



Welcome

PD – Falls Prevention Basics for People with MS

YOUR PRESENTER IS EMERITUS PROFESSOR SHEILA LENNON
YOUR FACILITATOR IS PETER BUTLER



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Acknowledgement of country



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Introductions

TODAY'S PRESENTER



Emeritus Professor
Sheila Lennon

- Foundation Chair of Physiotherapy at Flinders University in Adelaide, has worked in Canada, Switzerland, the UK, and Australia in a physiotherapy career that has spanned over 40 years.
- Area of research and teaching expertise is neurological rehabilitation.
- A Fellow of the Chartered Society of Physiotherapy in the UK.
- Author of 60 peer reviewed papers, and two international textbooks on neurological physiotherapy, and the physical management of neurological conditions.
- Current interests are balance & mobility training for falls prevention for people with MS, with an emphasis on self-management and behaviour change.
- Works clinically for the MS Society of SA & NT offering falls prevention classes.

Multiple Sclerosis Limited

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Falls Prevention Basics for people with MS

Emeritus Professor Sheila Lennon
Physiotherapy, Flinders University

sheila.lennon@flinders.edu.au



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Acknowledgements: The patients, health professionals and research colleagues in Northern Ireland & Australia

MPT students (Flinders University):

Miranda Fazzalari, Lizzie Herbert, Mel Kelly, Luke Anthony, Stefan Burnell, Simon Ventrizzo, Stacey McKenzie, Teri Shubert, Conor Hutchins, Sam De Garis

Research Associates:

Seaneen Gillespie, Kathy Eastwood, Dr Guio Jalon, Dr Elaine Coulter, Lynton Graetz

External Collaborators:

Dr Stanley Hawkins (QUB, Belfast); Ass/Prof Lynley Bradnam (University of Auckland, NZ); MS Society SA & NT

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Contemporary Neuro PT (Lennon, Ramdharry & Verheyden, 2018)



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Learning Objectives

- Review key facts of MS (Freeman & Gunn 2018)
- Review the factors that make people with MS susceptible to falls
- Modify risk factors to reduce the risk of falls
- Gain ideas for falls prevention strategies that you can recommend
- **Provide a research update**
backwards walking; perturbation training; dual tasking
- Explain therapy as a complex intervention-active ingredients
- **Identify key components of falls prevention programmes for pwMS**
exercises; tracking progress; taking your other meds(lifestyle)
- **Practice some balance boost exercises that you can teach clients to minimise their falls risk**
balance boost; balance responses; on/off floor; pick up the pace walking; 4 square step (dual task)

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Multiple Sclerosis

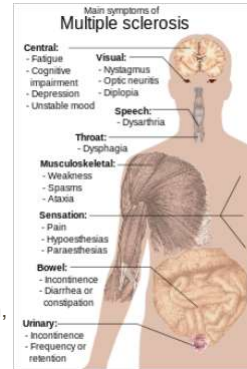
(Freeman & Gunn, 2018)

- Progressive neurological disease
- Cause unknown an 'auto-immune' disease
- Primary demyelinating disease (axonal degeneration & plaque formation in brain & spinal cord)
- Unpredictable disease course
- Classification: RR (80%); PP (10%); SP; Benign (single event)
- Variety of symptoms
- Commonest cause of disability of young adults
- Onset 15 – 45 yrs.; peaks between 20-40 years
- Prognosis: 10 years after onset 90% of MS people still walking

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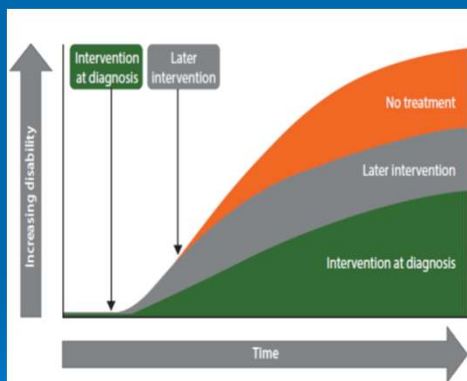
Signs and Symptoms

