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Medication Management of Multiple Sclerosis

PRESENTERS: PROF JEANNETTE LECHNER-SCOTT & MS JODI HAARTSEN

FACILITATORS: NICOLA GRAHAM AND RACHEL MORRISON

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Content



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Prof Jeannette Lechner Scott

1. Pathophysiology
2. Epidemiology
3. Medications
4. Method of action of DMTs (Disease Modifying Therapies)

Ms Jodi Haartsen


1. MS medication management, supporting the person
 - The importance of an integrated approach
 - Communicating what matters to the person
 - Ensuring health literate information, systems and organisations
2. Safety risks and side effects of medications
3. Risk management of MS disease modifying treatments
4. MS symptom management
5. Keeping up to date


Nicola Graham and Rachel Morrison

9. Pharmacy Guild and Guild Ed
10. MSL Services

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Control Panel


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Control panel appears on the right of screen


Click the orange box to minimize or maximise




Click the white arrow to open the Questions pane



Type in your question and click send



For a Mac, a tablet or an iPad, look for the control icons in the grey bar across the top, side or bottom of your screen:



File View Help

Audio

Sound Check

Computer audio
Phone call

MUTED

Microphone Array (Realtek Hi...

Receive (Plantronics D100-M)

Questions

Q: I can type my question here.

A: You will receive a response here


Testing with Belinda and Annie
Webinar ID: 205-643-179


GoToWebinar

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Acknowledgment


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We acknowledge and pay respect to the traditional custodians past and present on whose lands we meet today.
We acknowledge the deep feelings of attachment and the relationship of Aboriginal people to country and respect the cultural authority of the elders in each community.

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This presentation has been prepared and is presented by an independent expert.

The views presented are not necessarily the views of Multiple Sclerosis Limited and or The Pharmacy Guild of Australia

Individuals are encouraged to seek further advice regarding the relevance of the information presented for their situation.



Professor Jeannette Lechner-Scott

Jeannette graduated at University of Heidelberg in Germany, where she also completed her PhD on pain pathways. Since arriving in Australia, Jeannette became the senior staff specialist in the Department of Neurology and Conjoint Professor at the University of Newcastle. Jeannette established a multidisciplinary Multiple Sclerosis Clinic at the John Hunter Hospital (JHH) in 2006 and leads a very productive MS Research Team at the Hunter Medical Research Institute.



Introduction to Presenters



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Jodi Haartsen, Exec Manager MSL

Jodi started MS health care and MS nursing over 20 years ago as part of a nursing career in general neurology, neurosurgery, nursing education and research. Jodi's roles include MS Nurse Practitioner and Manager of the MS clinic at Eastern Health, MS researcher and MS educator. She is a member of the global MS Brain Health Steering Committee and is passionate about the MS Brain Health initiative. She has studied Master of Nursing and Naturopathy.



