Practical Tools for Checking AT Fit for the Home

Medical Aids Subsidy Scheme

18 June, 2020

Queensland Government

The Ideal Situation for Checking Assistive Technology Fits the Home

The client trials equipment at home with the prescriber and carer present.

However, this is not always possible so it is important to consider other work arounds.

Overview

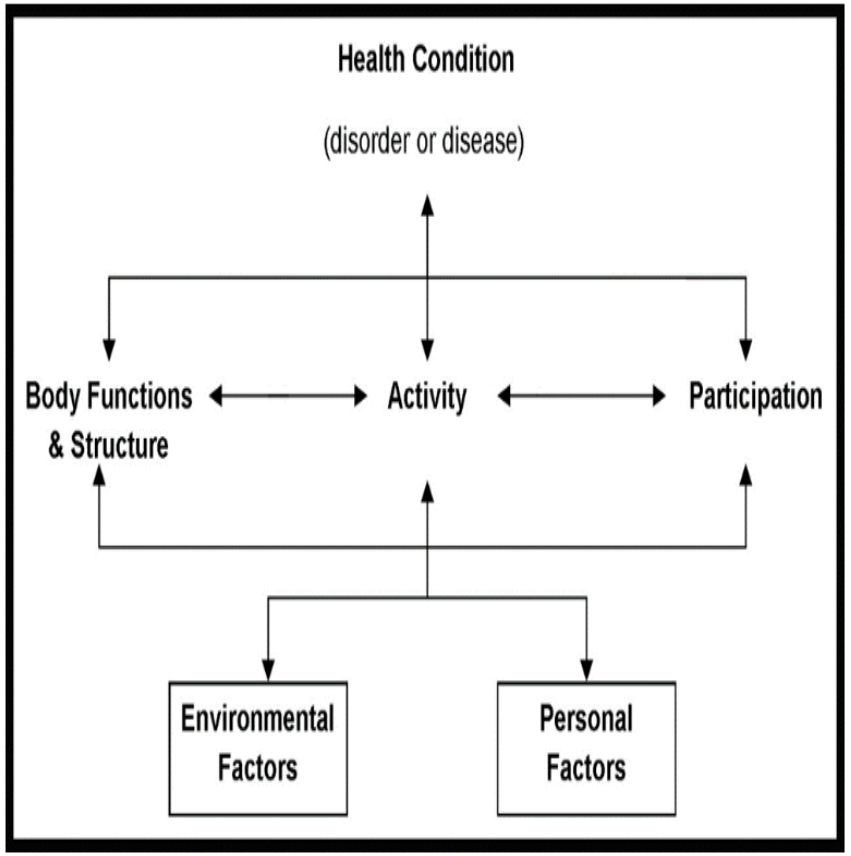
- Reasons to get AT fit for the home right
- Frameworks for prescribing AT for the home environment
- Person-AT Fit resources
- Physical home environment
- Strategies to confirm AT fit for the home
- Considerations and other options re mobility aids, MSC and home environment in general

Reasons to get it right

- Client centred – the equipment needs to be suitable and work for the client
- Professional ethics/standards - appropriate clinically
- Professional courtesy – someone else may have to sort this out in future
- Responsible use of government funding
- Efficient use of time and resources – takes a lot of time and energy to problem solve solutions when equipment has been funded and arrived but is not suitable

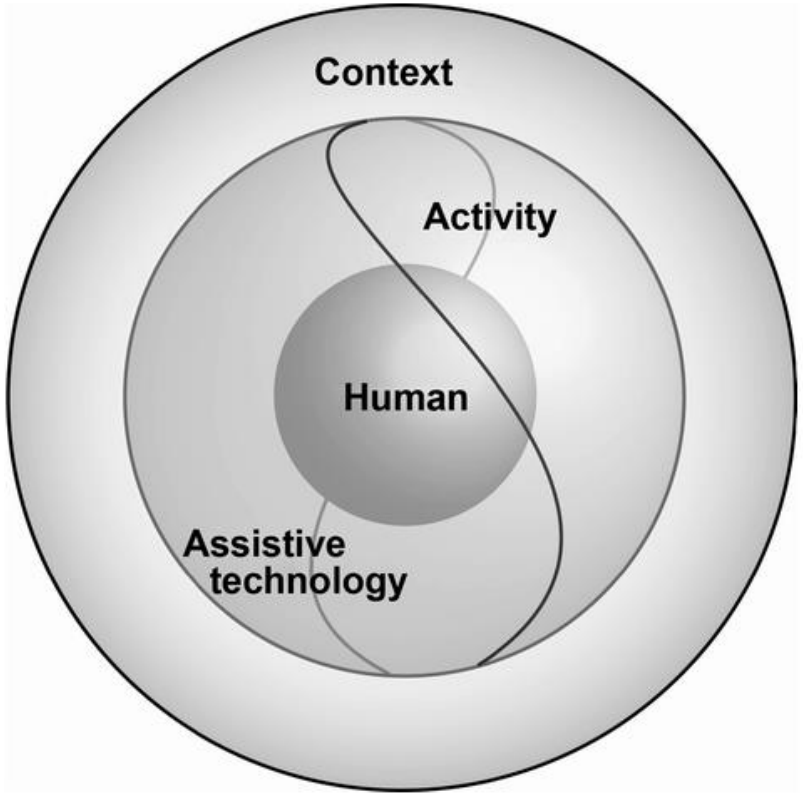
Frameworks

ICF Framework



Person-Environment-Occupation Model

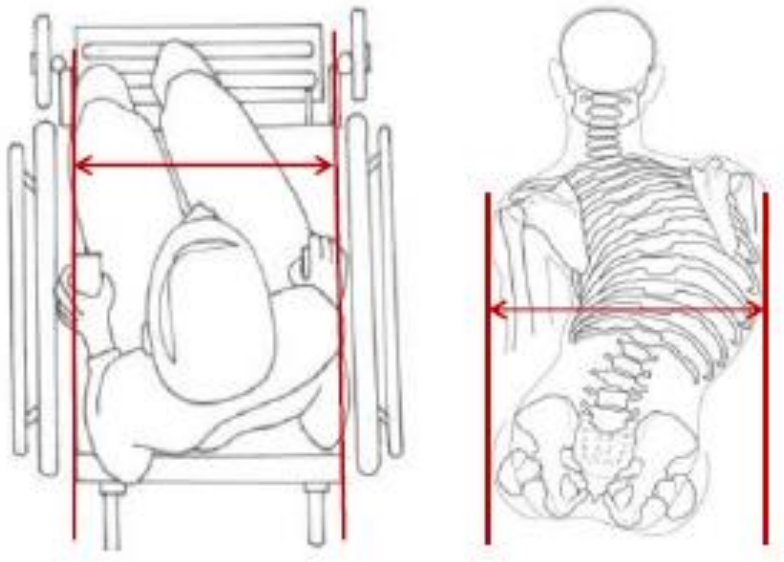
Human Assistive Technology Model



Person – AT Fit (MASS Education, 2018)

