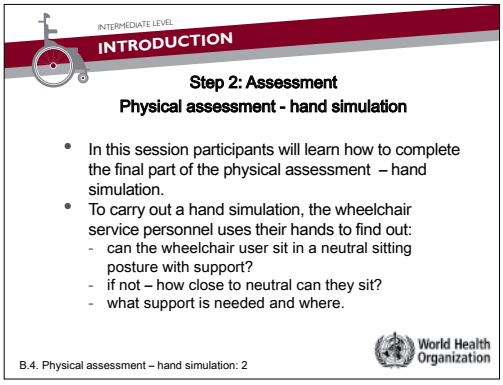
Read the key points.

Ask whether there are any questions.

B.4: Physical assessment – hand simulation

OBJECTIVES	By the end of this session, participants will be able to: ☐ describe how to use their hands (hand simulation) to find out: • if the wheelchair user can sit in a neutral posture with support; • if not – how close to neutral the wheelchair user can sit comfortably; • what support is needed and where. ☐ record findings from hand simulation on the intermediate wheelchair assessment form.	
RESOURCES	For the session: ☐ PPT Slides: B.4: Physical assessment – hand simulation; ☐ Reference Manual; ☐ DVD: Hand simulation demonstration – Deepak; ☐ DVD: Hand simulation demonstration – Enith; ☐ DVD: Hand simulation demonstration – Bahati; ☐ intermediate wheelchair assessment form.	
CONTEXT AND PRIOR LEARNING	Adapt this session to suit the context participants will be working in. Think about: ☐ The blocks to be used as temporary support should be made from the same material as the base of the cushion most likely to be used on the wheelchair user's final wheelchair. This will give a more realistic effect of the dimensions needed to adapt the base of the cushion.	
TO PREPARE	☐ Gather resources, review PPT slides, watch DVDs and read through the session plan. ☐ Review the intermediate wheelchair assessment form thoroughly and practise carrying out a hand simulation.	
OUTLINE	1. Introduction	5
	2. How to carry out a hand simulation	15
	3. Recording the results of a hand simulation	35
	4. Key point summary	5
	Total session time	**60**

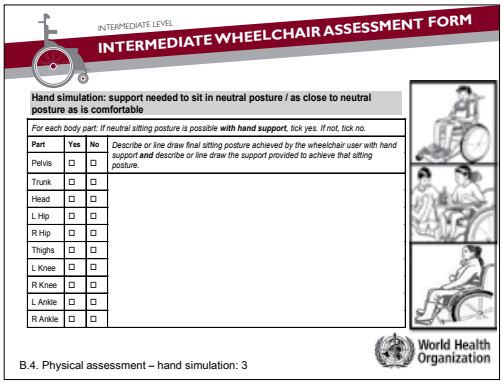
1. Introduction (5 minutes)



Explain:

- In this session we will talk about how to complete the next part of the physical assessment, which is called 'hand simulation'.
- During the hand simulation, the wheelchair service personnel use their hands to find out:
  - can the wheelchair user sit in the neutral posture with support?
  - if not – how close to the neutral posture can he/she is able to sit comfortably?
  - what support is needed and where.

During a hand simulation, the wheelchair service personnel work with the wheelchair user and an assistant or family member/ caregiver to provide support with hands.



Explain:

- This is the section of the intermediate wheelchair assessment form that is used to record the hand simulation results.
- We will talk more about recording the results of the hand simulation later in this session.

2. How to carry out a hand simulation (15 minutes)

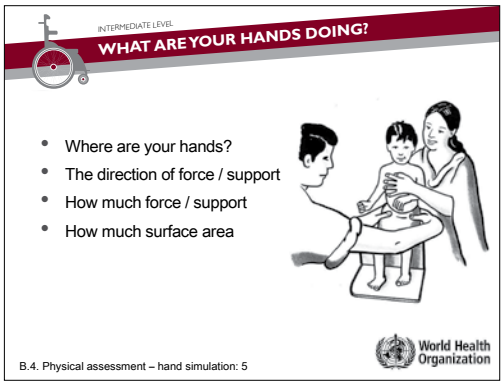
Introduce DVD: Hand simulation demonstration – Deepak. Now we will watch a wheelchair service personnel working with a young man called Deepak to carry out a hand simulation. Deepak does not sit upright. **Ask** participants to watch closely to see what the assessor and assistant do.

Show DVD.

Ask if there are any questions.

Explain:

- It is important to think carefully about what your hands are doing. Your hands are providing the support that will later be provided by the wheelchair and PSDs.

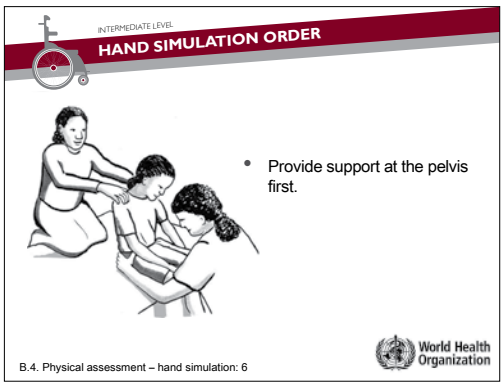


- During a hand simulation, pay careful attention to:
  - where your hands are placed;
  - the direction of force/support;
  - how much force/support is being used;
  - how much surface area your hands are covering (for example, are you using just one finger or a whole hand);
- This information will help you to prescribe the final wheelchair and PSDs.

Ask participants: In the DVD just shown – what part of Deepak's body did the wheelchair service personnel support first? **Encourage** answers.

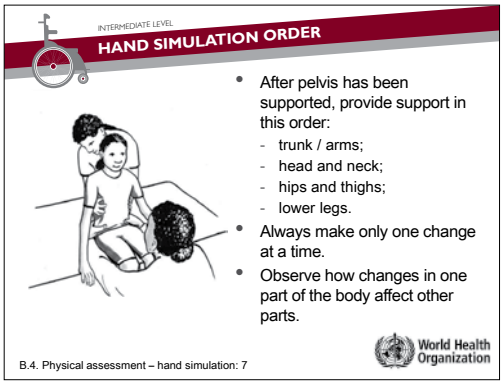
Answer:

- the pelvis.



Explain:

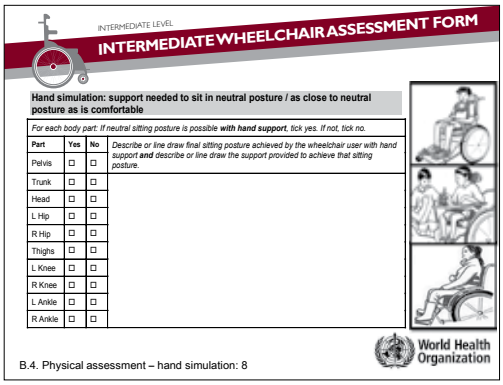
- Always provide support at the pelvis first. This is because the posture of the pelvis will affect the rest of the body.
- If the wheelchair user's pelvis is not in neutral, use your hands to encourage the pelvis towards neutral.



- When the pelvis has been supported, focus on other parts of the body in this order:
  - trunk/arms;
  - head and neck;
  - hips and thighs;
  - lower legs.

- Always make only one change at a time. For example – do not try to change the posture of the trunk at the same time as changing the posture of the pelvis.
- Work with an assistant – who could be a family member/caregiver.
- Observe how changes in one part of the body affect other parts.
- Ask for feedback from the wheelchair user.
- Observe the contour of the pelvis and trunk from the side. This is important to help plan the shape the backrest has to be to provide the best support.

3. Recording the results of a hand simulation (35 minutes)



Explain: Results of the hand simulation are recorded on the intermediate wheelchair assessment form. There is space to:

- record with a tick whether the wheelchair user is able to achieve a neutral sitting posture for each body part with hand support;
- describe or line draw the final sitting posture achieved by the wheelchair user with the hand support; and
- describe or line draw the support provided for the wheelchair user to achieve that sitting posture.

Introduce DVD: Hand simulation demonstration – Enith. Now we will watch another hand simulation.

Explain:

- We will see some more now of Enith. In this clip, Enith has attended for assessment with her mother. During the assessment interview, Enith and her mother explained that Enith has a dislocated right hip, which is very painful. Any movement is painful.
- Wheelchair service personnel observe that Enith cannot sit upright without support. She sits with her pelvis tiled backwards, trunk curved forwards and her legs are 'windswept' to the left.
- A pelvis and hip posture screen is carried out. It is found that Enith's pelvis is level and both her hips can bend to neutral sitting posture. However her right hip is adducted (windswept to the midline) and this posture is fixed (cannot be corrected).
- Watch closely – afterwards we will discuss what further information the wheelchair service personnel found out through the hand simulation.

Show DVD.

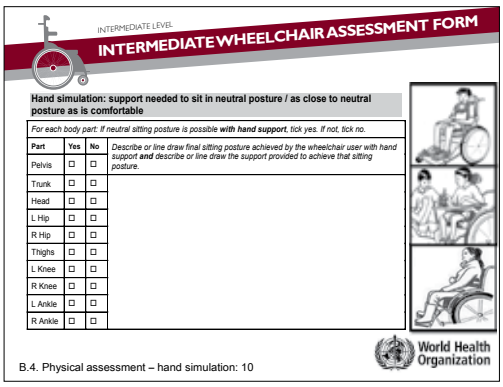
Ask if there are questions.

Ask: What was Enith's starting posture?

Answers:
• pelvis in fixed posterior tilt;
• pelvis unlevel with right side slightly higher;
• trunk bent/slumped/collapsed;
• shoulders level (Enith's mother is supporting her by holding her shoulders. Enith's posture may change if her mother let go);
• right hip adducted (windswept towards the left);
• right thigh shorter than the left.

Ask: Where (what parts of Enith's body) did the wheelchair service personnel provide support first, second, third and fourth?

Answers:
• First: support behind the pelvis;
• Second: support behind the trunk;
• Third: support on the sides of the trunk;
• Fourth: arm support.



Project this slide onto a whiteboard (if available).

Explain: We will complete the hand simulation part of the intermediate wheelchair assessment form for Enith together.

Ask (for each body part) whether with hand support Enith was able to achieve a neutral sitting posture.

As each correct answer is given – tick the yes.

Ask: How can we describe Enith's final posture?

Write/draw a description of Enith's posture onto the whiteboard in the correct space on the intermediate wheelchair assessment form.

If the whiteboard in not available, ask participants to follow along on their copy while the trainer explains/draws on the board.

Notes for trainers: For this exercise you may also invite participants to come forward and draw Enith's final posture onto the whiteboard.

Answer:

Hand simulation: support needed to sit in neutral posture/as close to neutral posture as is comfortable

*For each body part: If neutral sitting posture is possible **with hand support,** tick yes. If not, tick no.*

Part	Yes	No	*Describe or line draw the final sitting posture achieved by the wheelchair user with hand support and describe or line draw the support provided to achieve that sitting posture.*
Pelvis	☐	✓	**Posture:** • pelvis in posterior tilt; • trunk to thigh angle more than 90 degrees; • lower trunk flat (no lumbar curve) and reclined (not upright); • upper trunk upright; • head upright (with arm support); • right leg adducted towards the mid-line (windswept). Note: Enith's right thigh is shorter than left thigh. **Support provided:** • firm support at the back of Enith`s pelvis; • support at back of Enith`s trunk; • light support at the sides of trunk; • arm support provided (with Enith`s arms in front of her).
Trunk	☐	✓	
Head	✓	☐	
L Hip	✓	☐	
R Hip	✓	☐	
Thighs	☐	✓	
L Knee	✓	☐	
R Knee	✓	☐	
L Ankle	✓	☐	
R Ankle	✓	☐	

Notes for trainers:
Participants may ask whether support should be provided for Enith's right thigh – to bring this into a neutral sitting posture. The information provided in the assessment about the pain in Enith's hip (with any movement or correction) indicates that only very minimal support (if any) should be provided.

Introduce DVD: Hand simulation demonstration – Bahati. Now we will watch another hand simulation.

Explain:

- Bahati is studying administration at the local college.
- Her old wheelchair is worn out and does not give her good postural support.
- During the assessment interview, Bahati explained that she gets very tired after a day in her wheelchair. Her goal is to have a wheelchair, which helps her to sit more comfortably for longer – which will help her to be less tired and more able to study.
- Watch closely – afterwards we will discuss what the wheelchair service personnel found out through the hand simulation.

Show DVD.

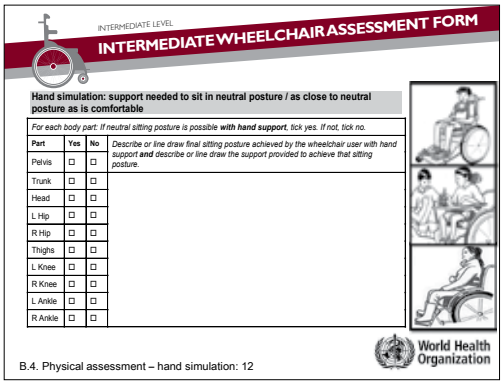
Ask if there are questions.

Ask: What was Bahati's starting posture?

Answer:
• slumped sitting posture;
• pelvis in posterior tilt;
• bent trunk;
• right hip bent more than neutral sitting posture with thigh rolling out;
• left hip bent less than neutral sitting posture with thigh rolling out.

Ask: Where (what parts of Bahati's body) did the wheelchair service personnel provide support first, second and third?

Answer:
• 1: support behind the pelvis;
• 2: support behind the lower trunk;
• 3: arm support.


INTERMEDIATE LEVEL

INTERMEDIATE WHEELCHAIR ASSESSMENT FORM

Hand simulation: support needed to sit in neutral posture / as close to neutral posture as is comfortable

*For each body part: If neutral sitting posture is possible **with hand support**, tick yes. If not, tick no.*

Part	Yes	No	*Describe or line draw final sitting posture achieved by the wheelchair user with hand support **and** describe or line draw the support provided to achieve that sitting posture.*
Pelvis	☐	☐	
Trunk	☐	☐	
Head	☐	☐	
L Hip	☐	☐	
R Hip	☐	☐	
Thighs	☐	☐	
L Knee	☐	☐	
R Knee	☐	☐	
L Ankle	☐	☐	
R Ankle	☐	☐	

World Health Organization

B.4. Physical assessment – hand simulation: 12

Project this slide onto a white board (if available)

Explain: As for Enith, we will complete the hand simulation part of the intermediate wheelchair assessment form for Bahati together.

Ask (for each body part) whether with hand support Bahati was able to achieve a neutral sitting posture.

As each correct answer is given – tick the yes.

Ask: How can we describe Bahati's final posture?

Write/draw a description of Bahati's posture onto the whiteboard in the correct space on the intermediate wheelchair assessment form.

Ask: Does anyone have any questions about completing this part of the intermediate wheelchair assessment form? **Answer any questions.**

If the whiteboard in not available, ask participants to follow along on their copy while the trainer explains/draws on the board.

Notes for trainers: For this exercise you may also invite participants to come forward and draw Bahati's final posture onto the whiteboard.

Answer:

Hand simulation: *support needed to sit in neutral posture/ as close to neutral posture as is comfortable*

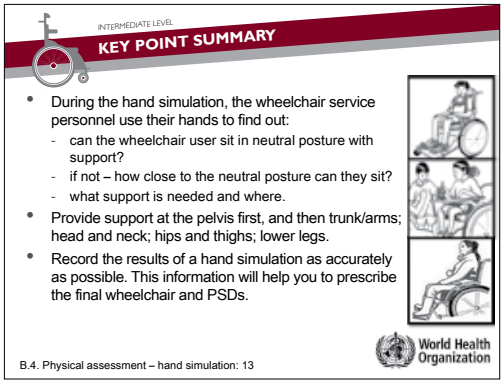
*For each body part: If neutral sitting posture is possible **with hand support,** tick yes. If not, tick no.*

Part	Yes	No	*Describe or line draw the final sitting posture achieved by the wheelchair user with hand support and describe or line draw the support provided to achieve that sitting posture.*
Pelvis	✓	☐	Posture: • pelvis upright and level; • trunk upright. Support provided: • firm support at the back of pelvis; • support for the lower trunk; • arm support to help Bahati maintain a stable upper trunk.
Trunk	✓	☐	
Head	✓	☐	
L Hip	✓	☐	
R Hip	✓	☐	
Thighs	✓	☐	
L Knee	✓	☐	
R Knee	✓	☐	
L Ankle	✓	☐	
R Ankle	✓	☐	

Notes for trainers:

Bahati requires firm support behind her pelvis and lower trunk to maintain an upright sitting posture. Her upper trunk is not fully stable and tends to move forward. With arm support, her upper trunk is stable.

4. Key point summary (5 minutes)



Read the key points.

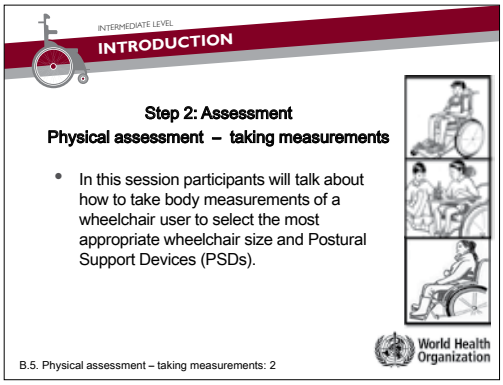
Ask whether there are any questions.

B.5: Physical assessment – taking measurements

OBJECTIVES	By the end of this session, participants will be able to: ☐ explain the purpose of taking measurements; ☐ demonstrate choosing the measurements needed to select a correct size and location of PSDs; ☐ demonstrate taking measurements; ☐ use the intermediate wheelchair assessment form to record body measurements.
RESOURCES	For the session: ☐ PPT Slides: B.5: Physical assessment – taking measurements; ☐ Reference Manual; ☐ Participant`s Workbook; ☐ intermediate wheelchair assessment form; ☐ tape measure (or caliper if available and commonly used) – 1 for each group; ☐ assessment bed – 1 for each group.

CONTEXT AND PRIOR LEARNING	Prior learning: ☐ `How to take body measurements` discussed in the Wheelchair Service Training Package – Basic Level (hip width, seat depth, calf length, seat to bottom of rib cage and shoulder blade) Adapt this session to suit the context participants will be working in. Think about: ☐ When demonstrating taking measurements on the volunteer and asking participants to practise taking measurements on each other – be aware of any cultural issues related to touching.	
TO PREPARE	☐ Gather resources, review PPT slides and read through the session plan. ☐ Review the intermediate wheelchair assessment form thoroughly and practise taking measurements. ☐ Arrange an assessment bed at the front of the training room. ☐ Arrange the training room so that participants are seated in a semi-circle facing the front of the room. ☐ Place assessment beds around the training room (or outside the room/in adjacent rooms) ready for participants to use to practise measuring.	
OUTLINE	1. Introduction	2
	2. Measuring a wheelchair user to select the correct wheelchair size and location of PSDs	25
	3. Measurement practice	30
	4. Key point summary	3
	Total session time	**60**

1. Introduction (2 minutes)

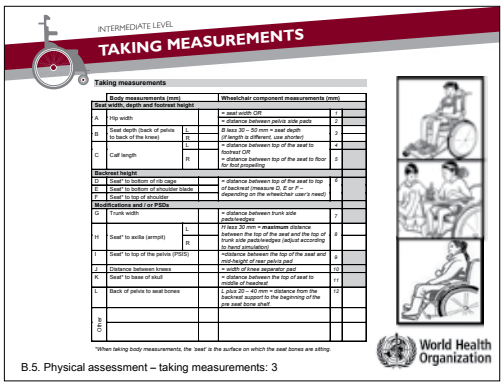


- Explain: In this session we will talk about how to take body measurements of a wheelchair user to select the most appropriate wheelchair size and Postural Support Devices (PSDs).

2. Measuring a wheelchair user to select the correct wheelchair size and location of PSDs (25 minutes)

Notes for trainers: The first five measurements taught here are taught in the Wheelchair Service Training Package – Basic Level. Participants should already be able to take these measurements confidently and accurately. If not, trainers should run the Wheelchair Service Training Package – Basic Level `Physical assessment` session with a specific focus on `How to take body measurements` for any participants who are not confidently and accurately able to take the measurements taught at basic level.

Ask participants to look at the 'Taking measurements' part of their copy of the intermediate wheelchair assessment form.

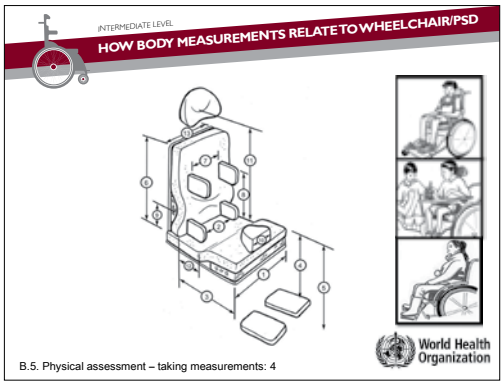


B.5. Physical assessment – taking measurements: 3

Explain:

- On the intermediate wheelchair assessment form there are twelve body measurements listed.
- Five measurements are the same measurements that were previously introduced in the Wheelchair Service Training Package – Basic Level.

- One additional backrest height measurement is added to the intermediate wheelchair assessment form. This is the seat to top of shoulder body measurement, which is used to measure a wheelchair user for a high backrest.
- There are six more measurements, which will help to decide the size and/or location of PSDs.
- It may be necessary to take more measurements, depending on the PSDs prescribed.
- There is space on the intermediate wheelchair assessment form to record 'other' measurements.



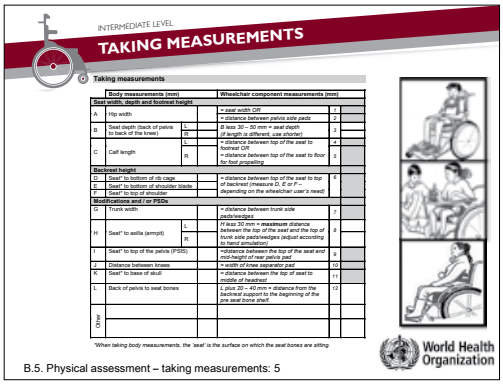
B.5. Physical assessment – taking measurements: 4

Explain: This illustration on the intermediate wheelchair assessment form shows how body measurements relate to the wheelchair/PSD.

Ask: For example – how does measurement G: Trunk width relate to the wheelchair (what wheelchair component will this help to locate?) **Encourage** answers.

Answer:

- The distance between trunk side pads or wedges.



B.5. Physical assessment – taking measurements: 5

Point out on the 'Taking measurements' part of the intermediate wheelchair assessment form how:

- The body measurements are listed on the left hand side and the wheelchair component measurements that each body measurement relates to are listed on the right hand side.

- In some cases there is a formula to help work out the wheelchair component measurement. For example – seat depth (the back of pelvis to back of the knee) LESS 30–50 mm EQUALS the seat depth of the wheelchair.

Explain:

- For those body measurements for which there is a formula to help work out the wheelchair component measurement – it is helpful to work out the ideal wheelchair component measurement when carrying out the body measurement.
- This will help later when preparing the wheelchair user's prescription.
- These body measurements are:
  - B (seat depth);
  - H (seat to axilla); and
  - L (back of pelvis to seat bones).

Ask a volunteer to come to the front of the training room and sit on the assessment bed.

Demonstrate briefly how to take each measurement, using the Notes for trainers below to guide you. **Ensure** all participants can see clearly.

Notes for trainers: Make sure to emphasize the following key points:

- *When taking body measurements, the 'seat' is the surface on which the seat bones are sitting.*
- *Always measure a wheelchair user sitting up, and in the posture that has been identified as the most upright, comfortable and functional for them during the hand simulation.*
- *When measuring a person who has difficulty sitting upright, assistance may be needed.*
- *For all vertical measurements (C,D,E,F,H,I,K) – the location of the corresponding component will be affected by any changes to the seat and cushion height.*
- *The exact location of all wheelchair components is always checked at the fitting.*

How to measure:	*Wheelchair component:*	*Comments:*
A: Hip width	**Seat (width)**	
Check there is nothing in the wheelchair user's pockets before measuring. Measure the wheelchair user's hips or the widest part of his/her thighs. Hold two clip boards against each side of the wheelchair user to help to get an accurate measurement. Calipers can also be used.	Hip width equals the seat width or the distance between pelvis side pads.	If pelvis side pads are provided, the wheelchair seat width may need to be wider. Always try to keep the wheelchair width to a minimum. In countries with cold climates where thick clothes may be worn, some allowance may be needed.
B: Seat depth	**Seat (depth)**	
Place a clip board at the back of the wheelchair user to help get an accurate measurement. Measure from the back of the wheelchair user's pelvis to the back of his/her knee in a straight line. Always measure both legs. If there is a difference between the left and right side, check that the wheelchair user is sitting upright with their pelvis level. If there is still a difference, make the wheelchair prescription for the shorter side.	Seat depth less 30–50 mm equals the depth of the seat of the wheelchair.	For a wheelchair user whose knees are bent a lot less than 90 degrees, the seat depth may need to be slightly shorter. See the box `For wheelchair users with a fixed posterior tilt of the pelvis or fixed forward bent trunk` on page 67 of the Reference Manual.
C: Calf length	**Footrests (height)**	
Measure from the back of the wheelchair user's knee to the base of his/her heel. Make sure the wheelchair user's ankles are bent at 90 degrees (if possible). Always measure both legs. If the wheelchair user wears shoes, measure with the shoes he/she wears most days. If the foot is fixed in plantar flexion (pointing downwards), measure to the toe.	The calf length height equals the top of the cushion to the footrests OR the top of the cushion to the floor if the wheelchair user is foot propelling.	The exact footrest location will change slightly depending on how much the cushion compresses when the wheelchair user sits on it. Final adjustment is always needed at fitting.

How to measure:	*Wheelchair component:*	*Comments:*
D, E and F	**Backrest (height)**	
D: Seat to bottom of rib cage: Measure from the wheelchair user's seat to the bottom of the rib cage. To help find the bottom of the rib cage, place hands on both sides of the pelvis. Gently squeeze hands inwards and slide hands upwards. The bottom of the rib cage is just above the waist.	Measurements D, E and F help decide the height of the backrest. The height depends on the needs of the wheelchair user. The information from assessment will guide wheelchair service personnel to decide how high the backrest needs to be to provide the right support for the wheelchair user.	If backrest recline or tilt in space is needed, the backrest height must be at least standard (up to the bottom of wheelchair user's shoulder blades); Remember to consider if the wheelchair users will be propelling the wheelchair themselves. If so they need freedom to move their shoulder blades.
E: Seat to shoulder blade: Measure from the wheelchair user's seat to the bottom of the shoulder blade in a vertical line. To help find the bottom of the shoulder blade ask the wheelchair user to shrug their shoulders.		
F: Seat to top of shoulder: Measure from the wheelchair user's seat to the top of the shoulder.		
G: Trunk width	**Trunk side pads or wedges (distance between)**	
Measure the width of the wheelchair user's trunk just below the axilla (armpits).	Trunk width is the distance between trunk side pads or wedges.	The final position of the trunk side pads or wedges may change during fitting, if they are to be placed lower than just below the axilla.
H: Seat to axilla (armpit)	**Trunk side pads or wedges (height)**	
Measure from the seat to the axilla (armpit).	The seat to axilla measurement less 30 mm is the maximum distance between the top of the cushion and the top of trunk side pads/wedges.	This measurement is a guide. The final height depends on the assessment and fitting. Trunk side pads should never be high enough to put pressure into the axilla (armpit). This can be uncomfortable and cause permanent nerve damage. There should always be at least 30 mm clearance between the top of a trunk side pad and the axilla. See the box `Measuring side trunk supports for a wheelchair user with scoliosis` on page 69 of the Reference Manual.

How to measure:	*Wheelchair component:*	*Comments:*
I: Seat to the top of the pelvis (PSIS)	**Rear pelvis pad (mid-height)**	
Measure from the seat to the top of the pelvis (PSIS).	The seat to the top of the pelvis (PSIS) measurement is used to locate the mid-height of the rear pelvis pad.	The depth (thickness) of a rear pelvis pad depends on the results of assessment.
J: Distance between knees	**Knee separator pad**	
Measure the distance between the two knees – with the knees placed as close to neutral as is comfortable for the wheelchair user.	The distance between the two knees equals the width of a knee separator pad. The distance will depend on the wheelchair user's sitting posture.	
K: Seat to base of skull	**Headrest (height)**	
Measure from the seat to base of skull.	The measurement from the seat to the base of the skull helps to locate the headrest.	
I: Back of pelvis to seat bones	**Pre seat bone shelf**	
Measure from the back of the pelvis to the seat bones. From the side of the wheelchair user place your hand (palms up) under the wheelchair user's bottom to find the seat bones. Locate the seat bones with one finger – and then withdraw your hand to the side of the wheelchair user. Measure from the back of the wheelchair user's pelvis to the finger that is located at the seat bones. Wheelchair service personnel may mark on the assessment bed in some way (for example with a piece of chalk) alongside the wheelchair user in line with their seat bones and measure from the mark to the back of the pelvis.	The measurement from the back of pelvis to seat bones plus 20–40 mm is the distance from the backrest support to the beginning of the pre seat bone shelf.	If a wheelchair user has a fixed posterior tilt of the pelvis or fixed forward bent trunk the measurement may be different (see the box `For wheelchair users with a fixed posterior tilt of the pelvis or fixed forward bent trunk` on page 67 of the Reference Manual).

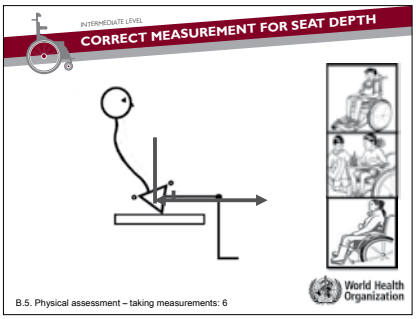
Thank the volunteer.

Ask: How would participants manage if they are trying to measure a child who is upset or wriggling?

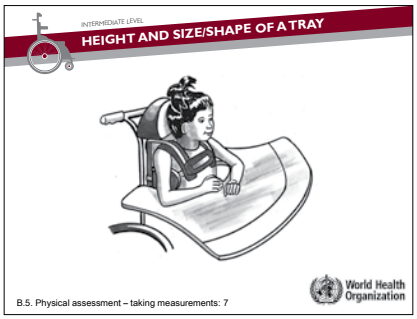
Answer:
• take time to settle the child if possible; • give the child a break – and try again in a short while when he/she has had a rest/ something to eat or drink; • use family member/caregiver to help support the child – and help them to feel safe; • for a small child it is possible to measure them on their family member/caregiver's lap. However – wheelchair service personnel must be very careful to have the child in the same 'final' posture found in the hand simulation.

3. Measurement practice (30 minutes)

Small group activity	
Groups:	**Divide** all the participants into 3 groups.
Instructions:	**Ask** participants to read the story of Madavi in the Participant's Workbook (B.5: Physical assessment – taking measurements). **Assign** one tape measure (and calliper if available and commonly used) for each group. **Explain** that participants need to: • Read through the completed hand simulation results for Madavi. • Decide what body measurements they would need to take for Madavi in order to select a wheelchair for her. • Take these measurements of at least one member of the group and write them in the `taking measurements` part of the intermediate wheelchair assessment form provided in their workbook. **Explain:** • Madavi has a mild fixed posterior pelvis tilt. Participants need to think about how they will get the correct seat depth measurement for Madavi. • Madavi has asked for a tray – so participants also need to think about what measurements they need to take to be able to prepare a tray for her. **Explain:** Participants have 20 minutes to complete the activity and then the groups will come back together for feedback.

<table>
<tr><td rowspan="6">Monitor:</td><td colspan="2">Monitor the groups closely.
Ensure that each group understands the activity.
Correct measurement techniques as necessary.
Guide participants if necessary.</td></tr>
<tr><td colspan="2">Notes for trainers: Focus participants on working out what measurements they think they may need. At this stage they should not go into too much detail thinking about the different postural support solutions, as this will be covered in the next sessions.</td></tr>
<tr><td>Time:</td><td colspan="2">Allow 20 minutes for the activity.
Allow 10 minutes for feedback.</td></tr>
<tr><td rowspan="3">Feedback:</td><td colspan="2">Ask: What measurements did participants agree would be needed?</td></tr>
<tr><td colspan="2">Answer: Measurements: A, B, C, F, G, H, I, J, L.</td></tr>
<tr><td colspan="2">Ask: How would participants ensure that they take the correct measurement for seat depth? Encourage answers and allow brief discussion. Show slide to clarify the point.</td></tr>
<tr><td> 
</td><td>Explain: If a wheelchair user has a fixed posterior tilt of the pelvis or fixed forward curved trunk wheelchair service personnel need to think about how this will be accommodated in the wheelchair. This may change the way the seat depth measurement is taken:
• if the backrest is reclined to accommodate the pelvis/trunk, measure from the back of the back of the pelvis to the back of the knee in a straight line;
• if the backrest does not recline supports will be made to accommodate the pelvis/trunk within the seat depth space. Measure from the furthest back point of the body (trunk/pelvis) to ensure that enough seat depth is allowed, as shown in the slide.</td></tr>
</table>

Ask: What measurements would participants take to describe the height and size/shape of a tray for Madavi? **Encourage answers** and **allow** brief discussion. **Show** slide to clarify the point:



Explain:

To decide the ideal height for the tray, measure elbow height:

- top of seat to elbow bent at 90 degrees with shoulders relaxed; or
- according to the support required that is identified during the hand simulation (for example some people may benefit from a slightly higher tray providing more forearm support).

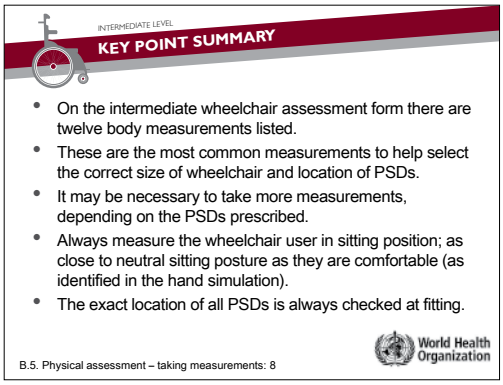
To decide how close the tray will come to Madavi's trunk:

- measure the depth of Madavi's trunk (back to front).

If the tray is to wrap around Madavi's trunk (like the one in the slide illustration):

- measure her trunk width (already part of the measurements table of the wheelchair assessment form).

4. Key point summary (3 minutes)



Read the key points.

Ask whether there are any questions.

B.6: Selecting wheelchairs and cushions

OBJECTIVES

By the end of this session, participants will be able to:

- ☐ describe the features and adjustability of the locally available wheelchairs and cushions;
- ☐ list useful features of standard wheelchairs that can enable the provision of additional postural support.

RESOURCES

For the session:

- ☐ PPT Slides: B.6: Selecting wheelchairs and cushions;
- ☐ Reference Manual;
- ☐ Participant's Workbook;
- ☐ intermediate wheelchair prescription (selection) form;
- ☐ locally available wheelchairs and cushions – 1 of each;
- ☐ written information about the wheelchair provided by the supplier (for example wheelchair brochure/specification summary);
- ☐ completed and blank intermediate wheelchair summary form for each locally available wheelchair.

CONTEXT AND PRIOR LEARNING

Prior learning:

- ☐ A sound working knowledge of basic wheelchair prescription (selection) is important for participants undertaking this session. Refer to the Wheelchair Service Training Package – Basic Level Reference Manual 'Step 3: Prescription (selection)' as suggested pre-reading for any participants who have not recently undertaken the basic level training programme.

Adapt this session to suit the context participants will be working in. Think about:

- ☐ The wheelchairs and cushions available in the participants' working environment.
- ☐ Preparing sample intermediate wheelchair prescription (selection) form to include the wheelchair and cushion options available for participants in their local service/area.