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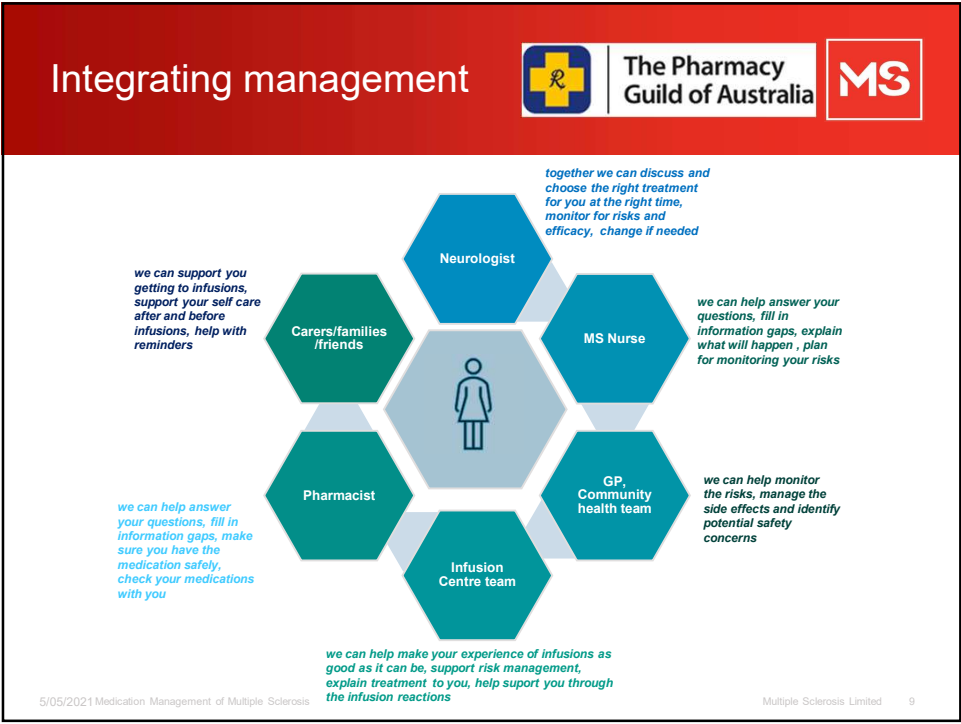
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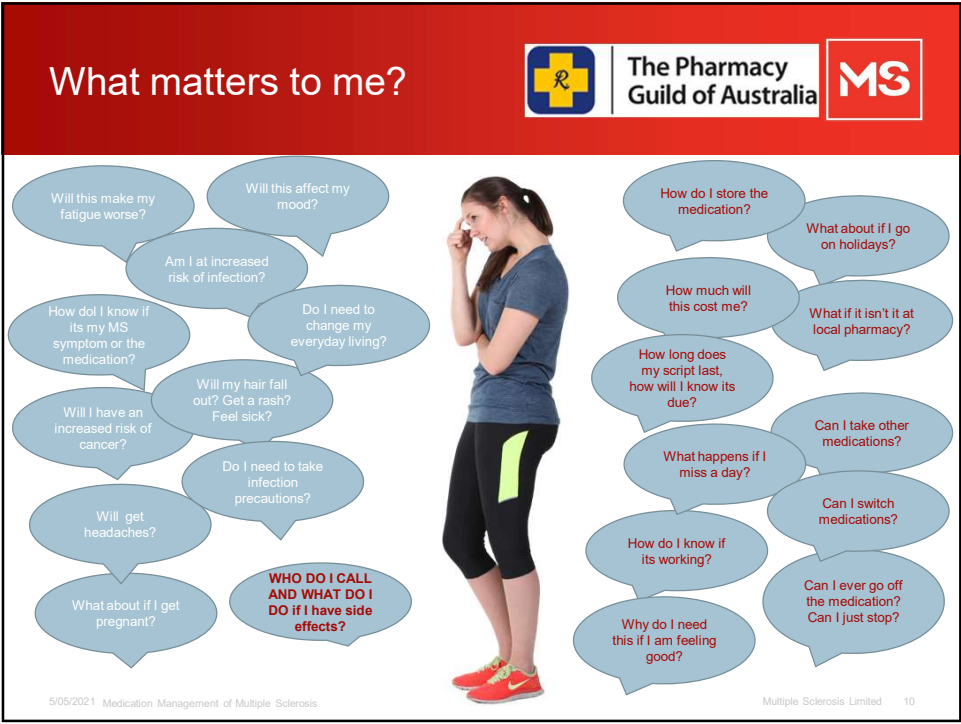
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The impact of COVID19



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Early treatment related data

- No increased risk for people on MS immunosuppression medications
- Risk factors for the people with MS are the mirrored with all overall
- Possible slight increase in worse outcomes for people on anti CD20 treatments
- Pulse IV Methylprednisolone treatment increases risk
- Degree of lymphopenia is unrelated
- Risk of not treating outweighs risk of treatment

For people living with MS

- Uncertainty and fear
- Decreased access to services difficult
- Delayed treatment
- Increased social isolation
- Higher carer burden
- Information delay
- Medication shortages

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Health literacy and medication management



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Low health literacy

- Poor medication reconciliation
- Poor knowledge of drug indications
- Poor understanding instructions and dosing
- ? Adherence

Personal Health Literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

Organizational Health Literacy is the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

Support measures

- Health literacy Universal precautions approach
- Brown bag medication reviews
- Keep it simple
- Reduce complexity of environments
- Frequent teach-back
- More aids to increase understanding