Essential Measurements - Measuring the Person

Essential Measurements - Ordering the right size and set up



AT resources

Lifting and transferring workshop 2019

www.health.qld.gov.au/__data/assets/pdf_file/0014/436001/ceilinghoist.pdf

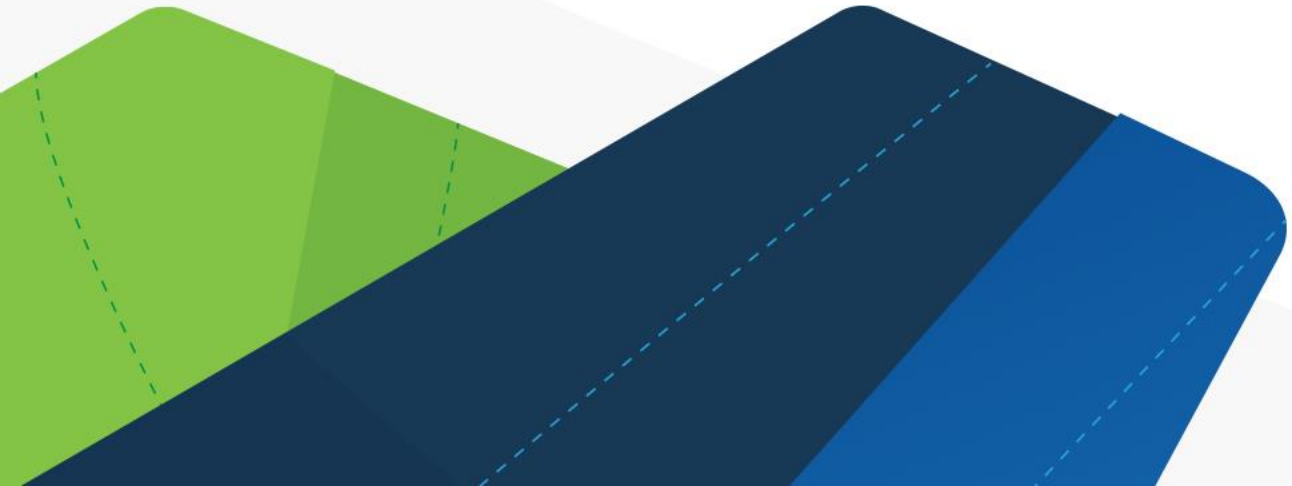
MASS Education 2018: AT for bathing, showering and toileting

‘Bariatric equipment options for MASS subsidy funding 2015’:

https://www.health.qld.gov.au/__data/assets/pdf_file/0031/432877/mattress-trial-evaluation.pdf

https://www.health.qld.gov.au/__data/assets/pdf_file/0024/423951/msc-assess.pdf

Physical Home Environment



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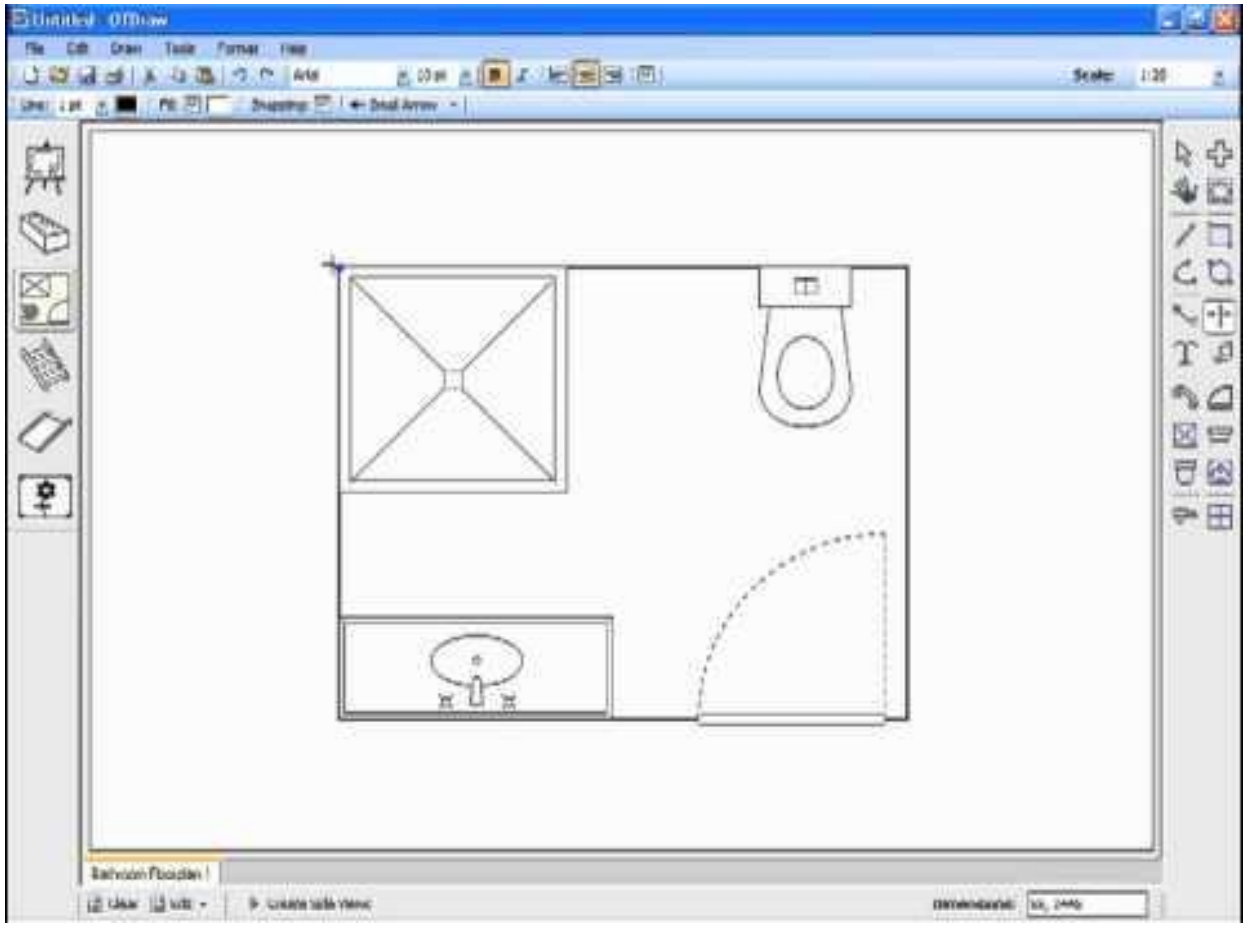
Physical Environment Constraints

- Stairs
- Floor surfaces
- Poor lighting
- Poor contrast
- Lack of space
- Clutter
- Loose rugs
- Pets

Home Drawing Tools



OT Draw

Example of Measurement Virtually

Neo rehab video footage

Considerations for People with Dementia

- Good lighting
- Different textures and colours in living room
- Contrasting colours for floors, walls and furnishings
- Reduce noise and distractions
- Decluttered surfaces

https://www.dementia.org.au/files/helpsheets/Helpsheet-Environment01_AdaptingYourHome_english.pdf

MASS experiences of equipment which is not suitable - examples

This happens more than you might think!!

- Wheelchair won't fit through doorway
- MSC does not clear toilet – height or align over aperture
- Hoist unable to be manoeuvred over floor surface

MASS experiences of equipment which is not suitable – examples (cont.)

