

# TeleAT

Exploring the practical considerations for providing a remote service to assess and support users of assistive devices

Medical Aids Subsidy Scheme

2 March, 2022



**Queensland**  
Government

# Learning objectives

- Recap background knowledge in telehealth and teleAT
- To know how to adapt common assistive technology assessment and intervention approaches for a telehealth context
- To feel confident in preparing for a teleAT appointment



# Why TeleAT?

WHO reports 'Growing evidence on efficacy and effectiveness of telerehabilitation shows that telerehabilitation leads to similar or better clinical outcomes when compared to conventional interventions' (World report on Disability)<sup>1</sup>



# Contexts for use

- Minimising infection risk <sup>1</sup>
- Working with immunocompromised persons <sup>1</sup>
- Rural and remote access <sup>1,5</sup>
- Access to expertise <sup>4</sup>
- Continuity during natural disaster (e.g., weather events) <sup>6</sup>
- Service efficiency (e.g., travel time, DNA, urgent visits) <sup>1,2,3,6</sup>



1. Beneteau, E., Paradiso, A., & Pratt, W. (2022). Telehealth experiences of providers and patients who use augmentative and alternative communication. *Journal of the American Medical Informatics Association*, 29(3), 481-488.  
2. Cook, E.J. et al. (2016). Exploring the factors that influence the decision to adopt and engage with an integrated assistive telehealth and telecare service in Cambridgeshire, UK: a nested qualitative study of patient 'users' and 'non-users'. *BMC Health Services Research* 16:137. doi:10.1186/s12913-016-1186-1  
3. Hall, N. & Boisvert (2014). Clinical Aspects Related to Tele-AAC: A Technical Report. Perspectives on Augmentative and Alternative Communication 23(1):18 doi: 10.1044/aac23.1.18  
4. Schein, R. M. et. al. (2010). Telerehabilitation Wheeled Mobility and Seating Assessments Compared with In Person. *Archives of Physical Medicine and Rehabilitation*. 91(6):874-878. doi:10.1016/j.apmr.2010.01.017  
5. Speyer, R. et al. (2018). Effects of telehealth by allied health professionals and nurses in rural and remote areas: A systematic review and meta-analysis. *J Rehabil Med*. 28;50(3):225-235. doi: 10.2340/16501977-2297  
6. Zahoransky, M.A., & Lape, J.E., (2020). Telehealth and home health occupational therapy: Clients' perceived satisfaction with and perception of occupational performance. *International Journal of Telerehabilitation*, 12(2), 105-124.

# Challenges

- Equipment / technology can be overwhelming for some clients and families <sup>1,2,4</sup>
- Clinician and case manager acceptance, experience, knowledge and skills <sup>5</sup>
- Connection issues
- Perception that not as good as face to face <sup>3,5</sup>

# Poll: What challenges do you face with telehealth for AT?

- Knowing which clients I can use it with
- Convincing clients to participate in telehealth
- Convincing case managers that telehealth is effective and/or safe
- Knowing what platforms and equipment to use
- Feeling like you're not going to get all the clinical information you need
- Connection issues / poor bandwidth
- Finding private space at work to conduct a telehealth call
- Other (add to chat)



## ***Spotlight on evidence<sup>1</sup>***

- Level of evidence: Fair
- Design: Survey
- Clinical message: Barriers reported by service providers who had used telehealth (funding, licensure) were often vastly different to those who had not used telehealth (lack of physical contact, concerns of quality of care or research).

## ***Spotlight on evidence<sup>2</sup>***

- Level of evidence: Fair
- Design: Survey
- Clinical message: Most common barrier of telehealth using OTs with veterans (US) were inadequate space, physical locations and related equipment.