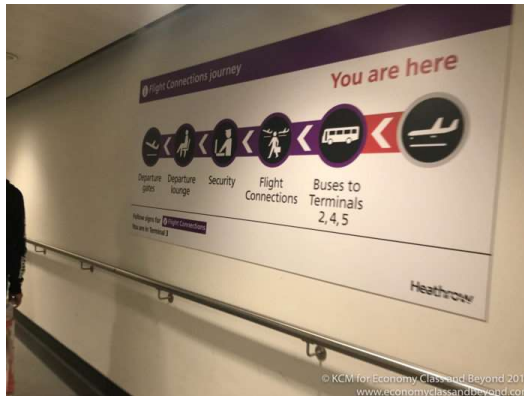
Agency for Healthcare
Research and Quality

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Health literate systems and processes



Are your systems, processes and environment easy for people with disabilities to navigate?

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Safety risks

ORAL THERAPIES



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	Safety risks related to Immune System	Other safety risks
Fingolimod (Gilenya®)	<ul style="list-style-type: none"> Progressive multifocal leukoencephalopathy (PML) (0.082/1000) Rare infections e.g. cryptococcal infections Hemophagocytic syndrome Herpes virus reactivation 	<ul style="list-style-type: none"> Disturbed cardiac stimuli transfer at first dose Liver injury Macula oedema Skin cancers – basal cell carcinoma Hypercholesterolemia Other malignancies Posterior reversible encephalopathy syndrome (PRES) Hypertension Pulmonary dysfunction
Dimethyl fumarate (Tecfidera)	<ul style="list-style-type: none"> PML (0.018/1000) 	<ul style="list-style-type: none"> Liver and kidney function failure
Teriflunomide (Aubagio®)	<ul style="list-style-type: none"> Pancytopenia/agranulocytosis Tuberculosis reactivation PML ? 	<ul style="list-style-type: none"> Liver injury Hair thinning Peripheral neuropathy Acute kidney failure Hypertension Teratogenic Treatment-emergent hyperkalemia Interstitial lung disease Stevens-Johnson syndrome and toxic epidermal necrolysis
Ciadribine (Mavenclad®)	<ul style="list-style-type: none"> Unknown Herpes virus reactivation 	<ul style="list-style-type: none"> Teratogenic ? Malignancies Liver injury Hematologic toxicity
Siponimod (Mayzent®)		<ul style="list-style-type: none"> Disturbed cardiac stimuli transfer at first dose Liver injury Macula oedema Posterior reversible encephalopathy syndrome Pulmonary dysfunction

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Safety risks

INFUSION THERAPIES



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	Safety risks related to Immune System	Other safety risks
Natalizumab (Tysabri®)	<ul style="list-style-type: none"> • Progressive Multifocal leukoencephalopathy (PML) • Infusion reactions • Herpes encephalitis and meningitis 	<ul style="list-style-type: none"> • Liver injury • Skin cancers
Ocrelizumab (Ocrevus®)	<ul style="list-style-type: none"> • Reduced B and T Cells (desired) • Hypogammaglobulinaemia • Infusion reactions • Hepatitis reactivation • PML 	<ul style="list-style-type: none"> • ? Malignancies
Alemtuzumab (Lemtrada®)	<ul style="list-style-type: none"> • (Desired) leukopenia/ lymphopenia • Infusion reactions • Secondary antibody-mediated autoimmunity (thyroid, Idiopathic Thrombocytopenia ITP, kidneys) • Listeria meningitis • ? PML (1 case carry over) • Severe herpes reinfections • Rare infections - reactivation of latent TB, Spirochete infections, Pasteurella infections, oesophageal candidiasis, cerebral nocardiosis, cytomegalovirus reactivation 	<ul style="list-style-type: none"> • Acalculous cholecystitis • Atypical pneumonitis • Increased incidence of HPV related cervical dysplasia • Thyroid malignancies • Skin cancers • Stroke, cervicocephalic arterial dissection
Mitoxantrone	<ul style="list-style-type: none"> • (Desired) leukopenia/ lymphopenia, neutropenia • Increased risk of infections 	<ul style="list-style-type: none"> • Cardiotoxicity • Leukaemia • Infertility • Icterus