- MSC seat not suitable
- Equipment does not interface with other equipment e.g. too high/too low to t/f between MSC and wheelchair/bed
- Client unable to self propel equipment in the home environment
- PWC change from RWD to MWD – get hung up on top of ramp into the home

Poll on Strategies used by Prescribers

1. Trial applicant using the equipment in their own home

If (1.) is not possible, then:

2. Complete trial of equipment with applicant in the hospital/rehabilitation unit/supplier showroom, then review home access with the equipment

3. Complete trial of equipment with applicant in the hospital/rehabilitation unit/supplier showroom, then review home access with the aid of measurements/photos/cut outs/telehealth

4. Simulate home environment in hospital/rehabilitation setting using barriers and markings on floor, either with equipment or cut outs

5. Use scale drawing - room/circulation spaces and

scale cut out of equipment

Mobility Aids in the Home Environment

- MWC was significantly faster than the PWC
- The WW was faster than the MWC and the PWC
- The WW also had significantly fewer collisions than the MWC or the PWC
- The WW was significantly less fatiguing than the MWC
- The MWC was more fatiguing than the PWC
- There were no device-related differences in pain

Hoenig, H. et. al.(2015). One Size Does Not Fit All – Mobility Device Type Affects Speed, Collision, Fatigue and Pain. *Archives of Physical Medicine and Rehabilitation.* 96 (3):489- 497

Wheeled Walkers – Considerations for Home

High incidence of incorrect use observed at home (thus increasing falls risk) due to:

- Environmental factors: furniture, carpet edges, carpet friction, door frames, door thresholds and walls
- Performing complex tasks such as crossing obstacles (e.g. door thresholds and turning in confined spaces), especially in confined spaces with clutter
- Design features: front-wheels that are fixed and cannot swivel
- Reduced adherence to guidelines for both pick-up walkers and front-wheeled walkers

Thies, S.B., Bates et al. (2020). Are older people putting themselves at risk when using their walking frames?. *BMC Geriatr* 20**,** 90.

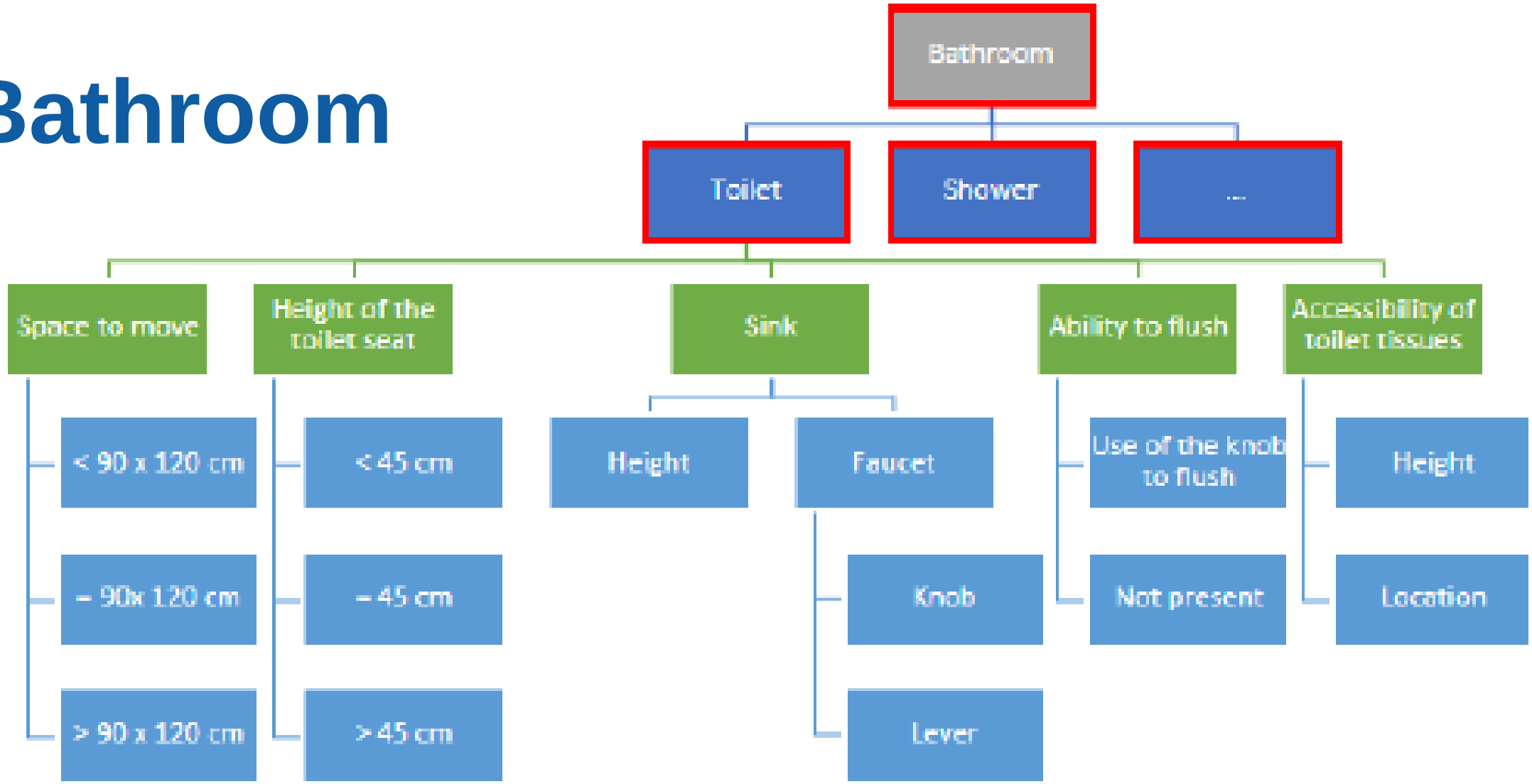
Risk Matrix for Assistive Technology

SAMPLE 5 x 5 RISK MATRIX					
Probability	Severity				
	1 (Negligible)	2 (Minor)	3 (Moderate)	4 (Severe)	5 (Significant)
1 (Remote)	1	2	3	4	5
2 (Unlikely)	2	4	6	8	10
3 (Possible)	3	6	9	12	15
4 (Likely)	4	8	12	16	20
5 (Certain)	5	10	15	20	25

COLOUR DEFINITIONS	
GREEN	Keep risk register to demonstrate awareness of risk
AMBER	Efforts should be made to reduce the risk and risk reduction measures implemented where possible within a defined time period. Further assessment may be necessary to establish more precisely the likelihood of harm as a basis for determining the need for improved control measures.
RED	Very detailed risk assessment needs to be carried out and risks must be reduced.

TERMINOLGY DEFINITIONS			
Probability		Severity	
1 (Remote)	Extremely unlikely to occur in equipment life	1 (Negligible)	Very unlikely to sustain any injury
2 (Unlikely)	Unlikely to occur in equipment life	2 (Minor)	Minor injury (first aid not required), repair not required
3 (Possible)	Could occur	3 (Moderate)	Minor injury first aid required, some damage that will need repair
4 (Likely)	Likely to occur	4 (Severe)	Significant injury possible that requires hospital treatment
5 (Certain)	Will happen in equipment life	5 (Significant)	Major injury or death

Bathroom



Lemmens, R., Gielen, C. & Spooren, A. (2017) Obstacle: A Tool to Assess the Home Environment Designed for All. *Studies in health technology and informatics.* 242:168-174.