- Neurological S&S can occur throughout the body – depends on affected areas
- Typical S&S include
 - Loss of sensation
 - Muscle weakness
 - Spasms & spasticity
 - Ataxia (coordination)
 - Balance
 - Falls+++
 - Ataxia
 - Dysarthria
 - Dysphagia
 - Vision
 - Fatigue+++
 - Chronic pain
 - Bowel and bladder difficulties
 - Cognition (memory, concentration, judgment)
 - Emotions
 - Depression & Anxiety



DMT (Giovanni et al 2015)

- *increases time to relapse & improves MRI outcomes (CIS)
- * Early treatment = better outcome



Exercise Update

- People in control groups either do not change or actually get worse in comparison to exercise groups
- Exercise does not make people worse
- Does not increase relapse rate
- Exercise at the right intensity improves symptoms
Think moderate intensity > high intensity

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Poll 1

- Name three clinical problems specific to MS which makes clients susceptible to falls

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MS and fatigue

Fatigue – what is it?

An overwhelming sense of tiredness, lack of energy and feeling exhausted.

How to manage it?

- Support good posture
- Temperature
- Prioritise
- Schedule rests



Primary and secondary fatigue



Seeking the Cure.
Providing the Care.

Image from: <http://neurophysiotherapy.com.au/latest-news/mobility-fatigue-multiple-sclerosis/>

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Heat Sensitivity

- Heat interferes with the transmission of nerve signals along already impaired nerve fibers.
- An estimated 60-80% of people with MS show sensitivity to increases in temperature where they experience a temporary exacerbation of symptoms such as blurred vision, sensory disturbance, cognitive problems, weakness and fatigue (Davis et al 2018).
- When the body temperature returns to its normal level, usual functional abilities will also return.

Management

- Create a cool environment.
- Cooling products help.
- Hydration for exercise.



Seeking the Cure.
Providing the Care.

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Falls in Multiple Sclerosis

- People with MS (35%-60%) frequently report balance and mobility as problems (RCP/ MS Trust, 2006; MacAuley et al, 2010)
- Gait and balance issues are among the most frequently reported symptoms, with an estimated 93% of people experiencing walking difficulties ten years after diagnosis (Soler et al 2020).
- Falling and a fear of falling leads to loss of confidence in walking, with marked restriction of activities, leading to a downward spiral of immobility, deconditioning and accumulation of disability (Freeman & Gunn, 2018)
- **Walking is not enough, challenge balance**
- Poor balance & limited mobility lead to falls (Cattaneo et al, 2007; Finlayson et al, 2006; Hayes et al, 2019)
- People with MS fall frequently (Gunn et al, 2014)
- Prevalence of falls in MS increases from 50% to 70 % with prospective data collection (Coote et al, 2013; Gunn et al, 2013)
- Note Falls history, track falls prospectively, analyse reasons for falls
Understand the client's falls history
Where? What? Why? How many? Circumstances?



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Poll 2

- Name five modifiable risk factors to reduce falls risk in pwMS



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Target modifiable risk factors

- Cognitive dysfunction –attention, distraction
 - Balance deficits
 - Mobility impairments
 - Use of a mobility aid
- (Coote et al, 2014; Gunn et al, 2013)

- Sedentary Behaviour - Exercise & Physical activity
- Strength
- Aerobic capacity
- Fatigue

Top Assessment tips

- Note Falls history
 - Track falls prospectively
 - Analyse reasons for falls
 - Understand the client's falls history
- Where? What? Why? How many? Circumstances?**
(Kunkel & Stack, 2018)



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Falls Prevention Tips & Strategies