# Similar, maybe better for

- Functional assessment (e.g., reach, TUG, FIM) <sup>1</sup>
- Mobility devices <sup>2</sup>
- Wheelchairs <sup>3,4,5,6</sup>
- Pre-admission orthopaedic OT home visits <sup>3</sup>
- ADL assessment <sup>3</sup>
- Hand function assessment <sup>3</sup>
- Home modifications <sup>7,8</sup>

1. American Occupational Therapy Association (2018). AOTA Position Paper: Telehealth in Occupational Therapy. *The American Occupational Therapy Journal*, 72(S2), 1-18.

2. Bell, M., Schein, R.M., Straatmann, J., et al. (2020). Functional mobility outcomes in telehealth and in-person assessments for wheeled mobility devices. *International Journal of Telerehabilitation*, 12(2), 27-34.

3. Cason, J. (2014). Telehealth: A rapidly developing service delivery model for occupational therapy. *International Journal of Telerehabilitation*, 6(1), 29-36.

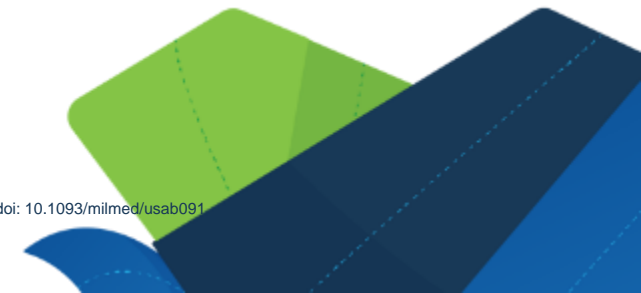
4. Graham, F., Boland, P., Grainger, R., & Wallace, S. (2019). Telehealth delivery of remote assessment of wheelchair and seating needs for adults and children: A scoping review. *Disability & Rehabilitation*. doi: 10.1080/09638288.2019.1595180

5. Ott, K.K., Schein, R.M., Straatmann, J., Schmeler, M.R., & Dicianno, B.E. (2021). Development of a home-based telerehabilitation service delivery protocol for wheelchair seating and mobility within the veterans health administration. *Military Medicine*, usab091. doi: 10.1093/milmed/usab091

6. Schmeler, M.R., Schein, R.M., McCue, M., & Betz, K. (2009). Telerehabilitation clinical and vocational applications for assistive technology: Research, opportunities, and challenges. *International Journal of Telerehabilitation*, 1(1), 59-72.

7. Renda, M., & Lape, J.E. (2018). Feasibility and effectiveness of telehealth occupational therapy home modification interventions. *International Journal of Telerehabilitation*, 10(1), 3-14.

8. Romero, S., Lee, M.J., Simic, I., Levy, C., & Sanford, J. (2018). Development and validation of a remote home safety protocol. *Disability & Rehabilitation*, 13(2), 166-172. doi: 10.1080/17483107.2017.1300345



# Broad considerations

- Platforms
- Equipment
- Client suitability
- Risks (e.g., privacy, injury)
- Preparing the client (e.g., practice run, equipment)