Some strategies to consider if unable to complete assessment in the home with the applicant

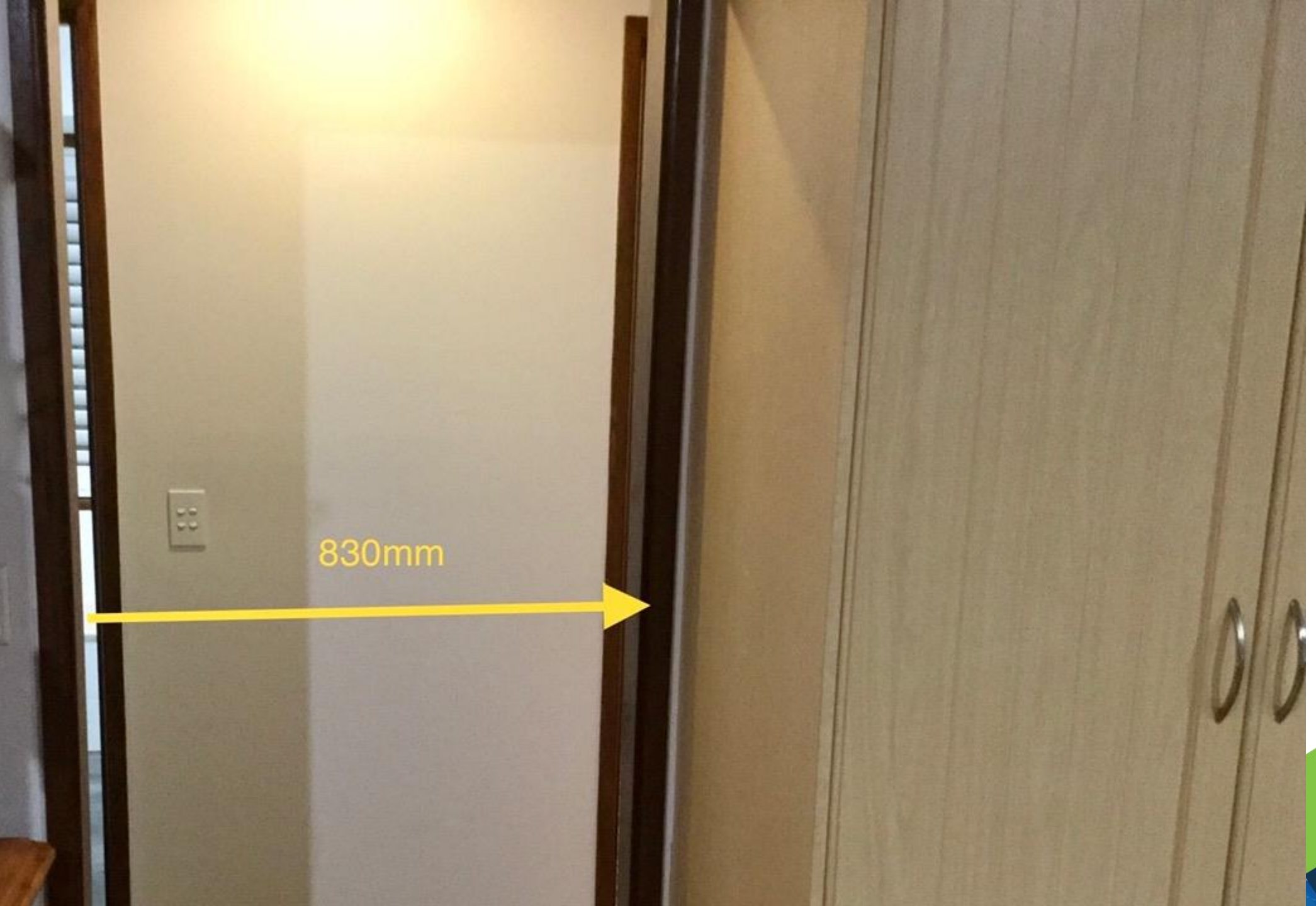
- Complete trial of equipment with applicant in the hospital/rehab/supplier showroom. Review home access by:
  - Clinician completes access visit and takes measurements/photos/footage – treating clinician or local clinician
  - Clinician completes access visit with equipment/cutout
  - Family/carer/applicant provide description and measurements/ photos/footage
  - Telehealth with someone in the home

Some strategies to consider if unable to complete assessment in the home with the applicant (cont)

- Simulate home environment in hospital/rehab setting – barriers, marked on floor (eg masking tape) – use of equipment or cut out
- Scale drawing – room/circulation spaces and scale cut out of equipment