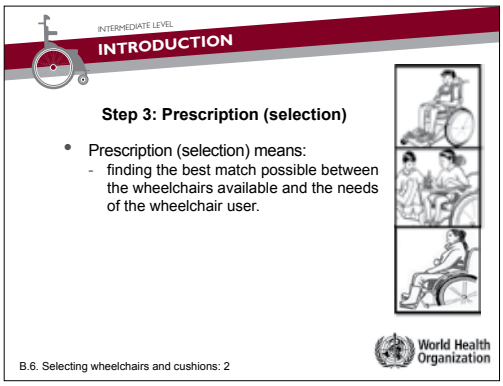
TO PREPARE

- ☐ Gather resources, review PPT slides and read through the session plan.
- ☐ Complete intermediate wheelchair summary form for each locally available wheelchair. Trainers should be familiar with each product. They should know the wheelchair sizes, adjustment ranges, features and options or PSDs available.
- ☐ Arrange the locally available wheelchairs and cushions in different locations around the training area. Ensure they are in good working order. Place written information about the wheelchair provided by the supplier on the wheelchair (if available). Label each wheelchair (e.g. wheelchair one, two, three, four).

OUTLINE

1.	Introduction	8
2.	Type of wheelchair and cushion	50
3.	Key point summary	2
	Total session time	**60**

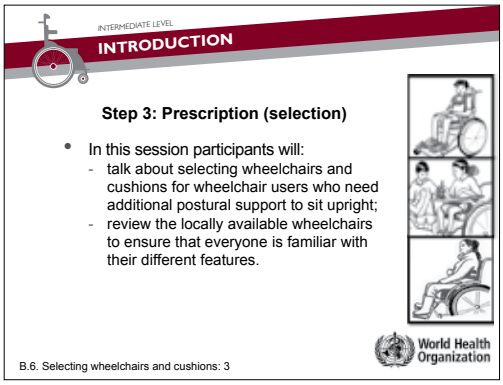
1. Introduction (8 minutes)



Explain: Prescription (selection) is the third step in wheelchair service delivery.

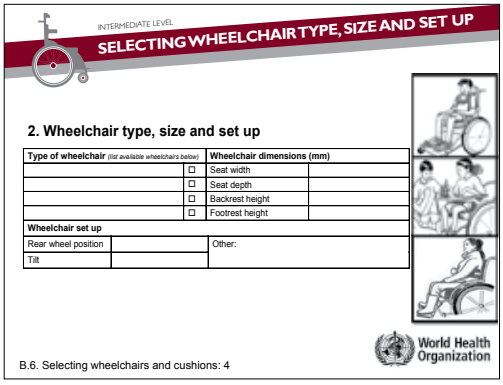
Prescription means finding the best match possible between the wheelchairs available and the needs of the wheelchair user.

Ask participants to look at their copy of the intermediate wheelchair prescription form



Explain:

- In this session we will talk about selecting wheelchairs and cushions for wheelchair users who need additional postural support to sit upright.
- We will also review the locally available wheelchairs to ensure that everyone is familiar with their different features.



Explain: Prescription includes:

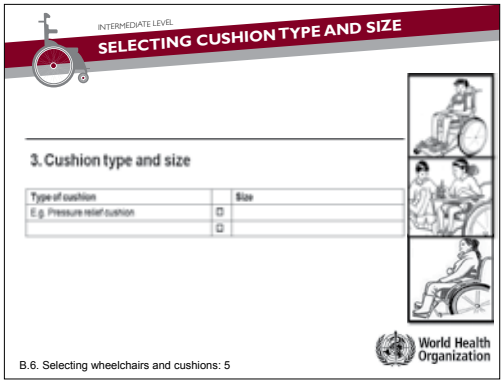
- selecting the type and size of wheelchair most suitable for the wheelchair user;
- describing any specific set-up for that wheelchair.

Ask: What are some examples of what should be written in this part of the intermediate wheelchair prescription form?

Answers:

- rear wheel position (safe/active);
- tilt.

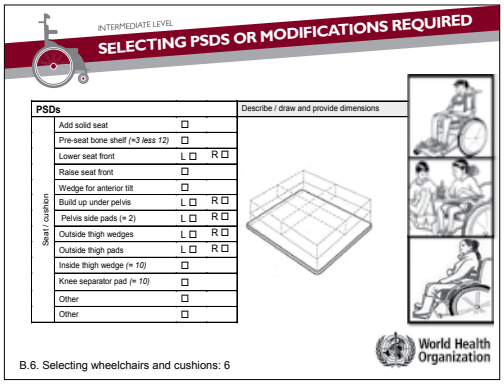
Explain: This is not the place to write details about PSDs – that comes later on the form.



Explain: Prescription also includes:

- selecting the type and size of cushion.

Explain: If the cushion needs modification to make the correct PSD – the details of that are described later on the intermediate wheelchair prescription form.



Explain: Prescription also includes:

- selecting what PSDs or modifications are needed to provide the wheelchair user with additional postural support he/she needs.

Explain:

- This slide shows just one part of the intermediate wheelchair prescription form.
- We will explain in more detail how to complete this section of the form in the following sessions and will practice completing it in the practical sessions.

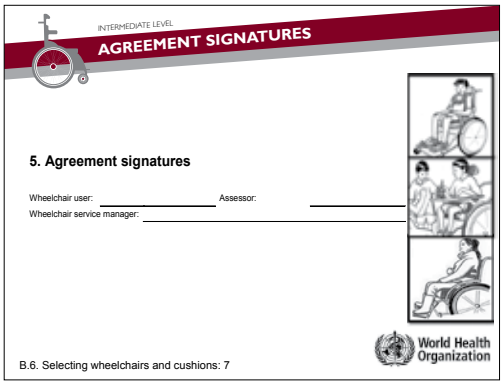
Explain:

- The Wheelchair Service Training Package – Basic Level teaches how to select the most appropriate wheelchair and cushion for a wheelchair user who can sit upright without additional postural support. Selection of an appropriate wheelchair is made based on the wheelchair user's physical, lifestyle and environmental needs.
- In the intermediate level training programme, wheelchair service personnel need to take into account the greater postural support needed.
- At the same time – the wheelchair user's lifestyle and environmental needs must still be considered.

Ask: What is an example of a 'lifestyle or environment' need?

Answers:

- where the wheelchair user uses their wheelchair (for example – indoors, outdoors, rough terrain);
- the distance the wheelchair user travels per day;
- how long the wheelchair user spends in their wheelchair;
- how he/she transfers;
- the type of toilet the wheelchair user uses;
- whether he/she needs to use public transport frequently;
- what activities the wheelchair user most wants to carry out in their wheelchair.

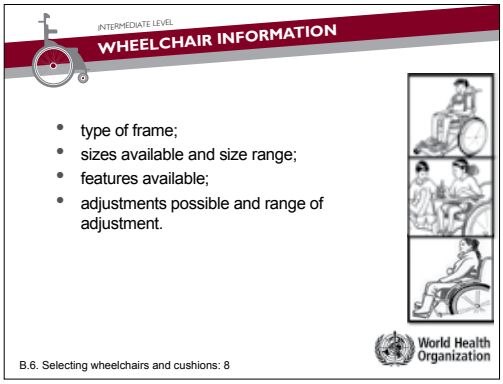


Remember:

- the prescription is always decided in full partnership with the wheelchair user;
- on the intermediate wheelchair prescription form used in this training programme, three signatures are needed;
- this includes the wheelchair user, assessor (wheelchair service personnel) and wheelchair service manager.

2. Type of wheelchair and cushion (50 minutes)

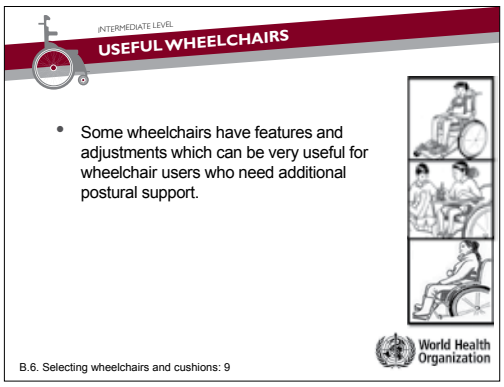
Explain: We will now look at the different wheelchairs that are available locally. To prescribe a wheelchair, wheelchair service personnel need to know the following about the wheelchair:



Explain briefly:

- Type of frame. For example is it a four-wheel or three-wheel wheelchair; a cross-folding or rigid frame; tilting frame; long or short wheelbase.

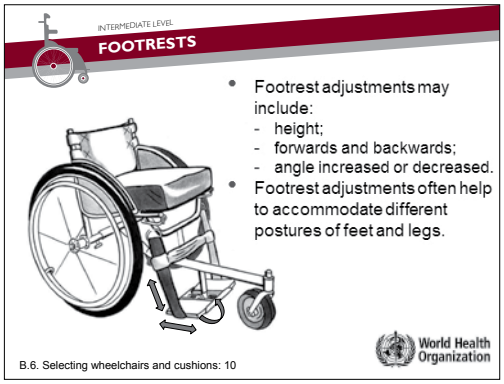
- Sizes available and size range. Wheelchair size is usually described by the wheelchair seat width and seat depth. The wheelchair seat width is measured from the outside of one seat rail to the outside of the opposite seat rail or between armrests if these sit on top of the seat rail. The wheelchair seat depth is measured from the front of the seat to the backrest.
- Features available. For example the type of seat, backrest, footrests, armrests, castor wheel, rear wheel and PSDs (for example trunk side pads, headrest, straps).
- Adjustments possible and adjustment range. It is important to know which components are adjustable and the range of adjustment.



Explain:

- Some manual wheelchairs have more adjustments or features than others.
- Some adjustments or features can be very helpful for wheelchair users who need additional postural support.
- We will look at some particularly helpful features and adjustments now.

Explain each point below:

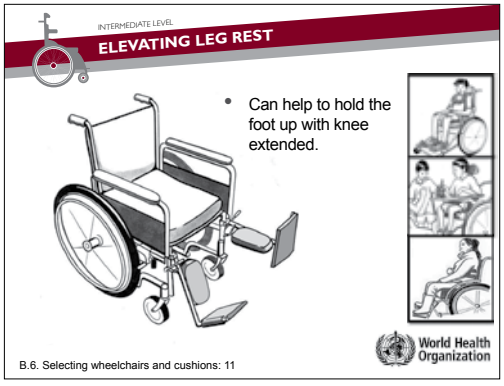


Most wheelchairs have footrests that can be adjusted up and down.

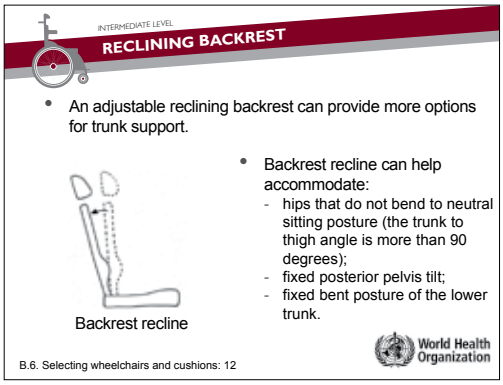
Some wheelchairs have additional adjustments including:

- height;
- footrests can move forwards or backwards;
- footrest angle can be increased or decreased.

These adjustments give more flexibility for where the wheelchair user's feet will be placed.



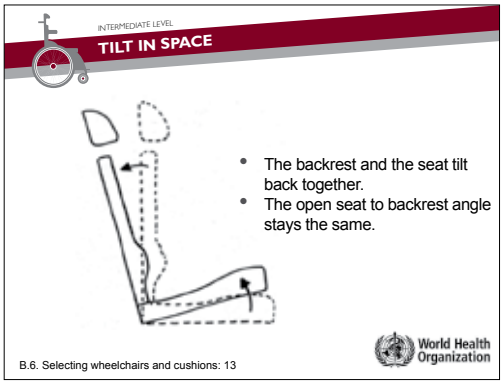
An elevating leg rest can help hold the foot up with the knee extended. This can be helpful for wheelchair users who cannot bend their knee to neutral for sitting.



An adjustable reclining backrest can provide more options for trunk support.

Backrest recline (tilting the backrest rearwards) can help in accommodating:

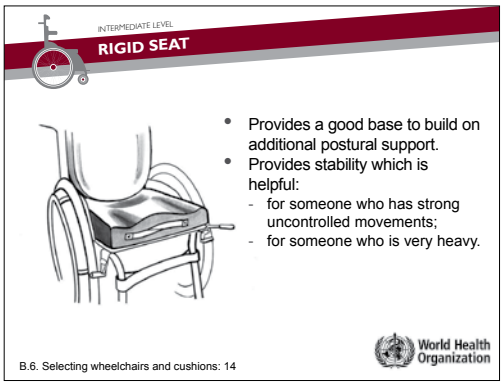
- hips that cannot not bend to neutral sitting posture (trunk to thigh angle more than 90 degrees);
- fixed posterior pelvis tilt;
- fixed bent posture of the lower trunk.



Some wheelchairs have what is called 'tilt in space'.

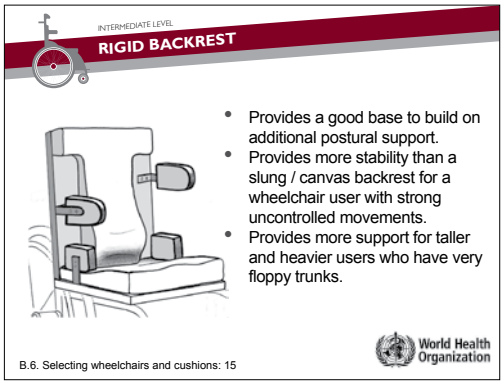
This means that the backrest and the seat tilt back together. The open seat to backrest angle stays the same. Tilted seat position can help:

- fixed posterior pelvis tilt with hip and knee flexion contractures;
- low sitting tolerance or discomfort during normal sitting position;
- to increase comfort and rest.



Some wheelchairs have a rigid seat base instead of a slung seat. This can provide:

- a good base to build additional postural support for the pelvis and hips;
- more stability than a slung seat. This can be useful if a wheelchair user has strong uncontrolled movements or is very heavy.

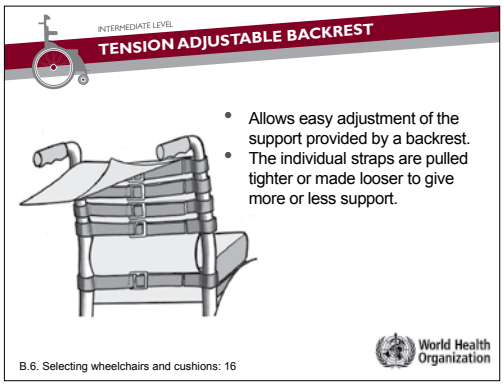


Some wheelchairs have a rigid backrest. As for a rigid seat, this can provide a good base to build on additional postural support.

A rigid backrest can also provide:

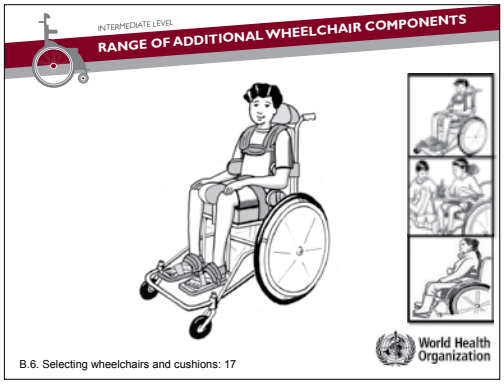
- more stability than a slung/canvas backrest. This can be useful if a wheelchair user has strong uncontrolled movements;
- more support for wheelchair users who are taller and heavier and/or have very floppy trunks.

The illustration on the slide shows a rigid backrest that has had foam added to provide support for the trunk in just the right place, and side support pads bolted onto the backrest.



Some wheelchairs come with a tension adjustable backrest instead of a simple slung backrest.

A tension adjustable backrest allows easy adjustment of the support provided by a backrest. The individual straps are pulled tighter or made looser to give more or less support.



Some wheelchairs come with a range of additional components designed to provide additional postural support. We will talk more about different postural supports in the next session.

Small-group activity	
Groups:	**Divide** participants into groups of 3.
Instructions:	**Ask** each group to look at Participant's Workbook (B.6: Selecting wheelchairs and cushions). **Ask** participants to look carefully at each of the locally available wheelchairs and work together to answer the questions in their workbook. **Explain:** Participants have 30 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the questions. **Guide** participants if necessary.
Time:	**Allow** 30 minutes for the activity. **Allow** 15 minutes for feedback. *Notes for trainers:* • Allow more time if there are more than four locally available wheelchairs.
Feedback:	**Review** each question with the whole group as follows: • **ask** participants to volunteer answers; • **check** if everyone agrees; • if there is no disagreement, **acknowledge** the answer (if it is correct) and **move** onto the next question; • if not everyone has the same answer – **elicit** the correct answer and **clarify.** **Allow** only brief discussion. **Explain:** • It is very important that wheelchair service personnel are very aware of the different features of the wheelchairs they have available to them. Only by being very familiar with the wheelchairs can they help wheelchair users find the best match for their needs. • **Point out** the intermediate wheelchair summary form in the Participant's Workbook and/or set of wheelchair service forms. **Explain** that participants can complete this form for the wheelchairs they have available in their own location after this training. *Notes for trainers:* • *Refer to notes for trainers below for the answers and to ensure that key points are emphasized.* • *After this session – pin up a copy of a completed intermediate wheelchair summary form for each wheelchair. This can then be referred to during the practical sessions with wheelchair users.*

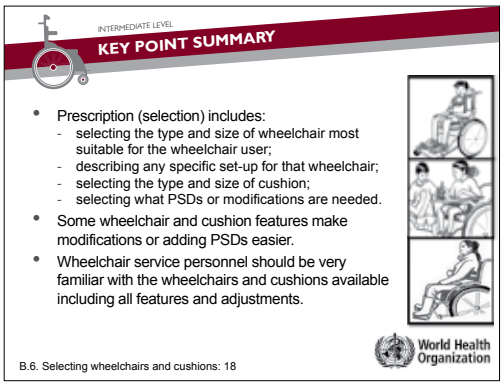
Notes for trainers:	
1. Lifestyle and environment	
Questions:	**Answers/key points for trainers to emphasize:**
Which wheelchair (or wheelchairs) is best suited to travel over rough/uneven terrain? Why?	Features that will increase how easy a wheelchair is to use over rough terrain include: • Three-wheel format; • long wheelbase; • wide front castor/s; • wide rear tyres ('mountain bike' style); • solid inner tubes can reduce problems with punctures and are durable; • durability and ability to repair locally should also be considered as wear and tear on wheelchairs used over rough terrain is greater.
Which wheelchair (or wheelchairs) would most easily facilitate a standing transfer? Why?	Features that make a standing transfer easier include: • swing-away footrests; • armrests to push up on can be helpful.
Which wheelchair (or wheelchairs) would most easily facilitate a sideways transfer? Why?	Features that make a sideways transfer easier include: • removable armrests; or • armrests that are in line with the rear wheel rim.
How does each wheelchair fold or is disassembled for transport?	Common methods include: • non-folding; • cross-folding; • backrest folds down; • quick-release wheels.
Which wheelchair (or wheelchairs) does your group think would be the easiest wheelchair to transport on public transport? Why?	Encourage participants to consider: • how long it takes to fold/disassemble the wheelchair; • how light the parts are once folded/ disassembled; • whether parts may get lost (for example if a wheelchair disassembles into many different components); • how small the wheelchair is once folded/ disassembled.
Which wheelchairs (if any) have pneumatic tyres?	
Which wheelchairs (if any) have solid inner tubes?	
Which wheelchairs (if any) have solid tyres?	

2. Pressure relief	
Questions:	**Answers/key points for trainers to emphasize:**
What types of cushions can you see in the training room?	Cushions may be described according to: • The main material: - foam cushions; - cushions made from coconut fibre (coir); - cushions filled with air; - cushions filled with fluid or gel. • The shape: - flat cushions; - contoured cushions; - moulded cushions; - layered cushions
Which of these would you describe as a pressure relief cushion? Why?	Pressure relief cushions are likely to include: • foam contoured cushions; • cushions with a fluid or gel over a contoured base; • cushions filled with air. Participants should identify what makes the cushion a 'pressure relief cushion'. Reasons include: • Contours/shaping including: - a 'well' under the seat bones (seat bone well); - a shelf before the seat bones; - support under the upper part of the thigh; - grooves, or gutters for the thigh. • Gel/fluid packs, which helps to distribute pressure. (Note – gel/fluid packs should be on a contoured firm foam base with contours as described above).
Of the pressure relief cushions (if any) – which would be relatively easy to modify to either: • increase pressure relief; • provide additional postural support.	Usually a foam contoured cushion is easier to modify as the foam can be cut or a lift added to reduce pressure. If the air/gel interface layer is a separate unit, it is also easy to make changes to the base, add a lift etc. and then replace the interface layer. (For more information see the Wheelchair Service Training Package – Basic Level part of 'Cushions' session.

What are the features of the different cushion covers in the training room?	Participants may identify these features: • water resistant; • durable; • stretchy (more likely to fit to cushion contours); • removable for washing.
3. Propelling	
Questions:	**Answers/key points for trainers to emphasize:**
Sit upright in the wheelchair. Is the rear wheel in a good position for you to self-propel? Check: • allow your arm to hang down. Does your hand hang over the axle? • hold the top of the push rim directly below your shoulder. Is your elbow bent between 90–120 degrees? • Is the rear wheel position adjustable? If adjusted – would this improve the propelling position?	Ensure that participants have noted whether the rear wheel position can be improved for self-propelling by adjusting the axle position.
Do any of the wheelchairs in the training room have an adjustable height seat? When would this be helpful?	The ability to lower the seat height may be helpful to enable correct set-up for a wheelchair user who will propel with their feet. However this feature is not commonly available in many less resourced settings.
4. Postural support features	
Questions:	**Answers/key points for trainers to emphasize:**
Which wheelchairs (if any) have elevating leg rest?	
Which wheelchairs (if any) have a solid seat?	
Which wheelchairs (if any) have a tension adjustable backrest?	
Which wheelchairs (if any) have additional components designed to provide additional postural support?	

5. Adjustability	
Questions:	**Answers/key points for trainers to emphasize:**
Which wheelchairs (if any) have the following adjustability?	
• Footrest height • Footrests angle • Footrests move backwards/forwards • Backrest height up or down • Backrest recline • Tilt in space (seat and backrest tilt)	More adjustability is helpful when working with wheelchair users who need additional postural support. Note for trainers: Here may be a good point to make the following point about user training: • Always explain to the wheelchair user and their family member/caregiver that the way a wheelchair is set up (or adjusted) will affect the wheelchair user's postural support. Adjustable parts should not be re-adjusted unless necessary. It is important to maintain the settings set at the final fitting and check/ tighten adjustments to make sure they do not slip.

3. Key point summary (2 minutes)



Read the key points.

Ask whether there are any questions.

B.7: Prescription (selection) of Postural Support Devices (PSDs) – introduction

OBJECTIVES

By the end of this session, participants will be able to:

- ☐ define 'postural support device';
- ☐ explain the purpose of the intermediate wheelchair prescription (selection) form.

RESOURCES

For the session:

- ☐ PPT Slides: B.7: Prescription (selection) of PSDs – introduction;
- ☐ Reference Manual;
- ☐ poster: Postural Support Device (PSD) Table;
- ☐ intermediate wheelchair prescription (selection) form;
- ☐ laminated Postural Support Device (PSD) Table – 1 for each participant;
- ☐ PSD kit.

CONTEXT AND PRIOR LEARNING

Adapt this session to suit the context participants will be working in. Think about:

- ☐ PSDs, PSD materials and fabrication methods available in the participants' working environment.
- ☐ Where participants will carry out wheelchair user fitting – for example in the community/users' homes, in a workshop or in a wheelchair service centre. This may affect the way in which they work and the choices of PSDs.
- ☐ Preparing a sample intermediate wheelchair prescription (selection) form to include PSD options available for participants in their local service/area.

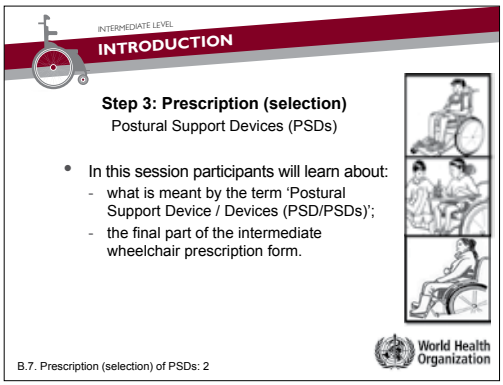
TO PREPARE

- ☐ Gather resources, review PPT slides and read through the session plan.
- ☐ Pin up the Postural Support Device (PSD) Table poster.
- ☐ Unpack sample PSDs from the PSD kit that have been put together and lay them out on a table at the front of the training room where you can easily reach them.
- ☐ Arrange the training room so that participants are seated in a semi-circle facing the front of the room.

OUTLINE

1.	Introduction	2
2.	What is a PSD or PSDs?	10
3.	Recording PSDs on the intermediate wheelchair prescription (selection) form	15
4.	Key point summary	3
	Total session time	**30**

1. Introduction (2 minutes)



Explain:

- For the next 5 sessions, we will continue to learn about the third step of wheelchair service delivery, which is prescription (selection). In the last session we looked at selecting the type of wheelchair and cushion most suitable for the wheelchair user.
- In this session we will talk about:
  - what is meant by the term 'Postural Support Device / Devices (PSD / PSDs)';
  - the final part of the intermediate wheelchair prescription form.
- In each of the following sessions we will look in more detail at these PSDs.
- Remember – before finalizing a prescription it is important to make sure that the postural supports required can be provided in the wheelchair selected.

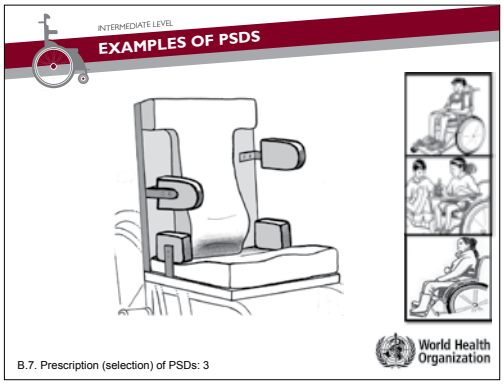
2. What is a PSD? (10 minutes)

Give each participant the laminated Postural Support Device (PSD) Table (hence after to be referred to as PSD Table).

Ask: What is a 'postural support device'? **Encourage** answers.

Answers:

- A 'Postural Support Device (PSD – singular and PSDs – plural)' is:
  - any physical device, which is added to a wheelchair to provide additional postural support;
  - examples of PSDs include: headrest, pelvis strap, pelvis side pads;
  - remember – a wheelchair seat, backrest, footrests, armrests all provide postural support as well.



Explain: The illustration on the slide provides some examples of PSDs.

Ask: What PSDs can participants see?

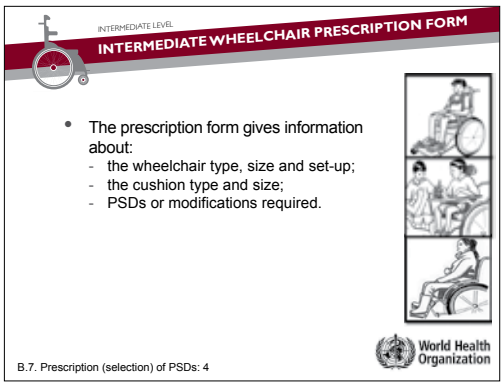
Answers (participants may use different names/terminology):

- trunk side pads;
- contoured/shaped backrest and contoured cushion;
- pelvis side pads;
- pre seat bone shelf.

Explain:

- There are different designs of PSDs and different ways that a wheelchair can be set up to provide a wheelchair user with additional postural support.
- In this training programme some of the most commonly used PSDs are introduced.
- The names used in this training programme are simple descriptive terms. Participants may have heard of other terms to describe the same thing. In each wheelchair service, wheelchair service personnel and wheelchair users can use the terms most familiar and comfortable to them.
- We will talk more about how these PSDs can be made later in this training programme.
- Remember – many wheelchair users may need more than one of the different PSD solutions that we will talk about, combined to provide the right overall solution for them.

3. Recording PSDs on the intermediate wheelchair prescription (selection) form (15 minutes)



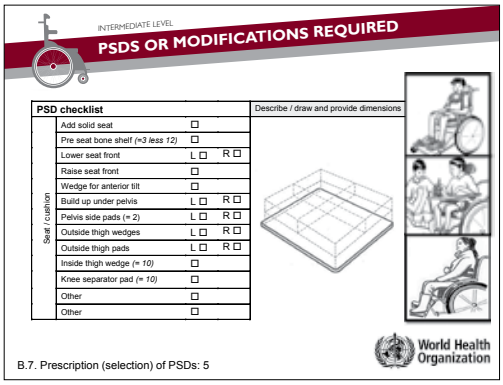
Explain:

- The purpose of the intermediate wheelchair prescription form is to give information to the wheelchair service personnel preparing the wheelchair about:
  - the wheelchair type, size and set-up (covered earlier);
  - the cushion type and size (also covered earlier);
  - PSDs or modifications required.

Explain:

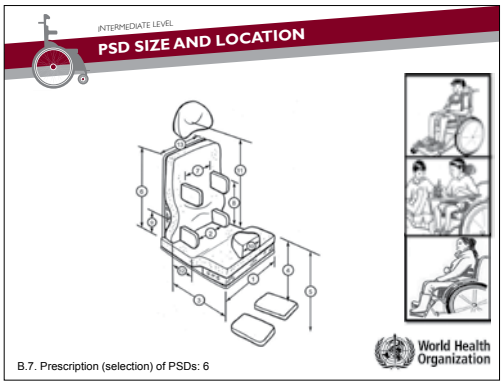
- It is on the intermediate wheelchair prescription form that all of the information gained from the assessment is translated into a clear description of the wheelchair that is needed for the wheelchair user.
- The more detailed information that is provided on the intermediate wheelchair prescription form, the more accurately the wheelchair will be prepared for the first fitting.
- The intermediate wheelchair prescription form does not necessarily say how the PSDs should be made. This may be decided in discussion between the wheelchair service personnel preparing the wheelchair and the wheelchair service personnel who have carried out the assessment.
- Different wheelchair services often have different ways to record wheelchair prescription information.

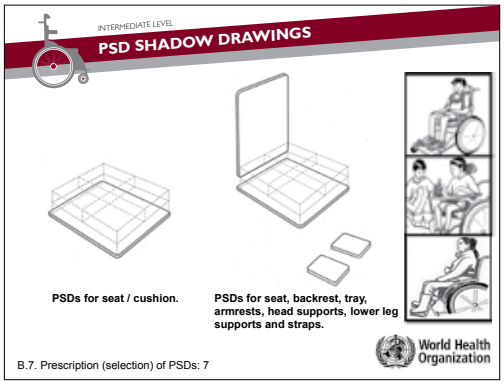
Ask participants to look at the examples of completed intermediate wheelchair prescription forms in their Reference Manual at the end of this session.



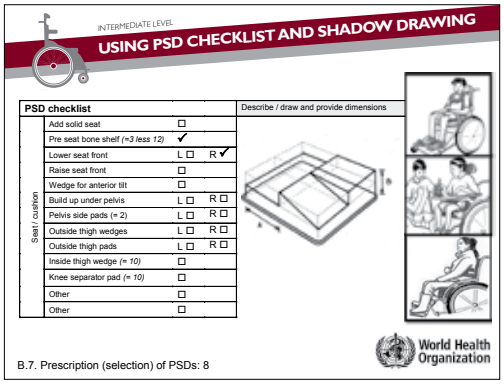
Explain: Wheelchair service personnel can use the 'PSDs or modifications required' part of the intermediate wheelchair prescription form to:

- select which PSDs they wish to prescribe/ select (using the check boxes) from the list of common PSDs. There is also space to list other types of PSDs under 'other';
- draw over the shadow drawings to show the shape and provide dimensions for the PSDs they have prescribed (selected);
- write or sketch any additional information.
- Alongside the PSD checklist, participants need to provide dimensions so that the PSD can be made to the correct size and located in the correct place on the wheelchair.
- The dimension sketch on the PSD Table is a guide to help participants think about the different dimensions needed for each PSD.





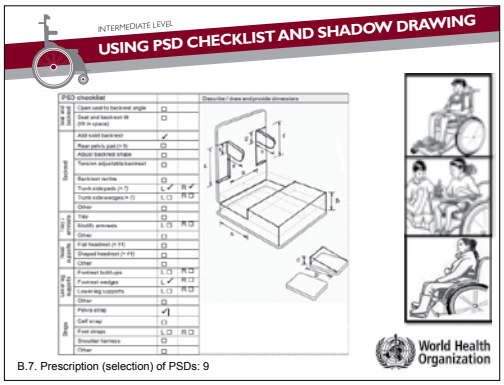
- The two 'shadow drawings' on the form can be used as a guide for participants to draw the PSDs prescribed and provide dimensions.



- For example, this slide shows how the shadow drawing and the PSD checklist on the intermediate wheelchair prescription form have been used to describe a pre seat bone shelf and lower seat front on the right side.
- **Ask:** can anyone think of why a wheelchair user may need the seat to be lowered on one side in this way? **Acknowledge** correct answers.

Answer:

- the wheelchair user's right hip is unable to close fully to 90 degrees.



- **Explain:** This example shows how the shadow drawing and PSD checklist on the second page of the intermediate wheelchair prescription form can be used.
- **Ask:** What PSDs have been recorded on the form? **Encourage** participants to look at the PSD Table and PSD Reference Table in their Reference Manual if they are not sure. **Acknowledge** correct answers.

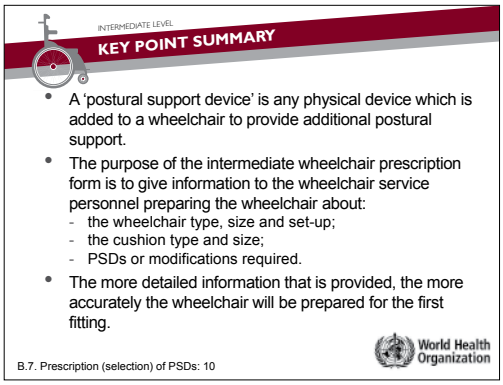
Answers:

- pre seat bone shelf (this would be selected from the PSD checklist on the first page of the form);
- right and left trunk side pads;
- left footrest wedge;
- pelvis strap.

Explain: On each drawing dimension lines have been added. This shows what dimensions would be needed to make these PSDs.

Explain: As we go through the next sessions, we will talk more about what dimensions are needed to help describe the size and location of PSDs. Participants will also practice doing this during the practical sessions.

4. Key point summary (3 minutes)



Read the key points.

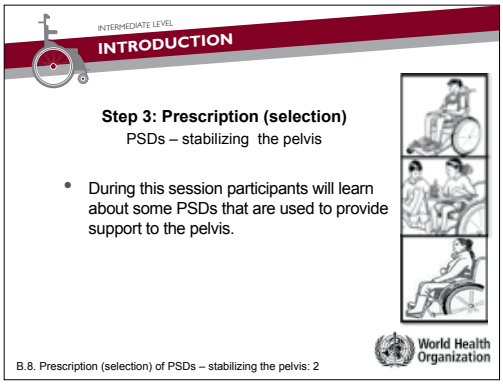
Ask whether there are any questions.

B.8: Prescription (selection) of PSDs – stabilizing the pelvis

OBJECTIVES	By the end of this session, participants will be able to: ☐ describe PSDs that help to stabilize and support the pelvis; ☐ specify dimensions for a pre seat bone shelf and rear pelvis pad.
RESOURCES	For the session: ☐ PPT Slides: B.8 Prescription (selection) of PSDs – stabilizing the pelvis; ☐ Reference Manual; ☐ Participant's Workbook; ☐ DVD: Postural support solutions for anterior pelvis tilt; ☐ poster: Postural Support Device (PSD) Table; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ PSD kit; ☐ pelvis strap – 1 for each group; ☐ assessment bed–1 for each group; ☐ blocks of firm foam – a few for each group, wedge of firm foam – 1 for each group; ☐ wheelchairs – 1 for each group (at least three types represented if possible).
CONTEXT AND PRIOR LEARNING	Adapt this session to suit the context participants will be working in. Think about: ☐ PSDs, PSD materials and fabrication methods available in the participants' working environment. ☐ Where participants will carry out wheelchair user fitting – for example in the community/users' homes, in a workshop or in a clinic. This may affect the way in which they work and the choices of PSD. ☐ When demonstrating/asking participants to provide support for volunteers – be aware of any cultural issues related to touching.
TO PREPARE	☐ Gather resources, review PPT slides, watch DVD and read through the session plan. ☐ Pin up the Postural Support Device (PSD) Table poster. ☐ Unpack sample PSDs from the PSD kit that have been put together and lay them out on a table at the front of the training room where you can easily reach them. ☐ Arrange an assessment bed at the front of the training room. ☐ Arrange the training room so that participants are seated in a semi-circle facing the front of the room.