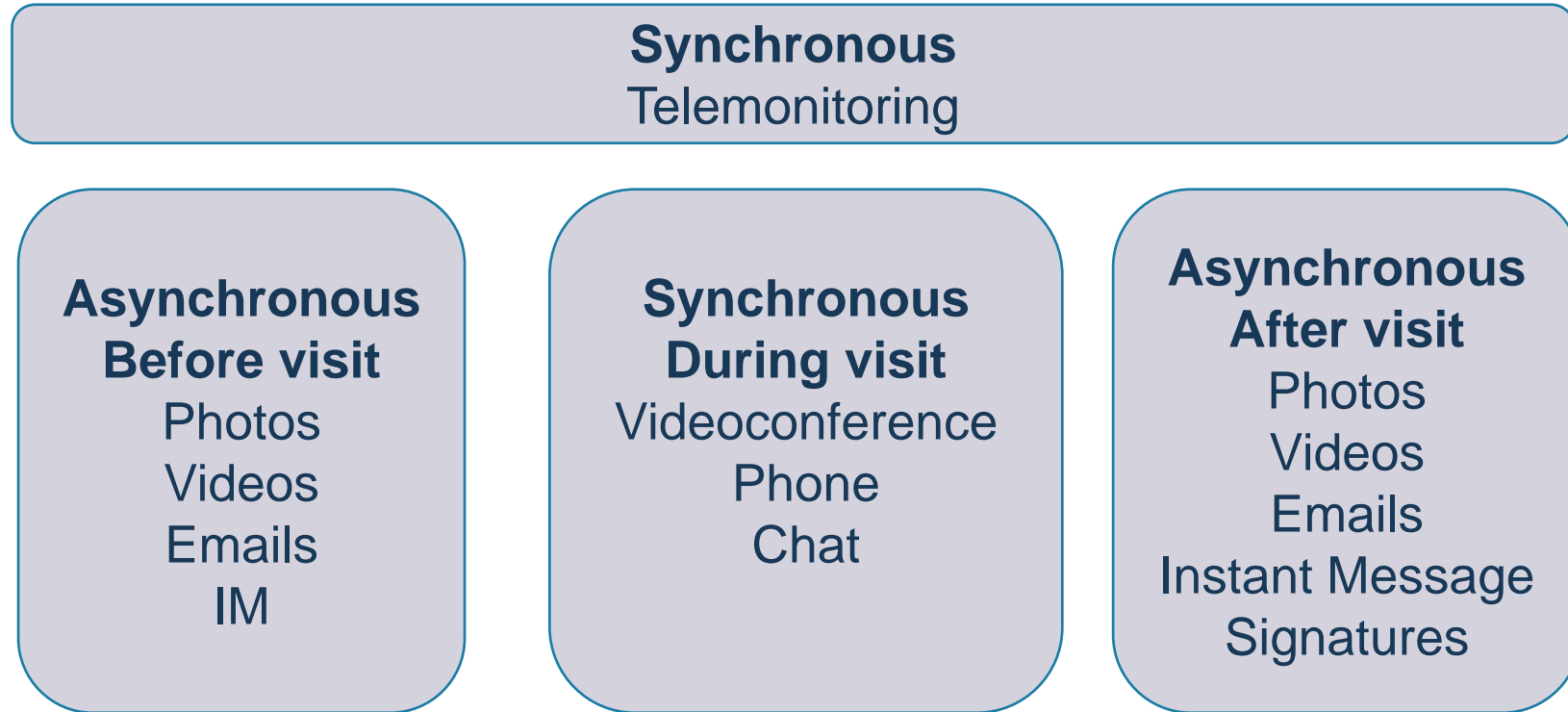
Platform	End-to-end Encryption	HIPAA Compliant <sup>2</sup>	Server Location	Data retention	Authentication and authorisation	Secure data transmission (e.g. file-sharing and messaging)	Recording capability
Coviu	Yes	Yes	Australia	No	Provider: username/password Client: selfie/name	All transmitted call data (including shared documents) are transmitted peer-to-peer (where supported) and encrypted.	Only audio can be recorded.
Coreplus <i>*Integrated with clinical information system</i>	Yes	Not stated	Australia	Not specified	Username/password, guest access available	Files, links and resources can be transferred via secure file sharing capacity in the chat function. Content is encrypted.	No
Cliniko <i>*Integrated with clinical information system</i>	Yes	Yes	Australia	Temporary	Provider: username/password (Two-factor authentication available) Client: guest access	File transfer is integrated into the wider Cliniko practice management system.	No
Zoom	No	No	Global	Temporary	Provider: username/password Client: meeting ID, optional password	Files transferred via in-meeting chat are encrypted (along with audio and video data).	No
Zoom Pro	No	No	Global	Temporary	Provider: username/password Client: meeting ID, optional password	Files transferred via in-meeting chat are encrypted (along with audio and video data).	All plans support local recording of video and/or audio.
Skype	Temporary	No (unless Enterprise packages are purchased)	Global	Temporary	Username/password, guest access available	File transfers and instant messages are encrypted (along with audio and video). Transferred files are stored on Skype servers for up to 30 days.	Local recording is not supported. Cloud recording available, recordings are saved for 30 days.