670mm
880mm


880mm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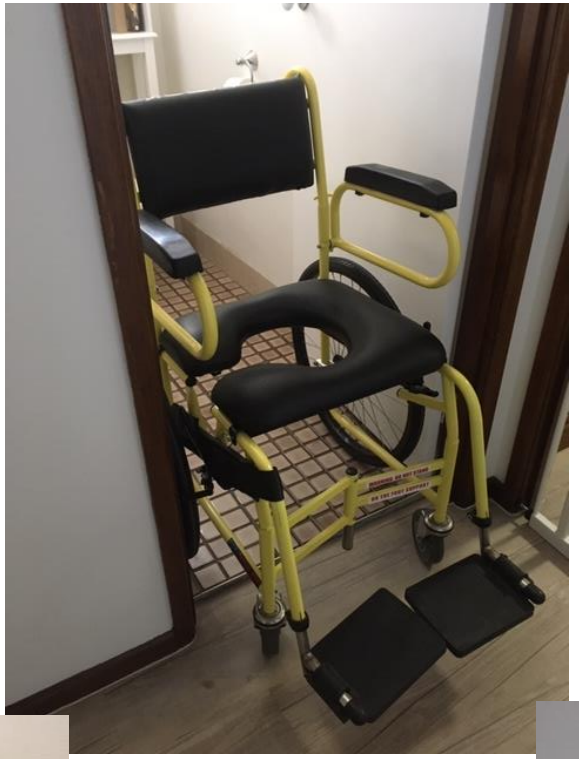
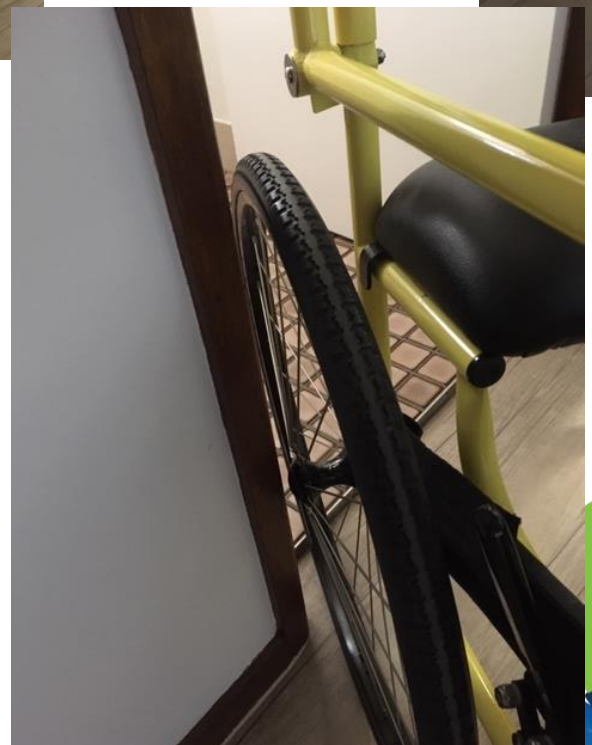
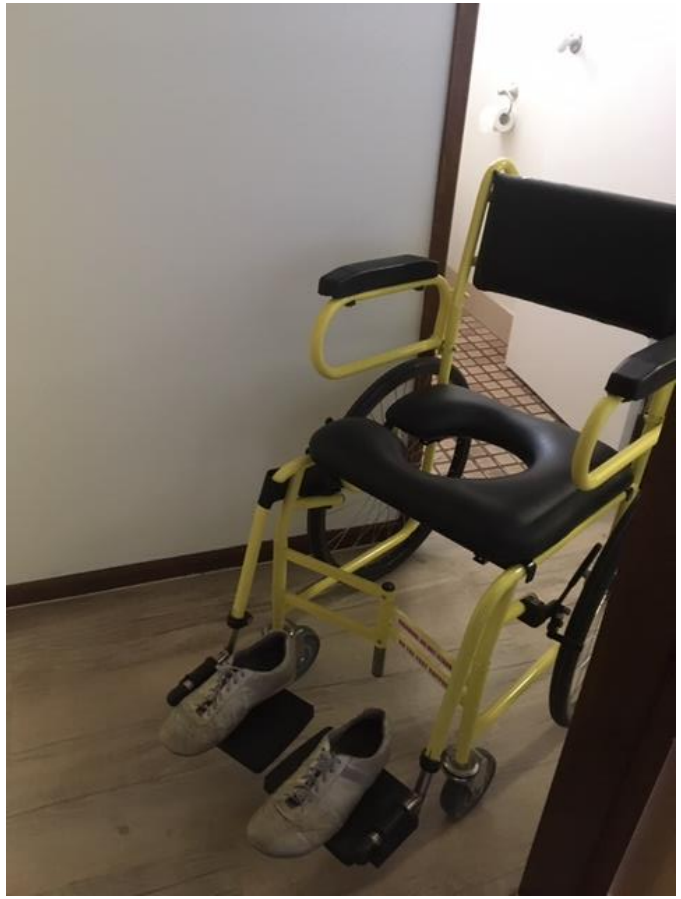
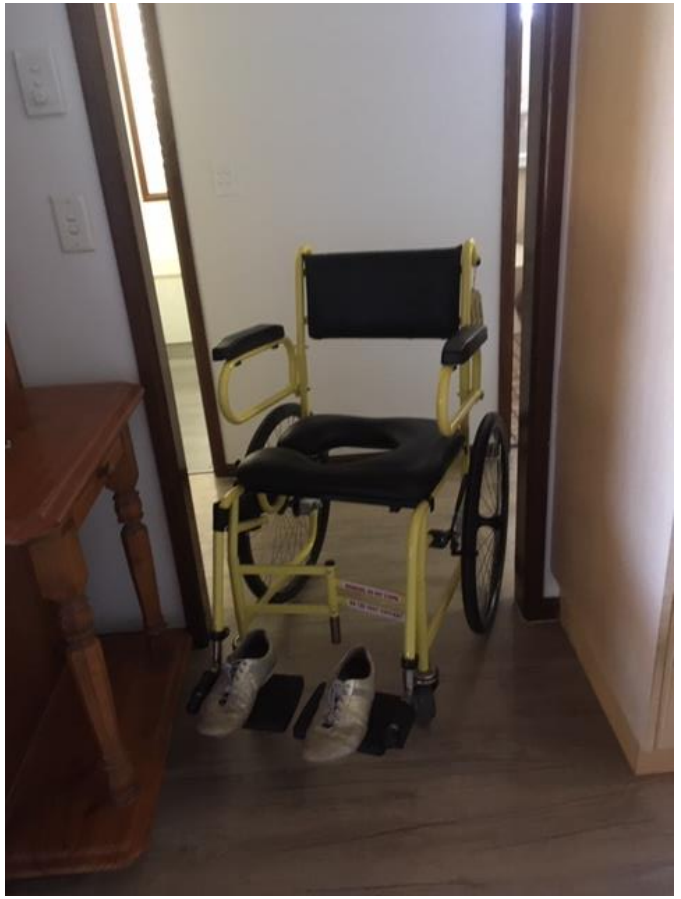
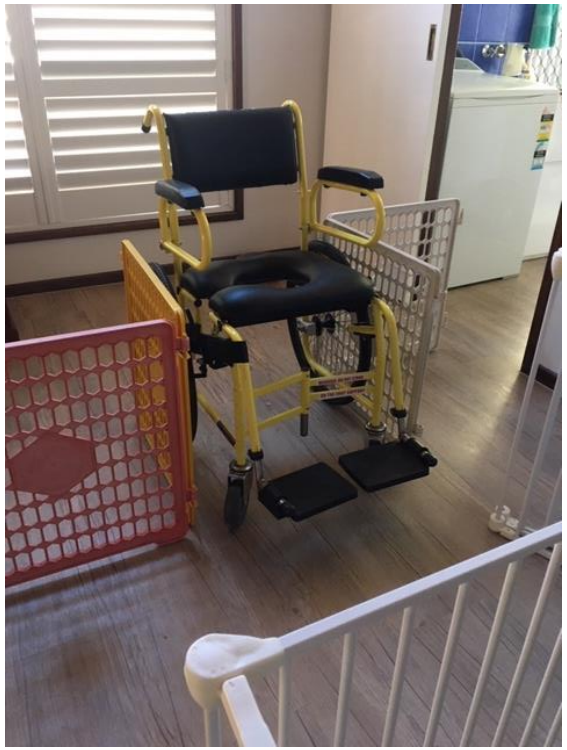


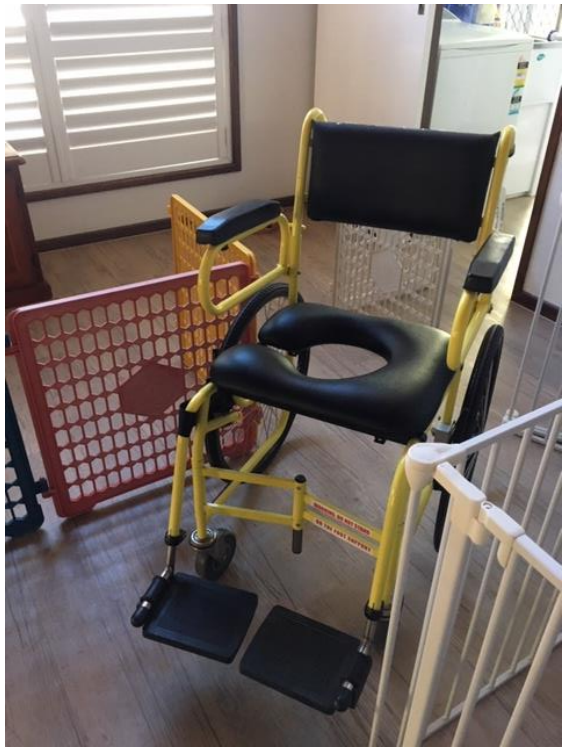
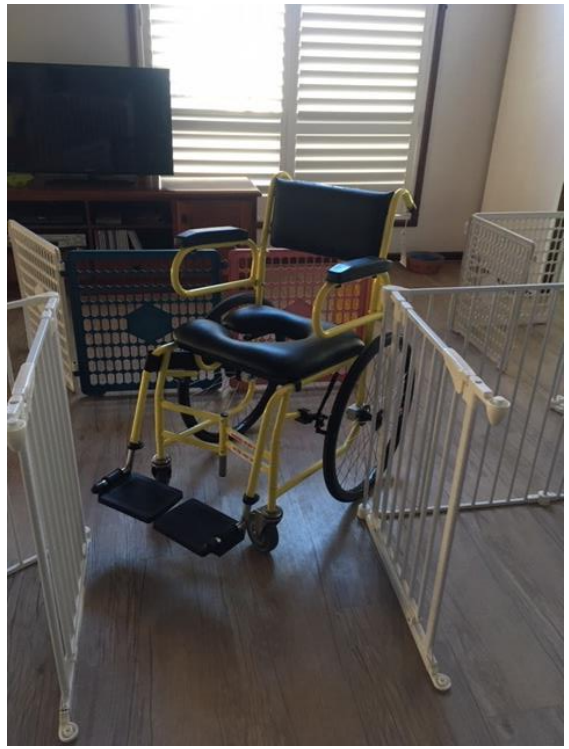