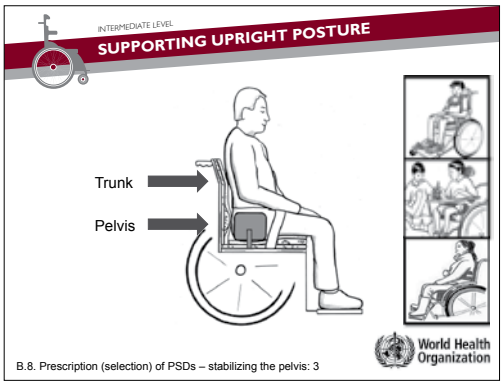
OUTLINE		
	1. Introduction	2
	2. Problem: Pelvis is in posterior tilt and/or slides forward	45
	3. Problem: Pelvis is in lateral tilt (fixed unlevel pelvis)	5
	4. Problem: Pelvis is in anterior tilt (pelvis tilts forward)	25
	5. Problem: Pelvis moves to one side	10
	6. Key point summary	3
	Total session time	**90**

1. Introduction (2 minutes)



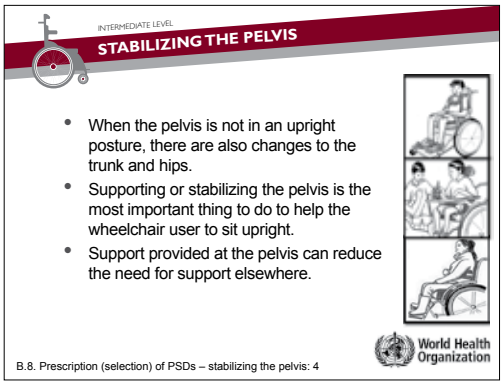
Explain:

- During this session we will learn about some PSDs that are used to provide support to the pelvis.
- Remember – although in this and next sessions we will look at PSDs in isolation – many of the PSDs work together.



Explain: To support an adult to sit upright, there are two areas of the body where support is most needed. These are:

- pelvis;
- trunk.

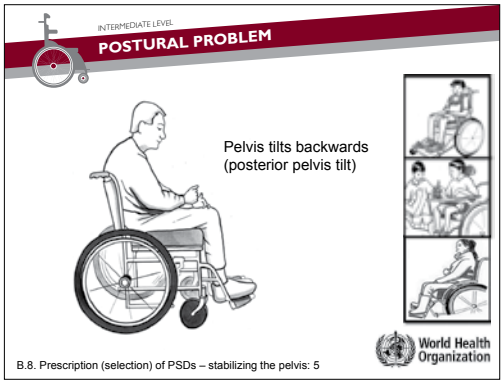


Explain: We are going to look first at the pelvis:

- when the pelvis is not in an upright posture, there are also changes to the trunk and hips;
- so supporting or stabilizing the pelvis is the most important thing to do to help the wheelchair user to sit upright;
- support provided at the pelvis can reduce the need for support elsewhere.

Explain: During this session and through to session 'B.11: Prescription (selection) of PSDs – supporting the head, thighs and lower legs' we will follow examples that show a problem, support needed and PSD solutions. In some sessions the format is slightly different.

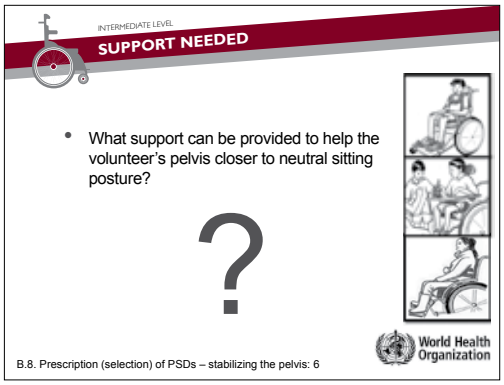
2. Problem: Pelvis is in posterior tilt and/or slides forward (45 minutes)



Starting posture:

- posterior pelvis tilt.

Ask a volunteer to come to the front of the training room and demonstrate the problem.



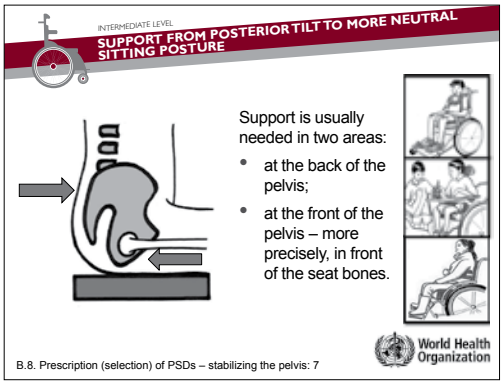
Ask participants – what support (hand support) can be provided to help the volunteer's pelvis closer to neutral sitting posture?

Invite one or two participants to come to the front of the training room and demonstrate with their hands providing support for the volunteer.

Encourage the whole group to offer advice if needed.

Invited participants should provide support at the back of the pelvis.

Acknowledge correct demonstration.



Explain:

When providing support to bring the pelvis from posterior tilt to more neutral sitting posture – support is usually needed in two areas:

- at the back of the pelvis at the level of PSIS – as provided by the invited participants;
- at the front of the pelvis – more precisely, in front of the seat bones (ischial tuberosities).

Without the support at the front of the seat bones, there is a tendency for the pelvis to shift or slide forward, away from the support provided at the back of the pelvis.

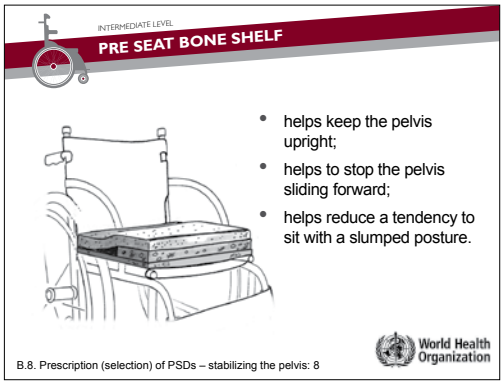
Ask: How can support be provided as shown at the front of the seat bones?

Invite one or two participants (volunteers) to come to the front of the training room and demonstrate how support could be provided at the front of the seat bones using blocks of firm foam. *While doing this, one other invited participant should provide support at the back of the pelvis.* **Encourage** the whole group to offer advice if needed.

Acknowledge correct demonstration.

Thank the volunteers.

Ask participants what PSDs could provide this support? Participants may look at the PSD Table or PSD Reference Table for ideas.



A pre seat bone shelf provides support in front of the seat bones.

It helps to:

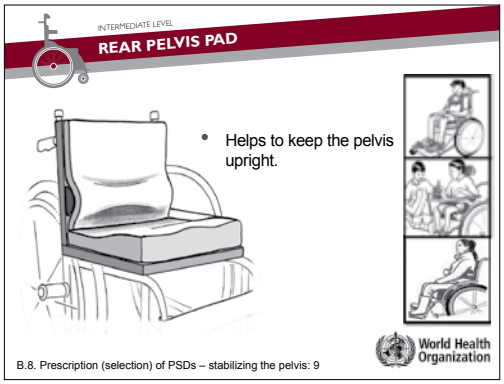
- keep the pelvis upright;
- stop the pelvis from sliding forward;
- reduce a tendency to sit with a slumped posture.

The pre seat bone shelf sits just in front of the seat bones.

Ask: What body measurement do you need to take to be able to decide where a pre seat bone shelf should be on a cushion?

Answer:

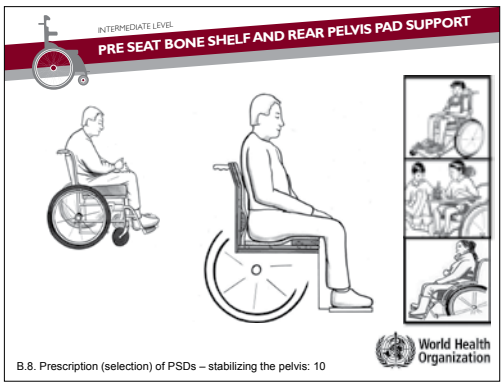
- distance between the back of pelvis to seat bones.



Explain: A rear pelvis pad provides support at the top of the pelvis (at the level of PSIS).

It helps to:

- keep the pelvis upright.



Explain:

- Here you can see these two PSDs provided for the same wheelchair user shown in the earlier slide.
- With pre seat bone shelf and rear pelvis pad support, this wheelchair user can sit upright.
- Notice how the backrest angles backwards to allow for the natural curve of this wheelchair user's upright trunk.
- Good trunk support is an important part of the overall solution. We will talk more about support for the trunk in later sessions.

Explain:

- The combination of a pre seat bone shelf and rear pelvis pad is often used to help wheelchair users to sit with a more upright pelvis (where their starting posture is not fixed) and with more stability.
- In this next activity, participants will work out how they can describe on the intermediate wheelchair prescription form the dimension and location of these two common PSDs.

<table>
<tr><th colspan="3">Small-group activity</th></tr>
<tr><td>Groups:</td><td colspan="2">Divide participants into groups of 2.</td></tr>
<tr><td>Instructions:</td><td colspan="2">Ask participants to read the story of Marian in the Participant's Workbook (B.8: Prescription (selection) of PSDs – stabilizing the pelvis).

Ask the participants to work together and use the results from the 'taking measurements' part of the intermediate wheelchair assessment form to add appropriate dimensions to the sketch provided.

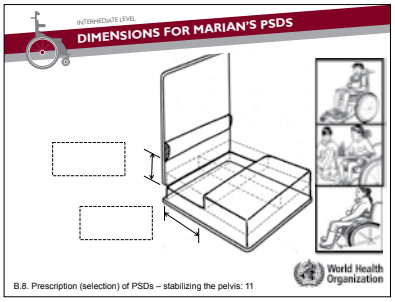
Explain: Participants may use the following to help them with the activity:
• PSD Table;
• PSD Reference Table.

Explain: Participants have 10 minutes as a group to do this activity and then the groups will come back together for feedback.</td></tr>
<tr><td>Monitor:</td><td colspan="2">Monitor the groups closely.

Ensure that each group understands the activity.

Encourage groups to use the Reference Manual and their own knowledge.

Guide participants if necessary.</td></tr>
<tr><td>Time:</td><td colspan="2">Allow 10 minutes for the activity.

Allow 5 minutes for feedback.</td></tr>
<tr><td rowspan="2">Feedback:</td><td> 
</td><td>Show slide:

Ask participants:
• What should the distance between the backrest and the beginning of the pre seat bone shelf be for Marian?
• What should the distance between the top of the seat to the mid-height of the rear pelvis pad be for Marian?
• What other dimensions or information would be helpful?</td></tr>
<tr><td colspan="2">Explain: When completing a whole prescription (selection) form, participants may make a number of dimension sketches with notes such as this one to give the dimensions and location of PSDs.</td></tr>
</table>

Answers:

- The distance between the backrest and the beginning of the pre seat bone shelf should be 170–190mm for Marian (body measurement L plus 20–40mm).
- The distance between the top of the seat (where the seat bones sit) to the mid-height of the rear pelvis pad should be 160 mm for Marian.
- Other dimensions or information that would be helpful:
  - specify the type of foam (e.g. firm foam under soft foam to make both the pre seat bone shelf and rear pelvis pad);
  - specify the height of the pre seat bone shelf. For an adult, this is usually 20–30mm.
  - specify the depth of the rear pelvis pad. This will depend on the hand simulation/needs of the wheelchair user.

Explain: We have looked now at the pre seat bone shelf and rear pelvis pad.

Ask: What might happen if a wheelchair user using these supports has uncontrolled movements, or high tone, or spasms that straighten their body (extensor patterns)?

Answer:

- the wheelchair user could shift away from the pre seat bone shelf and rear pelvis pad.

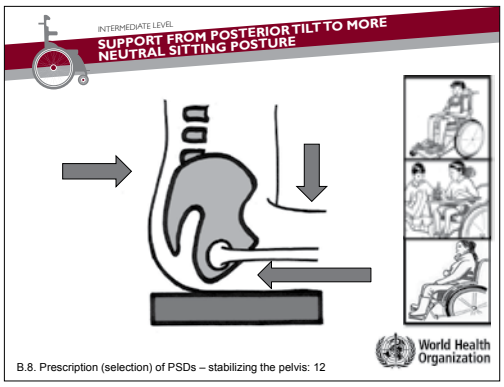
Ask: What direction could support be provided to help prevent this from happening?

Ask one or two volunteers to come to the front of the training room and demonstrate where support could be provided.

Answers:

- support downwards at the top of the thighs.

Acknowledge correct demonstration.



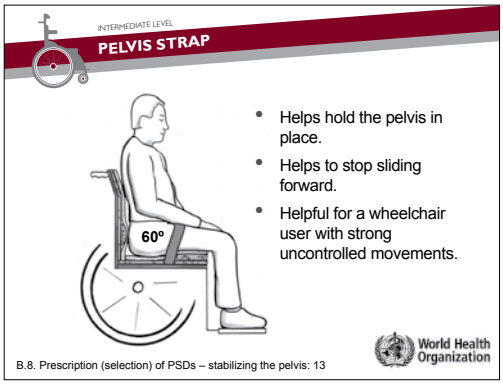
B.8. Prescription (selection) of PSDs – stabilizing the pelvis: 12

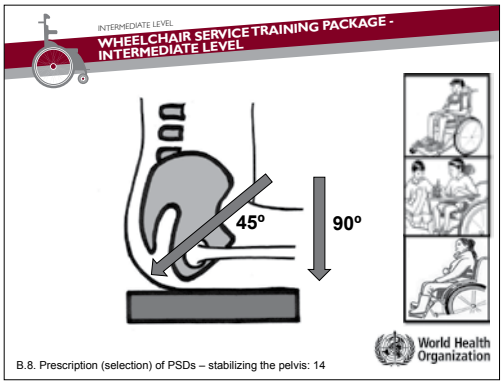
Explain: The top vertical arrow shows the additional support that can be provided to help keep the wheelchair user's pelvis in place, and against the support provided at the back of the pelvis and the front of the seat bones.

Ask: What PSD would provide this support?

Answer:

- a pelvis strap.





Explain:

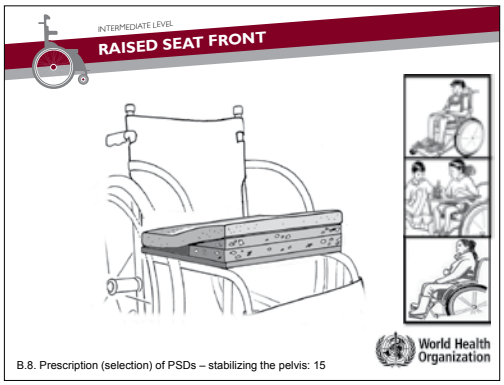
- A pelvis strap helps to hold the pelvis in place.
- A pelvis strap is very helpful for wheelchair users who have uncontrolled movements and/or a tendency to slide forward.
- The pelvis strap helps to keep the pelvis in place, so that the pre seat bone shelf and the rear pelvis pad continue to provide support.
- Where the strap is attached to the wheelchair will affect the angle/direction of pull. This will directly affect the way that the pelvis strap works.
- The angle may be between 45–90 degrees.
- The most effective angle will vary depending on the needs of the wheelchair user.
- Always assess, discuss and if possible trial the angle of the pelvis strap with the wheelchair user to see which angle is most effective and most comfortable for the wheelchair user.

Demonstrate with a sample.

Thank the volunteers.

Small-group activity	
Groups:	**Divide** participants into groups of 3.
Instructions:	**Provide** each group with a wheelchair (preferably different types of wheelchairs) and a pelvis strap. **Ask** participants to think about where the pelvis strap could be located on their wheelchair to provide an angle of pull of: • 45 degrees; • 60 degrees; • 90 degrees. **Explain:** Participants have 5 minutes as a group to do this activity and then the groups will come back together for feedback.

Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Guide** participants if necessary.
Time:	**Allow** 5 minutes for the activity. **Allow** 5 minutes for feedback.
Feedback:	**Ask** one group for each type of wheelchair to show where the pelvis strap could be located to achieve 45 degrees, 60 degrees and 90 degrees angle of pull. **Acknowledge** correct demonstrations. **Explain:** Different solutions are often needed for different types of wheelchairs. However the angle of pull should be decided by the needs of the wheelchair user – not the design of the wheelchair.



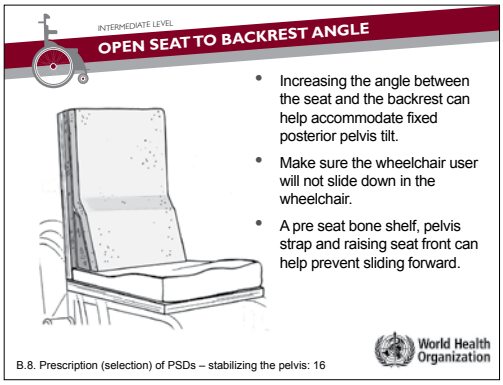
Explain:

- Uncontrolled movements, high tone or spasms can sometimes be reduced by increasing the amount of hip flexion.
- This can be done in the wheelchair by raising the seat front – creating a wedge under the wheelchair user's thighs.
- Note – the wedge should always begin in front of the seat bones as shown in this slide. The seat bones should sit on a flat surface.

Ask: How would you provide support if the wheelchair user's pelvis is fixed in posterior tilt and he/she cannot sit with their pelvis upright? Encourage answers.

Answer:

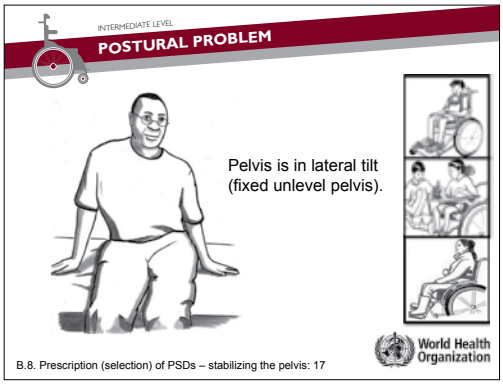
- For wheelchair users with a fixed posterior pelvis tilt further adjustments may be needed to accommodate the posture.
- One solution is to increase the angle between the seat and the backrest to accommodate the pelvis posture and provide support to prevent the pelvis from rolling back further. This can be called 'open the seat to backrest angle' (see PSD Reference Table).
- Care must be taken to ensure that the wheelchair user does not slide forward in the wheelchair. This can cause 'shearing', which can develop into a pressure sore.
- A pre seat bone shelf, a pelvis strap and raising the seat front will help to prevent sliding forward.



Explain:

- This illustration shows one way of opening the seat to backrest angle.
- **Remember** – The foam should be shaped to provide support where needed by the wheelchair user.

3. Problem: Pelvis is in lateral tilt (fixed unlevel pelvis) (5 minutes)



Explain: Now we will look at a different postural problem relating to the pelvis. Remember, wheelchair users may have more than one postural problem.

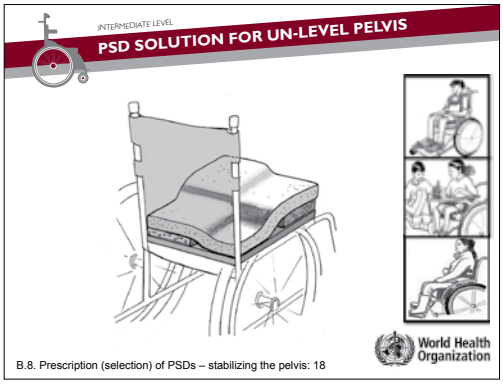
We will look at the following postural problem:

- pelvis is in lateral tilt/fixed unlevel pelvis (one ASIS higher than the other).

Explain: How to support this posture has been discussed in the 'B.3: Physical assessment – pelvis and hip posture screen' session.

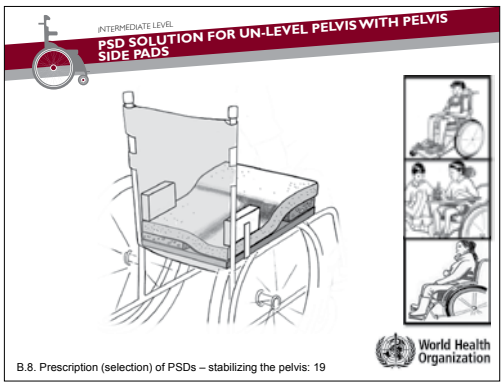
Ask: What is the PSD solution?
Acknowledge answers.
A build-up under the high side of pelvis will help to:

- increase stability for the wheelchair user;
- avoid unsafe pressure on the lower side of the pelvis.



Explain: There should be even contact under both seat bones and thighs. It may be necessary to adjust the footrests (one may need to be higher than the other).

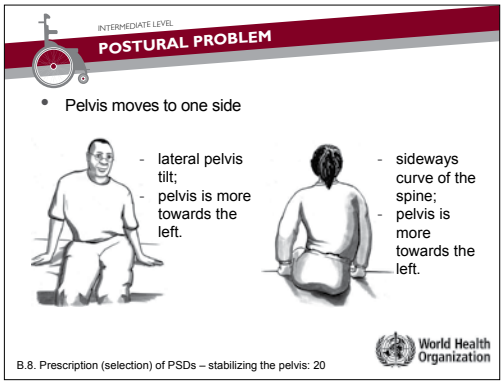
Explain that the image on the slide is from the back of the wheelchair.



Explain: Pelvis side pads will also help to support the pelvis and should be added for anyone with a build-up under the pelvis.

4. Problem: Pelvis moves to one side (10 minutes)

Explain: Now we will look at one more postural problem relating to the pelvis.



Postural problem:

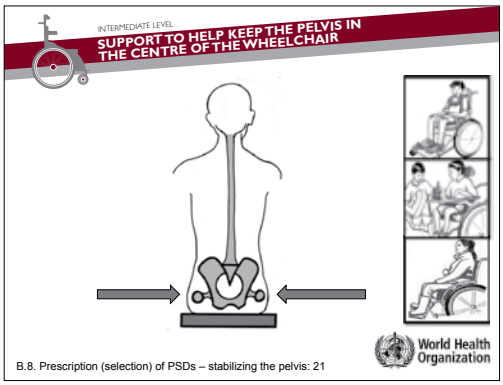
- Pelvis moves to one side.

Explain:

- There are different reasons why this may happen.
- This problem is often associated with other postural problems.
- In the slide you can see:
  - the same man from earlier – who has lateral pelvis tilt (fixed unlevel pelvis) **and** his pelvis is more towards the left;
  - a woman with a sideways curve in her spine. Her pelvis is also more towards the left.

Ask: Where can support be provided to help keep the pelvis in the centre of the wheelchair? **Acknowledge** correct answers.

Answer:
• support would be provided at the side of both hips.

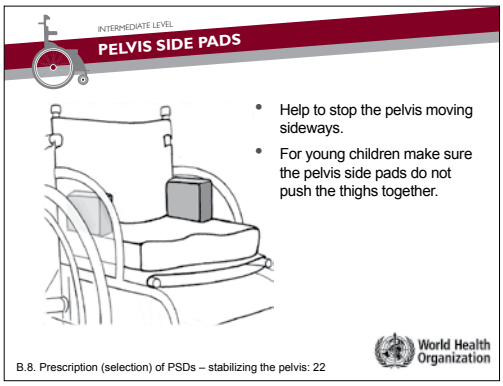


Ask: What is the PSD solution? Participants may like to refer to PSD Reference Table.

Acknowledge correct answers.

Answer:

- pelvis side pads.



Explain:

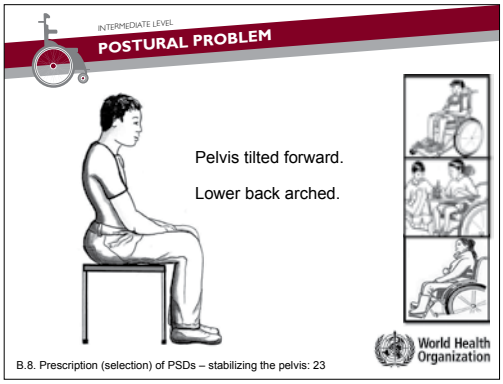
Pelvis side pads help to stop the pelvis from moving sideways.

Pelvis side pads should provide firm contact on both sides of the pelvis.

Remember:

Young children should sit with their thighs more apart than adults. This is important for the health and development of their hip joints. This means it is particularly important for children that pelvis side pads do not push children's thighs together.

5. Pelvis is in anterior tilt (pelvis tilts forward) (25 minutes)



Explain: Another postural problem is anterior pelvis tilt (pelvis tilts forward).

Ask participants – what are some supports that could be provided to help encourage a more neutral sitting posture of the pelvis? **Acknowledge** answers.

Answers:

- support at the front of the pelvis (ASIS) pushing backwards;
- a backwards sloping wedge.

Introduce DVD: Postural support solutions for anterior pelvis tilt. In this video we will see Caro, a wheelchair user whose pelvis is in anterior tilt. Watch closely to see the PSD solution that is developed for her. After the video we will discuss.

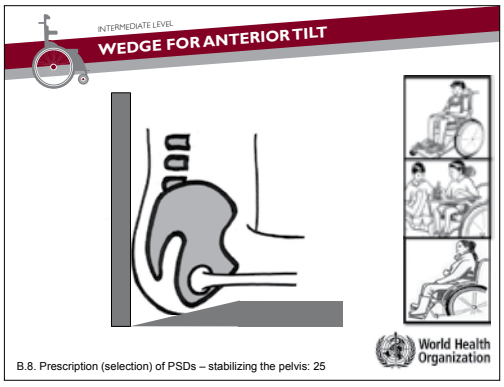
Show DVD.

Ask if there are any questions.

Ask participants – what support was provided to help Caro sit with her pelvis closer to neutral sitting posture?

Answer:

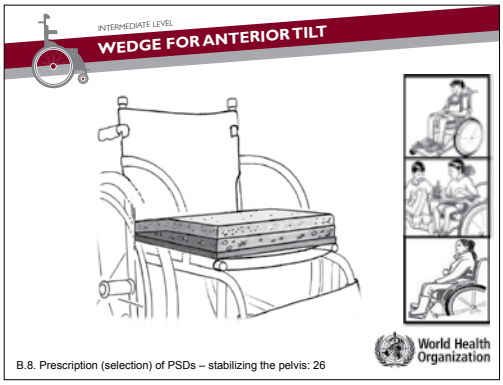
- Caro tried a cushion with a wedge for anterior tilt (a backwards sloping wedge) – to see if this helped her pelvis to become more upright.
- The wheelchair service personnel then experimented with a pelvis strap, to identify whether the additional support that can be provided by an anterior four-point strap would help Caro further.



Explain:

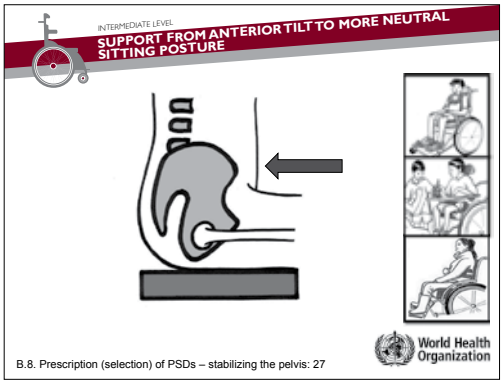
- A wedge for anterior tilt (a backwards sloping wedge) is placed under the seat bones. This can help a pelvis, which is in anterior tilt to roll backwards, towards the backrest.
- The wedge for anterior tilt should stop just in front of the seat bones and level out under the thighs.
- When considering using this PSD – try it with the wheelchair user to check:
  - how it feels;
  - whether it is effective;
  - how much angle is comfortable for the wheelchair user.

Note – in the DVD, the wheelchair service personnel asked Caro whether the cushion helped her to sit more comfortably.



Explain:

- This illustration shows how this wedge can be made with a combination of firm and soft foam.



Explain:

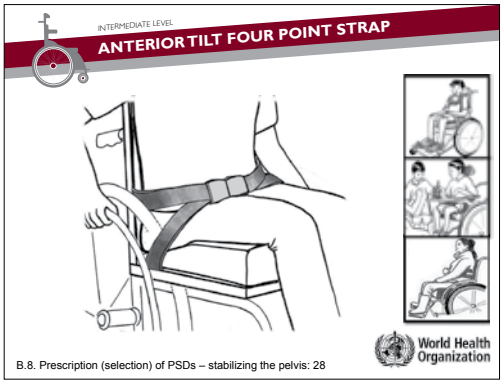
- Support can also be provided at the top at the front of the pelvis to help bring the pelvis into a more neutral sitting posture.

Note – in the DVD, the wheelchair service personnel provided support in this way and asked Caro how that felt.

Ask participants what PSD could provide this support?

Answers:

- anterior tilt four-point strap.



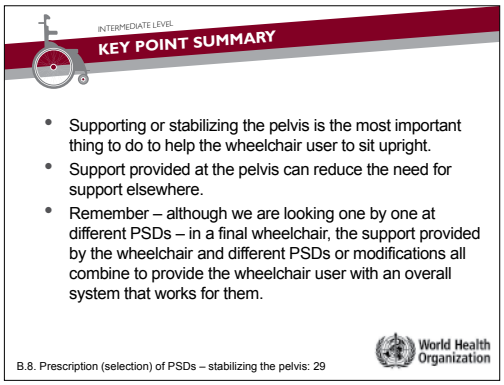
Explain:

- This strap is specifically for anterior tilt.
- Note on the illustration that the strap is anchored downwards onto the seat rails; and backwards, onto the backrest uprights.
- This is to stop the strap from sliding up onto the wheelchair user's stomach, which would be very uncomfortable.
- It is important that any strap, which provides support over the ASISs is well padded, to reduce the risk of pressure sores.

Notes for trainers: The DVD shows a simple strap. This is used just to assess whether a strap is comfortable for Caro and the direction of pull. If asked, explain to participants that a four-point strap would need to be made for the reasons described above.

Small-group activity	
Groups:	**Divide** participants into groups of 3.
Instructions:	**Assign** each group some blocks of firm foam; one wedge of firm foam (large enough to sit on); and a pelvis strap. **Ask** participants to work briefly in groups to: • experiment with the foam to see how they can set up the seat surface to encourage the pelvis to 'roll' from anterior tilt to more upright posture (mimic the wedge for anterior tilt); • experiment with the pelvis strap to feel the most effective 'direction of pull' to encourage the pelvis from anterior tilt to a more neutral sitting posture. **Explain:** Participants have 10 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Ensure** each participant has the opportunity to feel the effect of the wedge on their pelvis posture. **Guide** participants if necessary.
Time:	**Allow** 10 minutes for activity. **Allow** 5 minutes for feedback.
Feedback:	**Ask** the whole group – Did sitting on the wedge for anterior tilt encourage their pelvis to roll backwards? **Acknowledge** answers. **Ask** the whole group – What was the most effective angle of pull for the pelvis strap? **Acknowledge** answers.

6. Key point summary (3 minutes)



Read the key points.

Ask whether there are any questions.

B.9: Prescription (selection) of PSDs – supporting the hips

OBJECTIVES

By the end of this session, participants will be able to:

- ☐ describe PSDs that provide support for the hips;
- ☐ specify dimensions needed to be able to fabricate at least two PSDs.

RESOURCES

For the session:

- ☐ PPT Slides: B.9 Prescription (selection) of PSDs – supporting the hips;
- ☐ Reference Manual;
- ☐ Participant's Workbook;
- ☐ poster: Postural Support Device (PSD) Table;
- ☐ laminated Postural Support Device (PSD) Table–1 for each participant;
- ☐ PSD kit.

CONTEXT AND PRIOR LEARNING

Adapt this session to suit the context participants will be working in. Think about:

- ☐ PSDs, PSD materials and fabrication methods available in the participants' working environment.
- ☐ Where participants will carry out wheelchair user fitting – for example in the community/users' homes, in a workshop or in a clinic. This may affect the way in which they work and the choices of PSDs.

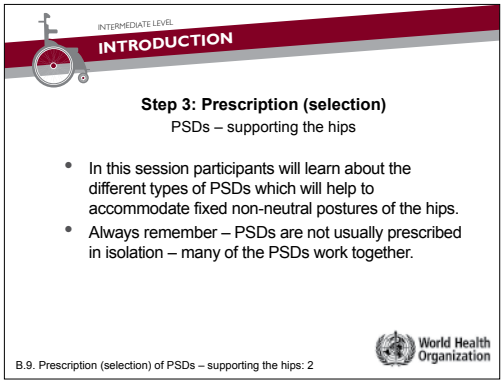
TO PREPARE

- ☐ Gather resources, review PPT slides and read through the session plan.
- ☐ Pin up the Postural Support Device (PSD) Table poster.
- ☐ Unpack sample PSDs and lay them out on a table at the front of the training room where you can easily reach them.

OUTLINE

1. Introduction	2
2. Supporting the hips	25
3. Completing the 'PSDs or modifications required' section on the intermediate wheelchair prescription form	15
4. Key point summary	3
Total session time	**45**

1. Introduction (2 minutes)



Explain:

- During this session we will look at some PSDs, which will help to accommodate fixed non-neutral postures of the hips including:
  - one hip cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees);
  - both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees);
  - one or both hips cannot open to neutral sitting posture (trunk to thigh angle less than 90 degrees).
- Remember – any fixed / non-neutral postures of the hip will affect pelvis posture if not accommodated. During the 'B.3: Physical assessment – pelvis and hip posture screen' session we looked at how to provide temporary supports to accommodate these postures.
- In this session we will look at how these temporary supports become permanent PSDs.
- Always remember – PSDs are not usually prescribed (selected) in isolation – many of the PSDs work together.

2. Supporting the hips (25 minutes)

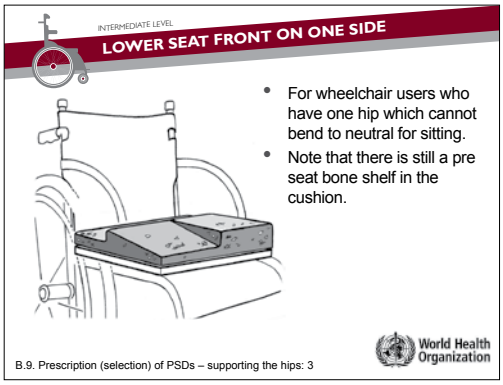
Problem: One hip cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)

Explain: We will now look at what can be done if only one hip cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees for one hip only).

Ask: As discussed previously, what temporary support was provided for this problem? Encourage answers.

Answer:

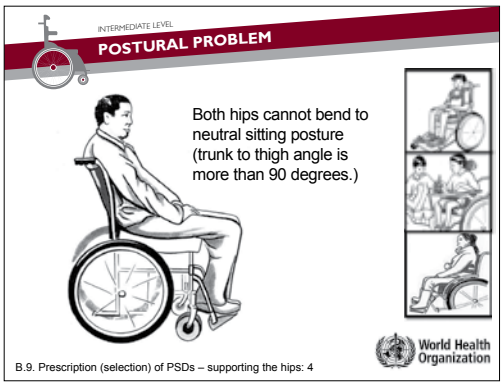
- place a build-up (foam) under both seat bones and under the thigh of the hip that can bend to neutral sitting posture (trunk to thigh angle more than 90 degrees).



Explain:

- This support can be permanently built into the cushion to accommodate the hip, which cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees) by lowering the seat front on one side.
- Lower seat front: The angle of the cut-out in the foam will depend on the wheelchair user's trunk to thigh angle – so this should be checked at the physical assessment.
- Note that there is still a pre seat bone shelf in the cushion.

Problem: Both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)



Problem:

- Both hips cannot bend to neutral sitting posture (trunk to thigh angle more than 90 degrees)

Ask: What was the temporary support for this postural problem?

Answer:

- place a build-up (foam) under both seat bones.