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Side effects



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Fingolimod	Dimethyl Fumarate	Cladribine	Siponimod	Teriflunomide
<ul style="list-style-type: none"> • Headache • Back pain • Depression • Cough • Diarrhoea 	<ul style="list-style-type: none"> • Flushing • Gastric symptoms • Rash • Pruritis 	<ul style="list-style-type: none"> • Nausea • Arthralgia • Headache • Back pain • Insomnia • Depression • Hair loss? 	<ul style="list-style-type: none"> • Headache • Back pain • Depression • Fatigue • Cough • Diarrhoea • Nausea • Dizziness • Peripheral oedema 	<ul style="list-style-type: none"> • Hair loss • Diarrhoea • Nausea • Flu like symptoms • Paraesthesia's
<p>Over the counter meds usually provide effective relief</p> <p>Paracetamol Antihistamine PPI</p>	<p>Natalizumab</p> <ul style="list-style-type: none"> • Mild infusion reaction headache, nausea • Fatigue • Dose dependant symptom recurrence • Arthralgia • Urinary tract infection • Urticaria • Vaginitis • Depression • Diarrhoea 	<p>Ocrelizumab</p> <ul style="list-style-type: none"> • Infusion reactions • Headache • Fatigue • Infections – respiratory • recurrent herpes infections • Rash 	<p>Alemtuzumab</p> <ul style="list-style-type: none"> • Infusion reactions • Headache • Fatigue • Infections – respiratory • recurrent herpes infections • Rash 	<p>Pulse Methylprednisolone</p> <ul style="list-style-type: none"> • Insomnia • Gastric symptoms • Mood changes • Facial flushing • Skin changes • Infection • Increased thirst • Oedema • Weight gain • Headache • Arthralgia <p>Proton Pump Inhibitor and benzodiazepine commonly used. Tapering after intravenous pulse steroids no longer common practice</p>

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Safety and side effects

INTERFERONS / GLATIRAMER ACETATE



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- Flu like symptoms
- Depression
- Injection site reactions
- Lipoatrophy
- Immediate Post injection reaction

- Hepatotoxicity
- Haematological abnormalities – leukopenia, thrombocytopenia, neutropenia
- Neutralising antibodies
- Hypertonia



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Risk Management



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Before treatment initiation

- Magnetic Resonance Imaging (MRI brain and spine) (0 to 6 months)
- Pathology
 - ✓ Full Blood Count
 - ✓ Liver Function tests, urea, creatinine, electrolytes, thyroid function
 - ✓ Immunoglobulin levels
 - ✓ Serum protein electrophoresis
 - ✓ Pregnancy test
 - ✓ Infection serology - HIV 1&2, Hepatitis screening including antibodies, Varicella immunoglobulin, Syphilis screen, TB Eli spot/Quantiferon
 - ✓ JCV antibody
- Cervical screen
- Malignancy pre screen
- Vaccinations
- Lumbar Puncture (CSF analysis) –
- ECG

Throughout treatment

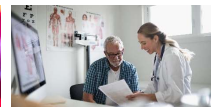
- Clinical activity monitoring
- MRI (6 to 12 monthly)
- Malignancy surveillance and prevention
- Ocular Coherence Tomography (OCT)
- Urine – infection, renal dysfunction
- Infection screening as needed
- Pathology
 - ✓ Full Blood Count
 - ✓ Liver Function tests, urea, creatinine, electrolytes, thyroid function
 - ✓ Immunoglobulin levels
 - ✓ Pregnancy test
 - ✓ JCV antibody

At treatment switches

- Magnetic Resonance Imaging (MRI brain and spine) (0 to 6 months)
- Pathology
 - ✓ Full Blood Count
 - ✓ Liver Function tests, urea, creatinine, electrolytes, thyroid function
 - ✓ Immunoglobulin levels
 - ✓ Serum protein electrophoresis
 - ✓ Pregnancy test
 - ✓ Infection serology - HIV 1&2, Hepatitis screening including antibodies, Varicella immunoglobulin, Syphilis screen, TB Eli spot/Quantiferon
 - ✓ JCV antibody
- Cervical screen
- Malignancy surveillance
- Lumbar Puncture (CSF analysis)
- ECG