## AHPA Telehealth Platform Guide



## AHPA Telehealth Guide

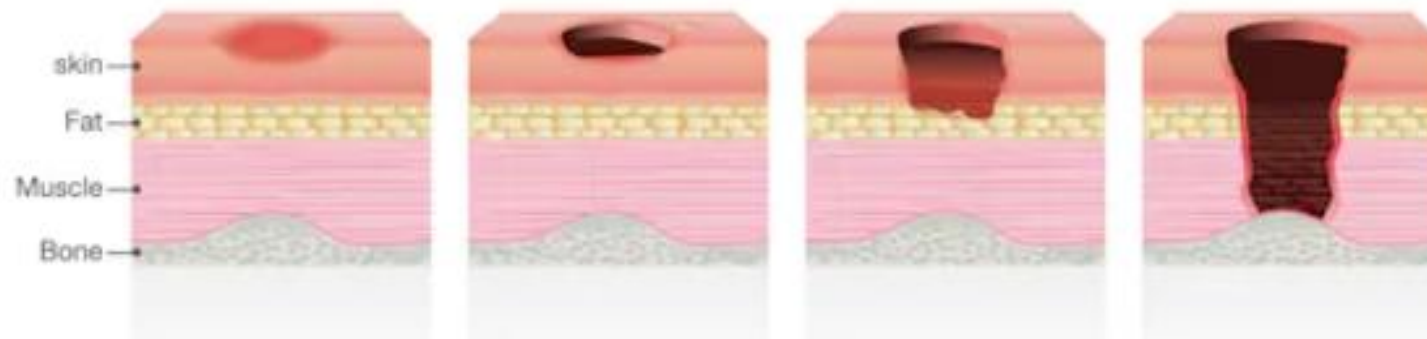
# Real time versus recorded



1. Renda, M., & Lape, J.E. (2018). Feasibility and effectiveness of telehealth occupational therapy home modification interventions. *International Journal of Telerehabilitation*, 10(1), 3-14.
2. Romero, S., Lee, M.J., Simic, I., Levy, C., & Sanford, J. (2018). Development and validation of a remote home safety protocol. *Disability & Rehabilitation*, 13(2), 166-172. doi: 10.1080/17483107.2017.1300345

# Telehealth Remote Monitoring

- Measuring physical activity and pressure relief maneuver performance in wheelchair users<sup>1</sup>
- Monitoring pressure injuries for people with SCI and MS



**Activity:**  
What does a synchronous telehealth session look like?



# Support person / technology assistant

- Family or friend<sup>1</sup>
- Carer or support worker
- Case manager
- Local health professional
- Allied health assistant
- Students<sup>2</sup>
- Supplier
- Interpreter

## *Spotlight on evidence<sup>1</sup>*

- Level of evidence: Fair
- Design: Pre/post-test
- Clinical message: Home modification assessment are feasible and effective. “Technology assistants” were used. In some cases multiple devices were used. Technology issues can be overcome with asynchronous recordings.

“It seemed like we were able to get more done because you said to me, OK that is your homework. So rather than that being the hour that you’re together – it just seems like a lot more was accomplished” – Technology Assistant<sup>1</sup>

1. Renda, M., & Lape, J.E. (2018). Feasibility and effectiveness of telehealth occupational therapy home modification interventions. *International Journal of Telerehabilitation*, 10(1), 3-14.