- Explain MS symptoms associated with falls e.g. Be aware of fatigue levels & heat sensitivity
- Fear of falls may reduce your client's physical activity, and keep your client indoors leading to social isolation
- Environmental risk factors
- Footwear and falls
- **Understand the falls risk:**
 - How many risks is your client taking?
 - Analyse why the client has fallen
 - Reduce home hazards
 - Know which activities are hazardous for the client e.g turning, bending, reaching, walking Falls

Prevention strategies: Know when to rely on assistive devices and to ask for help

Be aware of your falls risk factors	Keep your hands free when moving about
Stop, Scan & Plan	Minimise clutter, tripping hazards
Keep physically active & challenge your balance	Avoid rushing
Review your everyday activities	Know how to get on and off the floor safely

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Research Update

- Falls prevention in MS (Hayes et al, 2019)
Sparse data (n=839 in 13 studies)-small effects on balance, mobility, uncertain re impact on falls
- **Reactive and volitional stepping** interventions reduce falls among older adults by approximately 50% (Okubo et al, 2017)- Meta-analyses of seven RCTs (n=660)
- **The value of backward stepping** (Monaghan et al, 2022)
Ability to execute a quick and effective reactive step is vital to forestall an impending fall
- Does **Perturbation-Based Balance Training** Prevent Falls (Mansfield et al, 2021)?
Automatic postural responses occur later in PwMS compared to controls.

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MS Falls Prevention Program



MS
South Australia &
Northern Territory

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Preliminary Results

- Subsidised by The MS Society since April 2018
- Classes offered 2-3 x per year at 7 locations
- 88 participants
61/88 participants have been analysed
- Adherence: 71%
43/61 participants completed the majority of classes
- Changes noted
 - Improved walking speed in 67%
 - Improved 5 x STS in 68%
 - More balance confidence in 78%
 - More mobility confidence in 74%
 - Reduced number of falls in 63%

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Therapy = a complex intervention What's in the therapy pill?



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Self-management & Self-efficacy

(Jones & Riazi, 2009; Bandura 1997)

- Self management : the maintenance of health and well being developing the skills required to cope with disability and change behaviours necessary to resume desired lifestyles (DoH, 2006).
- Self efficacy (SE): confidence to succeed
people's beliefs about their capabilities to influence events that affect their lives (Bandura 1997)

Why is Self-Efficacy important?

- Beliefs make a difference in how people think, feel & act
- Low SE is associated with depression, anxiety & helplessness
- SE can be strengthened by having opportunities to build skills & confidence



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- Self-efficacy can influence motivation, and health behaviours, by determining the **goals** people set, how much **effort** they invest in achieving those goals, and their **resilience** when faced with difficulties or failure (Bandura, 1997)



thanks to Prof Fiona Jones for this slide

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Poll 3

- Note down five strategies that clients can use to demonstrate good self-management

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Client - SM Strategies

- Work with your health care team to develop your care plan
- Tell them what is most important to you in your life now
- Become an expert in your condition
- Talk about your concerns and aspirations
- Outline your treatment expectations and preferences
- Set yourself some goals
- Develop an action plan to achieve them
- Connect your goals to the life you want to lead
 - What would be the most meaningful for you?
- Take on your goal in small steps
 - What are you going to try and work on? How? When?
 - Think about what needs to happen for you to exercise
- Seek help from your family and friends
- Join a peer support group with others with MS
- Explore your community resources
- Reflect on your progress and celebrate your achievements, why not keep a journal!
- Work towards improving your general health & fitness, think wellness rather than illness
 - Eat well, sleep well, minimise stress, be active & exercise