Long term

- Clinical activity monitoring
- MRI (6 to 12 monthly)
- Malignancy surveillance and prevention
- Urine – infection, renal dysfunction
- Infection screening as needed
- Pathology
 - ✓ Full Blood Count
 - ✓ Liver Function tests, urea, creatinine, electrolytes, thyroid function
 - ✓ Immunoglobulin levels
 - ✓ Pregnancy test



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Preventing and managing infusion related reactions



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Pre Infusion

- Herpes Prophylaxis (antiviral medications – acyclovir, famcyclovir or valacyclovir)
- Listeria Prophylaxis (diet)
- Antihistamines
- Antipyretics
- Ranitidine
- Oral steroids
- Hydration
- Self care



During the infusion

Premed

- Methylprednisolone
- Antihistamine
- Antipyretic

PRN

- Hydrocortisone
- Antihistamine
- Antipyretic
- Maxalon
- Ventolin

Dosages are variable according to local protocols



Post Infusion

- Herpes Prophylaxis
- Listeria Prophylaxis
- Antihistamines
- Antipyretics
- Ranitidine
- Oral steroids
- Hydration
- Self care



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MS symptom management



Bladder Dysfunction

- Anticholinergics – oxybutynin (Ditropan®)
- Mirabegron (Betmiga®)
- Tolterodine tartrate (Detrusitol®)
- Solifenacin (Vesicare®)
- Tamsulosin (Flomax®)
- Amitriptyline (Endep®)
- Botulinum toxin (Botox®)

Neuropathic Pain

- Gabapentin (Neurontin®)
- Carbamazepine (Tegretol®)
- Pregabalin (Lyrica®)
- Anti-Anxiety Agents (such as Cymbalta®, Valium®)
- Tricyclic Antidepressants (such as Endep®)
- Phenytoin (Dilantin®)
- Levetiracetam (Keppra®)
- Levodopa /Carbidopa (Sinemet®)
- Medicinal marijuana

Fatigue

- Modafinil (Modavigil®)
- Amantadine (Symmetrel®)
- SSRI antidepressants

Mood

- Selective Serotonin Reuptake Inhibitors (SSRI):
- Escitalopram (Lexapro®)
- Citalopram
- Paroxetine
- Fluoxetine (Prozac®)
- Sertraline (Zoloft®)
- Selective Serotonin and Norepinephrine Reuptake Inhibitors (SNRI):
- Duloxetine hydrochloride (Cymbalta®)
- Mirtazapine
- Tricyclic Antidepressants:
- Amitriptyline (Endep®)
- Dopamine-Norepinephrine Reuptake Inhibitor (DNRI):
- Bupropion (Wellbutrin®)

Spasticity

- Baclofen® – oral, intrathecal
- 4-Aminopyridine (Fampyra®)
- Benzodiazepines – diazepam
- Medicinal marijuana
- Gabapentin, carbamazepine, levetiracetam, Dantrolene sodium (Dantrolene®)

Sexual dysfunction

- For erectile dysfunction:
- Sildenafil (Viagra®)
- Vardenafil (Levitra®)
- Tadalafil (Cialis®)
- For vaginal dryness:
- Lubrication agents
- Oestrogen-containing vaginal preparations
- Topical creams

Tremor

- Gabapentin (Neurontin®)
- Propranolol (Inderal®)
- Levetiracetam (Keppra®)
- Pimidine (Mysoline®)
- Botulinum toxin (Botox®)

These are the most common symptoms that have prescribed medications

There are no known drug interactions with symptom management medications and the DMT's

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Keeping up to date



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Twitter



Up to date




- International women in MS
- Barts MS team
- MS translate Australia







MS Neurologists driven organisations







MS and Neurology peak organisations

'Risks and risk management in modern multiple sclerosis immunotherapeutic treatment'. Luisa Klotz, Joachim Havla, Nicholas Schwab, Reinhard Hohlfeld, Michael Barnett, Stephen Reddel, and Heinz Wiendl
 Ther Adv Neurol Disorders 2019; 12: 1756286419836571.
 Published online 2019 Apr 1; doi: 10.1177/1756286419836571 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6444778>

'The use of Disease Modifying Therapies in Multiple Sclerosis: Principles and Current Evidence'. MS Coalition Consensus Paper June 2019 Costello, K et al https://mynsaa.org/PDFs/dmt_consensus_ms_coalition071119.pdf