DO NOT STAND
FOOT SUPPORT

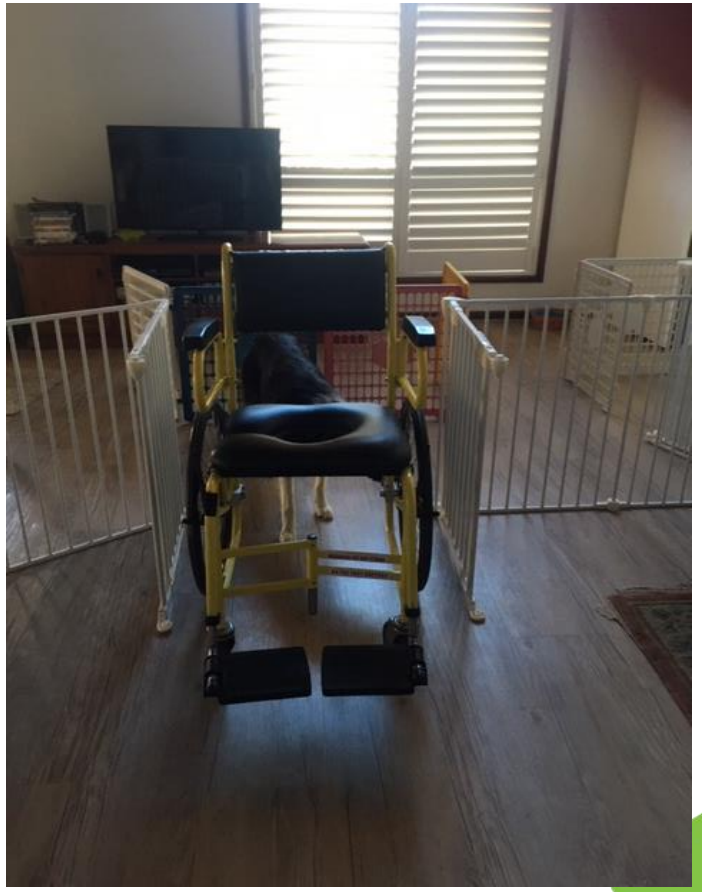


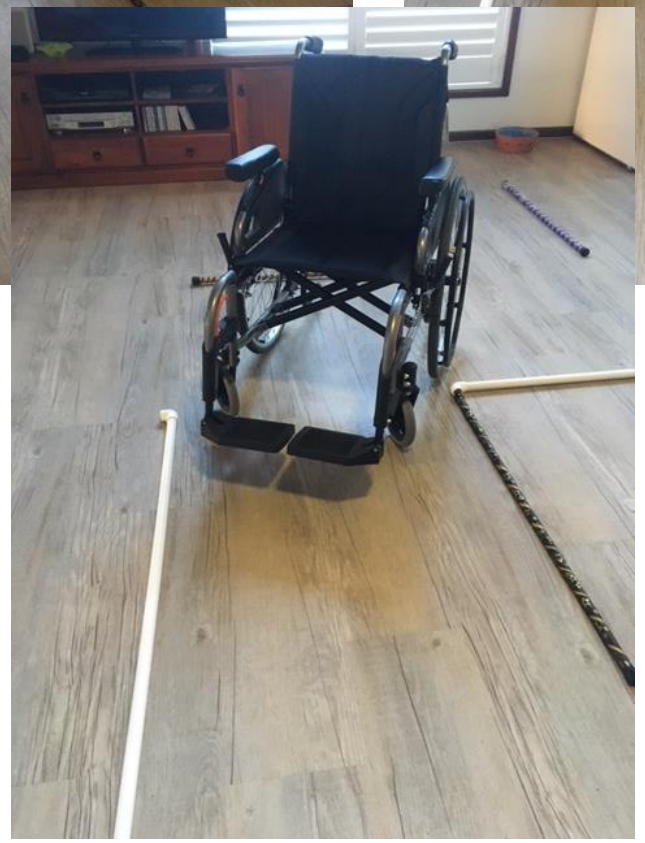






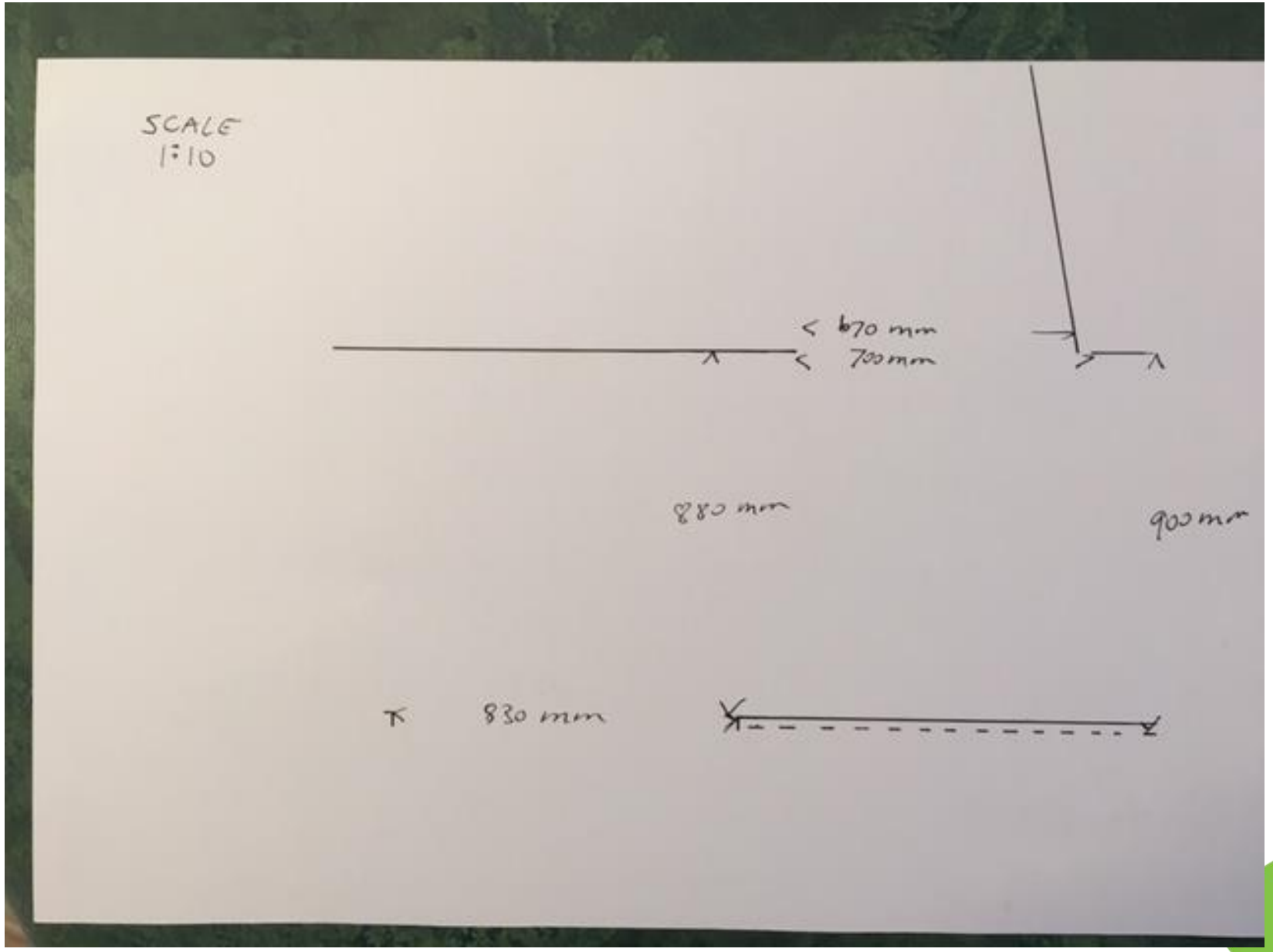







Mobile Shower Commode and Manual Wheelchair

- Mobile Shower Commode
  - Hallway
  - Barriers
  - Floor layout
- Manual Wheelchair
  - Barriers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700 mm
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900 mm
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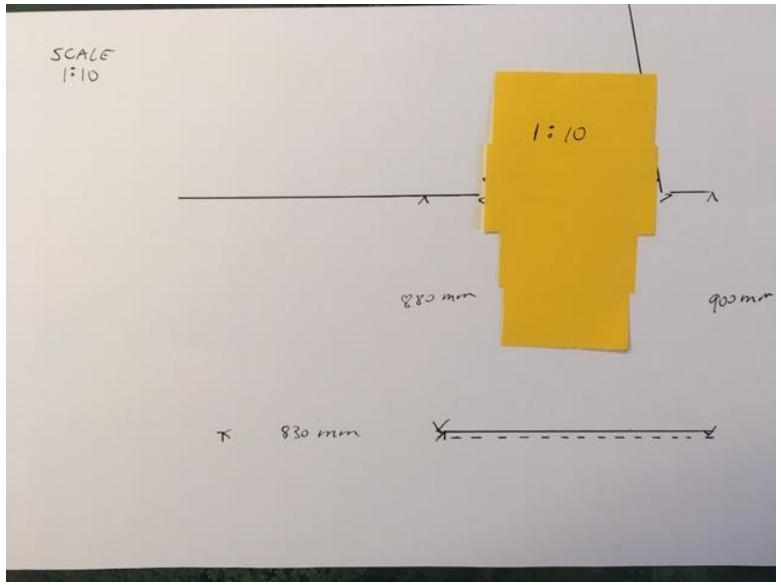