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Lifestyle Modifications

Take your other meds

M is for Mindfulness/Mood-Mindful Moments

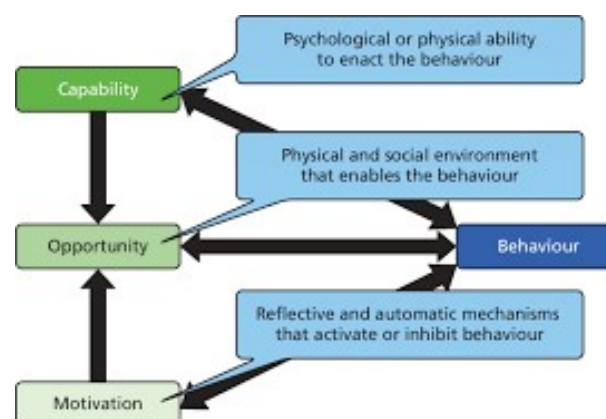
E is for Exercise/Physical Activity- Movement moments

D is for Diet -Eat well (anti-inflammatory?) & Keep hydrated

S is for Sleep & Support-Sleep well. Get Support. Be Social.

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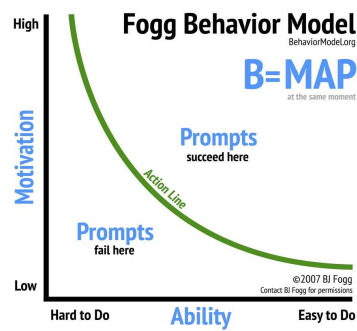
The Com-B Model (Michie et al, 2011)



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Tiny Habits

The Small Changes that change everything



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Key Components of FP for pwMS



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The MS Falls Prevention Program

Circuits	Education
Multidirectional Walking	Balance & Mobility
Sit to Stand	Falls in MS
Standing on one leg	Falls Prevention
Obstacle Course	Balance Responses
Clock Lunging	Self-management
4 Square Step-Dual task	Fatigue Management
Balance Responses	Get the exercise habit
On & off the floor	Tracking your progress

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Therapist Knowledge, Skills & Attitude

- Coach > hands on
- A positive mindset to motivate & encourage
- MS knowledge
 - belief that clients with MS can change
- Neuro knowledge
 - quality of movement; compensations; neural plasticity
- Enjoy group work
- Comfortable with SM/SE concepts
- Comfortable teaching clients how to get on/off floor
- Works towards aspirational & challenging goals
 - >realistic goals

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Who is suitable for group falls prevention classes?

Screening by phone or email

- Be able to stand for 30 secs
- Walk independently within a room without a walking aid
- Walk independently within a room with a walking aid

Following self-assessment & observation at 1st class

- Follows instructions
- Can set themselves up safely
- Limits of stability check
- Can perform exercises without close stand by supervision

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Assessment & Standardised Measures

- 5 X STS (<13.5 sec)
- 10 M WALK (5-7 sec)
 - Is walking speed a new vital sign?
 - 1.14m/sec is critical to cross a road safely
 - (McMaster Optimal Ageing Portal)
- FES-I [minimum =7 (low concerns) up to 28 (severe concerns)]
- VAS for confidence on scale of 1-10 for balance and mobility
- Standing on one leg (30 sec)
- 4 square step test (< 17 sec; aim: 9 sec)
- 3 meter backward walk test (Carter et al, 2019)
 - (slower than 4.5 sec are likely to fall; aim=3 sec)

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Monitoring my Progress

	Health Targets	Pre class	Post class
Are you falling? Keep a diary to track your exercise habits & note any falls. If you fall, analyse why. Find a strategy.	0 (< 1 per year) If you fall more than twice, see a health professional, or do a class		
4 square step exercise	< 17 sec (aim: 9 sec)		
5 x sit to stand	< 12 secs (aim: 5 sec)		
Daily walk	30 minutes		
How many steps per day?	3500-10'000 steps per day		
Daily 5-minute Balance Challenge routines or specific balance exercises	Minimum 40 minutes/ per week		
Balance Confidence (reaching up)			
Mobility Confidence (in the house)			

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Poll 4

- Note down five balance training progressions

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Balance Training Progressions

- reducing UL support
- narrowing BOS (tandem)
- Unstable surfaces
- Eyes closed
- arm movements (reaching)
- Stepping
- Balance responses (clock yourself app)
- Thinking (dual tasking)



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Poll 5

- What are the key targets that clients need to aim for to get back on their feet safely?