'Advances in oral immunomodulating therapies in relapsing multiple sclerosis'
 Tobias Derfuss¹, Matthias Mehlh², Athina Papadopoulou³, Amit Bar-Or⁴, Jeffrey A Cohen⁵, Ludwig Kappos Published: February 11, 2020 DOI: [https://doi.org/10.1016/S1474-4422\(19\)30391-6](https://doi.org/10.1016/S1474-4422(19)30391-6)

American Academy of Neurology Practice guidelines : Disease-modifying therapies for adult with multiple sclerosis 2018

MS Minute: Oral therapies for MS'. Practical Neurology. Neeta Garg, MD; Micheline McCarthy, MD, PhD; and Ameeta Karmarkar, MD <https://practicalneurology.com/articles/2019-nov-dec/ms-minute-oral-therapies-for-ms>

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There is always something new to learn when you are working in a community pharmacy.

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Upcoming Webinar: Thursday, 12th November 7pm

Electronic prescription webinar: Introducing the Active Script List and patient apps

Many pharmacies are now electronic prescription ready and accepting tokens. In this webinar, we look at the next steps in the electronic prescription revolution, with a focus on the Active Script List and how apps can be used to engage with your patients and streamline your pharmacy operations.

MSL Services



MS Connect



10 reasons to call us:

1. Up-to-date, evidence based information about multiple sclerosis
2. Expert advice on managing symptoms
3. Information about minimising the impact of multiple sclerosis
4. Support for people who are newly diagnosed
5. Information about treatment options
6. Education programs
7. Connections to other people living with multiple sclerosis
8. Referrals to appropriate services in your area
9. Extra support for you and your family
10. Respite options to give families short-term breaks



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MSL Services - MS Practice



MS Practice is a free, online education series designed to support allied health professionals in the symptom management of people with MS.

<https://www.msaustralia.org.au/about-ms/ms-practice>

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Registered NDIS Provider



MS is a registered NDIS provider in NSW, ACT, Vic and Tas and is approved to provide:
(Pls note: Face to face services/programs have been either converted to online programs or postponed)

- Assistance with 'Access Request Forms', Access rejections and pre-planning
- Support Coordination – assistance to help make your plan active
- Plan Management
- Short term accommodation (Vic)
- Group Activities – yoga, dance for health, exercise (NSW)
- Exercise physiology (NSW)
- Specialist Continence Assessment (Vic)
- Occupational Therapy (NSW and Vic)
- Physiotherapy (NSW)

Want to learn
more?
Please call
MS Connect
1800 042 138

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Peer Support




- ❖ 1:1 Phone Support
- ❖ Face to Face groups -
(temporarily converted to Telegroups)
 - 2 in the ACT
 - 11 in Tasmania
 - 17 in NSW
 - 42 in Vic
- ❖ Telegroups
 - Currently running 12 telegroups
- ❖ Facebook groups
 - 3 groups – for people living with MS
 - for carers
 - for young carers – up to 25 years of age



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Podcasts for Clients






PODCASTS

<https://www.ms.org.au/support-services/education/podcasts.aspx>

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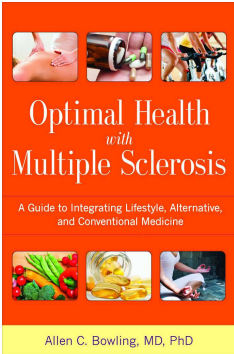
Free E-books