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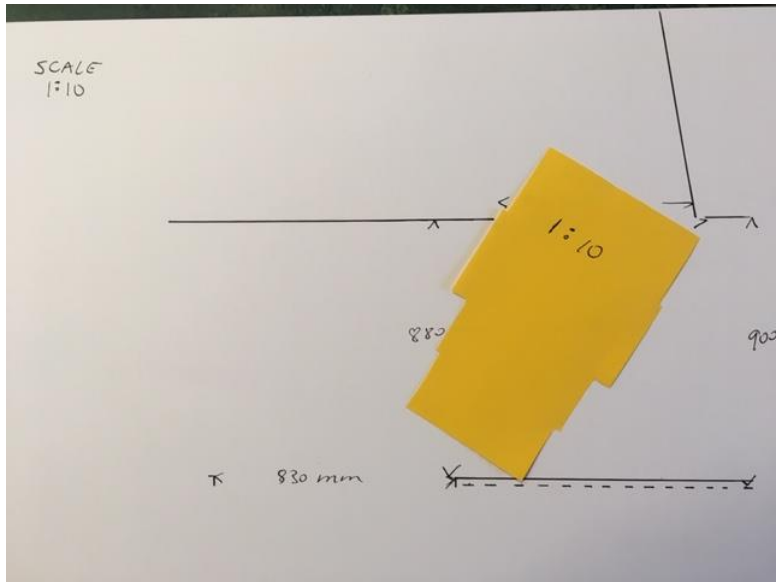
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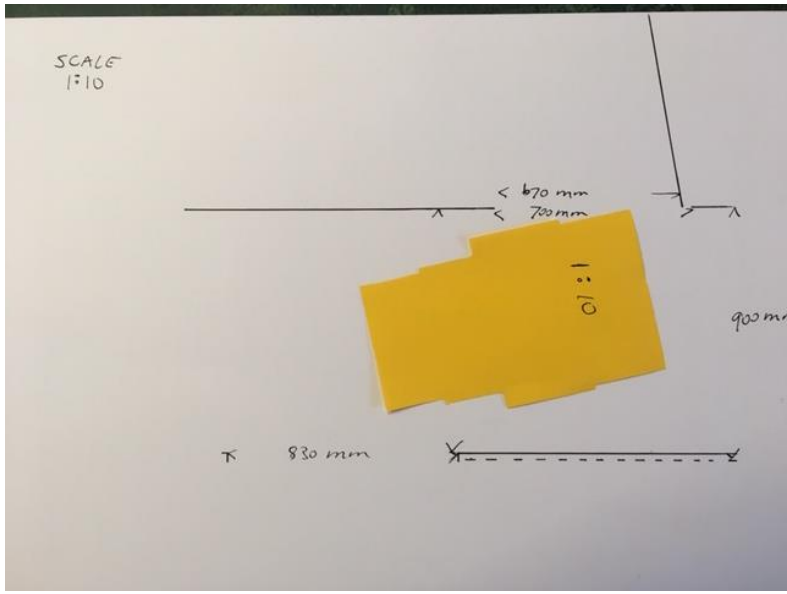
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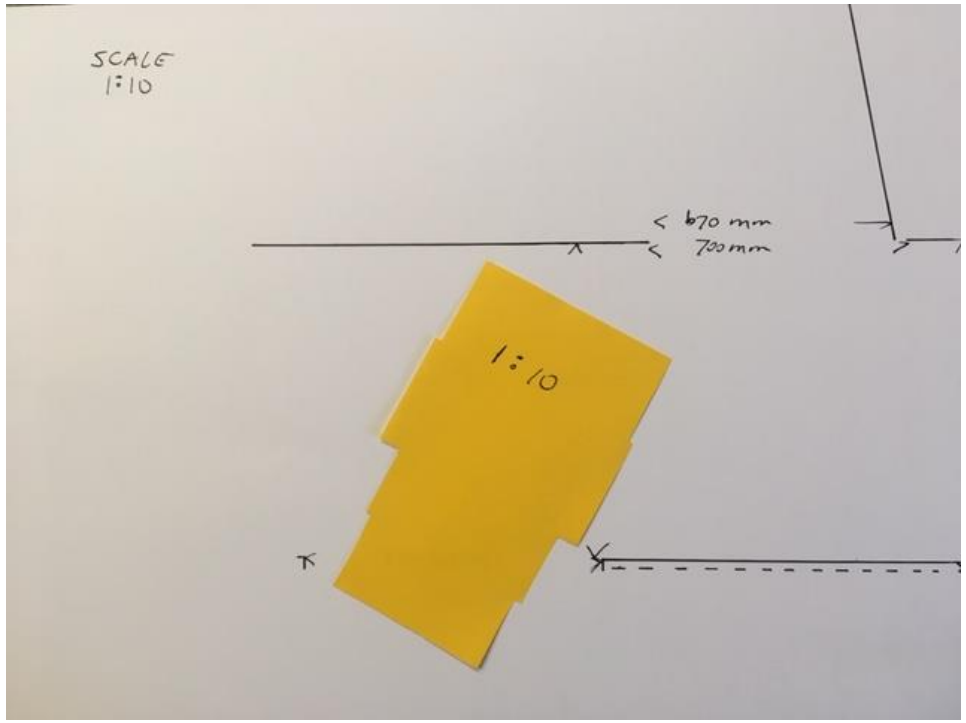
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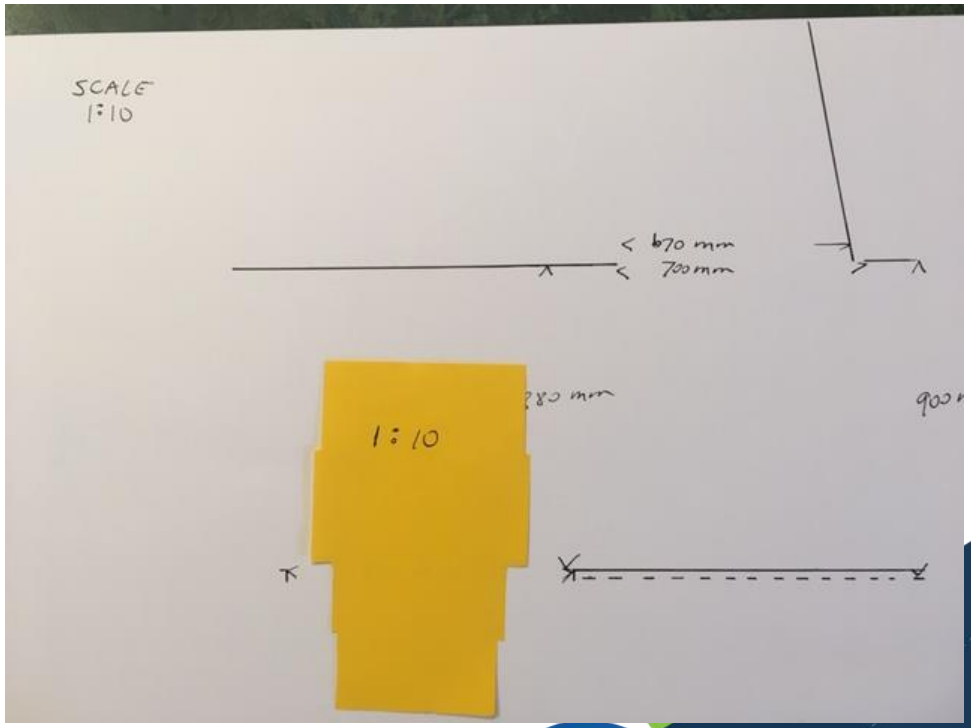
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Some things to consider