Ask: Would this work as a permanent solution and why or why not?

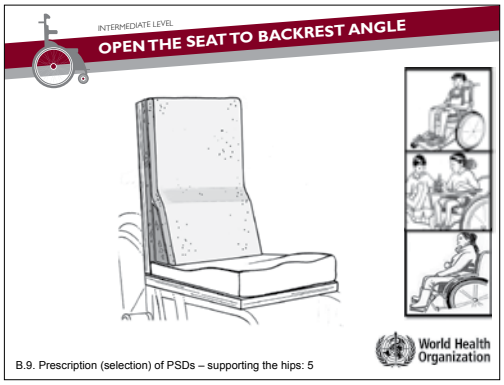
Answer:

- no, the wheelchair user would tend to slide forward out of their seat.

Ask: What can be done instead?

Answer:

- increase the angle between the seat and the backrest to match the trunk to thigh angle;
- provide good back support to help user sit as upright as possible.



B.9. Prescription (selection) of PSDs – supporting the hips: 5

A possible solution if both hips cannot bend to neutral sitting posture is to open (increase) the angle between the seat and the backrest:

- increasing the seat to backrest angle will accommodate the greater trunk to thigh angle;
- the angle will depend on the wheelchair user's trunk to thigh angle – and this should be decided during the assessment;
- prescribe a pre seat bone shelf and a pelvis strap to help prevent sliding forward.

Problem: One or both hips cannot open to neutral sitting posture

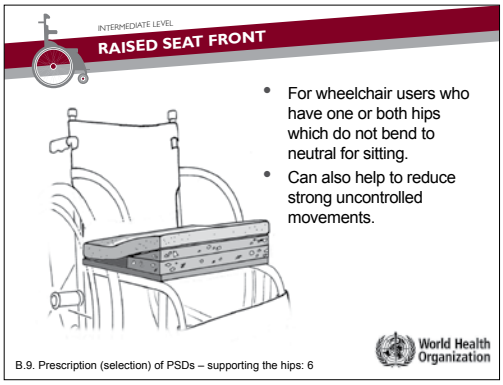
Explain: We will look at one more postural problem to do with hips – which is when one or both hips cannot open to neutral for sitting (trunk to thigh angle less than 90 degrees).

Ask all participants to demonstrate this posture where they are sitting. **Check** that everyone has their hips bent so that their knees are higher than their hips.

Ask: Can anyone suggest a solution? Think about the temporary solutions previously discussed. Encourage answers.

Answer:

- place a build-up (wedge of firm foam) in front of the seat bones and under the thigh/s that cannot open to neutral sitting posture (trunk to thigh angle less than 90 degrees).



Explain:

- A possible permanent solution is to raise the seat front by placing a wedge in front of the seat bones and under the thighs.
- This reduces the angle between the seat and the backrest. The amount that the seat front is raised will depend on the wheelchair user's trunk to thigh angle. This should be decided during assessment.
- Raising the seat front can also help reduce strong uncontrolled movements or high tone where the body straightens.

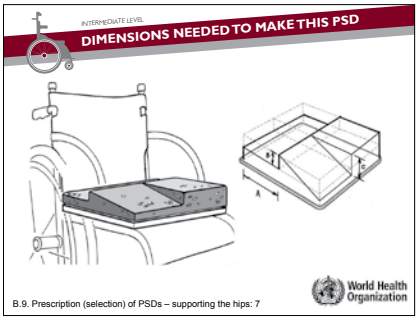
3. Completing the 'PSDs or modifications required' section on the intermediate wheelchair prescription form (15 minutes)

Small-group activity	
Groups:	**Divide** participants into groups of 2 or 3.
Instructions:	**Ask** participants to read wheelchair users' stories in the Participant's Workbook (B.9: Prescription (selection) of PSDs – supporting the hips). **Ask** participants to work together to describe PSDs on the 'PSDs or modifications required' part of the intermediate wheelchair prescription form. **Explain:** Participants may use the following to help them with the activity: • PSD Table; • PSD Reference Table. **Explain:** Participants have 10 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Encourage** groups to use the PSD Table and PSD Reference Table. **Guide** participants if necessary.
Time:	**Allow** 10 minutes for activity. **Allow** 5 minutes for feedback.

Feedback:

Ask participants how they felt about drawing the PSDs.

Acknowledge that for many people it takes practice to be able to describe PSDs accurately.



Show slide

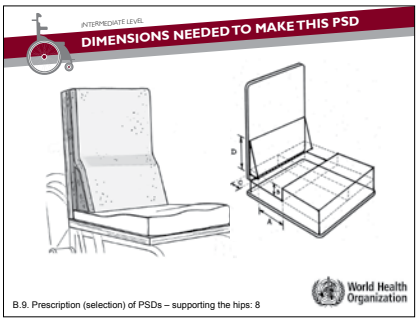
Explain: the important dimensions are:

- A: Where the pre seat bone shelf should begin.
- B: How high the pre seat bone shelf should be.
- C: The difference in the height of the front of the seat between the left and right hip. This creates the angle to accommodate Sienna's right hip.

Ask: How are these dimensions decided?

Answers:

- A: From Sienna's body measurement (back of pelvis to seat bones) you can decide where the pre seat bone shelf should start.
- B: The height of a pre seat bone shelf is usually between 25–30mm.
- C: Measure the height of the temporary support to determine the height of C.



Show slide:

Explain: the important dimensions are:

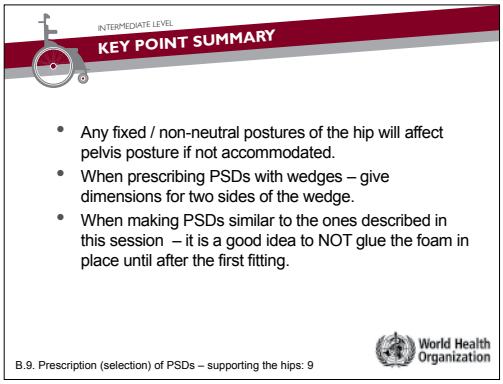
- A: Where the pre seat bone shelf should begin.
- B: How high the pre seat bone shelf should be.
- C and D together provide the dimensions needed to fabricate the wedge, which is added to open the seat to backrest angle.

Ask: How are these dimensions decided?

	Answers: • A: From Robert's body measurement (back of pelvis to seat bones) you can decide where the pre seat bone shelf should start. • **Note: This measurement must take into account the wedge added to the backrest to open the seat to backrest angle.** • B: The height of a pre seat bone shelf is usually between 25–30mm. • C and D: The best way to determine these measurements is to 'mock-up' the wedge and test with the wheelchair user.
	Explain: When making PSDs such as these – it is a good idea to NOT glue the foam in place until after the first fitting. This way the PSD can still be adjusted to make sure it is the right fit for the wheelchair user.

Notes for trainers: *In the example dimension drawing for Robert, the wedge on the backrest has been placed to allow room for a layer of soft foam to be added on top of the cushion, tucking under the wedge. There are different ways to construct this PSD – and individual variations may be explained by trainers, depending on the context, materials and common technical solutions.*

4. Key point summary (3 minutes)



Read the key points.

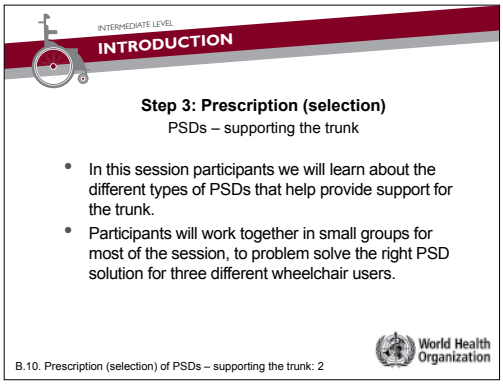
Ask whether there are any questions.

B.10: Prescription (selection) of PSDs – supporting the trunk

OBJECTIVES	By the end of this session, participants will be able to: ☐ describe modifications and PSDs that help to either support the trunk in neutral sitting posture (if possible) or accommodate the trunk in as close to neutral sitting posture as is comfortable for the wheelchair user; ☐ begin problem solving different ways to make modifications or PSDs that provide support for the pelvis, hips and trunk; ☐ complete an intermediate wheelchair prescription (selection) form with assistance.
RESOURCES	For the session: ☐ PPT Slides: B.10: Prescription (selection) of PSDs–supporting the trunk; ☐ Reference Manual; ☐ Participant's Workbook; ☐ poster: Postural Support Device (PSD) Table; ☐ intermediate wheelchair prescription (selection) form; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ PSD kit; ☐ PSD materials; ☐ Wheelchair – 1 for each group (matching the wheelchair described in each wheelchair user story as closely as possible); ☐ blocks of firm foam – a few per whole group; ☐ wedges of firm foam – a few per whole group.
CONTEXT AND PRIOR LEARNING	Adapt this session to suit the context participants will be working in. Think about: ☐ PSDs, PSD materials and fabrication methods available in the participants' working environment. ☐ Where participants will carry out wheelchair user fitting – for example in the community/users' homes, in a workshop or in a clinic. This may affect the way in which they work and the choices of PSD.

TO PREPARE	☐ Gather resources, review PPT slides and read through the session plan. ☐ Pin up the Postural Support Device (PSD) Table poster. ☐ Unpack PSD kit, materials, blocks and wedges of firm foam and lay this equipment out on a table at the front of the training room. ☐ Line up sample wheelchairs neatly at the front of the training room.	
OUTLINE	1. Introduction	2
	2. Supporting the trunk	115
	3. Completing the intermediate wheelchair prescription (selection) form	30
	4. Key point summary	3
	Total session time	**150**

1. Introduction (2 minutes)



Explain:

We have now looked at different PSDs, which help to stabilize the pelvis and support the hips.

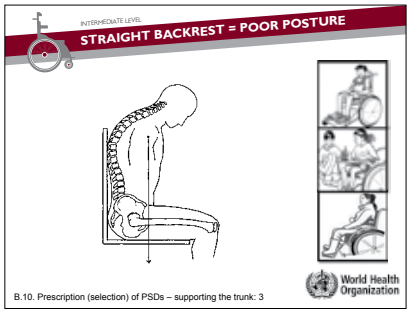
In this session we will:

- learn about PSDs that provide support for the trunk;
- discuss the importance of always considering first how to stabilize the pelvis and then support the trunk. For many people, postural problems related to the trunk can be resolved or improved with good pelvis support.

Participants will work in small groups for most of the session, to problem solve the right PSD solution for three different wheelchair users.

Through this session participants should see that PSDs for the trunk do not work in isolation – but are usually combined with PSDs that support the pelvis and sometimes also the hips.

2. Supporting the trunk (115 minutes)

Whole group activity	
Groups:	This activity is performed with the group as a whole.
Instructions:	**Ask** participants to find a flat piece of wall and place a table/bench against the wall. **Ask** each participant to sit on the table/bench with their pelvis right up against the wall. **Explain** that participants should sit as upright as they can. **Explain:** Participants will sit in this posture for about 5 minutes and then the group will provide feedback.
Monitor:	**Monitor** participants closely. **Ensure** that each participant understands the activity. **Check** that the tables/benches are right up against the wall and that each participant is sitting with their pelvis upright and contacting the wall. **Guide** participants if necessary.
Time:	**Allow 5** minutes for the activity. **Allow 5** minutes for feedback.
Feedback:	**Ask:** Is it comfortable to sit like this? Is it possible to sit upright?
	Answers:
	• participants should feel as though the wall is pushing their upper trunk forward; or • they feel that they have to move their pelvis forward in order to sit upright.
	 B.10. Prescription (selection) of PSDs – supporting the trunk: 3 Explain: • The reason this is not comfortable, is the wall prevents upright sitting posture. • The wall does not allow for the upper trunk to move backwards, past the line of the pelvis. • This is the same for people sitting in a wheelchair with a straight back.

Explain: We have looked at different ways to stabilize the pelvis. However it is very important to then also look at how the trunk can be supported above the pelvis – in either neutral sitting posture (if possible) or supported as close to neutral sitting posture as possible.

Small group activity	
Groups:	**Divide** participants into 3 groups.
Instructions:	**Give** each group a number (1–3) and **assign** an appropriate wheelchair user's story in the Participant's Workbook (B.10: Prescription (selection) of PSDs – supporting the trunk). Give each group a wheelchair, which matches (as closely as possible) the wheelchair described in the wheelchair user's story assigned to them. Assign PSD material, blocks and wedges of firm foam to each group. **Explain:** • Each group is to read their wheelchair user story very carefully. • Each group has a different wheelchair user with different individual needs. However each of the wheelchair users described needs support for their **pelvis and trunk**. Two of the wheelchair users have fixed hip problems. • Each group should decide how they will provide the support needed by the wheelchair user described in their story. • Each group should try to think of different options and ways to make the PSDs. **Explain**: • Participants should use the different materials made available to 'mock up' at least one solution using the wheelchair they have been given (trainer should point out the materials available). • **Encourage** participants to ask questions of the trainers at any time. • Participants should be prepared to present their wheelchair user story and solutions to the rest of the group. **Explain:** • Participants have 60 minutes to complete the assigned wheelchair user story and tasks associated with it. Each group will give feedback to the whole group describing possible solutions to the postural problems. **Ask** participants to NOT COMPLETE the intermediate wheelchair prescription form at the end of each wheelchair user story yet. This will be done after everyone has given feedback to the whole group and the prescription (selection) solutions are agreed on by the whole group.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Encourage** each group to use the wheelchair and materials they have been given to 'mock up' the PSDs they would provide for their wheelchair user. **Ensure** that each group follows the sequence: Pelvis + Hips →Trunk. **Guide** participants if necessary.
Time:	**Allow** 60 minutes for activity. **Allow** 45 minutes for feedback.

Feedback:	**Ask** each group to present their wheelchair user story to the rest of the group. Participants should: • give a brief summary of their wheelchair user; • show the solution they have devised to provide the wheelchair user with the support he/she needs. After each group has presented one solution – **ask** the whole group: • Do they agree with that solution? Why? • Is there another way that this support could be provided? **Encourage** participants to consider the different technical solutions that are possible depending on the materials and equipment available. **Ensure** that the correct answers are provided. If there is any confusion – **encourage** the whole group to finish solving the problem. Use the Notes for trainers below as a guide. In conclusion – **emphasize** that the first priority for each group was (or should be) to stabilize the pelvis.

Notes for trainers:

Mark is 16 years old and has a high level spinal cord injury. He has a wheelchair with a slung seat and backrest. His wheelchair is the correct size and he has a soft, flat foam cushion.

Mark finds it difficult to sit upright. His back stays rounded and he tends to slide forward in his wheelchair. He is getting red marks on his skin under his seat bones and around his shoulder blades.

What PSDs could be provided to help Mark sit upright in his wheelchair?

Mark's assessment shows that he is able to sit in neutral posture with support. The PSDs that can be used to support his neutral sitting posture are:

Pelvis:

- pre seat bone shelf – to support the pelvis in neutral sitting posture and prevent posterior pelvis tilt;
- rear pelvis pad – to support the top of the pelvis to stay in neutral sitting posture and prevent posterior pelvis tilt;
- pelvis strap (if necessary) – to keep the pelvis in the right sitting posture and stop Mark from sliding away from the rear pelvis pad and up and over the pre seat bone shelf.

Trunk:

- increase the backrest height – to provide support behind his shoulder blades (note – when Mark is sitting more upright with good pelvis support, he will need the backrest height to be increased).

How could these supports be added to Mark's wheelchair?

1. Seat/cushion:

- make Mark a new, contoured cushion with a pre seat bone shelf and a top layer of soft foam.

2. Backrest:

A rear pelvis pad could be added in different ways including:

- **option one:** add an adjustable padded strap to the back of the backrest fabric and secure it around the backrest uprights;
- **option two:** secure a block of firm foam to the back of the backrest fabric, secure it using a strap around the backrest canes;
- **option three:** add a tension adjustable backrest and set it up so that there is firm support against the top of Mark's pelvis;
- **option four:** remove the slung backrest and add a solid backrest. Upholster the backrest with a layer of firm foam covered by a layer of soft foam between the two layers of foam and add a firm foam rear pelvis pad. Cover the backrest with a washable fabric. This option may mean that the wheelchair can no longer fold.

The backrest height could be raised in different ways:

- **option one:** fit an additional section of fabric onto the backrest uprights if they extend to the height needed;
- **option two:** extend the backrest uprights if they are not high enough. This can be done by cutting the backrest uprights and add in a slightly narrower solid wooden or hollow metal tube. Bolt (if wooden) or weld (depending on the type of metal) the tube in place and add the additional backrest fabric or replace the backrest with one that extends to the height required (for example a tension adjustable backrest);
- **option three:** remove the existing backrest fabric and fit a solid backrest of the correct height by bolting it to the backrest uprights, or attaching it with brackets. This option may mean that the wheelchair can no longer fold.

3. Straps:

- fit a pelvis strap to the seat rails.

Josephine is 35 years old. She has a spinal cord injury. She lives in a rural village, and is an active member of the local Church. She has previously been provided with a long wheelbase wheelchair, which she likes as it is easy for her family to push over the rough ground in her village. She can push it a little herself when indoors on smooth surfaces. The wheelchair is the correct size for her, and has a solid backrest and seat. She has a thick flat foam cushion.

Josephine is not comfortable in the wheelchair, and she is finding it harder to push herself. She sits with her pelvis rolled back (posterior pelvis tilt) and her trunk posture is curved forward.

What PSDs could be provided to help Josephine sit as upright as possible in her wheelchair?

During Josephine's assessment, it was found that she could not sit in a fully neutral sitting posture. Her pelvis is **fixed** in a posterior tilt and she could not bend her right hip fully to neutral sitting posture (angle 100 degrees). However, her sitting posture improved (became more upright) with temporary support under her seat bones, firm pelvis support and support behind her trunk.

PSDs that may help support Josephine to sit closer to neutral posture, with more stability and to enable her to function better include:

Pelvis + Hips:

- pre seat bone shelf – to encourage more neutral sitting posture and keep her pelvis from sliding forward ;
- lower seat front on right side to accommodate fixed right hip;
- may also add a pelvis strap – to keep her pelvis back in the seat and stop Josephine from sliding up and over the pre seat bone shelf.

Trunk:

- open the seat to backrest angle to accommodate her fixed posterior pelvis tilt;
- adjust backrest shape – to support her rounded trunk;
- consider seat and backrest tilt (tilt in space) during fitting – if Josephine's head is not more comfortable once she is sitting more upright with these supports.

How could these supports be added to Josephine's wheelchair?

1. Seat/cushion

- modify Josephine's current cushion or make a new cushion with a pre seat bone shelf and lower seat front on the right side;
- the cushion should have a firm foam layer covered by a soft foam layer.

2. Seat and backrest

- Open the seat to backrest angle:
  - **option one:** if the wheelchair design allows for the angle between the seat and the backrest to be reclined – adjust the wheelchair so that the seat to backrest angle is increased to match the amount of posterior tilt that Josephine has;
  - **option two:** make a firm foam wedge to support Josephine's pelvis in the most upright posture that is comfortable for her and glue this to the solid backrest. Cover the firm foam wedge and shaped foam for Josephine's trunk with a layer of soft foam. Upholster with a washable fabric.
- Adjust backrest shape:
  - Shape the surface of the backrest to support and accommodate her rounded trunk. Depending on the support needed, build up foam where needed using a firm foam to provide shape. When complete, place a soft foam layer over the whole surface of the backrest. Make sure that any foam added does not push Josephine forward.

Note:

- The modifications to the seat and backrest above may reduce the available seat depth.
- Participants should consider what could be done if there is not enough seat depth.
- Options are:
  - **option one:** see if the seat board can move forward (then check propelling position and access to footrests);
  - **option two:** move the backrest further back. One way to do this is to attach the backrest to the backrest uprights with brackets. In this case, check that Josephine's upper arms/trunk are not restricted by the backrest uprights and she is able to move her shoulders freely.

3. Straps:

- fit a pelvis strap to the seat rails.

Sian is three years old and has cerebral palsy. He has a child size cross-folding wheelchair with swing away footrests, a slung seat and backrest. There is no tray and no cushion. His wheelchair is the correct seat depth for him, however it is a little wide. His parents do not own a car and they walk to most places. They can push him around the community in his wheelchair although sometimes they just carry him. Sian can push his wheelchair a little himself when on a smooth surface.

Sian can sit upright for very short periods without support. After 10 minutes his trunk starts to collapse and he usually leans forwards and towards the left. This causes his pelvis to lift up on the right side, and more weight goes through his left seat bone. His back has the normal curve for his age. Sian's mother would like him to be able to play outside with other children and begin to push his wheelchair.

What PSDs could be provided to help Sian sit as upright as possible in his wheelchair?

Pelvis + Hips:

- pre seat bone shelf – to keep Sian's pelvis in a neutral sitting posture and at the back in the seat;
- pelvis side pads – to help support his pelvis to stay in neutral sitting posture, and not lift up on the right side;
- pelvis strap – for safety (as he is three) and also may be necessary if he lifts his pelvis up and away from the supports;
- raise seat front – to accommodate the 80 degree trunk to thigh angle in Sian's left and right hips.

Trunk:

- left and right trunk side pads – to help keep Sian's trunk in neutral sitting posture and prevent him from falling to the left;
- tray – a tray may help Sian to stay upright for longer by giving him support for his arms and help him keep his balance better;
- shoulder harness – may be required at least initially, or when Sian is particularly tired, to help keep his chest and shoulders back against the backrest;
- seat and backrest tilt (tilt in space) – this could be added if Sian continues to fall forward and to the left.

How could these supports be added to Sian's wheelchair?

1. Seat / cushion:

- Make a cushion for Sian, which has:
  - a pre seat bone shelf;
  - raised seat front (made by adding a wedge beginning at the pre seat bone shelf and extending to the front of the cushion – which matches Sian's trunk to thigh angle).
- The cushion could be made on a solid board, which sits over the slung seat. This will provide more support than if the cushion sits on a slung seat. If a solid board is not used, make sure that the base of the cushion has a slight curve to match the shape of the slung seat.
- Make pelvis side pads – attach upholstered blocks of firm foam to either:
  - the armrests/side guards (with glue);
  - to the seat or to the backrest with a bracket.

2. Backrest:

- Add trunk side pads:
  - **option one:** replace the slung backrest with a solid backrest and attach trunk side pads to the solid backrest, behind the backrest cushion. The backrest cushion may be cut to allow for the trunk side supports to be positioned correctly (close enough to Sian's body). Ensure that any brackets are well padded;
  - **option two:** attach trunk side pad supports to the backrest uprights with brackets. Make sure that the bracket is shaped to allow the trunk side supports to come in close to Sian's body.

3. Seat and backrest tilt (tilt in space):

- if seat and backrest tilt (tilt in space) is necessary, this could be made by using a solid seat and solid backrest as described above. Attach the seat and backrest with brackets, positioned to place the seat and backrest in tilt. The seat to backrest angle should not change.
- Remember if tilt is added Sian should have a headrest.

4. Straps:

- fit a pelvis strap to the seat rails;
- attach the shoulder harness to the solid backrest (top and bottom).

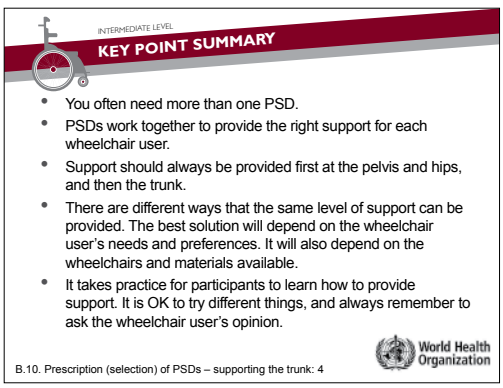
5. Tray:

- make a tray for Sian, which wraps around his body – so that he can rest his elbows and forearms on the tray for additional support;
- the tray may be fitted to the wheelchair armrests – and needs to be able to come on and off easily.

3. Completing the intermediate wheelchair prescription (selection) form (30 minutes)

Small-group activity	
Groups:	**Ask** participants to work in the same groups as for the previous activity.
Instructions:	**Ask** participants to complete the intermediate wheelchair prescription (selection) form in their workbook for Mark/Josephine/Sian. **Explain:** Each group is to complete only one form for the wheelchair user whose story they have previously worked with. **Explain:** Participants do not have the body measurements for each wheelchair user – so they cannot provide dimensions. However – participants should describe/draw where dimensions would be needed.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. Before the feedback part of the activity, **move** between the groups and **check** each group's intermediate wheelchair prescription form to see how well each group was able to complete it. **Note** any difficulties that participants have had. **Guide** participants if necessary.
Time:	**Allow** 20 minutes for activity. **Allow** 10 minutes for feedback.
Feedback:	**Ask** if participants have any questions about completing the intermediate wheelchair prescription form. **Clarify** any areas of difficulty that you have noted during the activity.

4. Key point summary (3 minutes)



Read the key points.

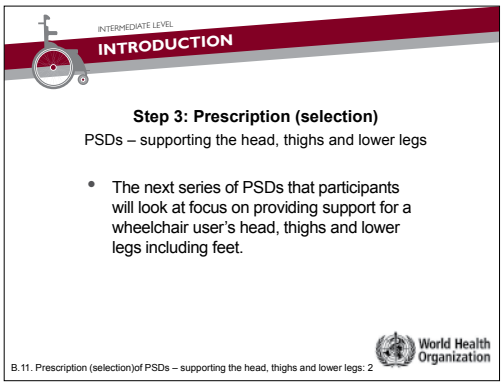
Ask whether there are any questions.

B.11: Prescription (selection) of PSDs – supporting the head, thighs and lower legs

OBJECTIVES	By the end of this session, participants will be able to: ☐ describe modifications and PSDs that provide support for a wheelchair user's head, thighs and lower legs.
RESOURCES	For the session: ☐ PPT Slides: B.11: Prescription (selection) of PSDs – supporting the head, thighs and lower legs; ☐ Reference Manual; ☐ Participant's Workbook; ☐ DVD: Head support; ☐ poster: Postural Support Device (PSD) Table; ☐ laminated Postural Support Device (PSD) Table–1 for each participant; ☐ PSD kit; ☐ wheelchairs – 1 for each group; ☐ foam cushion – 1 for each group.
CONTEXT AND PRIOR LEARNING	Adapt this session to suit the context participants will be working in. Think about: ☐ PSD, materials and fabrication methods available in the participants' working environment. ☐ Where participants will carry out wheelchair user fitting – for example in the community/users' homes, in a workshop or in a clinic. This may affect the way in which they work and the choices of PSD.
TO PREPARE	☐ Gather resources, review PPT slides, watch DVD and read through the session plan. ☐ Pin up the Postural Support Device (PSD) Table poster. ☐ Unpack sample PSDs from the PSD kit that have been put together and lay them out on a table at the front of the training room where you can easily reach them. ☐ Line sample wheelchairs neatly at the front of the training room.

OUTLINE		
	1. Introduction	2
	2. Supporting the head	25
	3. Supporting the thighs	60
	4. Supporting lower legs and feet	30
	5. Key point summary	3
	Total session time	**120**

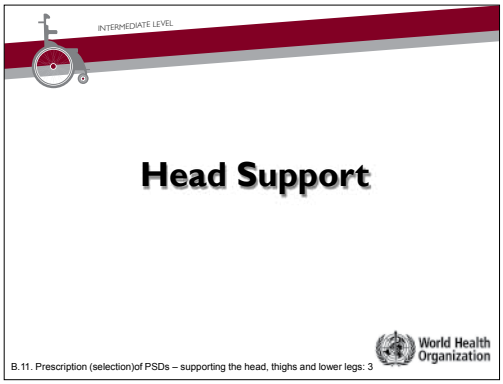
1. Introduction (2 minutes)



Explain:

- We have now looked at different PSDs, which help to stabilize the pelvis, support problems at the hips and support the trunk.
- The next series of PSDs that we will look at focus on providing support for a wheelchair user's head, thighs and lower legs including feet.

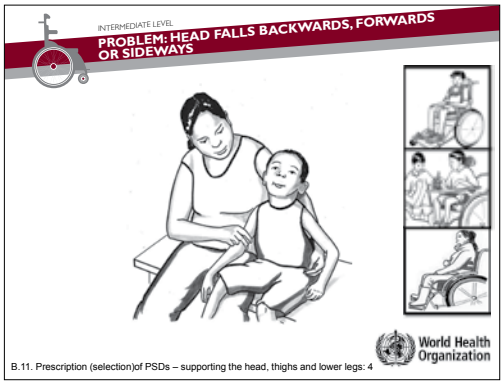
2. Supporting the head (25 minutes)



Explain:

- None of the wheelchair users in the case stories we have just looked at needed a headrest.
- However – some children and adults do need a headrest.

Ask: Does anyone have any examples of children or adults they have worked with who needed a headrest? **Acknowledge** answers and **allow** a brief discussion.



Problem:

- The head tends to fall backwards, forwards or sideways.

Explain:

- This slide shows an illustration of a young boy who finds it very difficult to hold his head up himself.
- In the illustration you can see that his mother is supporting his head with her arm.

Ask: What would be some possible solutions for this boy? **Encourage** answers.

Answers:

- FIRST – provide good pelvis and trunk support – to ensure the boy is as stable as possible. This could include:
  - pelvis: rear pelvis pad, pre seat bone shelf and pelvis strap;
  - trunk: adjust backrest shape to provide optimum support for the boy's trunk, shoulder harness, possibly tilt in space.
- These PSDs could improve his head control.
- If the boy continues to find it difficult to hold his head upright – provide a headrest.

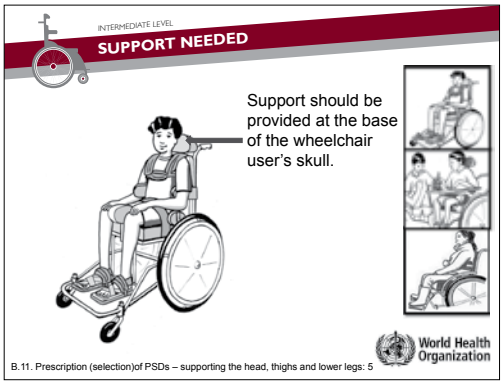
Notes for trainers: Emphasize the importance of providing the right pelvis and trunk support; and then considering whether there is still a need for a headrest.

Ask: Where on the head can support be provided?

Answer:

- FIRST – provide support at the base of the skull;
- if necessary, support can extend around the sides of the wheelchair user's head.

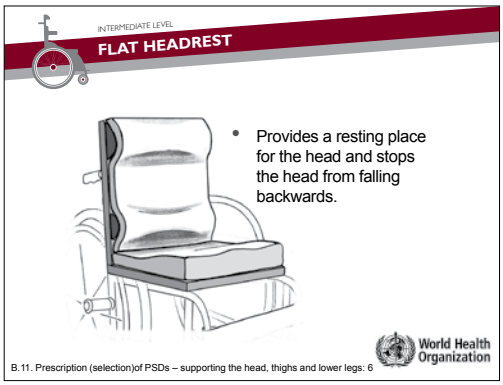
Notes for trainers: Some participants may suggest a head strap. This should be discouraged as this form of support can be very uncomfortable and potentially dangerous. A head strap should only be used in very specific circumstances and under close supervision.



Explain:

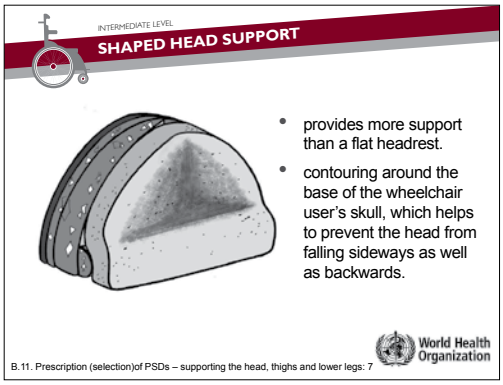
- This illustration shows headrest provided at the base of the skull.

There are many different types of headrests. In this training programme, we will talk about two types of headrests.



Explain:

- One is a flat headrest:
  - this is an extension of the backrest;
  - the backrest is contoured to provide support for the pelvis, lower and upper trunk; and is extended to provide support for the head;
  - a flat headrest provides a resting place for the head and stops the head from falling backwards.



- The other is a shaped headrest.
  - this is shaped to 'cup' the base of the head;
  - a shaped headrest can be extended at the sides and come forward to give more support on the side of the head;
  - a shaped headrest provides more support than a flat headrest by contouring around the base of the wheelchair user's skull.

Notes for trainers: *If there are any other types of headrests locally available (and present at the training programme) show these to participants and explain any specific features.*

Introduce DVD: Head support. In this video we will see Michael, a young boy whose mother brings him in for assessment because he finds it difficult to sit upright and hold his head up. During the physical assessment, the wheelchair personnel identify:

- Michael's pelvis is fixed in a posterior pelvis tilt;
- Michael tends to push his pelvis forward and slide in his wheelchair;
- Michael's upper trunk and head fall forward, and when he brings his head all the way upright he loses head control and his head falls backwards.

Watch the process that the wheelchair service personnel go through to identify what postural support Michael needs and how this is provided in his wheelchair.

Show DVD.

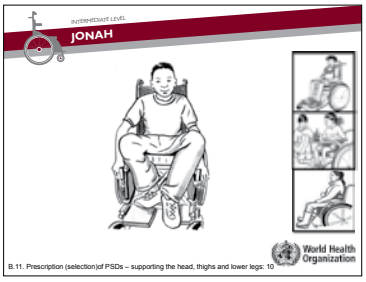
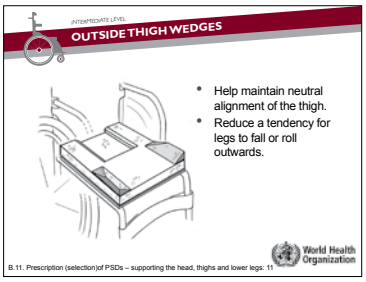
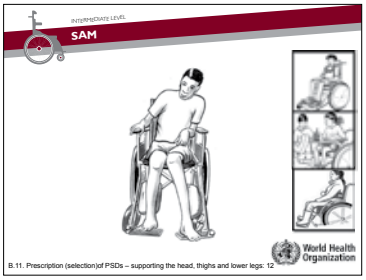
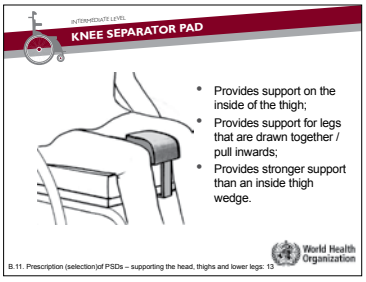
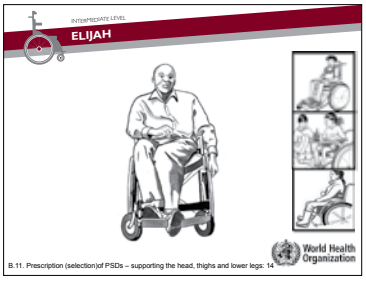
Ask if there are any questions.

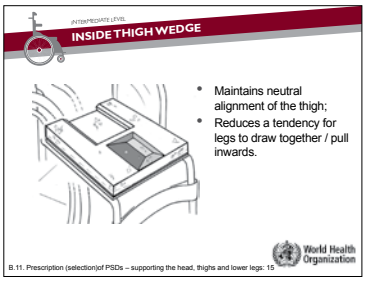
3. Supporting the thighs (60 minutes)

Explain: We have already looked at stabilizing the pelvis, supporting problems at the hips, providing support to the trunk and providing a headrest.

Now we will look specifically at supporting the thighs.

Small-group activity	
Groups:	**Divide** participants into 3 groups.
Instructions:	**Give** each group a wheelchair and a foam cushion. **Ask** each group to read and answer all three questions in Participant`s Workbook (B.11: Prescription (selection) of PSDs – supporting the head, thighs and lower legs). Explain: • Each group should look at the wheelchair and foam cushion they have been given and think about what they could do with that wheelchair and foam cushion (and other materials or components) to provide the support needed by the wheelchair user. • Think about: - general wheelchair set-up; - the wheelchair user's whole body; - what PSDs are needed for the thighs. **Explain:** Participants have 30 minutes as a group to do this activity and then the groups will come back together for feedback.

Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Guide** participants if necessary.	
Time:	**Allow** 30 minutes for activity. **Allow** 30 minutes for feedback.	
Feedback:		**Ask** one group to describe their solution for Jonah. **Ask** if any other groups had other suggestions. **Ensure** that participants cover all key learning points (please see Notes for trainers below).
		**Show** slide of outside thigh wedges.
		**Ask** another group to describe their solution for Sam. **Ask** if any other groups had other suggestions. **Ensure** that participants cover all key points (please see Notes for trainers below).
		**Show** slide of knee separator pad.
		**Ask** another group to describe their solution for Elijah. Ask if any other groups had other suggestions. **Ensure** that participants cover all key points (please see Notes for trainers below).

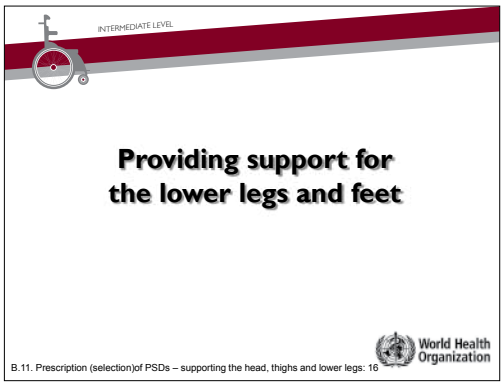
		**Show** slide of inside thigh wedge.

Notes for trainers:		
	• Jonah has come for assessment. During hand simulation you find out that Jonah`s legs tend to fall outwards (abducted) but with gentle support you can bring his legs into a neutral sitting posture (knees closer together). • What changes do you think you can make to his wheelchair and cushion to help him sit with legs in a neutral sitting posture?	Possible changes to Jonah's wheelchair: • backrest could be lowered; • seat depth looks too short – and could be lengthened; • footrests look too high – and could be causing the leg posture; • overall – this wheelchair may be too small for him and he might need a larger one. Possible changes to Jonah`s cushion: • pre seat bone shelf may help him to sit more upright (it is difficult to tell from the front, however he looks slumped); • outside thigh wedges to keep thighs in alignment. How could the outside thigh wedges be made? • glue wedges on top of the cushion and ensure they are secure with a tight fitting cover; or • slice into foam at front of the cushion and insert wedges of firm foam and glue. Key points: • Jonah needs support at his thighs – however the whole picture needs to be addressed. • Jonah only needs gentle support at thighs – so wedges are enough (in Jonah`s case there is no need for outside thigh pads).

	• Sam has been using this wheelchair for two years. He has a head injury, and his legs are quite stiff and tight. In the assessment you find that Sam`s legs are drawn inwards but you can draw his knees apart into a more neutral sitting posture. However this takes quite a bit of force. With his knees in a more neutral sitting posture Sam feels more balanced. • What changes do you think you can make to his wheelchair and cushion to help him sit with legs in a neutral sitting posture?	Possible changes to Sam's wheelchair: • Sam needs a cushion; • more backrest support including side trunk pads/wedges; • wheelchair is too wide for Sam; • footrests uneven – and may need repair or replacing; • might consider replacing slung seat with solid to help reduce tendency for thighs to roll inwards (encouraged in a slung seat); • overall – this is not an ideal chair for a long-term wheelchair user. Possible changes to Sam`s cushion: • pre-seat bone shelf to help support posture; • a knee separator pad is indicated by the force needed to keep Sam's thighs apart. How could the knee separator pad be made? • Consider replacing slung seat with solid seat and mounting a knee separator pad onto this (mount to be slid into a bracket under the seat and locked after Sam gets into the chair; and taken out for him to transfer out). Key learning points: • As for Jonah – the whole picture needs to be addressed. • The strong force needed to hold Sam's thighs apart indicates that in his case a firm support is needed in a form of a knee separator pad rather than a more gentle support provided by an inside thigh wedge.

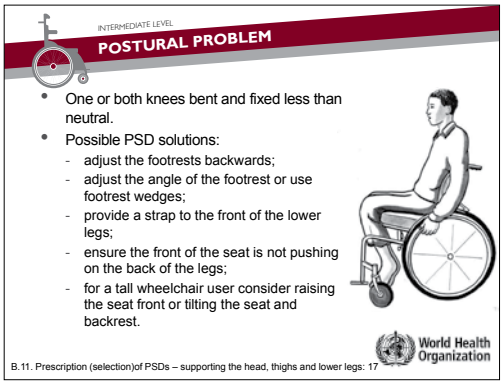
	• Elijah is pleased that his wheelchair can fold, and he is able to take it in a car to and from his workplace. However his back is sore and he finds his legs roll into each other. During assessment you find that Elijah can sit in neutral sitting posture, and with gentle support his legs can sit in neutral sitting posture. • What changes do you think you can make to his wheelchair and cushion to help him sit with legs in a neutral sitting posture?	Possible changes to Elijah's wheelchair: • tighten slung seat to reduce the sag; • check footrest height. Possible changes to Elijah`s cushion: • pre seat bone shelf to help support posture; • trial an inside thigh wedge added to Elijah's cushion, to help keep thighs in neutral sitting posture. How could the inside thigh wedge be made? • glue wedge on top of the cushion and ensure they are secure with a tight fitting cover; or • slice into foam at front of cushion and insert wedge of firm foam and glue. Key learning points: • As for the others – the whole picture needs to be addressed. • Elijah likes his wheelchair to fold – so adding a solid seat would make this more difficult. However a thin board slid into his cushion cover, under the cushion, could provide more support and would not make transport more difficult.

4. Supporting the lower legs and feet (30 minutes)



Explain: Now we will look at PSDs, which provide support for the lower legs including supporting or accommodating fixed non-neutral sitting postures of the feet and knees.

Remember – these solutions would be combined with provision of support for the wheelchair user's pelvis, trunk, head and neck – as required.



Problem:

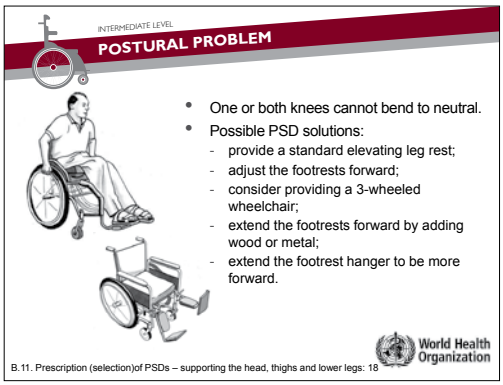
- One or both knees bent and fixed less than neutral sitting posture.

Possible PSD solutions:

- Adjust the footrests backwards if possible.
- Adjust the angle of the footrest to match the foot if possible, if not, use footrest wedges.
- Provide a strap to the front of the lower legs for support and protection.
- Ensure that the front of the seat is not pushing on the back of the wheelchair user's leg/legs. It may be necessary to shorten the seat slightly and bevel the cushion backwards.
- For a tall wheelchair user consider raising the seat front or tilting the seat and backrest. By doing this the wheelchair user`s feet are higher, more forward and possibly in the adjustment range of the standard footrests.

When making these adjustments – check that the castor wheels can still turn fully without bumping into the footrests or wheelchair user's feet.

If these adjustments are not possible on the available wheelchairs or do not provide enough adjustment, some modification may be necessary.



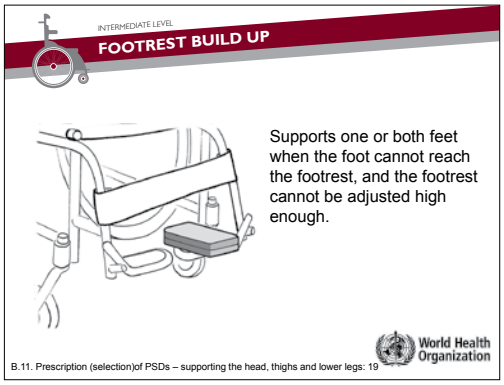
Problem:

- One or both knees cannot bend to neutral sitting posture.

Possible PSD solutions:

- Provide a standard elevating leg rest if available.
- Adjust the footrests forward if possible.
- Consider providing a 3-wheeled wheelchair if available. Add footrests on top of the horizontal centre bar.
- Extend the footrests forward by adding wood or metal.
- Extend the footrest hanger to be more forward – this may require welding and should only be carried out by someone with excellent technical knowledge and skills with metal work.

Whatever solution is decided – it is important to try to ensure that the overall length of the wheelchair is kept to a minimum.



Problem:

- One or both feet cannot reach the footrest and the footrest cannot be adjusted high enough.

Possible PSD solution:

- Footrest build-ups – the footrests can be built up for both feet or for only one (as in the slide).

Problem:

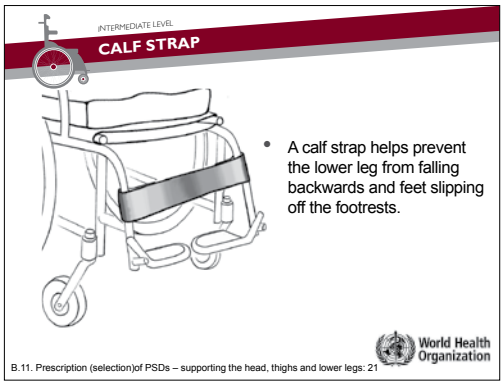
- Fixed non-neutral postures of the ankle.

PSD solution:

- Footrest wedges – can be used to support the existing posture and help prevent further changes in the ankle.

Most footrest wedges are made individually, depending on the support needed by the wheelchair user's foot.

The aim of the footrest wedges is to increase the contact area of the footrest with the wheelchair user's foot.

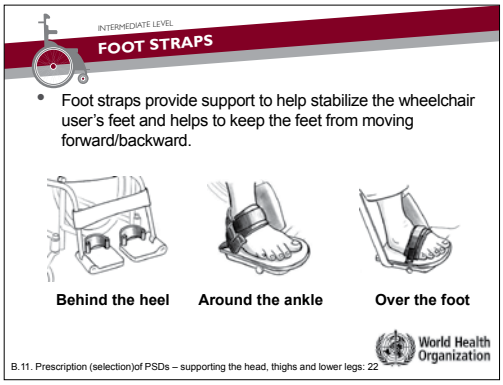


Problem:

- The lower leg falls backwards.

PSD solution:

- Calf strap – a calf strap is often provided with the wheelchair or can be made from strapping and Velcro.



Problem:

- Undesired movement or instability of foot on footrest.

PSD solution:

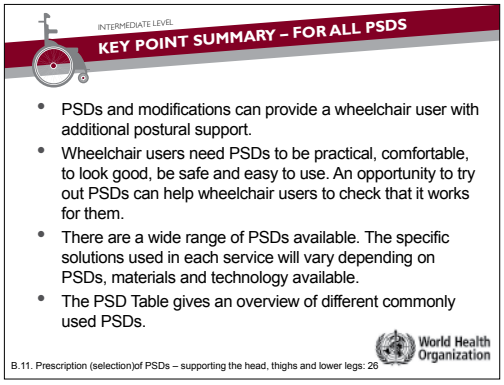
- Foot straps.

A foot strap behind the heel helps to keep the foot from sliding backwards.

A foot strap around the ankle helps to keep the foot from moving forward and the heel from lifting.

A foot strap over the front of the foot helps to keep the toes from lifting.

5. Key point summary (3 minutes)



Explain: These points are relevant for all of the previous sessions covering PSDs.

Read the key points.

Ask whether there are any questions.

Practical One: Assessment and prescription (selection)

OBJECTIVES	By the end of this session, participants will be able to: ☐ Demonstrate an intermediate wheelchair assessment working in a group and with assistance. ☐ Demonstrate making an intermediate level wheelchair prescription working in a group and with assistance.
RESOURCES	☐ Trainer's observation checklist: Practical One; ☐ photo consent forms; ☐ intermediate wheelchair assessment and wheelchair prescription (selection) forms; ☐ poster: Postural Support Device (PSD) Table; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ clean and private assessment space with assessment bed and privacy screen for each wheelchair user; ☐ blocks of firm foam – a few per whole group; ☐ wedges of firm foam – a few per whole group; ☐ sample wheelchairs and cushions (unless assessment is carried out in the community); ☐ digital camera; ☐ tape measure or calliper – 1 for each group, set of foot blocks – 1 for each group.

CONTEXT AND PRIOR LEARNING

Adapt this session to suit the context participants will be working in. Think about:

- ☐ cultural factors – for example whether it is appropriate to have mixed-gender groups doing the assessment;
- ☐ when participants are carrying out a wheelchair assessment on wheelchair users – be aware of any cultural issues related to touching;
- ☐ language factors – for example whether wheelchair users attending speak a common language with all participants;
- ☐ any documentation that the host/training organization may need when assessing or prescribing a wheelchair – for example any additional information that services need to collect about wheelchair users accessing their service (e.g. referral source);
- ☐ how trainers will manage issues that may arise during the assessment/prescription that cannot be addressed within the session or training programme. For example – additional needs wheelchair users may have that require referral or mobility equipment/PSDs required that cannot be provided or finalized during the session or training programme.

TO PREPARE

- ☐ Confirm time and travel arrangements with wheelchair user volunteers. Ensure refreshments are available for wheelchair users and their family member/caregiver.
- ☐ Assign one person to greet wheelchair users as they arrive and show them where they can wait until the session begins.
- ☐ Prepare an assessment bed with a privacy screen for each group. Place all equipment needed for each assessment on the assessment bed.
- ☐ Ensure sample wheelchairs and cushions are in good working order.
- ☐ If there are more than three groups of participants, ask another trainer to assist with monitoring the groups.
- ☐ Decide which participants will work together and with which wheelchair user.
- ☐ Pin up the Postural Support Device (PSD) Table poster.

OUTLINE

1. Assessment and prescription (selection) practice:	
• Instructions and set-up	15
• Assessment	45
• Prescription (selection)	30
• Feedback	30
Total session time	**120**

1. Assessment and prescription (selection) practice (120 minutes)

Notes for trainers:

1. Photographs:

- *Ask for signed photo consent form from each wheelchair user to take their photograph. Ensure that wheelchair users understand that their permission is voluntary and that the photographs will be used for further training during this training programme.*
- *Take photographs during the practical of each wheelchair user who has given permission as follows:*
  - *in their existing wheelchair (if they have one) (front and the side view);*
  - *during physical assessment (sitting posture without support).*

2. Observing participants' practice:

- *Use the Trainer's observation checklist for Practical One to ensure that groups perform all the steps in the practical and to note common examples of good practice or practice needing improvement for feedback.*

Small-group activity	
Groups:	• **Divide** participants into groups of 3. • **Appoint** a leader for each group. • **Tell** each group the name of the wheelchair user they will be working with. • **Assign** each group a place to work in. • **Explain** to the participants where they can find necessary equipment.
Instructions:	**Explain** all of the following: **Session aim:** • The aim of this practical session is to carry out an assessment and prescribe (select) a wheelchair for a wheelchair user. • Participants will work with the same wheelchair user they work with today later on in this training programme, to fit the wheelchair selected today and to provide the wheelchair user training. • If it is not possible during this training programme to fully complete the wheelchair user's wheelchair, arrangements will be made with the wheelchair user to ensure that their wheelchair is completed. Participants should try however to get as much of the work done as possible. **Lead person:** • The lead person for each group is responsible for making sure that all steps are carried out for assessment and prescription (selection) of the wheelchair. • The lead person should be the main person talking with the wheelchair user and their family member/caregiver. This is to avoid having too many people speaking at once, which can be confusing for everyone.

	Trainer's observation and support: • Participants should ask for assistance or clarification at any time. • Throughout the session trainers will monitor each group and give as much support and advice as needed. • After completing the assessment, participants should ask one trainer to come and check their intermediate wheelchair assessment form. • After completing the prescription, participants should ask one trainer to come and check their intermediate wheelchair prescription form. **Time allowed:** • Participants should aim to complete the assessment in 45 minutes, and the prescription (selection) in 30 minutes. **Ask** participants: What are the steps for assessment? **Acknowledge** correct answers. **Ask** participants: What are the steps for prescription (selection)? **Acknowledge** correct answers. **Service forms:** • **Hand out** intermediate wheelchair assessment and intermediate wheelchair prescription (selection) forms to each group's team leader. • At the end of the practical collect the filled out service forms and **hand them out** in the next practical session. **Remind** participants that they should actively involve the wheelchair user in every step of the process. **Ask:** Are there any questions? **Answer** any questions. **Ask** each group to prepare the area they are going to work in; then introduce themselves to the wheelchair user they will work with and begin.
Monitor and support:	Closely **monitor** the groups, ensure safe practice, observe and evaluate the skills of the participants. **Use** the Trainer`s observation checklist to record your observations of each group. Throughout the session: • **Give** time warnings (verbally and/or write on a whiteboard where all participants can see) to help participants manage their time. • **Ensure** wheelchair users are actively involved. • **Ensure** every group member is actively involved. At the end of this session, **ask** participants to thank the wheelchair user for their participation and explain that the wheelchair prescribed (selected) will now be prepared for them and will be ready for them to try when they attend for their next session. **Take** photographs during the session of wheelchair users who have given signed photo consent forms.

Time:	**Allow** 15 minutes for instructions and set-up, 45 minutes to complete the assessment, 30 minutes to complete the prescription (selection), 30 minutes for feedback. **Track** time using the Trainer's observation checklist.
Feedback:	**Comment** on examples of good practice that you saw during the practical session. **Note** any particular areas that participants could improve – do not highlight individuals. **Ask:** Are there any questions?

Notes for trainers: *It is important to keep a close eye on the clock during practical sessions. The times given above are a guide – however they could vary depending on the experience of participants, the needs of the wheelchair users, the time required to set up. Trainers may need to make necessary adjustments.*

B.12: Product (wheelchair) preparation

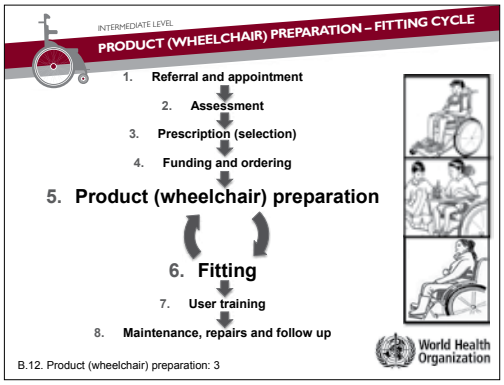
OBJECTIVES	By the end of this session, participants will be able to: ☐ describe the process of preparing a wheelchair and PSDs for a wheelchair user who needs additional postural support.
RESOURCES	For the session: ☐ PPT Slides: B.12: Product (wheelchair) preparation; ☐ Reference Manual; ☐ DVD: Product (wheelchair) preparation; ☐ DVD: Fabricating a footrest modification; ☐ poster: Postural Support Device (PSD) Table; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ laminated intermediate wheelchair safe and ready checklist – 1 for each participant; ☐ PSD kit; ☐ PSD materials; ☐ workbench or a strong table.

CONTEXT AND PRIOR LEARNING	Prior learning: ☐ Information about adjusting manual wheelchairs to match a wheelchair user's size is covered in the Wheelchair Service Training Package – Basic Level. For this session, participants should already be able to: - adjust a wheelchair to physically fit a wheelchair user who can sit upright without support; - check that a wheelchair is safe and ready to use using the intermediate wheelchair safe and ready checklist. Adapt this session to suit the context participants will be working in. Think about: ☐ The types of locally available wheelchairs. ☐ Where, how and with what materials PSDs and modifications will be made.	
TO PREPARE	☐ Gather resources, review PPT slides, watch DVDs and read through the session plan. ☐ Pin up the Postural Support Device (PSD) Table poster. ☐ Unpack sample PSDs from the PSD kit that have been put together and lay them out on a table (workbench) at the front of the training room where you can easily reach them. ☐ Arrange sample PSD materials on a table (workbench) at the front of the training room. ☐ Arrange the training room so that participants are seated in a semi-circle facing the front of the room.	
OUTLINE	1. Introduction	7
	2. Planning and carrying out wheelchair and PSDs preparation	10
	3. What to remember when making PSDs	10
	4. Materials used to make PSDs and modifications	30
	5. Key point summary	3
	Total session time	**60**

1. Introduction (7 minutes)

Explain:

- The fifth step in wheelchair service delivery is product (wheelchair) preparation.
- Product (wheelchair) preparation means setting up the wheelchair and preparing any PSDs that have been prescribed (selected).



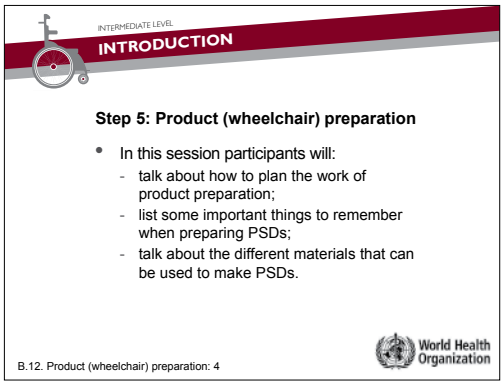
- At intermediate level training programme it is usually only possible to prepare the wheelchair to a certain point before a fitting is needed.
- The wheelchair service steps 'product preparation' and 'fitting' may be repeated until the wheelchair fits correctly.
- Often PSDs are not fully fixed in place before the first fitting. This is to ensure that adjustments can be made to the wheelchair and PSDs after the fitting.

Ask: What are some PSDs that participants think are most likely to need adjustments once the wheelchair user is in the wheelchair? **Acknowledge** answers.

Answers could include the PSDs listed below and others:

- Headrest, pre seat bone shelf, trunk side pads, footrest height and any footrest modifications etc.

Explain: This is an important thing to remember when preparing a wheelchair for someone who needs additional postural support. Wherever possible, try to prepare as much of the wheelchair and PSDs as possible before a fitting – however do not fix down or upholster anything that cannot be easily re-adjusted.



Explain: In this session we will:

- talk about how to plan the work of product preparation;
- list some important things to remember when preparing PSDs;
- talk about the different materials that can be used to make PSDs.

Explain: Directly after this session participants will prepare the wheelchairs for the wheelchair users assessed in the Practical One session.

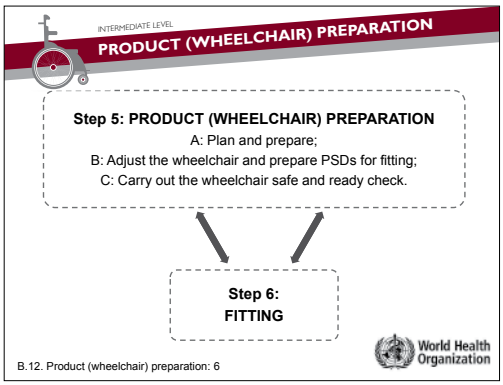
Introduce DVD: Product (wheelchair) preparation.

- In this video we will see an example of a wheelchair being prepared. The child in the DVD is called Ali. He has come back to his wheelchair service for a review of his wheelchair as it is not supporting him as well as he needs.
- Ali has a scoliosis (sideways curved spine) and his pelvis is shifted to one side. This is fixed. He has very weak trunk muscles. The wheelchair service personnel work to increase the support provided in Ali's wheelchair.
- Note how the two wheelchair personnel work closely together, including Ali and his mother in all discussions.
- Also note how the fit of PSDs is checked every time that a change/ adjustment is made.

Show DVD.

Ask if there are any questions.

2. Planning and carrying out wheelchair and PSDs preparation (10 minutes)



Explain:

- In this training programme we will work in the following order:

  A: Plan and prepare;

  B: Adjust the wheelchair and prepare the PSDs for fitting;

  C: Carry out the wheelchair safe and ready check.

A: Plan and prepare

- Before beginning to prepare the wheelchair, it is important to plan the work.
- Careful planning is particularly important if the work of wheelchair preparation is being handed over to someone else (for example a technician working in a workshop); or if more than one person is preparing the wheelchair.

The planning and preparing may include the following steps:

- Review the intermediate wheelchair prescription (selection) form:
  - ensure that everyone understands all of the information on the form;
  - ensure there is enough information on the form to be able to prepare the wheelchair. For example – are all the dimensions that are needed there? Are the descriptions of different PSDs detailed enough? Some further discussion or clarification may be needed.

- Decide how to achieve the necessary support in the selected wheelchair:
  - Look at the wheelchair that is going to be used and ask:
    - What adjustments can be made to the actual wheelchair to provide the necessary support?
    - What PSDs are already on the wheelchair?
  - If modifications or PSDs need to be added, decide:
    - Are there pre-fabricated supports that can be used? If so – how will they be fitted to the wheelchair?
    - If modifications or PSDs need to be made from raw materials – what materials will be used, and how will the PSDs be fixed to the wheelchair?
    - Remember to think about how the PSDs and wheelchair will work together.
- Prepare a task list:
  - list the tasks that need to be carried out to prepare the wheelchair;
  - if more than one person is doing the work – decide who is responsible for which tasks.

B: Adjust the wheelchair and prepare the PSDs for fitting

- Please refer to 'How to make PSDs' section of the Reference Manual on pages 112–127.

C: Carry out the wheelchair safe and ready check

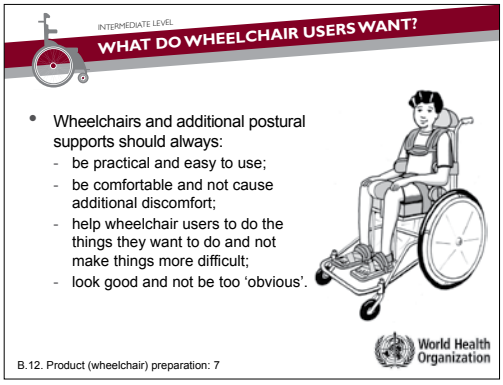
The wheelchair safe and ready checklist was taught in the WSTP-B. **Ask** participants to refer to the intermediate wheelchair safe and ready checklist in the WSTP-I Reference Manual.

Ask: Is everyone familiar with using this checklist? Does anyone have any questions about completing this checklist? **Answer** any questions.

- This checklist should be completed before the wheelchair user arrives for fitting.
- After each fitting, it may be necessary to carry out further adjustments.
- The wheelchair should be checked every time it is adjusted or changed to ensure that it is safe and ready to use – before the wheelchair user tries it.

Explain: Remember that the steps 'product preparation and fitting' may need to be repeated a few times before the wheelchair fits correctly.

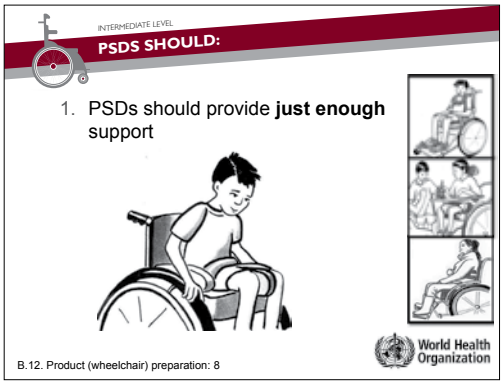
3. What to remember when making PSDs (10 minutes)



Explain: At the beginning of the training programme, we talked about what wheelchair users want. We talked about the importance of making sure that wheelchair and additional postural support should always:

- be practical and easy to use;
- be comfortable and not cause additional discomfort;
- help wheelchair users to do the things they want to do and not make them more difficult;
- look good and not be too 'obvious'.

Explain: When preparing a wheelchair with additional postural support, the following tips can help:



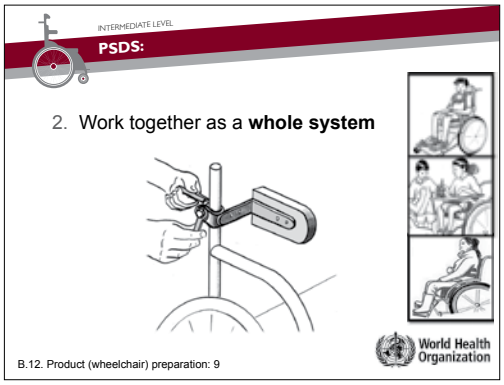
1. PSDs should provide just enough support

Ask: When you were working with the wheelchair users in the practical session, did you always use your whole hand to provide support? **Encourage** answers.

Answers:

- sometimes whole hand;
- sometimes just finger tips;
- sometimes part of the hand.

Explain: The amount of support for each wheelchair user will vary. PSDs should provide the support that is needed by the individual wheelchair user, in the right place, and over the right amount of surface area.



2. PSDs and wheelchairs work together as a whole system

- Adding additional postural support to a wheelchair can change the overall system. For example:
  - Adding PSDs may change the inside dimensions of the wheelchair.

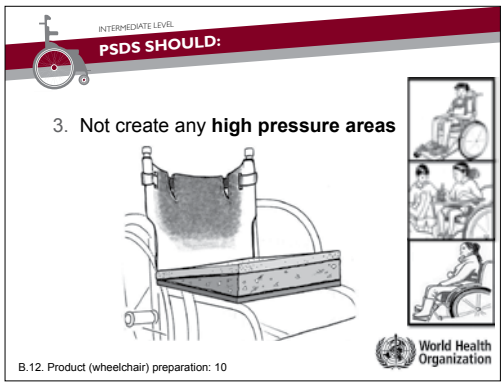
Ask: Which PSDs are most likely to affect the inside wheelchair component measurements (for example the seat width and seat depth) of a wheelchair? **Acknowledge** answers.

Answers:

- adding pelvis side pads can reduce the available seat width;
- any PSDs added to the surface of the backrest may 'reduce' the available seat depth including:
  - rear pelvis pad;
  - adding a wedge to open the seat to backrest angle;
- adding a cushion or increasing the height of a cushion will raise the wheelchair user in the wheelchair – and effectively makes the top of cushion to top of backrest distance shorter.

Explain: Another example of how the wheelchair and PSDs interact is:

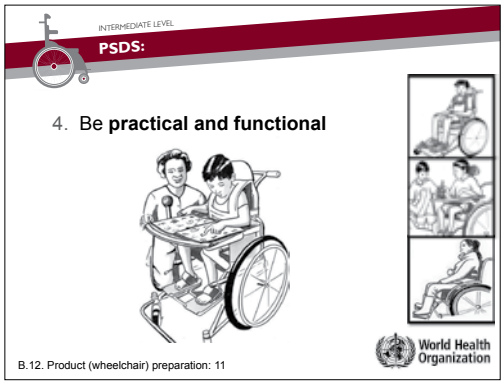
- Adding PSDs may change the centre of gravity of the wheelchair–making it harder or easier for it to tip over (for example adding a headrest or heavy components).



3. Avoid creating high pressure areas

PSDs can sometimes cause pressure on a particular part of a wheelchair user's body. For example:

- if a wheelchair user needs a lot of support to prevent them from leaning to the side, their trunk side pads could be a place of high pressure. In situations like this, consider spreading the force by increasing the surface area. Always ensure there is enough padding on PSDs and under straps.



4. Ensure PSDs are practical and do not reduce function

Ask: What are some things to consider to ensure that the PSDs are practical and do not reduce function?

Answers:

- If the wheelchair user currently transports their wheelchair in the boot of a car – make sure that any PSDs added will still fit.
- If the wheelchair user currently transfers independently – will any PSDs that are added make it harder for him/her to transfer?
- Is access to the brakes still easy for the wheelchair user (or his/her caregiver)?
- If the wheelchair user was able to propel their wheelchair himself/herself, can he/she still do so?

Explain: Remember – wheelchair users need wheelchairs and seating that is practical and easy to use, and that help them to be as active as possible.

Explain:

- Some PSDs are very simple, and can be made in a simple workshop. Others may be more complicated and require more technical skill and facilities.
- Wheelchair service personnel do not have to fabricate modifications or PSDs themselves. They can work in partnership with technicians. The wheelchair service personnel can explain what they need made and how it should work and the technician can work out how this can be made with locally available materials and tools.

4. Materials used to make PSDs and modifications (30 minutes)

Notes for trainers:

- *This section will vary depending on the materials available to participants in their local resources, and those materials available for demonstration for this training programme.*
- *Preferably run this session in the same workshop / space where participants will be making PSDs during Practical Two. Arrange the materials on a large workbench, and ask participants to gather around.*

Introduce DVD: Fabricating a footrest modification. In this video we will see wheelchair service personnel make a footrest modification for Tasi, who has significant fixed non-neutral ankle posture. Watch closely to see the materials used.

Show DVD.

Ask if there are any questions.

Ask: What were the materials used to make the footrest modification?

Answers:
• firm 'EVA' foam; • rubber flip-flops could also be used; • foam glue/adhesive.

Show examples of the different materials listed below and different PSDs that have been made using these materials.

Explain what the materials may be used for and what to look for when selecting materials.

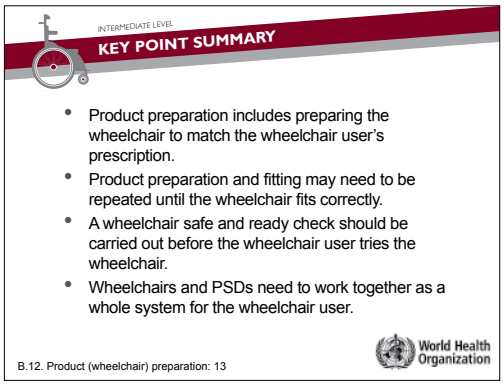
Use the notes below to guide you.

Materials	PSDs or modifications that the materials may be used for:	What to look for when selecting materials for PSDs or modifications:
Metal/ plastic/ wood	Metal/plastic/wood form the structure of a PSD e.g. rigid seats and backrests. Wood or metal can be used to make brackets to hold a trunk side pad onto the backrest.	12 mm plywood is very useful for making rigid seats and backrests. It is strong but relatively light in weight. Marine ply is the most durable, however it can be more expensive. 3 mm aluminium sheet and 6 mm acrylic or ABS plastic sheet if available can also be used to make rigid backrests. Adding a fold in the sheet can add rigidity. When using any sheet material, take additional care to remove or pad the sharp edges for the safety of the wheelchair user.

Foam/ padding	Foam is used over all PSDs in the areas that PSDs are in direct contact with the wheelchair user's body. Firm foam, which holds its shape is used to give PSDs the shape they need to provide the right support. Soft foam is used to add comfort and reduce pressure. Examples of the use of foam: • foam should be added to straps to distribute pressure and add comfort; • a firm foam can be used to make a trunk side wedge, added to a cushion to make an outside thigh wedge or inside thigh wedge; • very firm foam (eg. EVA) can be used to make a footrest build-up or footrest wedge and trunk side pads.	Look in the local markets and visit foam, shoe, mattress and furniture factories to find locally available foam. Try to find local examples of foam in different thicknesses (25 mm and 50 mm) and different firmness. EVA is an example of very firm foam, which is good for providing firm support and structure for a PSD. EVA can sometimes be found where shoes are manufactured. The firm rubber used to make flip-flops can be used in place of EVA. Good quality chip foam is an example of a medium firm foam. Chip foam can be used as the base of a contoured/layered cushion, to make a rear pelvis pad or pre seat bone shelf, or to provide contours on a rigid backrest. Soft 'mattress foam' is an example of soft foam used for comfort layers. The most commonly available, cheapest 'very soft' foam is not suitable on its own for making pressure relieving cushions without a firmer foam base. Coir (coconut fibre) can be used in place of firm foam.
Fabric	Fabric is used to cover PSDs.	Look for a fabric that will be durable and easy to clean (by wiping down or removing for washing). A water resistant fabric is useful for the seat, cushion and backrest if the wheelchair user is incontinent. A soft, T-shirt type material (cotton or cotton/Lycra) can be used for headrests and trunk side pads and trunk side wedges. A fabric with some stretch will more easily conform to the shape of PSDs. Synthetic fabrics usually make the person hotter than natural fabrics. Try to have at least a few different colours, and offer wheelchair users a choice if this is possible.