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Mobility Basics

getting someone back on their feet safely

1. Movement, range, strength in lower limbs with core stability (trunk postural adjustments)
2. Feel safe in standing with some support through the hands
3. Reaching with the arms in different directions
4. Standing up from a chair with assistance and the use of a walking aid
5. Feeling safe to do some mini squats
6. Stepping on the spot in different directions
7. Walk a short distance with assistance and a WA
8. Being able to place each foot on and off a small step
9. Practice standing on one leg (30 sec)

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Let's do some of the class

Live demo with Sheila



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Balance Responses

- Ankle strategy
- Hip strategy
- Stepping strategy
- Perturbation training
 - anticipatory
 - reactive
- Clock yourself App



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Key tasks & activities for clients

Challenge your balance everyday (Lennon et 2017, WCNR, Philadelphia)	Physical Activity for people with MS (MSRA 2020)
Do an activity in standing for 10-20 minutes	Aerobic activity - 30 mins (2 times/week)
Walk at a moderate pace for 30 minutes (chunk it in small steps)	Strength training - 10 - 15 reps x 2 sets (2 times/week)
Do 5 minutes of balance /exercise routines every day (40 minutes per week)	Walking is only aerobic if you pick up the pace go faster with arm movements
Before you start moving Stretch your muscles 2-3 times Check your posture	Walking for good health for 30 minutes per day (3500 -10'000 steps per day)

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Client Feedback

- I push myself because I'm a firm believer of establishing new neural pathways to compensate for damaged ones. However, I now incorporate 20 second standing breaks while bushwalking when I feel fatigued; to make me stop, focus on the terrain and rest a moment.
- Now don't panic - but yesterday, thinking of all the information learned, I walked up to the top of Mount Lofty from Waterfall Gully and then down again. It took me 3 hrs and 15 minutes, I was not concerned about the time of my progress, it was about the completion- I even had a quick coffee at the top 😊- but was surprised at the speed that I did accomplish the task.
- My fitness has definitely improved over the last 6 weeks- and something you maybe are not so aware of is the mental trigger 'to get back out there'. This latter point is one that was so important for me to establish, but one that I feel maybe you hadn't realised the impact of; the new confidence 'unleashed'.

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Top Take away Tips for FP

- FP = a complex, multi-component intervention it is not just about practising exercises (education/exercise/SM/peer support)
- FP requires multiple sessions and regular review
- The most important FP strategies are:
 - Stop, Scan, Plan
 - Slow down - do not rush
 - Pay attention – minimise distraction
 - Understand the falls risk, and the client's limits of stability
- Core exercises are: remaining in standing, reaching, stepping, STS, walking (pick up the pace & walking backwards), standing on one leg
- Practise balance responses (perturbation) & dual tasking
<https://clockyourself.com.au>
- Clients should gain practice getting on and off the floor
- FP needs to be tailored to the individual
- Does FP need to be condition-specific?
- Optimal FP program for pwMS has yet to be determined. To date evidence is mixed on reduction in number of falls, however new evidence is emerging all the time.
- Empower your client. Deliver the FP with a self management focus!

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Top Tips for Group Classes

- Self-efficacy=people's beliefs about their capabilities to influence events. Deliver therapy with a self management focus!
- Focus on behaviour change=a key factor in getting the best results from our patients
- Provide accurate information
- Promote a positive mindset
 - Address unhelpful beliefs & perceptions
 - Discuss patient treatment expectations & preferences
- Illustrate progress & achievements in an explicit way
- Work out together how progress & achievement are made & sustained
- Emphasize the client's contribution
- Set small personal targets. Small steps = big gains!
 - What are you going to try and work on? How? When?
- Influence of language
 - encourage feeling of choice
 - give alternatives
- End on a positive –acknowledge successes however small