- If it seems too close to call it then it is probably too close to call it
- When using equipment to review access without user, consider additional body parts such as feet, elbows and hands which need to fit within space
- If you need to go in backwards, it is more difficult than coming out forwards
- When using scale drawings, much finer eg 1:10 - 10mm becomes 1mm

Some things to consider (cont.)

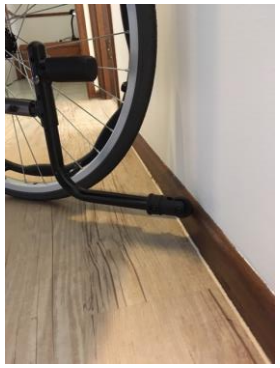
- Circulation space may be slightly greater or less than minimum clearance e.g. skirt boards may not affect footplates so additional 1-2cm, but could impede anti-tips
- Can you fine tune seat alignment with the specific model i.e. to align with pan or fit user's sitting posture or body proportions

Some things to consider (cont.)

- Change in level needs to be simulated unless removing
- Turning circle may be difficult to simulate with scale drawing or cut out – e.g. FWD, MWD and RWD of PWC require different approach and use of space
- Where they need to access in their home, what activities are they doing and what areas of their home do they need to access
- How close is the applicant's weight to the SWL
- Need with Bariatric AT to consider the AT will be larger, wider and heavier

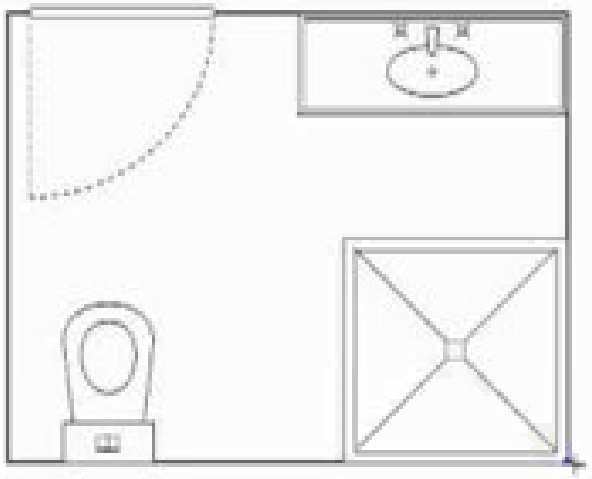
Some things to consider (cont.)

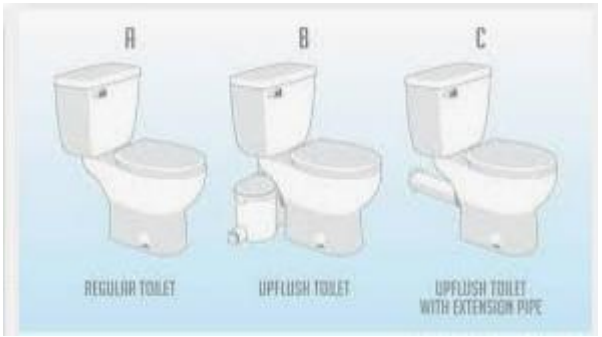
- Function in the hospital changes significantly to function at home, positive or negative
- Client preference for attractive aesthetics, not hospital appearance
- Adding functionality to AT can alter the design or specifications
- All environments that AT will be used, i.e. outdoor, community
- Interface with all equipment including transport



Some things to consider

Floorplan view and measurements don’t tell the whole story.
Need to consider vertical clearances.





Explore other options, not just preferred or obvious options

Is there another bathroom/bedroom location within the home?

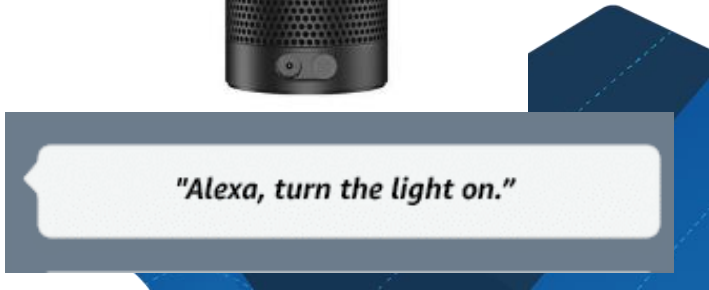
Explore other options, not just preferred or obvious options

- Is moving to more accessible accommodation an option?
- Consider home modifications – major and/or minor
- Re-arrange furniture/de-clutter
- Technology/home automation
- Consider rental of equipment to confirm suitability

Smart Homes and Digital Assistants

Enables people to live more independently, reduce support requirements, increase autonomy and QOL.

Amazon Echo Plus



Home Modifications (previous footage and photos)

- Widen doorway to toilet
  - Remove door leaf to toilet (gain 30mm)
  - Replace architrave with more slimline option
  - Consider location, privacy
- Widen doorway to living area
  - Remove architrave and widen
  - Replace architrave with more slimline option

Home Modifications (continued)

- Step into toilet – 20mm lip into toilet
  - Remove tiles and install vinyl planks – continuous level
  - Remove tiles and install tiles as per bathroom – 5mm
  - Threshold ramp
- Combine bathroom and toilet
  - Major renovation/modification

Power Wheelchair
Mid and Rear Wheel Drive

- 850mm hallway 3D with 90 degree turn – Mid and Rear wheel drive
- 900mm hallway 3D with 90 degree turn into 850mm doorway – Mid and Rear wheel drive
- 850 mm hallway tape with 90 degree turn - Rear wheel drive

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Thank you!