Nylon webbing/ Velcro / buckles	Nylon webbing/ Velcro / buckles are used to make straps including pelvis strap, shoulder harness, calf and foot straps.	25 mm, 35 mm and 50 mm nylon webbing is useful. The wider the strap, the more even the pressure. Melting the cut ends of nylon webbing stops them from fraying. Cotton webbing is much less effective. Clip buckles (such as those used on backpacks) can be very easy to use. Use good quality buckles if available as these will last longer. Test them by clipping them together and trying to pull them apart. They should clip together and undo easily, and not pull apart unless released. Velcro is a good fastener, however it needs to be kept clean or it stops working. Soft foam pads should be placed under all webbing straps to protect the wheelchair user's body.
Adhesives	Adhesives are used to bond wood and foam.	Have a supply of wood glue (commonly known as white glue or PVA) and foam glue (contact adhesive, shoe glue or yellow glue). Ensure that anyone using adhesives knows how to use them correctly.
Fasteners	Fasteners are used to attach PSDs to the wheelchair.	Useful fasteners include: • bolts with nuts (preferably lock-nuts) and washers; • T-nuts (fixed into plywood instead of a nut); • staples (for fixing upholstery). Avoid using sharp screws as they may become a hazard if the PSD is damaged.

5. Key point summary (3 minutes)



Read the key points.

Ask whether there are any questions.

Practical Two: Product (wheelchair) preparation

OBJECTIVES	By the end of this session, participants will be able to: ☐ Demonstrate preparing a wheelchair and PSDs for a wheelchair user who needs additional postural support working in a group and with assistance.
RESOURCES	☐ Participant's Workbook; ☐ Trainer's observation checklist: Practical Two; ☐ blank and completed intermediate wheelchair assessment and intermediate wheelchair prescription (selection) forms from Practical One; ☐ poster: Postural Support Device (PSD) Table; ☐ laminated Postural Support Device (PSD) Table–1 for each participant; ☐ laminated intermediate wheelchair safe and ready checklist – 1 for each participant; ☐ PSD kit; ☐ wheelchairs and PSD materials; ☐ workbenches and tool kits – 1 for each group.
CONTEXT AND PRIOR LEARNING	Prior learning: ☐ basic level product (wheelchair) preparation – refer to the Wheelchair Service Training Package – Basic Level; ☐ how to carry out wheelchair safe and ready checklist – refer to the Wheelchair Service Training Package – Basic Level. Adapt this session to suit the context participants will be working in. Think about: ☐ the wheelchairs, PSD materials and tools that they will have to work with in their own workplace; ☐ the amount of wheelchair assembly or fabrication from raw materials required. Trainers will need to adjust the time for this session (which may affect the whole training programme's timetable) depending on these factors.
TO PREPARE	☐ Arrange to have a technician with expertise in product (wheelchair) preparation to support the trainer and assist participants. ☐ Ask participants ahead of time to wear covered shoes for this practical session. ☐ Bring the wheelchairs selected to the workspace. ☐ Prepare a work space for each group with a workbench and tool kits, lay out the PSD materials for participants to work efficiently. ☐ Unpack sample PSDs from the PSD kit that have been put together and lay them out on a table (workbench) at the front of the training room where you can easily reach them. ☐ Pin up the Postural Support Device (PSD) Table poster.

OUTLINE		
	1. Product (wheelchair) preparation:	
	• Instructions and set-up;	10
	• Plan and prepare;	15
	• Adjust the wheelchair and prepare PSDs for fitting;	80
	• Carry out the wheelchair safe and ready check;	15
	• Feedback.	30
	Total session time	**150**

1. Product (wheelchair) preparation (150 minutes)

Notes for trainers:

Observing participants' practice:

- *Use the Trainer's observation checklist for Practical Two to ensure that groups perform all the steps in the practical and to note common examples of good practice or practice needing improvement for feedback.*

Small-group activity	
Groups:	• **Divide** participants into the same groups as in Practical One. • **Appoint** a leader for each group (this may be the same leader as for Practical One or a different leader). • **Assign** each group a place to work in. • **Explain** to the participants where to find materials and tools.
Instructions:	**Explain** all of the following: Session aim: • The aim of this practical session is to prepare the wheelchair and PSDs for the wheelchair user assessed in Practical One. Workshop safety: Before beginning to work with the tools and materials, participants need to remember the following five safety rules: • wear covered shoes in the workshop; • secure your work piece when cutting or drilling; • use safety glasses when using power tools or any other sharp tool; • keep the work area and walk ways organized and clean; • never cut toward yourself or others. Lead person: • The lead person for each group is responsible for making sure that all steps are carried out to prepare the wheelchair.

	Trainer's observation and support: • Participants should ask for assistance or clarification at any time. • Throughout the session trainers will monitor each group and give as much support and advice as needed. **Service forms:** • **Hand out** the completed intermediate wheelchair assessment and intermediate wheelchair prescription (selection) forms from Practical One to each group's team leader. • At the end of the practical collect the filled out forms and **hand them out** in the next practical session. **Ask:** Are there any questions? **Answer** any questions.
Monitor and support:	Closely **monitor** the groups, ensure safe practice, observe and evaluate the skills of the participants. **Use** the Trainer's observation checklist to record your observations of each group. Throughout the session: • **Give** time warnings (verbally and/or write on a whiteboard where all participants can see) to help participants manage their time. • **Ensure** every group member is actively involved. ***Notes for trainers:*** *Some participants may have less technical skills than others. Where possible and appropriate, encourage all participants to practise preparing the wheelchair and PSDs. Give as much technical support as is needed.*
Time:	• Participants should follow the time sequence described below: - A: Plan and prepare (15 minutes). - Ask participants to write the tasks that need to be completed in Participant's Workbook (Practical Two: Product (wheelchair) preparation – task checklist). - B: Adjust the wheelchair and prepare the PSDs for fitting (allow 80 minutes). - C: Carry out the wheelchair safe and ready check (allow 15 minutes). - Ask participants to use the intermediate wheelchair safe and ready checklist in their Participant's Workbook (Practical Two: Product (wheelchair) preparation – intermediate wheelchair safe and ready checklist). - After completing each step, participants should check with the trainer before moving onto the next step; - 30 minutes for feedback. • More time will be needed if a lot of product (wheelchair) preparation is required.

Feedback:	**Ask** each group to briefly present the wheelchair they have prepared to the rest of the group. Each group should explain: • what modifications or PSDs have been made – and why. • how the modifications or PSDs were made (materials used and how they have been mounted/attached to the wheelchair). (**Allow** 5–7 minutes per group). After each presentation, **allow** a few minutes for the whole group to ask any questions of the presenting group. **Briefly comment** on examples of good practice that you saw during the practical session. **Briefly note** any particular areas that participants could improve – do not highlight individuals. **Ask:** Are there any questions?

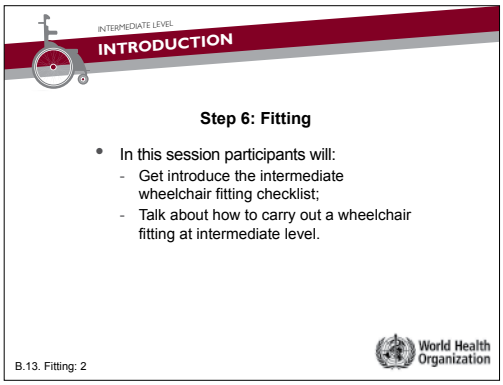
Notes for trainers: *It is important to keep a close eye on the clock during practical sessions. The times given above are a guide – however these could vary depending on the experience of participants, the needs of the wheelchair users, the time required to set up. Trainers may need to make necessary adjustments.*

B.13: Fitting

OBJECTIVES	By the end of this session, participants will be able to: ☐ describe how to check that a wheelchair with PSDs fits a wheelchair user who needs additional postural support.
RESOURCES	For the session: ☐ PPT Slides: B.13: Fitting; ☐ Reference Manual; ☐ DVD: Fitting demonstration – Deepak; ☐ DVD: Fitting demonstration – Careen; ☐ poster: Postural Support Device (PSD) Table; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ laminated intermediate wheelchair fitting checklist – 1 for each participant.

CONTEXT AND PRIOR LEARNING	Prior learning: ☐ The Wheelchair Service Training Package – Basic Level covers a wheelchair fitting for a wheelchair user who can sit upright without additional support. The intermediate level steps are similar, however more detail is added in this session. ☐ How to carry out a pressure test to check pressures under a wheelchair user's seat bones. Participants should be familiar with how to carry this out before this session. Adapt this session to suit the context participants will be working in. Think about: ☐ The type of wheelchairs and PSDs commonly available.	
TO PREPARE	☐ Gather resources, review PPT slides, watch DVDs and read through the session plan. ☐ Pin up the Postural Support Device (PSD) Table poster.	
OUTLINE	1. Introduction	2
	2. How to carry out a fitting	55
	3. Key point summary	3
	Total session time	**60**

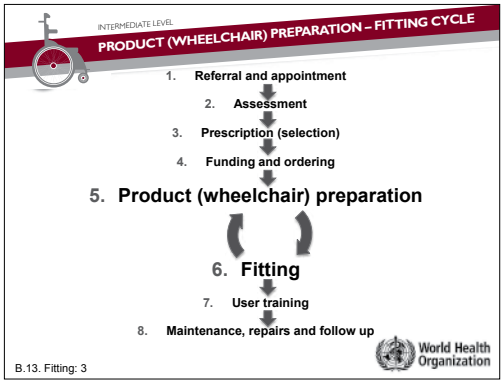
1. Introduction (2 minutes)



Explain:

- Fitting is the sixth of the eight steps of wheelchair service delivery.
- During fitting the wheelchair user and the wheelchair service personnel make sure the wheelchair and PSDs fit well and support the wheelchair user as close to neutral sitting posture with comfort.
- In this session, we will introduce the intermediate wheelchair fitting checklist and talk about how to carry out a wheelchair fitting.

2. How to carry out a fitting (55 minutes)

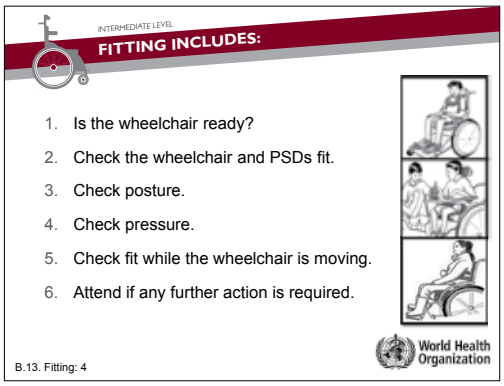


Explain:

- Participants should all be familiar with the process of carrying out a wheelchair fitting.
- At the intermediate level, a fitting may take longer, and may need to be repeated.

Hand out the laminated intermediate wheelchair fitting checklist.

- This checklist is a guide to help wheelchair service personnel remember the most important things about wheelchair fitting.
- With practice this process becomes faster and easier.
- To begin with – follow the checklist to make sure that nothing is forgotten.



Point out the fitting sequence shown on the checklist:

1. Is the wheelchair ready?
2. Check the wheelchair and PSDs fit.
3. Check posture.
4. Check pressure.
5. Check fit while the wheelchair is moving.
6. Decide if any further action is required.

Ask: Are participants likely to be carrying out wheelchair fitting at a wheelchair user's home or at a wheelchair service centre? **Encourage** answers.

Explain: Whether carrying out the fitting in a wheelchair user's home or a wheelchair service centre, make sure you have the following equipment:

- wheelchair users' intermediate wheelchair assessment form and prescription (selection) form;
- tape measure or caliper;
- any tools needed to make adjustments to the wheelchair or PSDs.

It is also helpful to have a few pieces of foam in case you need to try some additional postural supports.

Introduce DVD: Fitting demonstration – Deepak. We will now watch a short DVD showing Deepak (who we have seen before) being fitted for his wheelchair.

Ask participants to watch closely.

Show DVD.

Ask if there are any questions.

Ask: Why was it important to add some foam under Deepak's right foot?

Answer: It is more comfortable and easier to balance when both feet are fully supported. Without the foam, Deepak only had contact with one footrest.

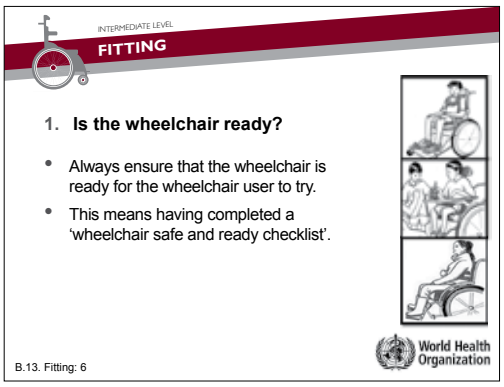
Ask: The wheelchair service personnel placed some additional foam against the backrest to provide better support for Deepak's trunk. How will this be added permanently to his backrest?

Answer: The foam can be glued to the backrest – under the upholstery.

Ask: Why is it important to ask the wheelchair user to propel their wheelchair (or be pushed if he/she cannot propel) during a fitting check?

Answer: A person's posture may change once the wheelchair is moving, or from the effort of propelling.

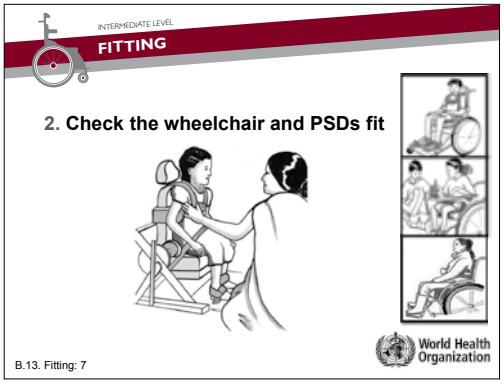
Explain:



1. Is the wheelchair ready?

Explain:

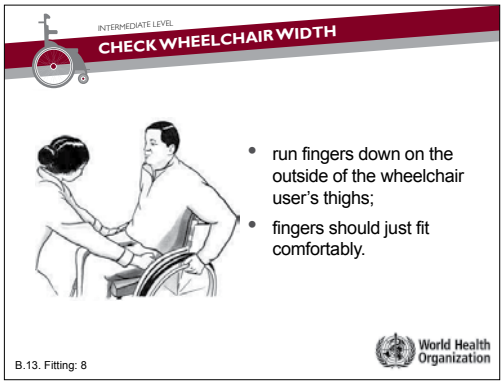
- Always ensure that the wheelchair is ready for the wheelchair user to try.
- This means having completed the intermediate wheelchair safe and ready checklist.
- This will become a very quick check with practice.



2. Check wheelchair and PSDs fit

Explain:

- During the wheelchair fitting, wheelchair service personnel need to physically check that the wheelchair fit is correct.
- In the next couple of slides we will go over how to check the wheelchair and PSDs fit.

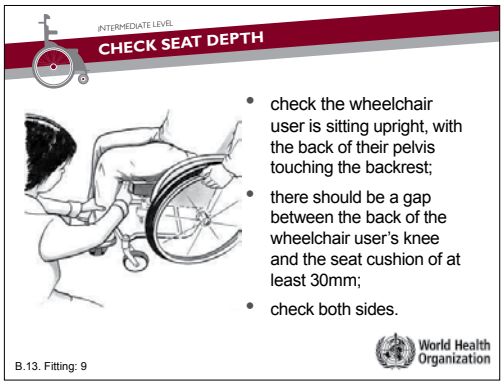


When checking the wheelchair width, make sure that:

- the wheelchair user's hips fit comfortably between armrests or pelvis side pads;
- the wheelchair user's thighs fit comfortably between the armrests, mud/skirt guards or pelvis side pads and are not pushed together. This may happen if pelvis side pads extend too far forward;
- the wheelchair user's trunk fits comfortably between backrest uprights or trunk side pads.

To check the wheelchair/hip width:

- run fingers down on the outside of the wheelchair user's thighs;
- fingers should just fit comfortably.

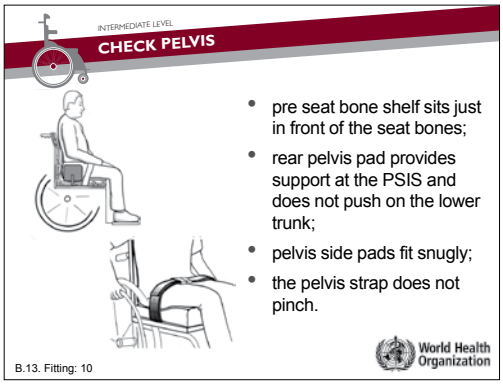


When checking the seat depth, make sure that:

- the wheelchair user is sitting as close to neutral sitting posture as is comfortable for them;
- there is a gap between the front of the seat/cushion and the back of the wheelchair user's knee of at least 30 mm. There may be a bigger gap for wheelchair users with long legs; up to 60 mm is acceptable.

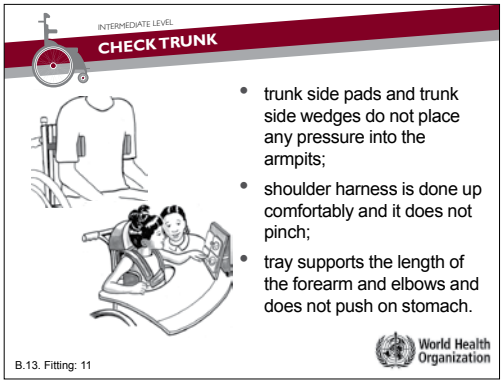
To check the seat depth:

- slide hand between the cushion and the back of the knee. Count how many fingers.
- slide hand down the back of the calf and make sure the calf is not touching the seat/cushion;
- check both sides.
- if there is a difference between right and left sides, use the shorter leg measurement to make prescription choices.



When checking the pelvis, make sure that:

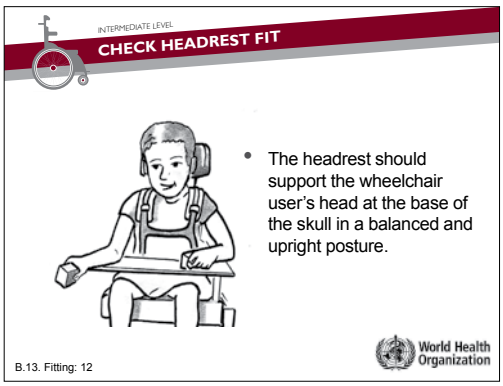
- the pre seat bone shelf sits just in front of the seat bones (place your hand under the wheelchair user's bottom to check);
- the rear pelvis pad provides support at the PSIS and does not push on the lower trunk;
- pelvis side pads fit snugly and are not located over the hip joint;
- the pelvis strap can be tightened firmly and does not pinch the wheelchair user's skin (run hands between the strap and the wheelchair user to check).



When checking the trunk, make sure that:

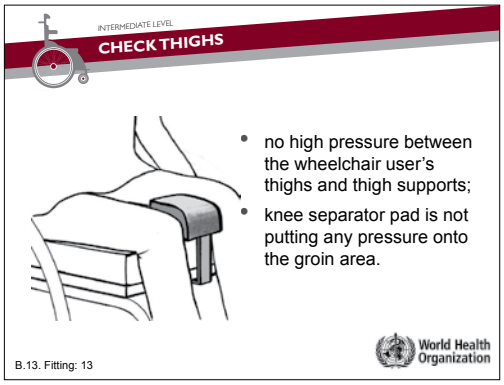
- trunk side pads and trunk side wedges do not place any pressure into the armpits. There should be at least 30 mm between the wheelchair user's armpit and the top of a trunk side pad;
- the shoulder harness is done up comfortably and it does not pinch skin;
- the tray supports the length of the forearm and elbows and does not push on the stomach. A modified tray cut-out may be close to the body, however it should not touch or rub on the wheelchair user's skin.

Check backrest height and tilt.



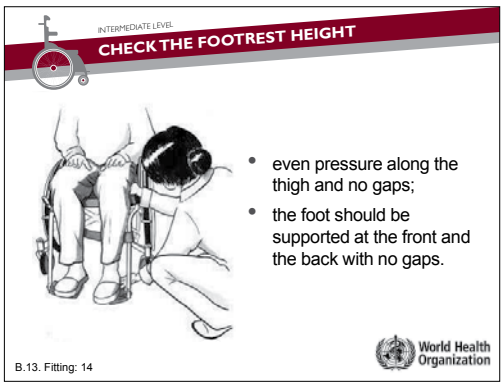
Check the headrest fit:

- The headrest should support the wheelchair user's head at the base of the skull.
- The headrest should support the user's head in a balanced and upright posture.



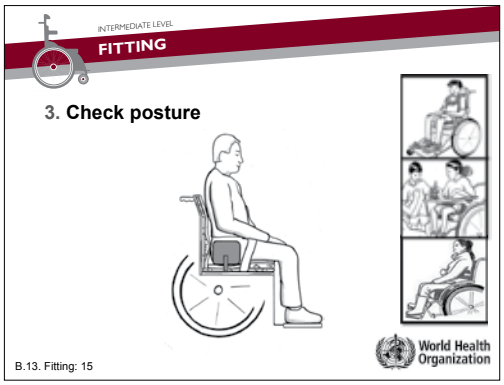
When checking the wheelchair user's thighs, make sure that:

- there is no high pressure between the wheelchair user's thighs and thigh supports (including outside thigh pads, inside thigh wedge or knee separator pad);
- the knee separator pad is not putting any pressure onto the groin area.



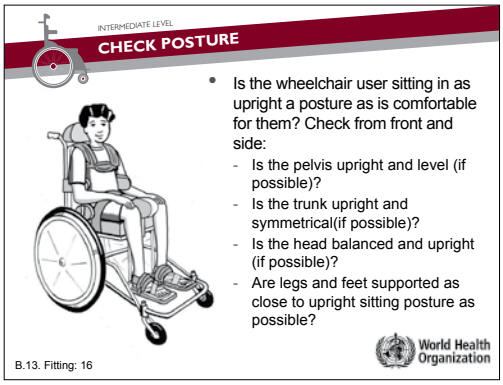
Finally, check the footrest height.

- Check that the wheelchair user's thigh is fully supported on the seat/cushion with no gaps and their feet are fully supported on the footrest with no gaps.
- How to check:
  - slide hand between the thigh and the seat/cushion. There should be even pressure along the thigh and no gaps;
  - look at the foot on the footrest. The foot should be supported at the front and the back with no gaps.

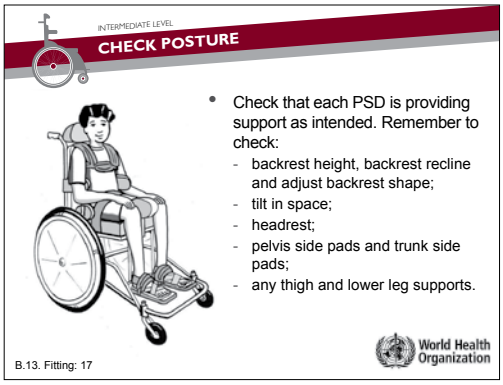


3. Check posture

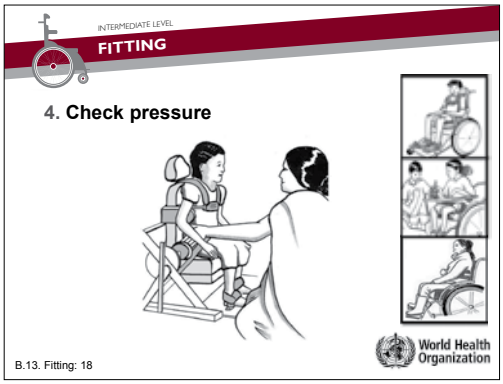
- After checking that the wheelchair and PSDs fit, wheelchair service personnel should then check that the wheelchair user's posture is as upright as is comfortable for them.



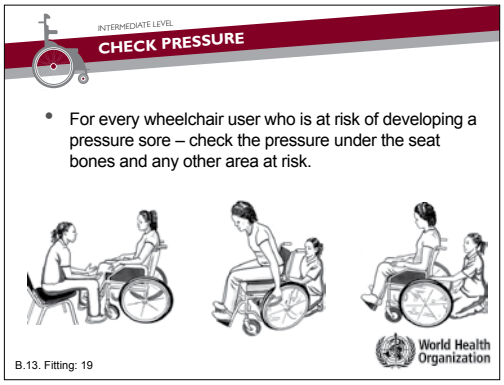
- Observe the wheelchair user's posture from the front and the side.
- Look to see whether the wheelchair user is sitting in as upright a posture as is comfortable for them. This should be close to the posture identified in the hand simulation.
- Specifically, check from front to side:
  - Is the pelvis upright and level? (if possible)
  - Is the trunk upright and symmetrical? (if possible)
  - Is the head balanced and upright? (if possible)
  - Are legs and feet supported as close to upright sitting posture as possible?
- Ask the wheelchair user how he/she feels.



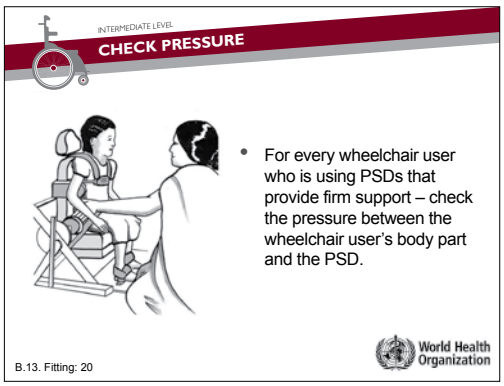
- After looking at the wheelchair user's overall sitting posture, check that each PSD is providing support as intended.
- Specifically, remember to check (if provided):
  - backrest height, recline and adjust backrest shape;
  - tilt in space;
  - headrest;
  - pelvis side pads and trunk side pads;
  - any thigh and lower leg supports.



4. Check pressure



- For every wheelchair user who is at risk of developing a pressure sore, the fitting step includes checking whether the pressure is safe under the seat bones (using the manual pressure test taught in the WSTP Basic Level) and any other area at risk (e.g. under hip joint or tail bone).



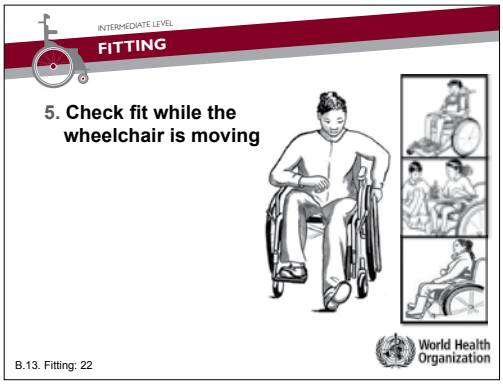
- For every wheelchair user who is using PSDs that provide firm support – check the pressure between the wheelchair user's body part and the PSD. Support should feel firm – but not tight.

Notes for trainers: *How to check pressure under seat bones for all wheelchair users at risk of developing a pressure sore is taught in the Wheelchair Service Training Package –Basic Level. Briefly demonstrate the pressure test/play the basic level DVD "Pressure test demonstration" or ask one of the participants to demonstrate.*

Introduce DVD: Fitting demonstration – Careen: Watch this short DVD, which shows wheelchair service personnel checking the fit of a wheelchair for a young girl called Careen. The wheelchair service personnel check the fit of all components and carefully ensure that all straps are fitting firmly – but not too tightly.

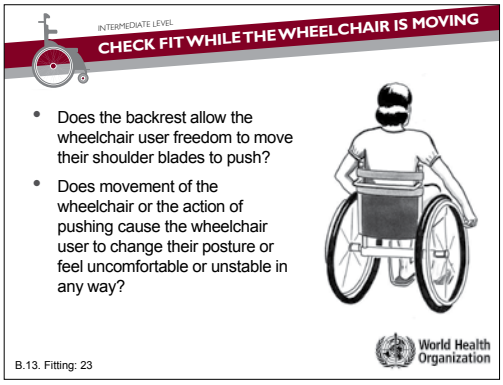
Show DVD.

Ask if there are any questions.



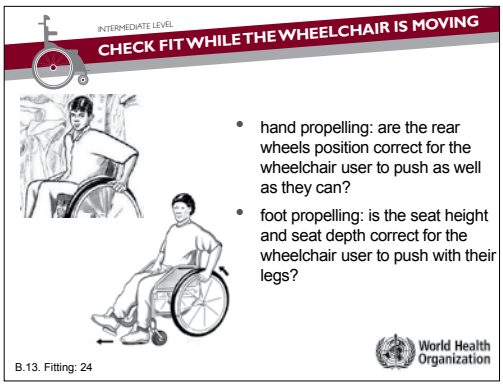
5. Check fit while the wheelchair is moving

- The final part of wheelchair fitting is to check the wheelchair when the wheelchair is moving.



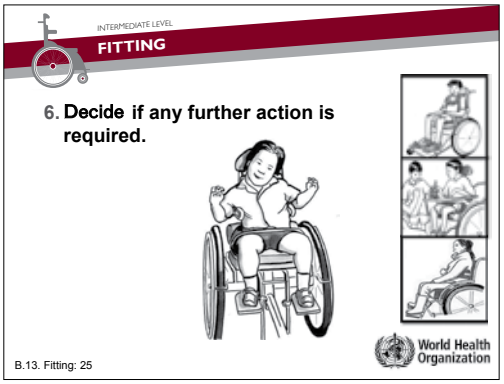
The things to look for:

- Does the backrest allow the wheelchair user freedom to move their shoulders to push?
- Does movement of the wheelchair or the action of pushing cause the wheelchair user to change their posture or feel uncomfortable or unstable in any way?



- Hand propelling: Is the rear wheels position correct for the wheelchair user to push as well as he/she can?
- Foot propelling: Is the seat height and seat depth correct for the wheelchair user to push with their legs?
- Do the posture supports allow for unrestricted and safe wheelchair mobility?

Explain: If a wheelchair user cannot push the wheelchair themselves, ask a family member/caregiver to push them while you observe.



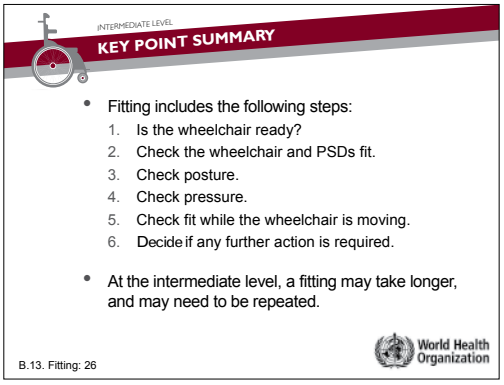
6. Decide if any further action is required

Explain:

- After making all of these checks, the wheelchair user and wheelchair service personnel need to decide if any action is needed.
- It is very common to need to make some adjustments after the first fitting for a wheelchair user who needs additional postural support.
- If adjustments are made, the fitting step should be repeated from the beginning.
- With practice this process becomes quicker, as wheelchair service personnel will become more experienced at noticing what fits and what needs adjusting.

Explain: Participants will practise carrying out a fitting with wheelchair users twice during this training programme.

3. Key point summary (3 minutes)



Read the key points.

Ask whether there are any questions.

B.14: User training

OBJECTIVES

By the end of this session, participants will be able to:

- ☐ highlight six skills wheelchair service personnel may teach wheelchair users receiving a wheelchair with modifications or PSDs;
- ☐ demonstrate teaching a colleague at least three wheelchair skills.

RESOURCES

For the session:

- ☐ PPT Slides: B.14: User training;
- ☐ Reference Manual;
- ☐ Participant's Workbook;
- ☐ poster: Intermediate Wheelchair User Training Checklist;
- ☐ laminated intermediate wheelchair user training checklist – 1 for each participant;
- ☐ wheelchairs–1 for each group.

CONTEXT AND PRIOR LEARNING

Prior learning:

- ☐ More information about wheelchair user training is covered in the Wheelchair Service Training Package – Basic Level.
- ☐ Trainers should make sure that participants are already familiar with this step and have skills in teaching basic level wheelchair handling, transfers, wheelchair use and mobility, preventing pressure sores, how to care for a wheelchair at home and what to do if there is a problem.

Adapt this session to suit the context participants will be working in. Think about:

- ☐ Whether there are support groups or peer group trainers that can assist in providing wheelchair users and their family members/caregivers with user training.

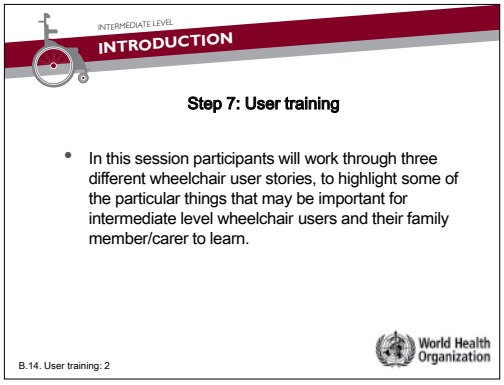
TO PREPARE

- ☐ Gather resources, review PPT slides and read through the session plan.
- ☐ Pin up the Intermediate Wheelchair User Training Checklist poster.

OUTLINE

1. Introduction	5
2. User training – wheelchair user's stories	50
3. Key point summary	5
Total session time	**60**

1. Introduction (5 minutes)



Explain:

- User training is the seventh step in wheelchair service delivery.
- Participants should be familiar with this step from the Wheelchair Service Training Package – Basic Level.
- At the intermediate level, the information that wheelchair users need is sometimes different.
- In this session we will work through three different wheelchair user stories, which will help to highlight some of the particular things that may be important for intermediate level wheelchair users and their family member/caregiver to learn.

Ask: Can anyone suggest what different or additional information/training wheelchair users (and their family members/caregivers) using wheelchairs with additional postural support may need? **Encourage** answers.

Answers:

- information about the benefits of additional postural support;
- how to use PSDs correctly (how they should fit and what to do if there is a problem);
- information about getting used to a wheelchair (particularly for children) and PSDs;
- how to take apart and put back together (for example for transport) a wheelchair with PSDs;
- different types of transfers – for people who cannot get in and out of the wheelchair themselves.

Explain:

- The 'User training' session in the Reference Manual contains key information regarding this wheelchair service step.
- The intermediate wheelchair user training checklist in the Reference Manual can be used as a guide to help wheelchair service personnel identify what the wheelchair user and their family member /caregiver need to know – and teach those things. You do not need to teach everything to every wheelchair user.
- In this session we will work through three different wheelchair user stories, which will help to highlight some of the particular things that may be important for intermediate level wheelchair users and their family member/caregiver to learn.

2. User training – wheelchair user's stories (50 minutes)

Small-group activity	
Groups:	**Divide** participants into groups of 3.
Instructions:	• **Assign** one wheelchair user's story from the Participant's Workbook (B.14: User training) to each group. Ensure participants have their Reference Manual with them. • **Ask** each group to read the assigned wheelchair user's story in their workbook. • Based on the information provided in the wheelchair user's story **ask** participants to decide what skills the wheelchair user needs to learn to use and care for their new wheelchair and complete the intermediate wheelchair user training checklist in their workbook. • **Ask** each person in the group to choose a role (wheelchair user, wheelchair service personnel, wheelchair user's family member/ caregiver). • **Ask** each person assuming the role of the wheelchair service personnel to teach at least three skills selected from the intermediate wheelchair user training checklist to the wheelchair user and their family member/ caregiver. • **Explain** to the participants that two of the wheelchair user's stories are of children, who need a one person lift. It is not possible to actually practise this skill with adults. Participants should describe – without actually lifting. • **Remind** participants to think about 'How to make wheelchair user training successful'. Stress the importance of 'demonstration' followed by 'practice'. • **Encourage** participants to check their Reference Manual for information about each skill they are teaching. • **Explain:** Participants have 35 minutes to do this activity and then the groups will come back together for feedback.
Monitor:	• **Monitor** the groups closely. • **Ensure** that each group understands the activity. • **Encourage** groups to use the Reference Manual. • **Ensure** that each group has selected the appropriate skills to teach the wheelchair user and family member/caregiver (refer to the Notes for trainers below). • **Ensure** that the group that reads Sangita's story have also added information for the parents about different positions and explaining the benefits of a wheelchair and additional postural support for Sangita. • **Ensure** safe practice. • **Correct** any techniques if necessary. • **Guide** participants if necessary.

Time:	**Allow** 35 minutes for activity. **Allow** 15 minutes for feedback.
Feedback:	**Ask** one person from each group to: • briefly describe the wheelchair user they provided training for; • list the most important things the wheelchair user needed to learn. **Follow** along and **add** missing information from presentations and **correct** inaccurate details given.

Notes for trainers:

Joshua is six years old and has cerebral palsy. He gets sudden uncontrolled movements. He has been prescribed (selected) a child's wheelchair with PSDs including a pelvis strap, pelvis side pads and trunk side pads. Joshua has thin, sensitive skin, and the trunk side pads have been provided with additional padding to help ensure he does not develop a pressure sore from the trunk side pads.