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Contact & Resources **sheila.lennon@flinders.edu.au**

- All class materials are freely available by contacting Sheila by email
- https://msra.org.au/modifiable-lifestyle-guide-2020/for-people-with-ms/guide/?physical_id=37167
- <https://clockyourself.com.au>
- Falls info from Multiple Sclerosis Limited
<https://www.ms.org.au/living-well-with-multiple-sclerosis/everyday-tips-tricks/managing-falls.aspx>
- The MS Society USA
You can access **free of charge this on-line program** which contains downloadable educational materials and exercises videos:
www.nationalmssociety.org/Resources-Support/Library-Education-Programs/Free-From-Falls

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Questions



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Services

SUPPORTING AUSTRALIANS TO LIVE WELL WITH MULTIPLE SCLEROSIS



We are here so nobody faces MS alone

Multiple Sclerosis Limited (MS) provides a range of services to support people with multiple sclerosis to live the best lives they can. We service people in ACT, NSW, TAS and VIC.



Allied Health
(NDIS, My Aged Care)



NDIS Plan and
Support Coordination



Free MS Helpline Service
(Specialist Advice and
Information)



Employment Support



Residential Care



Wellbeing and
Peer Support



Education for Community
and Health Professionals



Respite and Carer Support

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Resources

FREE TO ACCESS



- MS Podcast Series
- Intouch E-Newsletter
- Webinar library
- Interactive and personalised online tools
- Online 'live' events such as Facebook Live

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Contact us for more

WE ARE HERE SO NO-ONE HAS TO FACE MS ALONE



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msconnect@ms.org.au

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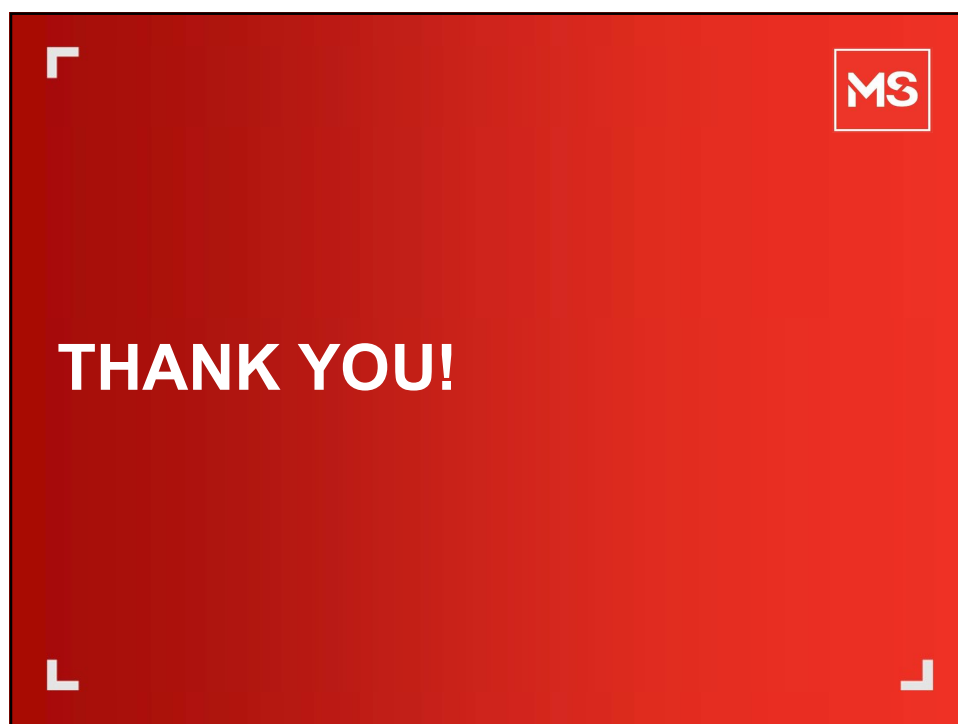
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