EBSCO eBooks & Audiobooks

<http://search.ebscohost.com/login.aspx?authtype=ip,uid&profile=eBooks>

Username: msguest
Password: Education2020%



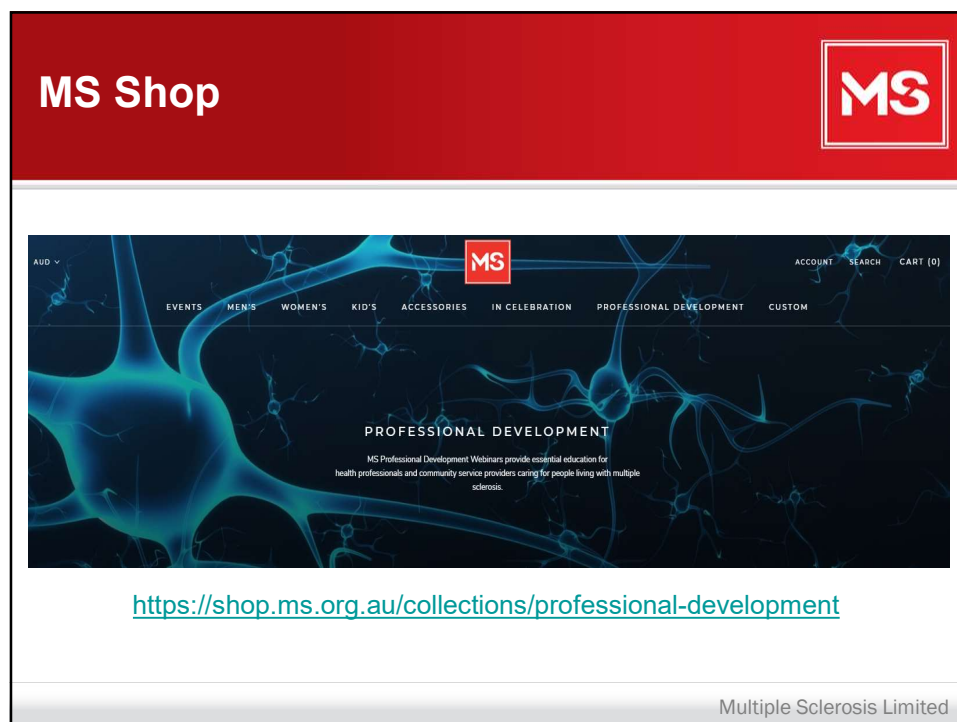
Optimal Health
with
Multiple Sclerosis

A Guide to Integrating Lifestyle, Alternative,
and Conventional Medicine

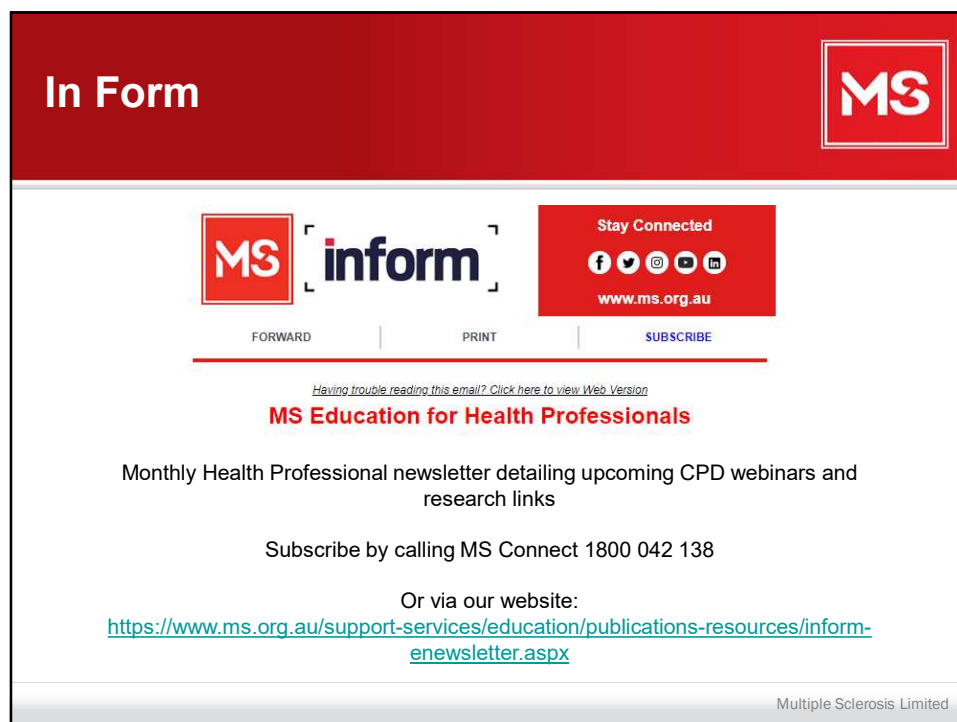
Allen C. Bowling, MD, PhD

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Thank you



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Guild Learning and Development

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learninganddevelopment@guild.org.au

Please stay on after this webinar to complete a short survey.

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