Joshua's new wheelchair has a tilt feature, which allows the wheelchair to be tilted back sometimes and then brought more upright. There is also an anti-tip bar, which can be moved out of the way for travelling over rough ground or up and down kerbs. For transport the wheelchair has removable rear wheels and the seat can be taken off the wheelchair frame.

Joshua goes to kindergarten every morning. He is picked up by a transport service arranged by the kindergarten. The vehicle is a small motorised three wheeler. His parents are worried about whether his wheelchair will fit inside.

Joshua has come for a fitting for his new wheelchair. His mother is with him.

Skills participants should teach:	*Particular points participants should emphasize:*
Wheelchair handling: • all skills. **Transfers:** • assisted transfer. **Wheelchair use and mobility:** • assisted pushing; • how long to sit in the wheelchair.	**Wheelchair handling:** Tilt: • explain reason for using tilt: balance trunk and upright head; • how to 'lock' tilt safely in position; • when and why to change the tilt. Anti-tip bar: • reason for anti-tip bar – stops the wheelchair from tipping backwards; • the need to remove anti-tip bar when travelling outside because it can prevent being able to go over rough ground or up and down kerbs.

Preventing pressure sores: • checking for pressure sores; • what to do if a pressure sore develops. **How to care for a wheelchair at home:** • all skills; **What to do if there is a problem:** • all skills.	Taking off and putting back on any PSDs that need to come off for transport: • how to remove the rear wheels; • how to take the seat off the frame; • how to put the wheelchair back together. **Transfers:** • when transferring keep knees above hips; • keep Joshua's trunk bent forward whilst fastening the pelvis strap; • show how tight the pelvis strap should be; • emphasize how to check Joshua's position once in his wheelchair: hips to backrest; seat bones behind the pre seat bone shelf; trunk side pads close to his body but not pinching. **Wheelchair use and mobility:** • safe pushing by mother and friends indoors and outdoors. **Preventing pressure sores:** • check skin in all areas where wheelchair or PSDs touch the body; • if no marks, increase time spent in the wheelchair by 10 minutes each day to maximum 2 hours at one time; • check Joshua's skin every time he gets out of his wheelchair. • If any redness appears and lasts for more than 20 minutes after Joshua is out of the wheelchair, he should not sit in the wheelchair until they have gone.

Sangita is three years old and has spina bifida. She has movement difficulties; loss of feeling below her waist and has a bulge at the bottom of her spine. Her parents say she has difficulty controlling her bladder and bowels and often has urinary tract infections.

Sangita has come to the wheelchair service for a fitting of her first wheelchair, which has quick release wheels, pelvis strap, pelvis side pads, and some shaping of the backrest to avoid pressure around the bulge in her spine. She also has a pressure relief cushion. She has come with both parents. Her parents are worried that if she has a wheelchair she will not want to walk with her calipers. However, she gets frustrated when she cannot play with her brother and sisters outside.

Skills participants should teach:	*Particular points participants should emphasize:*
Wheelchair handling: all skills. **Transfers:** • independent (with and without Calipers) **Wheelchair use and mobility:** • pushing correctly, slopes, stairs, use of anti-tip bars **Preventing pressure sores:** • checking for pressure sores • emphasize: checking there are no marks on the skin around the bulge **How to care for a wheelchair at home:** • all skills. **What to do if there is a problem:** • all skills. **Referral to a urologist:** • bladder management and prevention of urine infections	**Transfers:** • discuss with parents that it is good for Sangita to be as independent as possible and transfer by herself. **Wheelchair use and mobility:** Reassure Sangita's parents that the wheelchair will not stop Sangita from walking. Explain the benefits of a wheelchair including: • the wheelchair will help her to to keep up with her siblings outside and also keep her fit and active; • the wheelchair will free her hands–instead of holding on to crutches to mobilize, she can sit in wheelchair and use her hands to do things for herself; • the wheelchair helps Sangita to sit in a good posture and prevent problems with posture developing. Length of time sitting in the wheelchair: • Sangita should begin using the wheelchair for short periods (e.g. 30 minutes) a few times during each day; • build up the time as Sangita gets used to the wheelchair; • Sangita should not stay in the wheelchair for longer than 2 hours without a break. **Preventing pressure sores:** • Check skin in all areas where wheelchair or PSDs touch the body. • If no marks, increase time spent in the wheelchair by 10 minutes each day to maximum 2 hours at one time. • If any redness appears and lasts for more than 20 minutes after Sangita is out of the wheelchair, she should not sit in her wheelchair until they have gone. **Referral:** • As Sangita is getting frequent urinary tract infections; wheelchair service personnel could refer Sangita to a doctor for advice on safe bladder management.

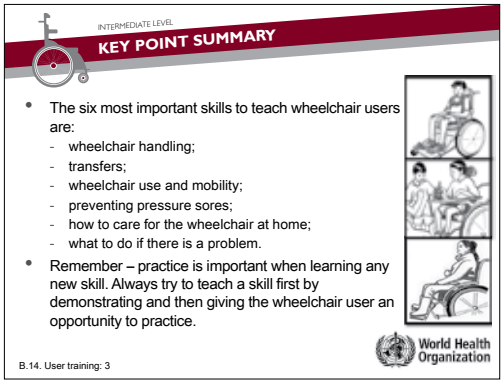
Kim Som is 40 years old and had a head injury 15 years ago. He is very thin as he has difficulty eating. He has a fixed forward curve of the spine. Kim Som cannot stand up and is completely dependent upon his mother. He does not speak, however his mother says that he understands simple instructions.

In the assessment he was identified as a person at risk of developing a pressure sore as he is thin, cannot move independently and has had a pressure sore in the past (from lying in bed).

He has just received his first wheelchair. The wheelchair has a pressure relief cushion and PSD to help Kim Som sit more comfortably. His mother is his caregiver and has attended the wheelchair fitting appointment with him.

Skills participants should teach:	*Particular points participants should emphasize:*
Wheelchair handling: • all skills (except tilting and anti-tip bars). **Transfers:** • assisted transfer. **Wheelchair use and mobility:** • assisted pushing; • how long to sit in the wheelchair. **Preventing pressure sores:** • checking for pressure sores; • what to do if a pressure sore develops. **How to care for a wheelchair at home:** • all skills. **What to do if there is a problem:** • all skills.	**Transfers:** • As a full grown man, it is important that two people lift Kim Som. • Discuss with Kim Som's mother how she helps Kim Som to get in and out of his wheelchair. Does she have anyone to help her, and does she know how to lift safely? • Check/teach the correct transfer technique. • Emphasize how to check Kim Som's position once in his wheelchair: hips to backrest; seat bones behind the pre seat bone shelf; trunk side pads close to body but not pinching. **Wheelchair use and mobility:** • Teach Kim Som's mother how to safely push him over rough ground, up and down slopes and steps. • Discuss with her how to ask for help if she has to push Kim Som up and down slopes and up and down steps. **Preventing pressure sores:** • Kim Som should not sit for more than 2 hours at a time. • Build up sitting time gradually, starting with 30 minutes. • Check skin immediately after he gets out of the wheelchair for marks/redness. • If any redness appears and lasts for more than 20 minutes after Kim Som is out of the wheelchair, he should not sit in wheelchair until they have gone. **How to care for a wheelchair at home:** • Find out from Kim Som's mother if there is anyone who can help her with this.

3. Key point summary (5 minutes)



Read the key points.

Ask whether there are any questions.

Practical Three: Fitting and user training

OBJECTIVES	By the end of this session, participants will be able to: ☐ Demonstrate an intermediate level wheelchair fitting. ☐ Demonstrate intermediate wheelchair user training.
RESOURCES	☐ Trainer's observation checklist: Practical Three; ☐ photo consent forms; ☐ blank and completed intermediate wheelchair assessment form and intermediate wheelchair prescription (selection) forms from Practical One; ☐ poster: Postural Support Device (PSD) Table; ☐ poster: Intermediate Wheelchair User Training Checklist; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ laminated intermediate wheelchair fitting checklist – 1 for each participant; ☐ laminated intermediate wheelchair user training checklist –1 for each participant; ☐ clean and private space with assessment bed and privacy screen for each group to work with their wheelchair user; ☐ wheelchairs prepared from Practical Two and ready for the first fitting; ☐ digital camera; ☐ tape measure or caliper – 1 for each group, set of foot blocks – 1 for each group; ☐ PSD kit and tool kit to adjust wheelchairs – 1 for each group.

CONTEXT AND PRIOR LEARNING	Adapt this session to suit the context participants will be working in. Think about: ☐ cultural factors – for example whether it is appropriate to have mixed-gender groups doing the assessment; ☐ when participants are carrying out a fitting on wheelchair users – be aware of any cultural issues related to touching; ☐ language factors – for example whether wheelchair users attending speak a common language with all participants; ☐ any documentation that the host/training organisation may need when assessing or prescribing a wheelchair – for example any additional information that services need to collect about wheelchair users accessing their service (e.g. referral source); ☐ how trainers will manage issues that may arise during the fitting that cannot be addressed within the session or training programme. For example – wheelchairs prepared do not fit and cannot be adjusted to fit (a possible solution is to ensure there are additional wheelchairs in a range of sizes that could be used instead); ☐ how follow up will be managed for each wheelchair user after the training programme.	
TO PREPARE	☐ Confirm time and travel arrangements with wheelchair user volunteers. Ensure refreshments are available for wheelchair users and their family member/caregiver. ☐ Assign one person to greet wheelchair users as they arrive and show them where they can wait until the session begins. ☐ Prepare a fitting area for each group (assessment bed and privacy screen). ☐ Ensure that the wheelchairs to be fitted are fully prepared (check them against the intermediate wheelchair prescription (selection) forms and confirm that intermediate wheelchair safe and ready checklists have been completed). ☐ If there are more than three groups of participants, ask another trainer to assist with monitoring the groups. ☐ Pin up the Postural Support Device (PSD) Table poster. ☐ Pin up the Intermediate Wheelchair User Training Checklist poster.	
OUTLINE	1. Fitting and user training practice: • Instructions and set-up • Fitting • User training	 15 90 45
	Total session time	**150**

1. Fitting and user training practice (150 minutes)

Notes for trainers:

1. Photographs:

- *Check that each wheelchair user has been asked for their signed permission to take their photograph. Ensure that wheelchair users understand that their permission is voluntary and that the photographs will be used for further training during this training programme.*
- *Take photographs during the practical of each wheelchair user who has given permission as follows:*
  - *in the wheelchair prescribed after fitting (front and side view).*

2. Meeting the needs of the wheelchair users participating in the practical session:

- *Not all wheelchairs with PSDs may be completed during the time available in the practical session.*
- *If another appointment is required for any wheelchair users seen during the practical session, the trainer should ensure that an appointment is made by the host/training organization and all assessment, prescription and fitting information is handed over to the host/training organization for finalizing the PSD/final delivery of the wheelchair.*

3. Observing participants' practice:

- *Use the Trainer's observation checklist for Practical Three to ensure that groups perform all the steps in the practical and to note common examples of good practice.*

Small-group activity	
Groups:	• **Divide** participants into the same groups as in Practical One and Two. • **Appoint** a leader for each group (this may be the same leader as for Practical One or Two or a different leader). • **Assign** each group a place to work in. • **Explain** where to find materials and tools.

Instructions:

Explain all of the following:

Session aim:

- The aim of this practical session is to carry out steps six and seven of the eight steps of wheelchair service delivery – fitting and user training – working with the wheelchair user from the previous practical sessions.
- It is possible that participants may not be able to complete the wheelchair for the wheelchair user during the time available. This will depend on the first fitting and what modifications/adjustments may be necessary. However, participants should use the session time to get as much done as they can. If the wheelchair cannot be completed, arrangements will be made with the wheelchair user to ensure that their wheelchair is completed after the training programme.

Lead person:

- The lead person for each group is responsible for making sure that all steps are carried out.
- The lead person should be the main person talking with the wheelchair user and their family member/caregiver. This is to avoid having too many people speaking at once, which can be confusing for everyone.

Trainer's observation and support:

- Participants should ask for assistance or clarification at any time.
- Throughout the session trainers will monitor each group and give as much support and advice as needed.
- **Explain** to the participants that if any problems with the fit are identified, they should ask the trainer to come and check this, and discuss what modifications/adjustments may be needed.
- After completing the fitting, participants should ask one trainer to come and check the fitting. Participants **DO NOT BEGIN USER TRAINING** until the fit has been checked by one of the trainers.
- After completing the user training, participants should ask one trainer to come and discuss with the group and the wheelchair user what training was provided.

Time allowed:

- Participants should aim to complete the fitting (including making any adjustments) in 90 minutes and user training in 45 minutes.

Service forms:

- Hand out the wheelchair assessment and wheelchair prescription (selection) forms from previous practicals to each group leader.
- Check that each group has at least one copy of the laminated intermediate wheelchair fitting and intermediate wheelchair user training checklists.

	Ask participants: What are the steps for wheelchair fitting? **Acknowledge** correct answers. **Remind** participants that when it comes to the 'User training' step they should only teach the wheelchair user the skills that are relevant to them. For example – it is not necessary to teach pressure relief techniques to a wheelchair user who is not at risk of developing a pressure sore. **Remind** participants that they should actively involve the wheelchair user in every step of the process. **Ask:** Are there any questions? **Answer** any questions. **Ask** each group to prepare the area they are going to work in; then invite the wheelchair user they are working with to begin.
Monitor and support:	Closely **monitor** the groups, ensure safe practice, observe and evaluate the skills of the participants. **Use** the Trainer's observation checklist to record your observations of each group. Throughout the session: • **Give** time warnings (verbally and/or write on a whiteboard where all participants can see) to help participants manage their time. • **Ensure** wheelchair users are actively involved. • **Ensure** every group member is actively involved. At the end of this session, **ask** participants to thank the wheelchair user for their participation. **Take** photographs during the session of wheelchair users who have signed a photo consent forms.
Time:	**Allow** 15 minutes for instructions and set-up, 90 minutes to complete fitting and 45 minutes to complete the user training.
Feedback:	See B.15 Putting it all together

Notes for trainers: *It is important to keep a close eye on the clock during practical sessions. The times given above are a guide – however they could vary depending on the experience of participants, the needs of the wheelchair users, the time required to set up. Trainers may need to make necessary adjustments.*

B.15: Putting it all together

OBJECTIVES	By the end of this session, participants will be able to: ☐ provide a summary of the wheelchair user they have worked with in the previous practical sessions, including: the wheelchair user's physical, environmental and lifestyle needs; prescription (selection) solutions and the wheelchair user's fitting and provide appropriate user training.	
RESOURCES	For the session: ☐ Participant's Workbook; ☐ photographs of wheelchair users (who have signed the photo consent forms) from the practical sessions.	
TO PREPARE	☐ Gather resources and read through the session plan. ☐ Ensure that wheelchair users' photographs have been saved onto the training programme's computer in a file labelled with their name.	
OUTLINE	1. Introduction	5
	2. Participants' preparation	30
	3. Participants' presentations and discussion	85
	Total session time	**120**

1. Introduction (5 minutes)

Explain:

- In this session participants will have an opportunity to:
  - share with everyone in the whole group what they have learnt through the last three practical sessions;
  - ask any questions that they still may have about intermediate level wheelchair service delivery;
  - explain their clinical logic and be challenged by their colleagues.

2. Participants' preparation (30 minutes)

Small-group activity	
Groups:	**Ask** the groups who worked together for the last three practical sessions to work together.
Instructions:	**Ask** each group to prepare a 10 minute presentation about the wheelchair user they worked with and what they learnt. Their presentation should include the points in the Participant's Workbook (B.15: Putting it all together). **Explain** that pictures of the wheelchair users are on the training programme computer, which they can use to illustrate their story when they present. ***Notes for trainers:*** *If participants are not confident using the computer, explain that the trainers will arrange the pictures for them and show them when needed.*
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Guide** participants if necessary.
Time:	**Allow** participants 30 minutes for activity.
Feedback:	See 3. Participant's presentations and discussions.

3. Participants' presentations and discussion (85 minutes)

Ask each group to present in turn.

Encourage the whole group to ask questions at the end of the presentation:

- suggest that during the presentations, participants make notes with questions to ask at the end of each presentation;
- encourage participants to challenge the decisions and approach used by the presenting team. Ideally, this will generate discussion, debate and deeper analysis by all participants.

Allow 10 minutes for each presentation and 5 minutes for questions (depending on the number of groups).

At the end of each presentation:

- **Make** some final comments that include positive points for the presenters.
- **Thank** each group for their presentation.

At the end of all presentations:

- Remind participants that there is often not just one correct solution. The best solution may sometimes be a compromise – to best meet the overall needs and wishes of the wheelchair user while making the best use of the resources available.

Notes for trainers:

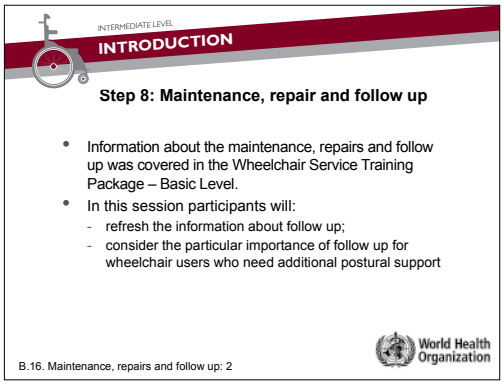
- *Questions are intended to bring out the confidence of the presenter in their decisions, not to imply that they have done something wrong.*
- *Questions and challenges should be delivered in a friendly manner.*

B.16: Maintenance, repairs and follow up

OBJECTIVES	By the end of this session, participants will be able to: ☐ describe what is included in follow up; ☐ complete a wheelchair follow up form for a wheelchair user.
RESOURCES	For the session: ☐ PPT Slides: B.16: Maintenance, repairs and follow up; ☐ Reference Manual; ☐ Participant's Workbook; ☐ wheelchair follow up form.
CONTEXT AND PRIOR LEARNING	Prior learning: ☐ The intermediate level wheelchair follow up form is the same as for basic level. Participants who have completed the Wheelchair Service Training Package – Basic Level should already be familiar with this form. Adapt this session to suit the context participants will be working in. Think about: ☐ How follow up will be managed in the participants' services. For example does the service carry out follow up at the wheelchair user's home; or invite wheelchair users to the wheelchair service centre for follow up; or coordinate with CBR/community-based staff to carry out follow up. ☐ Whether the participants come from a wheelchair service, which has a system for follow up. If so explain the system to participants. Explain what their role is in follow up.

TO PREPARE	☐ Gather resources, review PPT slides and read through the session plan.	
OUTLINE	1. Introduction	2
	2. Overview of follow up	8
	3. Wheelchair follow up form	10
	4. Practising follow up	35
	5. Key point summary	5
	Total session time	**60**

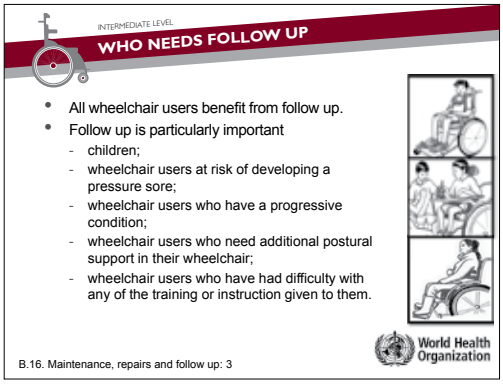
1. Introduction (2 minutes)



Explain:

- Maintenance, repairs and follow up is the eighth step in wheelchair service delivery.
- Information about the maintenance, repairs and follow up was covered in the Wheelchair Service Training Package – Basic Level.
- In this session we will refresh the information about follow up that was covered at the basic level, and consider the particular importance of follow up for wheelchair users who use wheelchairs with additional postural support.

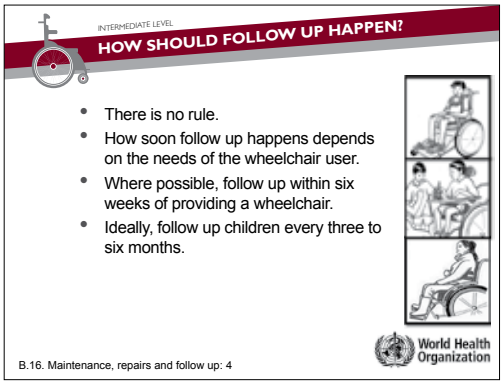
2. Overview of follow up (8 minutes)



Explain:

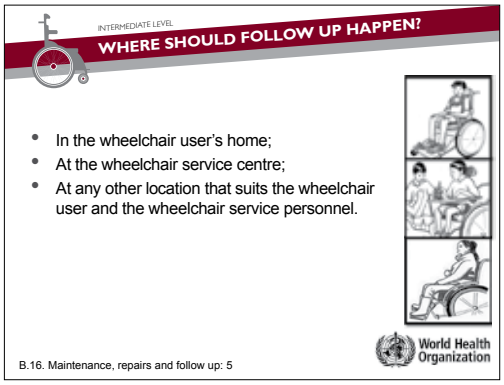
- All wheelchair users benefit from follow up. Follow up is particularly important for:
  - children;
  - wheelchair users at risk of developing a pressure sore;
  - wheelchair users who have a progressive condition;
  - wheelchair users who need additional postural support in their wheelchair;
  - wheelchair users who have had difficulty with any of the training or instruction given to them.

Most intermediate level wheelchair users need additional postural support – and therefore follow up is particularly important.



Explain:

- There is no rule about when follow up should happen, as the best time to follow up will depend on the needs of the wheelchair user.
- However wherever possible, follow up within six weeks of providing a wheelchair can be very useful to ensure that the wheelchair is working well for the wheelchair user and to reinforce any user training.
- For children, it is ideal if follow up is every three to six months. This is because the needs of children change quickly as they grow.



- Follow up can be carried out:
  - in the wheelchair user's home; or
  - at the wheelchair service centre;
  - at any other location that suits the wheelchair user and the wheelchair service personnel.
- The location depends on whether the wheelchair user is able to travel to the wheelchair service centre, and whether wheelchair service personnel can travel to the wheelchair user's home.

Ask: How could follow up be managed (or how is it currently managed) in the participants' wheelchair service centre? (I.e: where does follow up happen, how often is follow up carried out, who is responsible for follow up, and how are follow up appointments arranged?).

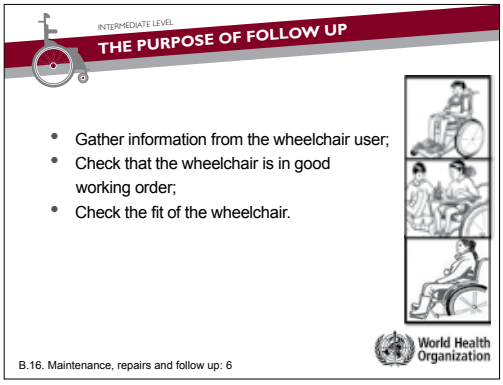
Encourage answers.

Answers:

- some participants may say that follow up is not carried out very often at their wheelchair service centre;
- wheelchair users may be given a follow up appointment when they receive their wheelchair;
- follow up may be carried out in the wheelchair user's home or in the wheelchair service centre;
- follow up visits may be a part of routine visits to communities by community-based rehabilitation (CBR) personnel who have been trained to carry out follow up;
- follow up phone calls may be carried out (for example where transport is difficult and the wheelchair user has access to a phone);
- follow up durations may vary.

Notes for trainers: This may be a good time to discuss with participants ideas for how follow up could be improved in their wheelchair service centres. If some good ideas come from the discussion, trainers may feed these back to wheelchair service managers.

3. Wheelchair follow up form (10 minutes)

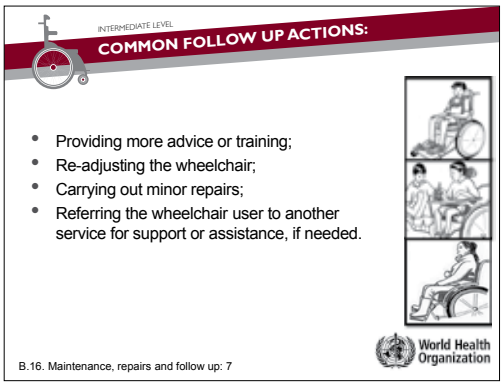


Explain:

- The wheelchair follow up form used in the intermediate level is the same as the follow up form used in the Wheelchair Service Training Package – Basic Level.
- This means that a wheelchair service may use the same wheelchair follow up form for any wheelchair user. However, the details and follow up actions may be different.
- Follow up appointments are an opportunity to:
  - gather information from the wheelchair user;
  - check that the wheelchair is in good working order;
  - check the fitting of the wheelchair.
- With this information, wheelchair service personnel need to discuss with the wheelchair user any actions required.

Ask participants to look at their copy of the wheelchair follow up form.

Explain: The wheelchair follow up form will help wheelchair service personnel remember what questions to ask and what to do on a follow up visit. The wheelchair follow up form also has a place to write down any actions that need to be taken. Common follow up actions include:



Providing more advice or training.

- For example if a wheelchair user is not using his/her wheelchair as expected, it may be because he/she is not confident about how he/she can get in and out of the wheelchair when he/she is alone. More training in transfers can help to solve this problem.

Re-adjusting the wheelchair.

Carrying out minor repairs.

- Always encourage wheelchair users and their family members/caregivers to maintain the wheelchair by caring for a wheelchair at home. Wheelchair service personnel can also help the wheelchair user to arrange for repairs if it is not possible to fix any broken parts immediately.

Referring the wheelchair user to another service for support or assistance, if needed.

Ask: If a wheelchair user reports having a pressure sore, what action should be taken?

Answers:
• ask to see the pressure sore (make sure this is done in a private place); • record the location and level of pressure sore; • if the pressure sore is on any part of the body, which is touching the wheelchair or PSD, the wheelchair user should stop using the wheelchair; • if the pressure sore is level 2 or higher, seek specialist's help for treatment.

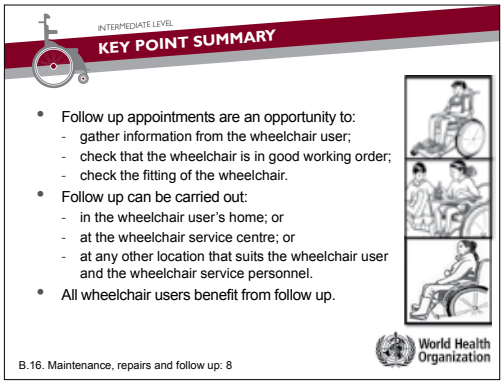
4. Practising follow up (35 minutes)

Small-group activity	
Groups:	**Divide** participants into groups of 3.
Instructions:	**Ask** participants to read each wheelchair user's story in Participant's Workbook (B.16: Follow up). For each wheelchair user the participants will need to complete the wheelchair follow up form, discuss and record any actions to be taken. **Explain:** Participants have 20 minutes as a group to do this activity and then the groups will come back together for feedback.
Monitor:	**Monitor** the groups closely. **Ensure** that each group understands the activity. **Guide** participants if necessary.
Time:	**Allow** 20 minutes for activity. **Allow** 15 minutes for feedback.
Feedback:	For each wheelchair user's story, **ask** one group to briefly discuss what follow up actions the group recommended for the wheelchair user. Ask participants: Can anyone from the other groups suggest any further actions? **Ensure** that participants cover all key learning points (please see Notes for trainers below).

Notes for trainers:	
Wheelchair user's story:	**Answers and key learning points:**
Thusitha is seven years old and lives at home with his parents and older sister. He has muscular dystrophy and received a wheelchair through the wheelchair service a year ago. At that time he could walk short distances. He was able to do a standing transfer in and out of the wheelchair on his own. He said he wanted a wheelchair because he is finding it hard to get to school. At the follow up visit, Thusitha said that he is now finding it hard to get in and out of his wheelchair himself. He feels tired and uncomfortable by the afternoon at school. This makes it hard to concentrate. His wheelchair is the correct size and has a medium slung backrest with a simple comfort cushion. When asked to rate how satisfied Thusita is with his wheelchair he says 4 out of 5.	• Find out how Thusitha is getting in and out of his wheelchair. • Consider whether a different type of transfer technique would make the transfer easier e.g. sliding board or assisted standing transfer. • Review his PSDs. Consider higher backrest, tension adjustable backrest, cushion with posture control and pressure relief. • Fatigue is more likely with progressive conditions. Consider whether he needs to have a change of posture during the lunch break so that he is more comfortable and able to concentrate at school in the afternoon. • People with progressive conditions require regular follow up, 3–6 months is ideal. They should come back sooner if necessary.
Mirella is 23 years old and has polio. She makes honey and sells it in the local market. She received a wheelchair with a clip-on tricycle two years ago. She needed some additional PSDs in the wheelchair. She was prescribed (selected) a layered foam cushion with modifications. A rear pelvis pad was added to the backrest of the wheelchair. At the follow up visit Mirella says that she uses her wheelchair and tricycle every day to get to and from the market. She reports that she has had to repair two wheel punctures recently. When checking the wheelchair, the wheelchair service personnel notice that the tyres are very worn. The rear pelvis pad has slipped down onto the seat and the cushion looks very flat. When asked to rate how satisfied she is with her wheelchair, Mirella says 3 out of 5.	• Arrange to replace the tyres. • Give advice on checking the tyres. • Find out why the rear pelvis pad moved. Reposition and fix it in place. Check whether it is supporting Mirella correctly. • Give Mirella advice on where the rear pelvis pad should sit and encourage her to check that it is in the correct position. • Take the cover off the cushion and check that the foam layers are in good condition. Check that the foam layers are not compressed (flat). If the foam is flat, replace the top with soft foam layer. • Check Mirella is well supported by the wheelchair, including the rear pelvis pad and cushion.

Ursula is six years old has cerebral palsy. She likes singing with her sister in the church choir. She received her wheelchair with PSDs eight months ago. She was ill with a chest infection and missed her first follow up appointment. Her parents say that recently she has not been happy sitting in the wheelchair and asks to get out after an hour. They have noticed a dark mark on her ribs near one of the trunk side pads and wonder whether this could be the problem. The wheelchair service personnel find a private place and ask Ursula and her parents for permission to check her skin. The wheelchair service personnel confirm that there is a dark mark. They look at the wheelchair and notice that the foam padding on the trunk side pad has compressed. When asked to rate how satisfied they are with Ursula's wheelchair, her parents say 4 out of 5.	• Advise Ursula and her parents that she must avoid pressure on the sore on her ribs until the mark disappears. • Advise Ursula and her parents to reduce the time in the wheelchair and only increase slowly once the mark has disappeared. • Replace the foam on both trunk side pads. Slide fingers between the trunk side pads and Ursula to check for pressure and adjust if necessary. • Children grow quickly and require regular follow up to prevent problems with posture developing, a regular follow up every 3–6 months is ideal.

5. Key point summary (5 minutes)



Read the key points.

Ask whether there are any questions.

Practical Four: Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training.

OBJECTIVES	By the end of this session, participants will be able to: ☐ Demonstrate working in a group to carry out intermediate wheelchair assessment, prescription (selection), product (wheelchair) preparation, fitting and user training.
RESOURCES	☐ Participant's Workbook; ☐ Trainer's observation checklist: Practical Four; ☐ photo consent forms; ☐ intermediate wheelchair assessment and wheelchair prescription (selection) forms; ☐ poster: Postural Support Device (PSD) Table; ☐ poster: Intermediate Wheelchair User Training Checklist; ☐ laminated Postural Support Device (PSD) Table – 1 for each participant; ☐ laminated intermediate wheelchair fitting checklist – 1 for each participant; ☐ laminated intermediate wheelchair user training checklist –1 for each participant; ☐ clean and private assessment space with assessment bed and privacy screen for each wheelchair user; ☐ blocks of firm foam – a few per whole group; ☐ wedges of firm foam – a few per whole group; ☐ PSD materials; ☐ PSD kit; ☐ workbenches and tool kits – 1 for each group; ☐ sample wheelchairs and cushions (unless assessment is carried out in the community); ☐ digital camera; ☐ tape measure or caliper – 1 for each group, set of foot blocks – 1 for each group.

CONTEXT AND PRIOR LEARNING	Adapt this session to suit the context participants will be working in. Think about: ☐ cultural factors – for example whether it is appropriate to have mixed-gender groups doing the assessment; ☐ when participants are carrying out a fitting on wheelchair users – be aware of any cultural issues related to touching; ☐ language factors – for example whether wheelchair users attending speak a common language with all participants; ☐ any documentation that the host/training organisation may need when assessing or prescribing a wheelchair – for example any additional information that services need to collect about wheelchair users accessing their service (e.g. referral source); ☐ how trainers will manage issues that may arise during the fitting that cannot be addressed within the session or training programme; ☐ how follow up will be managed for each wheelchair user after the training programme.
TO PREPARE	☐ Confirm time and travel arrangements with wheelchair user volunteers. Ensure refreshments are available for wheelchair users and their family member/ caregiver. ☐ Assign one person to greet wheelchair users as they arrive and show them where they can wait until the session begins. ☐ Prepare an assessment bed with a privacy screen for each group. Place all equipment needed for each assessment on the assessment bed. ☐ Ensure sample wheelchairs and cushions are in good working order. ☐ If there are more than three groups of participants, ask another trainer to assist with monitoring the groups. ☐ Decide which participants will work together and with which wheelchair user. ☐ Ask participants ahead of time to wear covered shoes for this practical session. ☐ Prepare a work space for each group with a workbench and tool kits, lay out the PSD materials for participants to work efficiently. ☐ Unpack sample PSDs from the PSD kit that have been put together and lay them out on a table (workbench) at the front of the training room where you can easily reach them. ☐ Pin up the Postural Support Device (PSD) Table poster. ☐ Pin up the Intermediate Wheelchair User Training Checklist poster.

OUTLINE		
	1. Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training:	
	• Instructions and set-up	15
	• Assessment	45
	• Prescription (selection)	30
	• Product (wheelchair) preparation	120
	• Fitting	45
	• User training	45
	Total session time	**300**

1. Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training practice (300 minutes)

Notes for trainers:

1. Photographs:

- *Ask for signed photo consent form from each wheelchair user to take their photograph. Ensure that wheelchair users understand that their permission is voluntary and that the photographs will be used for further training during this training programme.*
- *Take photographs during the practical of each wheelchair user who has given permission as follows:*
  - *in their existing wheelchair (if they have one) (front and side view);*
  - *during physical assessment (sitting posture without support);*
  - *in the wheelchair prescribed after fitting (front and side view).*

2. Meeting the needs of the wheelchair users participating in the practical session:

- *Not all wheelchairs may be completed during the time available in the practical session.*
- *If another appointment is required for any wheelchair users seen during the practical session, the trainer should ensure that an appointment is made by the host/training organization and all assessment, prescription and fitting information is handed over.*

3. Observing participants' practice:

- *Use the Trainer's observation checklist for Practical Four to ensure that groups perform all the steps in the practical and to note common examples of good practice or practice needing improvement to highlight during the feedback.*

Small-group activity	
Groups:	• **Divide** participants into groups of 2–3. • **Appoint** a leader for each group. • **Tell** each group the name of the wheelchair user they will be working with. • **Assign** each group a place to work in. • **Explain** where to find materials and tools. • **Explain** to the participants where they can find necessary equipment.
Instructions:	**Explain** all of the following: **Session aim:** • The aim of this practical session is to carry out an assessment, prescription (selection), product (wheelchair) preparation, fitting and user training. • If it is not possible during this training programme to fully complete the wheelchair user's wheelchair, arrangements will be made with the wheelchair user to ensure that their wheelchair is completed. Participants should try however to get as much of the work done as possible. **Lead person:** • The lead person for each group is responsible for making sure that all steps are carried out. • The lead person should be the main person talking with the wheelchair user and their family member/caregiver. This is to avoid having too many people speaking at once, which can be confusing for everyone. **Trainer`s observation and support:** • Participants should ask for assistance or clarification at any time. • Throughout the session trainers will monitor each group and give as much support and advice as needed. • After completing **EACH WHEELCHAIR SERVICE STEP** participants should ask a trainer to come and check **BEFORE** beginning the next step. **Time allowed:** • Participants should aim to complete assessment in 45 minutes, prescription (selection) in 30 minutes, product (wheelchair) preparation 120 minutes, fitting in 45 minutes and user training in 45 minutes. **Remind** participants that the wheelchair users will need a break and refreshments while the wheelchair is being prepared. Morning tea/lunch breaks should be taken – trainers will remind everyone when breaks are scheduled. **Service forms:** • **Hand out** intermediate wheelchair assessment and wheelchair prescription (selection) forms to each group's team leader. • **Check** that each group has at least one copy of the laminated intermediate fitting and user training checklists.