2. Ott, K.K., Schein, R.M., Straatmann, J., Schmeler, M.R., & Dicianno, B.E. (2021). Development of a home-based telerehabilitation service delivery protocol for wheelchair seating and mobility within the veteran population. *Journal of Rehabilitation Medicine*, 53(1), 1-10. doi: 10.1093/milmed/usab091

## ***Spotlight on evidence***

- Wheelchair users and assessments perspectives on establishing a telehealth wheelchair service
- Level of evidence: Fair
- Design: Interviews
- Clinical message: Not everyone is on the same page. Wheelchair users were satisfied that a technician, family member or carer could be the assistant on-site. Wheelchair assessors (OTs and Physios) were firm that it needed to be a trained health professional.  
(Graham)



# What tools might a support person need for complex AT tasks (e.g., wheelchair adjustments)?<sup>1</sup>

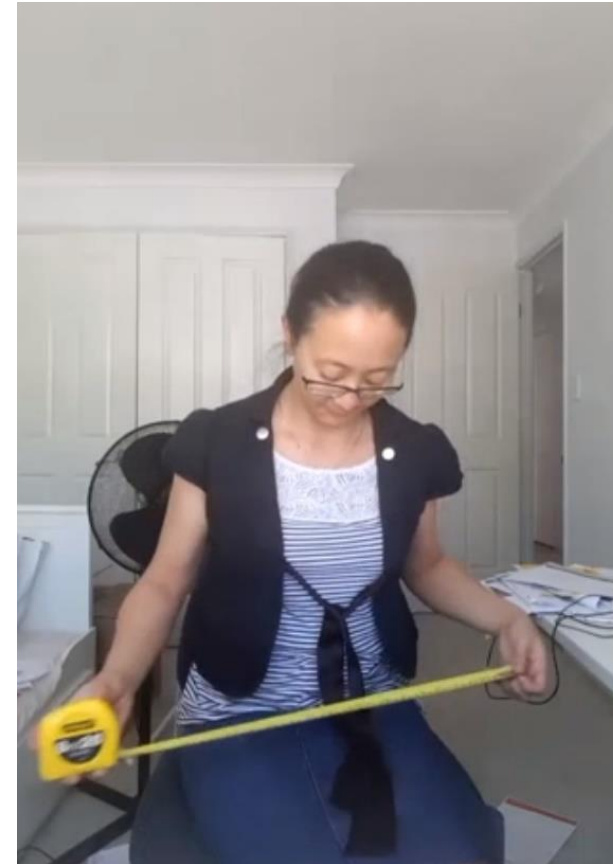
- Tape measure
- Large calipers
- Screw drivers (Philips and flat head)
- Allen keys
- Combination wrench set
- Pliers (needle-nose, tongue-and-grove, electrician)
- Claw hammer
- Socket set
- Scissors
- Velcro

1. Ott, K.K., Schein, R.M., Straatmann, J., Schmeler, M.R., & Dicianno, B.E. (2021). Development of a home-based telerehabilitation service delivery protocol for wheelchair seating and mobility within the veterans health administration. *Military Medicine*, usab091. doi: 10.1093/milmed/usab091



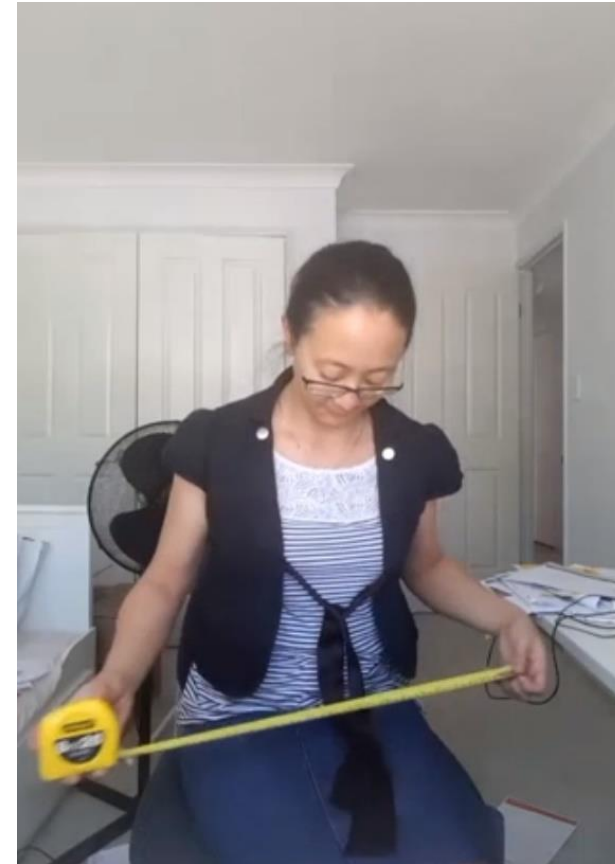
# Perspective

- Follow, pan, ped, tilt, zoom
- Smartphones (Nix & Comans, 2017)
- 2 cameras



# Perspective

- Lighting
- Propping
  - Windowsill
  - Furniture or fittings
- Pinning the camera

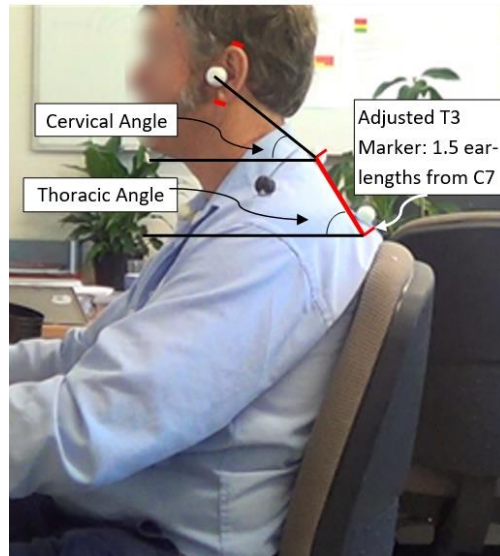


# Measuring distances

- Calibrate (check that their measurements are like your measurements)
- Delegate
- Provide a sketch
- “Print screen”



# Measuring ROM



- Ask for the best angle for ROM<sup>2</sup>
- Use protractors (e.g., Snip & Sketch)
- Acceptable intra- and inter-rater reliability (ICC=0.91)<sup>1</sup>
- “Print screen” button
- Use functional measures

1. Cote, R., Vietas, C., Kolakowski, M., et al. (2021). Inter and intra-rater reliability of measuring photometric craniocervical angle using a cloud-based video communication platform. *International Journal of Telerehabilitation*, 13(1), 1-9.

2. Josey, L. (2015). *The use of real-time biomechanical biofeedback to reduce musculoskeletal pain and improve posture in computer users: A matched-pairs randomized trial*. Masters Thesis. Unpublished.