	Ask participants to use the 'Product (wheelchair) preparation – task checklist' in their Participant's Workbook (Practical Four: Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training) to plan the work to be done. **Ask** participants to use the Intermediate wheelchair user training checklist in their Participant's Workbook (Practical Four: Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training) to check if the wheelchair is ready to be used for fitting. **Remind** participants that they should actively involve the wheelchair user in every step of the process. **Ask:** Are there any questions? **Answer** any questions. **Ask** each group to prepare the area they are going to work in; then introduce themselves to the wheelchair user they will work with and begin.
Monitor and support:	Closely **monitor** the groups, ensure safe practice, observe and evaluate the skills of the participants. **Use** the Trainer`s observation checklist to record your observations of each group. Throughout the session: • **Give** time warnings (verbally and/or write on a whiteboard where all participants can see) to help participants manage their time. • **Ensure** wheelchair users are actively involved. • **Ensure** every group member is actively involved. At the end of this session, **ask** participants to thank the wheelchair user for their participation and explain that the wheelchair prescribed will now be prepared for them and will be ready for them to try shortly. **Take** photographs during the session of wheelchair users who have signed photo consent forms.
Time:	**Allow** 15 minutes for instruction and set-up; 45 minutes to complete the assessment; 30 minutes to complete the prescription (selection), 120 minutes for product (wheelchair) preparation; 45 minutes for fitting; 45 minutes for user training. **Track** time using the Trainer's observation checklist.

Notes for trainers: *It is important to keep a close eye on the clock during practical sessions. The times given above are a guide – however they could vary depending on the experience of participants, the needs of the wheelchair users, the time required to set up. Trainers may need to make necessary adjustments.*

B.17: Trainer's feedback, discussion and closing ceremony

OBJECTIVES	By the end of this session, participants will be able to: ☐ reflect on the final practical working with wheelchair users to assess, prescribe, prepare and fit a wheelchair that meets the wheelchair user's physical, environmental and lifestyle needs and provide appropriate user training.	
RESOURCES	For the session: ☐ PPT Slides: B.17: Trainer's feedback, discussion and closing ceremony; ☐ DVD: Take home message; ☐ photographs of wheelchair users (who have signed the photo consent forms) from the practical sessions.	
TO PREPARE	☐ Gather resources, review PPT slides, watch DVD and read through the session plan. ☐ Ensure certificates have been printed and signed by trainers. ☐ Consider inviting representatives from key stakeholders (for example donors, disabled persons organisations, service providers, relevant ministry) to attend the closing ceremony and to present certificates. ☐ Ensure that wheelchair users' photographs have been saved onto the training programme's computer in a file labelled with their name.	
OUTLINE	1. Introduction	2
	2. Trainer's feedback.	20
	3. Discussion of the wheelchair users seen during Practical Four.	30
	4. Closing ceremony and presentation of certificates.	8
	Total session time	**60**

1. Introduction (2 minutes)

Explain:

- In this session participants will have an opportunity to:
  - hear about the wheelchair users that other groups worked with during the last practical session, and the wheelchair solutions prescribed, prepared and fitted for them;
  - hear general feedback about the examples of good practice seen by trainers during the last practical and learn from any mistakes that were made;
  - ask questions.

2. Trainer's feedback (20 minutes)

Using the Trainer`s observation checklist for Practical Four, discuss with the group examples of good practice that you saw during the practical session.

Note any particular areas that participants could improve – do not highlight individuals.

Ask: Are there any questions?

3. Discussion of the wheelchair users seen during Practical Four (30 minutes)

Notes for trainers:

- *Time available for this will vary depending on how many points need to be covered above in Trainer's Feedback. Adjust the session accordingly, giving priority to ensuring that important feedback is provided.*

Ask each group to present in turn to:

- briefly summarize the mobility and support needs of the wheelchair user they saw during the practical;
- describe the solution that they prescribed (selected);
- describe how the product (wheelchair) was prepared;
- describe the fitting process and any concerns that came up;
- comment on how the wheelchair user received the wheelchair and what user training was provided.

Encourage the whole group to ask questions at the end of the presentation:

- suggest that during the presentations, participants make notes with questions to ask at the end of each presentation;
- encourage participants to challenge the decisions and approach used by the presenting team. Ideally, this will generate discussion, debate and deeper analysis by all participants.

Allow 5 minutes for each group presentation and 5 minutes for questions (depending on the number of groups).

Show photographs of each wheelchair user to help the group illustrate their points (if photographs were taken during the practical).

At the end of each presentation:

- **Emphasize** examples of good practice used by the group (use Practical Four: Trainer`s observation checklist).
- **Thank** each group for their presentation.

At the end of all presentations:

- **Remind** participants again that there is often not only one correct solution. The best solution may sometimes be a compromise – to best meet the overall needs and wishes of the wheelchair user while making the best use of the resources available.

Notes for trainers:

- Questions are intended to bring out the confidence of each group in their decisions, not to imply that they have done something wrong.
- Questions and challenges should be delivered in a friendly manner.

4. Closing ceremony and presentation of certificates (8 minutes)

Introduce DVD: Take home message.

Show DVD.

Notes for trainers:

- Trainer's may choose how they wish to present certificates and close the training programme.

Annexes

Annex 1: Timetable for intermediate wheelchair service training package

Five full days

<table>
<tr><th></th><th>Day 1</th><th>Day 2</th><th>Day 3</th><th>Day 4</th><th>Day 5</th></tr>
<tr><td>8:30
8:45
9:00</td><td rowspan="2">Introduction</td><td rowspan="2">B.4 Physical assessment – hand simulation</td><td>B.10 Prescription (selection) of PSDs – supporting the trunk</td><td rowspan="2">B.13 Fitting</td><td rowspan="2">B.16 Maintenance, repairs and follow up</td></tr>
<tr><td>9:15</td><td rowspan="5">B.11 Prescription (selection) of PSDs – supporting the head, thighs and lower legs</td></tr>
<tr><td>9:30
9:45
10:00
10:15</td><td rowspan="2">A.1 Wheelchair users who benefit from additional postural support</td><td rowspan="2">B.5 Physical assessment – taking measurements</td><td rowspan="2">B.14 User training</td><td rowspan="3">Practical Four:
Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training</td></tr>
<tr><td>10:30
10:45</td><td rowspan="2">A.2 Children with disabilities</td><td rowspan="2">B.6 Selecting wheelchairs and cushions</td><td>Time available for trainer and participants to check products before wheelchair users arrive.</td></tr>
<tr><td>11:00</td><td colspan="2">11:00 – 11:15: Morning tea (adjust time to suit local context and session plan)</td><td colspan="2">11:00 – 11:15: Morning tea (adjust time to suit local context and session plan)</td></tr>
<tr><td>11:15
11:30</td><td rowspan="2">A.2 Children with disabilities</td><td rowspan="2">B.6 Selecting wheelchairs and cushions</td><td>11:15 – 11:30 Morning tea</td><td rowspan="4">Practical Three: Fitting and user training</td><td rowspan="4">Practical Four:
Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training</td></tr>
<tr><td>11:45
12:00</td><td rowspan="4">B.1 Assessment overview and assessment interview</td><td rowspan="2">B.7 Prescription (selection) of PSDs -introduction</td><td rowspan="3">Practical One: Assessment and prescription (selection)</td></tr>
<tr><td>12:15
12:30
12:45</td><td rowspan="2">B.8 Prescription (selection) of PSDs – stabilizing the pelvis</td></tr>
</table>

<table>
<tr><td colspan="6">1:00 – 2:00 Lunch (adjust time to suit local context and to fit with session plan)</td></tr>
<tr><td>2:00</td><td rowspan="3">B.1 Assessment overview and assessment interview</td><td rowspan="2">B.8 Prescription (selection) of PSDs – stabilizing the pelvis</td><td rowspan="2">Practical One:
Assessment and prescription (selection)</td><td rowspan="2">Practical Three:
Fitting and user training</td><td rowspan="3">Practical Four:
Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training</td></tr>
<tr><td>2:15</td></tr>
<tr><td>2:30</td><td rowspan="3">B.2 Physical assessment – sitting posture without support</td><td rowspan="3">B.12 Product (wheelchair) preparation</td></tr>
<tr><td>2:45</td><td rowspan="2">B.9 Prescription (selection) of PSDs – supporting the hips</td><td rowspan="2">B.15 Putting it all together</td></tr>
<tr><td>3:00</td></tr>
<tr><td>3:15</td><td colspan="2">3:15 – 3:30: Afternoon tea (adjust time to suit local context and session plan)</td><td></td><td colspan="2">3:15 – 3:30: Afternoon tea (adjust time to suit local context and session plan)</td></tr>
<tr><td>3:30</td><td rowspan="2">B.2 Physical assessment – sitting posture without support</td><td rowspan="2">B.9 Prescription (selection) of PSDs – supporting the hips</td><td>3:30 – 3:45
Afternoon tea</td><td rowspan="2">B.15 Putting it all together</td><td rowspan="2">Practical Four:
Assessment, prescription (selection), product (wheelchair) preparation, fitting and user training</td></tr>
<tr><td>3:45</td><td rowspan="6">Practical Two:
Product (wheelchair) preparation</td></tr>
<tr><td>4:00</td><td rowspan="5">B.3 Physical assessment – pelvis and hip posture screen</td><td rowspan="4">B.10 Prescription (selection) of PSDs – supporting the trunk</td><td rowspan="2">B.17 Trainer's feedback, discussion and closing ceremony</td></tr>
<tr><td>4:15</td></tr>
<tr><td>4:30</td></tr>
<tr><td>4:45</td></tr>
<tr><td>5:00</td><td rowspan="4"></td></tr>
<tr><td>5:15</td></tr>
<tr><td>5:30</td><td rowspan="3"></td></tr>
<tr><td>5:45</td></tr>
<tr><td>6:00</td><td></td></tr>
</table>

*Trainers/training institutes could alter the schedule, if needed.

Annex 2: Intermediate Wheelchair Referral Form

Sample referral form: This form can be adapted by wheelchair services and provided to referral sources to help them refer wheelchair users to the wheelchair service.

Please complete referral form and post to:

Wheelchair Service Name and Address:

Name of referral person:			
Organization you work for:			
Referral person contact details (the best way to contact you):			
Wheelchair user's name:		Date of Birth:	
Parent/caregiver's name:			
Address:			
How can the wheelchair user be contacted?			
Post ☐ Own Telephone ☐ Friend/neighbour's telephone ☐			
If by telephone, what is their phone number:			
Wheelchair user's disability if known:			
Reason for referral: • Has no wheelchair • Has a broken wheelchair • Has a wheelchair that does not meet his/her needs • For children: - unable to sit upright or not pulling up to stand by the age of one; - not able to walk by age of two.	☐ ☐ ☐ ☐ ☐ ☐		
Please add any other information about the wheelchair user that you think it is important that the wheelchair service knows:			
Has the wheelchair user agreed to being referred to the wheelchair service?	Yes ☐ No ☐		
Signature of referring person:			
Date:			

Annex 3: Intermediate Wheelchair Assessment Form

This form is for assessment of wheelchair users who cannot sit upright comfortably without support. Wheelchair users who can sit upright easily can be assessed by a person with basic level training. Keep this form in the wheelchair user's file.

Assessor's name: _____ Date of assessment _____

1: Assessment Interview

Information about the wheelchair user

Name: _____ Number: _____

Age: _____ Male ☐ Female ☐

Phone no.: _____ Address: _____

Goals: _____

Physical

Diagnosis: Brain Injury ☐ Cerebral Palsy ☐ Muscular Dystrophy ☐ Polio ☐
Spina Bifida ☐ Spinal Cord Injury ☐ Stroke ☐ Unknown ☐
Other ☐ _____

Is the condition likely to become worse? Yes ☐ No ☐

Physical issues: Frail ☐ Spasms/uncontrolled movements ☐ Muscle tone (high/low) ☐

Lower limb amputation: R above knee ☐ R below knee ☐ L above knee ☐ L below knee ☐

Fatigue ☐ Hip dislocation ☐ Epilepsy ☐

Problems with eating, drinking and swallowing ☐ Describe: _____

Pain ☐ Describe location: _____

Bladder problems ☐ Bowel problems ☐

If the wheelchair user has bladder or bowel problems, is this managed? Yes ☐ No ☐

Lifestyle and environment

Describe where the wheelchair user will use their wheelchair: _____
_____

Distance travelled per day: Up to 1 km ☐ 1–5 km ☐ More than 5 km ☐

Hours per day using wheelchair: Less than 1 ☐ 1–3 ☐ 3–5 ☐ 5–8 ☐ more than 8 ☐

When out of the wheelchair, where does the wheelchair user sit or lie down and how (posture and surface)? _____

Transfer: Independent ☐ Assisted ☐ Standing ☐ Non-standing ☐ Lifted ☐ Other ☐

Type of toilet (if transferring to a toilet): Squat ☐ Western ☐ Adapted ☐

Does the wheelchair user often use public/private transport? Yes ☐ No ☐

If yes, then what kind: Car ☐ Taxi ☐ Bus ☐ Other _____

Existing wheelchair (if a person already has a wheelchair)

Does the wheelchair meet the user's needs? Yes ☐ No ☐

Does the wheelchair meet the user's environmental conditions? Yes ☐ No ☐

Does the wheelchair provide proper fit and postural support? Yes ☐ No ☐

Is the wheelchair safe and durable? (Consider whether there is a cushion) Yes ☐ No ☐

Does the cushion provide proper pressure relief (if user has pressure sore risk)? Yes ☐ No ☐

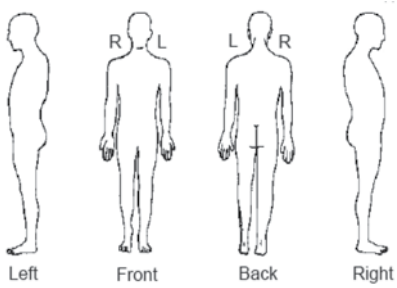
Comments: _____

If yes to all questions, the user may not need a new wheelchair. If no to any of these questions, the user needs a different wheelchair or cushion; or the existing wheelchair or cushion needs repairs or modifications.

2: Physical Assessment

Presence, risk of or history of pressure sores

/// = does not feel
O = previous pressure sore
● = existing pressure sore



Can feel normally?	Yes ☐	No ☐
Previous pressure sore?	Yes ☐	No ☐
Current pressure sore?	Yes ☐	No ☐
If yes, is it an open sore (stage 1–4)?	Yes ☐	No ☐

Duration and cause: _____
_____
_____

Is this person **at risk*** of a pressure sore? **A person who cannot feel **or** has 3 or more risk factors is at risk. Risk factors: cannot move, moisture, poor posture, previous / current pressure sore, poor diet, ageing, under or over weight.* Yes ☐ No ☐

Method of pushing

How will the wheelchair user push their wheelchair? Both arms ☐ Left arm ☐ Right arm ☐ Both legs ☐ Left leg ☐ Right leg ☐ Pushed by a helper ☐

Comment: _____

Sitting posture without support

Describe or draw sitting posture without support:

Pelvis and hip posture screen

Check if pelvis is level and hip flexion range when lying

Can pelvis be level? Yes ☐ No ☐

Can hip bend to neutral sitting posture?

Right hip: Yes ☐ No ☐ Angle: _____

Left hip: Yes ☐ No ☐ Angle: _____

*If pelvis cannot be level **or** hips cannot bend to neutral sitting posture – accommodate with temporary support.*

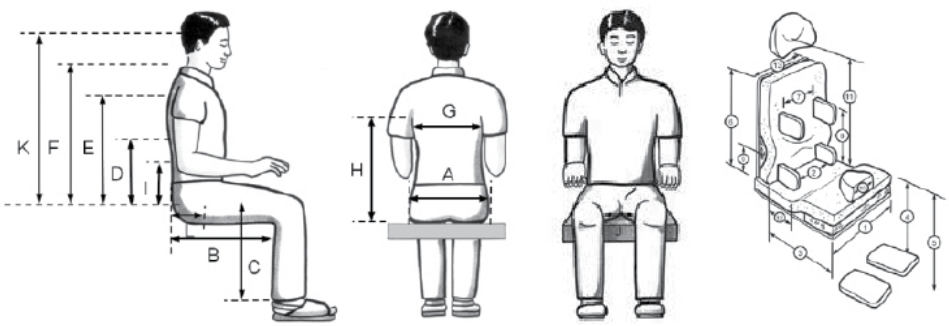
Hand simulation: support needed to sit in neutral posture / as close to neutral posture as is comfortable

*For each body part: If neutral sitting posture is possible **with hand support**, tick yes. If not, tick no.*			
Part	**Yes**	**No**	*Describe or line draw final sitting posture achieved by the wheelchair user with hand support **and** describe or line draw the support provided to achieve that sitting posture.*
Pelvis	☐	☐	
Trunk	☐	☐	
Head	☐	☐	
L Hip	☐	☐	
R Hip	☐	☐	
Thighs	☐	☐	
L Knee	☐	☐	
R Knee	☐	☐	
L Ankle	☐	☐	
R Ankle	☐	☐	

Taking measurements

Body measurements (mm)				Wheelchair component measurements (mm)		
Seat width, depth and footrest height						
A	Hip width			*= seat width OR*	1	
				= distance between pelvis side pads	2	
B	Seat depth (back of pelvis to back of the knee)	L		*B less 30–50 mm = seat depth (if length is different, use shorter)*	3	
		R				
C	Calf length	L		*= distance between top of the seat to footrest OR = distance between top of the seat to floor for foot propelling*	4	
		R			5	
Backrest height						
D	Seat* to bottom of rib cage			*= distance between top of the seat to top of backrest (measure D, E or F – depending on the wheelchair user's need)*	6	
E	Seat* to bottom of shoulder blade					
F	Seat* to top of shoulder					
Modifications and/or PSDs						
G	Trunk width			*= distance between trunk side pads/ wedges*	7	
H	Seat* to axilla (armpit)	L		*H less 30 mm = maximum distance between the top of the seat and the top of trunk side pads/wedges (adjust according to hand simulation)*	8	
		R				
I	Seat* to top of the pelvis (PSIS)			*= distance between the top of the seat and mid-height of rear pelvis pad*	9	
J	Distance between knees			*= width of knee separator pad*	10	
K	Seat* to base of skull			*= distance between the top of seat to middle of headrest*	11	
L	Back of pelvis to seat bones			*L plus 20–40 mm = distance from the backrest support to the beginning of the pre seat bone shelf.*	12	
Other						

**When taking body measurements, the 'seat' is the surface on which the seat bones are sitting.*



Annex 4: Intermediate Wheelchair Prescription (Selection) Form

This form is for recording the choice of wheelchair, cushion and PSDs for a wheelchair user who cannot sit upright comfortably without support. Keep this form in the wheelchair user's file.

1. Wheelchair user information

Wheelchair user's name:		Number:	
Date of assessment:		Date of fitting:	
Assessor's name:			

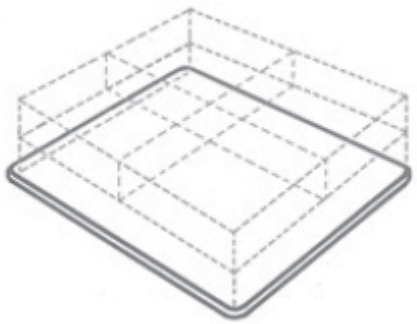
2. Wheelchair type, size and set-up

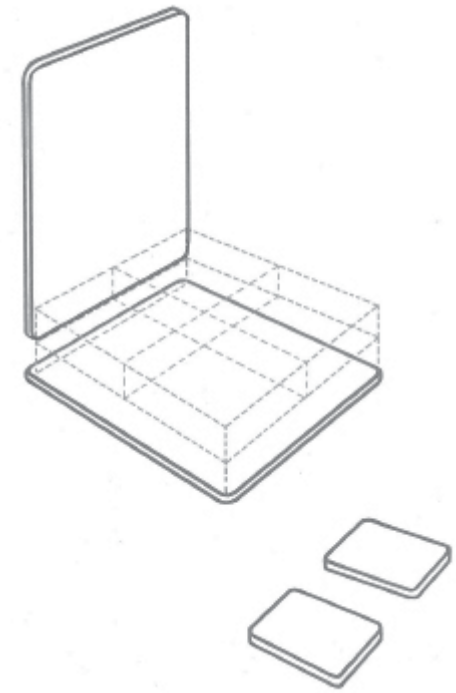
Type of wheelchair *(list available wheelchairs below)*		**Wheelchair dimensions (mm)**	
	☐	Seat width	
	☐	Seat depth	
	☐	Backrest height	
	☐	Footrest height	
Wheelchair set-up			
Rear wheel position		Other:	
Tilt			

3. Cushion type and size

Type of cushion		**Size**
E.g. pressure relief cushion	☐	
	☐	

4. PSDs or modifications required

PSD checklist				**Describe / draw and provide dimensions**
Seat / cushion	Add solid seat		☐	
	Pre seat bone shelf (= 3 less 12)		☐	
	Lower seat front	L ☐	R ☐	
	Raise seat front		☐	
	Wedge for anterior tilt		☐	
	Build-up under pelvis	L ☐	R ☐	
	Pelvis side pads (= 2)	L ☐	R ☐	
	Outside thigh wedges	L ☐	R ☐	
	Outside thigh pads	L ☐	R ☐	
	Inside thigh wedge (= 10)		☐	
	Knee separator pad (= 10)		☐	
	Other		☐	
	Other		☐	

PSD checklist				Describe / draw and provide dimensions
Seat and backrest	Open seat to backrest angle		☐	
	Seat and backrest tilt (tilt in space)		☐	
Backrest	Add solid backrest		☐	
	Rear pelvis pad (= 9) ☐			
	Adjust backrest shape		☐	
	Tension adjustable backrest		☐	
	Backrest recline	☐		
	Trunk side pads (= 7)	L ☐	R ☐	
	Trunk side wedges(= 7)	L ☐	R ☐	
	Other	☐		
Tray / armrests	Tray	☐		
	Modify armrests	L ☐	R ☐	
	Other	☐		
Head supports	Flat headrest (= 11)	☐		
	Shaped headrest (= 11)	☐		
	Other	☐		
Lower leg supports	Footrest build-ups	L ☐	R ☐	
	Footrest wedges	L ☐	R ☐	
	Lower leg supports	L ☐	R ☐	
	Other	☐		
Straps	Pelvis strap	☐		
	Calf strap	☐		
	Foot straps	L☐	R ☐	
	Shoulder harness	☐		
	Other	☐		

5. Agreement signatures

Wheelchair user: _____ Assessor: _____

Wheelchair service manager: _____

Annex 5: Intermediate Wheelchair Summary Form

Name of wheelchair:		*Insert picture here:*
Manufacturer/ supplier:		
Sizes available:		
Overall weight:		

Description:

Frame:	Fixed/rigid	☐	Folding	☐	Frame length:	
Backrest:	Slung/canvas	☐	Solid	☐	Tension Adjustable	☐
Seat:	Slung/canvas	☐	Solid	☐	Tension Adjustable	☐
Cushion:	No cushion	☐	Flat foam	☐	Foam contoured	☐
	Fluid	☐	Other	☐		
Footrests:	Fixed	☐	Removable/ swing away	☐	Other:	
Castor wheels:	Pneumatic	☐	Diameter:			
	Solid	☐	Width:			
Rear wheels:	Pneumatic	☐	Diameter:		Push rims	☐
	Solid	☐	Width:		Adjustable axle	☐
	Solid inner tube	☐			Removable	☐
Brakes:	Short lever	☐	Long lever	☐	Other:	
Armrest:	Curved	☐	Square	☐	Other:	
	Fixed	☐	Removable	☐	Other:	
Push handles:	Push handles	☐				
PSDs:	Pelvis strap	☐	Calf strap	☐	Shoulder harness	☐
	Foot straps	☐	Anti-tip bars	☐	Trunk side pads	☐
	Tray	☐	Headrest	☐	Pelvis side pads	☐
	Other:					

Measurements, adjustment options and range of adjustment:

	Measurements (if the wheelchair is available in different sizes list all sizes)	**Is this adjustable?**		**Range of adjustment (adjustment range that is possible for this chair)**
		Yes	**No**	
Seat width		☐	☐	
Seat depth		☐	☐	
Seat height		☐	☐	

Backrest height		☐	☐	
Backrest recline		☐	☐	
Footrest height		☐	☐	
Footrest angle		☐	☐	
Push handles height		☐	☐	
Frame length		☐	☐	
Wheel base length		☐	☐	
Backrest to seat angle		☐	☐	
Tilt in space		☐	☐	

Annex 6: Intermediate Wheelchair Safe and Ready Checklist

Whole wheelchair including PSDs	
There are no sharp edges	☐
PSDs are well padded and tightly fixed	☐
No parts are damaged or scratched	☐
The wheelchair travels in a straight line	☐
Front castor wheels	
Spin freely	☐
Spin without touching the fork	☐
Bolts are tight	☐
Front castor barrels	
Castor fork spins freely	☐
Rear wheels	
Spin freely	☐
Axle bolts are tight	☐
Tyres inflated correctly (with thumb pressure, wheel can be depressed less than 5 mm)	☐
Push rims are secure	☐
Brakes	
Function properly	☐

Footrests	
Footrests are securely attached	☐
Frame	
For a cross-folding wheelchair – the wheelchair folds and unfolds easily	☐
For a wheelchair with fold-down backrest – the backrest folds and unfolds easily	☐
Cushion	
The cushion is in the cover correctly	☐
The cushion is sitting on the wheelchair correctly	☐
The cushion cover fabric is tight but not too tight	☐
If the wheelchair has a solid seat: the cushion fully covers the solid seat	☐

Annex 7: Intermediate Wheelchair Fitting Checklist

1. Is the wheelchair ready?

Has the wheelchair been checked to make sure it is safe and ready to use and all parts are working?	☐

2. Check wheelchair and PSDs fit

Wheelchair width: • hips fit comfortably between armrests or pelvis side pads; • trunk fits comfortably between the wheelchair frame backrest tubes or trunk side pads; • thighs fit comfortably between the armrests, mud/skirt guards or pelvis side pads and are not pushed together.		☐
Seat depth: • 30 mm gap between the back of each knee and the seat/ cushion.		☐
Pelvis: • pre seat bone shelf sits just in front of the seat bones; • rear pelvis pad provides support at the PSIS; • pelvis side pads fit snugly and are not located over the hip joint; • pelvis strap can be tightened firmly and does not pinch skin.		☐

Trunk: • trunk side pads do not place any pressure into the armpits. There should be at least 30 mm between armpit and top of trunk side pad; • shoulder harness done up comfortably and does not pinch skin; • tray supports the length of the forearms and elbows and does not push on stomach; • check backrest height and tilt.		☐
Headrest: • the headrest should usually support the wheelchair user's head at the base of the skull; • supports the head in a balanced and upright posture.		☐
Thighs: • there is no high pressure on caused by the outside thigh pads or knee separator pad; • knee separator pad 40–60 mm away from the groin area for children and 60–100mm for adults.		☐
Footrest height: • thighs are fully supported on the cushion with no gaps. Feet are fully supported on the footrests with no gaps; • foot straps can be done up firmly without pinching; • calf strap and behind the heel foot straps supporting calf and feet.		☐

3. Check posture

Check from the front and side to see whether the wheelchair user is sitting as close to neutral sitting posture as is comfortable for them:	
• Is their pelvis upright and level (or as close to this as is comfortable for the user)	☐
• Is the trunk upright and symmetrical (or as close to this as is comfortable for the user)	☐
• Is the head balanced and upright (as much as possible)	☐
• Are legs and feet supported as close to neutral as possible.	☐
Check that all PSDs are providing support as intended. In particular check (if provided):	
• Backrest height, recline and contours	☐
• Tilt in space	☐
• Pelvis side pads and trunk side pads	☐
• Outside and inside thigh wedges, outside thigh pads and lower leg supports	☐
Check posture again after 15 minutes to see if there has been any change	☐

4. Check pressure

Check pressure under both seat bones. Is the pressure safe on both sides? **Level 1 = safe:** Fingertips can wriggle up and down 5 mm or more. **Level 2 = warning:** Fingertips cannot wriggle, but can easily slide out. **Level 3 = unsafe:** Fingertips are squeezed firmly. It is difficult to slide fingers out.	☐
Place your finger between the wheelchair user's body and each postural support including pads and straps. Does the postural support make even contact with the body? Is the pressure safe?	☐
If the wheelchair user has any particularly bony prominences, bulges or bumps – check there is no pressure on these areas.	☐

5. Check fit while the wheelchair is moving

Does the backrest allow the wheelchair user freedom to move their shoulders to push?	☐
Does movement of the wheelchair or the action of pushing cause the wheelchair user to change their posture or feel uncomfortable or unstable in any way?	☐
Hand propelling: Is the rear wheel position correct for the wheelchair user to push as well as he/she can?	☐
Foot propelling: Is the seat height and depth correct for the user to push with their leg/s?	☐
Do the posture supports allow for unrestricted and safe wheelchair mobility?	☐

6. Decide if any further action is required

Is there any further action necessary? Write any actions in the wheelchair user's file.	☐

Annex 8: Intermediate Wheelchair User Training Checklist

	Skills to Teach	Skills Taught	Comments
Wheelchair handling			
Folding and lifting the wheelchair	☐	☐	
Taking off and putting back on any PSDs that need to come off for transport	☐	☐	
Using quick release wheels	☐	☐	

Using the brakes	☐	☐	
Tilting and anti-tip bars (if used)	☐	☐	
Correct position of PSDs when the wheelchair user is in the wheelchair	☐	☐	
Using the cushion including positioning correctly	☐	☐	
Transfers			
Independent transfer	☐	☐	
Assisted transfer	☐	☐	
Other	☐	☐	
Wheelchair use and mobility			
Pushing correctly (using the wheelchair user's preferred method)	☐	☐	
Up and down a slope	☐	☐	
Up and down a step	☐	☐	
On rough ground	☐	☐	
Partial wheelie	☐	☐	
How long to sit in the wheelchair (for children and adults with additional postural support needs)	☐	☐	
Assisted pushing	☐	☐	
Preventing pressure sores			
Check areas of high pressure for pressure sores	☐	☐	
Pressure relief lifts	☐	☐	
Eat well and drink lots of water	☐	☐	
What to do if a pressure sore develops	☐	☐	
How to care for a wheelchair at home			
Clean the wheelchair; wash and dry the cushion and cushion cover	☐	☐	
Oil moving parts	☐	☐	
Pump the tyres	☐	☐	
Tighten nuts and bolts	☐	☐	

Tighten spokes	☐	☐	
Check upholstery	☐	☐	
Check for rust	☐	☐	
Check the cushion	☐	☐	
What to do if there is a problem			
Wheelchair needs repairs	☐	☐	
The wheelchair does not fit or is not comfortable	☐	☐	

Annex 9: Wheelchair Follow Up Form

This form is for recording information about the wheelchair user from a follow up visit. Keep this form in the wheelchair user's file.

1. Wheelchair user information

Wheelchair user name: _____ Number: _____

Date of fitting: _____ Date of follow up: _____

Name of person carrying out follow up: _____

Follow up carried out at: Wheelchair user's home ☐ Wheelchair service centre ☐
Other: _____

2. Interview

		Record action to be taken:
Are you using your wheelchair as much as you would like?	Yes ☐ No ☐	
If no – why not?		
Do you have any problems using your wheelchair?	Yes ☐ No ☐	
If yes – what are the problems?		
Do you have any questions about using your wheelchair?	Yes ☐ No ☐	
If yes – what questions. Is further training needed?		
Does the wheelchair user have any pressure sores?	Yes ☐ No ☐	
Describe (location and level)		
How would you rate your satisfaction with your wheelchair from 1–5? *(1 is not satisfied and 5 is very satisfied)*	Rate:	
Comment:		

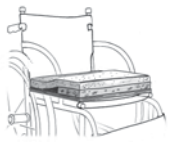
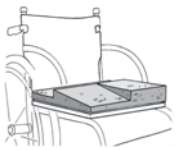
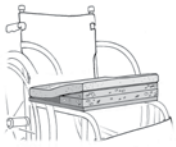
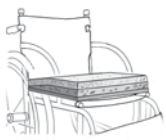
3. Wheelchair and cushion check

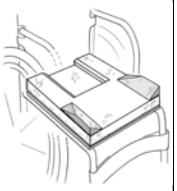
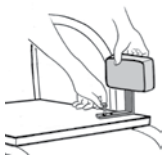
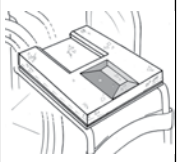
Is the wheelchair in good working order and safe to use?	Yes ☐ No ☐	
Is the cushion in good working order and safe to use?	Yes ☐ No ☐	
If no for either, what is the problem?		

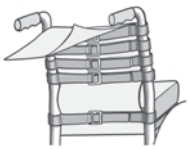
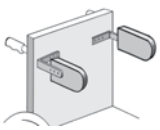
4. Fitting check

Does the wheelchair fit correctly?	Yes ☐ No ☐		
If no – what is the problem?			
Pressure test level *(1 = safe, 2 = warning, 3 = unsafe)* (if user at risk of developing a pressure sore)	Left:		
	Right:		
Is the wheelchair user sitting upright comfortably when still, moving, and through the day?	Yes ☐ No ☐		
If no – what is the problem?			

Annex 10: Postural Support Device (PSD) Table

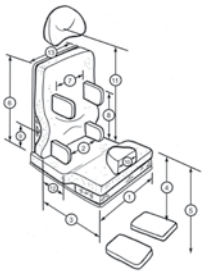
Seat / cushion					
					
pre seat bone shelf	lower seat front (one side)	raised seat front	wedge for anterior tilt	build-up under pelvis	pelvis side pads

Seat / cushion				Seat & backrest	
					
outside thigh wedges	outside thigh pads	inside thigh wedge	knee separator pad	open seat to backrest angle	seat & backrest tilt (tilt in space)

Backrest					
					
rear pelvis pad	adjust backrest shape	tension adjustable backrest	backrest recline	trunk side pads	trunk side wedges

Tray	Head supports		Lower leg supports		
					
Tray	flat headrest	shaped headrest	footrest build-ups	footrest wedges	lower leg supports

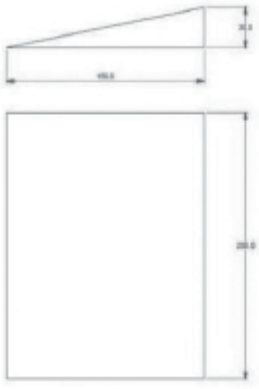
Straps				
				
pelvis strap	anterior tilt four-point strap	calf strap	foot straps	shoulder harness

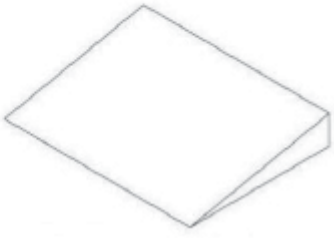


Annex 11: Wedges of firm foam

Wedges made from firm foam can be used as temporary supports. The wedges of firm foam may be used alone, or stacked together to make a more acute angle.

The dimensions shown below are 30 mm x 150 mm x 200 mm. Slightly smaller and slightly larger wedges would also be useful.





Annex 12: Wheelchair users list for practical sessions

Use this checklist to organize and schedule wheelchair user volunteers for each of the practical sessions. Remember – wheelchair users should always participate willingly. Wherever possible their time should be rewarded. Use the checklist in the Trainer's Manual to help identify wheelchair users.

Practical session	Date and time	Wheelchair user's name	Gender		Age	Disability/mobility and postural support needs.	Invited	Accepted	Transport arranged
			Male	Female					
Practical One							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
Practical Two							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
Practical Three							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
Practical Four							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐
							☐	☐	☐

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