# Measuring strength

- Use household objects for strength testing
- Use metaphor



# AT prescription and adjustment

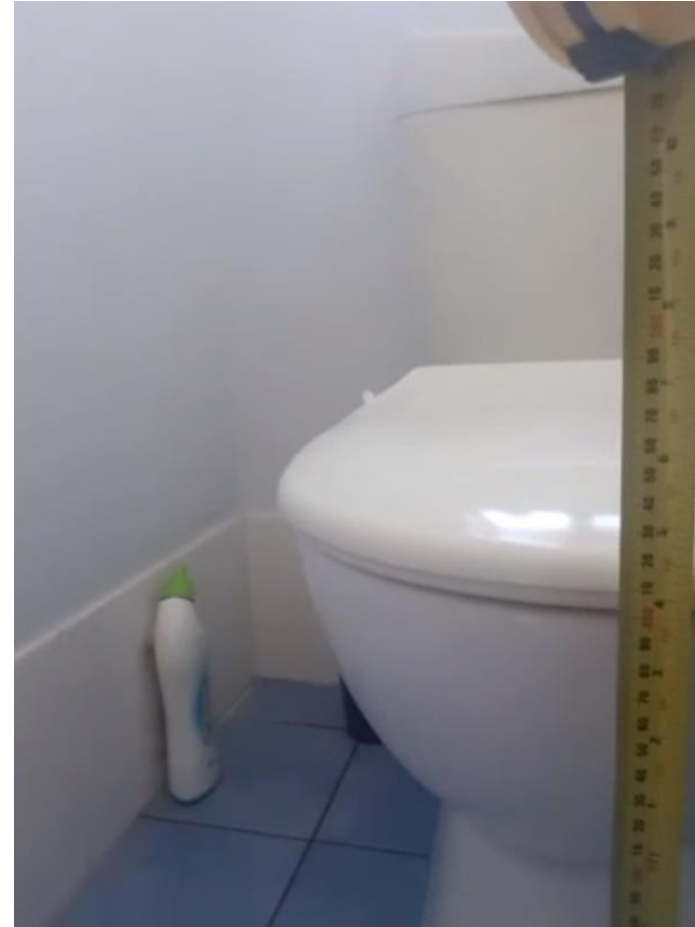


- Prepare support persons
- Evaluate existing AT
- Use props
- Share screen to explore AT options
- Recheck



# Checking for fit in the home environment

- “Print screen”
- Delegate measurement of existing environment



# Examples of TeleAT

1. <https://www.youtube.com/watch?v=hp7o5umXIFc>
2. <https://www.youtube.com/watch?v=GgPTm17H4ms>



# Client Resources – Equipment Maintenance and Repairs

<https://www.health.qld.gov.au/mass/prescribe/mobility/resources>

## Generic maintenance

### Fact sheets

- [Tyre repair and replacement](#) (PDF, 182kB)

### Video

- [Insurance](#) (WMV, 1.4MB)
- [Tyre maintenance](#) (WMV, 6.5MB)
- [Cleaning and lubrication](#) (WMV, 5.9MB)
- [Maintenance checks for electrical equipment](#) (WMV, 2.2MB)
- [Mechanical maintenance check - Part 1](#) (WMV, 5.5MB)
- [Mechanical maintenance check - Part 2](#) (WMV, 4.7MB)

## Manual wheelchairs

### Fact sheets

- [Maintenance Checklist - Manual Wheelchairs \(MWC\)](#) (PDF, 44kB)
- [Adjusting your manual wheelchair, power wheelchair or mobile shower commode](#) (PDF, 761kB)



# Client Resources – Equipment Maintenance and Repairs

<https://www.health.qld.gov.au/mass/prescribe/mobility/resources>

## How to use a power wheelchair (PWC)

### Fact sheets

- [Maintenance Checklist – Power Wheelchairs \(PWD\)](#) (PDF, 51kB)
- [You and Your Power Wheelchair - a guide to registration, insurance, maintenance and repair](#) (PDF, 502kB)
- [Adjusting your manual wheelchair, powerchair or mobile shower commode](#) (PDF, 761kB)

### Video

- [Delivery and set up](#) (WMV, 2.1MB)
- [Battery charging](#) (WMV, 2.1MB)
- [Registration and insurance](#) (WMV, 3.2MB)
- [Use of the chair in wet or hot weather, indoor, outdoors](#) (WMV, 6.0MB)
- [Programming for individual needs](#) (WMV, 1.8MB)

## How to use pressure redistribution cushions, mattresses or overlays (PRC or PRM)

### Video

- [Correct use of pressure redistribution equipment and skin checks](#) (WMV, 8.4MB)
- [Offloading pressure](#) (WMV, 4.7MB)
- [Alternating pressure mattresses and overlays](#) (WMV, 1.9MB)
- [Cushion cleaning and maintenance](#) (WMV, 2.6MB)
- [Mattress and mattress overlay cleaning, maintenance and faults](#) (WMV, 4.8MB)



# Contacts

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