Time matters in multiple sclerosis – international consensus recommendations on diagnosis, management and treatment access

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Background

- Diagnostic criteria, treatment options, monitoring procedures and our understanding of multiple sclerosis (MS) are rapidly evolving.
- Relapsing MS is no longer considered to consist solely of episodic attacks on myelin in the central nervous system (CNS); diffuse damage to white and grey matter is ongoing throughout the disease course.[1]
- To compensate for damage, the brain appears to have a neurological reserve – a finite capacity to reroute signals or adapt undamaged areas to take on new functions.[2,3]

Objective

- To develop international consensus recommendations for improving diagnosis, management and access to treatment in MS based on advances in disease understanding.

Methods

- An international working group comprising clinicians, researchers, specialist nurses, health economists and representatives from patient groups conducted structured discussions and literature searches during 2015 to examine:
  - the personal and economic impact of MS
  - current practice in diagnosis, treatment and management
  - definitions of disease activity
  - barriers to accessing disease-modifying therapies (DMTs).

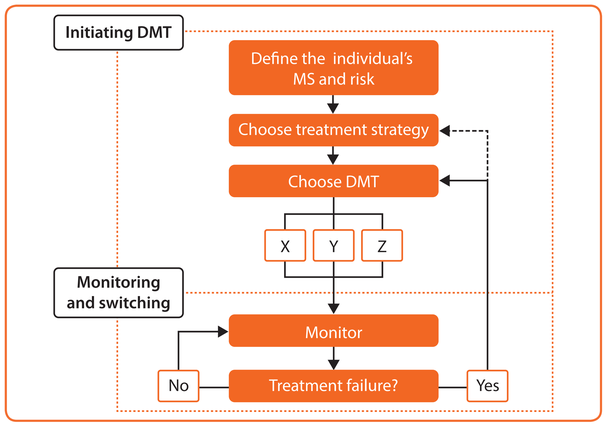

Figure 2. Monitoring is crucial to identifying treatment failure and enabling timely switching to a different DMT.

X, Y and Z represent DMT options. DMT, disease-modifying therapy.
Adapted with permission from Gavin Giovannoni from Personalizing treatment choice. International MS Physician Summit, 22–23 March 2014, Prague, Czech Republic.[9] © Gavin Giovannoni 2014.

Policy recommendations

- The resulting recommendations for policy change (**Figure 1**) have been widely endorsed by professional and patient organizations.

1. Speed up referral and diagnosis

- Significant delays often occur before a person with symptoms suggestive of MS sees a neurologist. Improved access to MS healthcare professionals and services is therefore required.
- Neurologists with interest and expertise in MS are the healthcare professionals best placed to provide routine diagnosis and to establish an integrated multidisciplinary approach to specialist care and management.
- Campaigns are needed to raise public and professional awareness of MS and the detrimental effect on brain health of delays in diagnosis and treatment.

2. Intervene early to maximize lifelong brain health

- Cognitive impairment in early MS reduces quality of life,[4] daily functioning and employability.[5]
- Preserving brain volume and cognitive reserve (the two components of neurological reserve) protects against disease-related cognitive decline[6] and disability progression[7,8] in MS.
- Adopt a clear treatment goal: maximize neurological reserve, cognitive function and physical function by reducing disease activity in order to preserve CNS tissue.
  - Using the term 'brain health' to describe neurological reserve can help people with MS to conceptualize their disease.
- Start treatment early, with DMT and lifestyle measures.
- Implement a shared decision-making process that:
  - embodies dialog between people with MS and healthcare professionals
  - considers all appropriate DMTs when initiating or switching treatment.

3. Monitor disease activity and treat to a target

- Adopt clear management principles to identify treatment failure and enable timely switching (**Figure 2**):[9]
  - set an explicit treatment target
  - monitor disease activity proactively
  - collect and record data.
- Adopt a definition of disease activity that includes all parameters predicting future relapses and disability progression, and evolves as the evidence base grows.
- Perform MRI brain scans to monitor lesions and brain volume (if possible) at predefined intervals and when necessary.
- Record monitoring data formally in databases and registries to facilitate individual treatment decisions.

4. Act swiftly and generate evidence

- Act swiftly on suboptimal control of disease activity by considering switching to a DMT with a different mechanism of action.
- Generate real-world evidence from registries about the long-term effectiveness and safety of DMTs and therapeutic strategies for use by regulators, health technology assessors, payers and healthcare professionals.

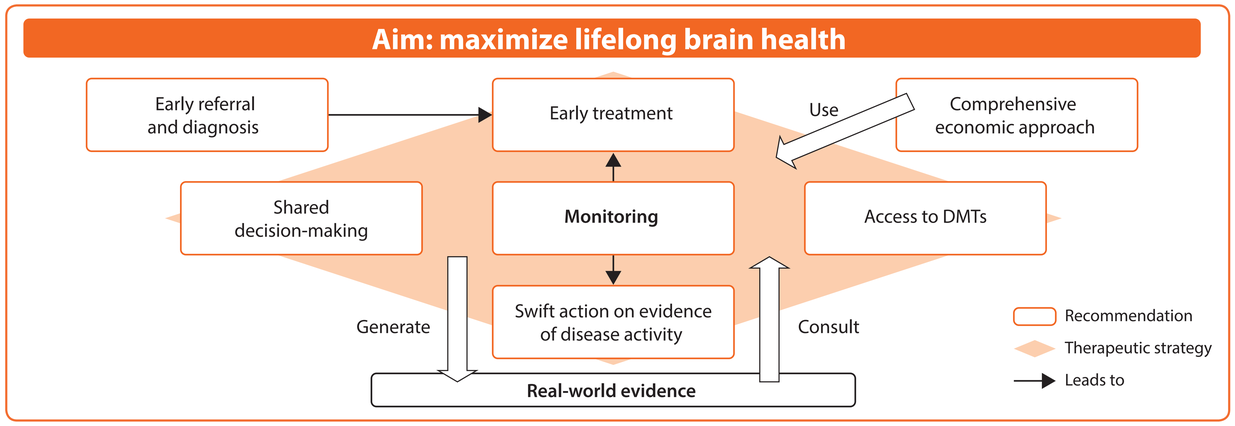

Figure 1. We recommend a therapeutic strategy based on regular monitoring that aims to maximize lifelong brain health while generating robust real-world evidence.

DMTs, disease-modifying therapies.

5. Take a comprehensive economic approach to evaluating treatment cost-effectiveness

- Costs – especially indirect and informal care costs – increase significantly as disability progresses.[10]
- The recommended therapeutic strategy (**Figure 1**) has the potential to reduce disability progression and avoid some of these long-term costs.
- In many jurisdictions, however, access to DMTs is limited. In 14 upper-middle- and high-income countries, the proportion of people with MS receiving a DMT in 2013 was in the range of 13–69% (**Figure 3**).[11–14]
- To improve access to treatment, the relevant bodies should consider all costs to all parties when conducting economic evaluations, not just those borne by healthcare and social services.
- The continuing investigation, development and use of cost-effective therapeutic strategies and alternative financing models should be encouraged.

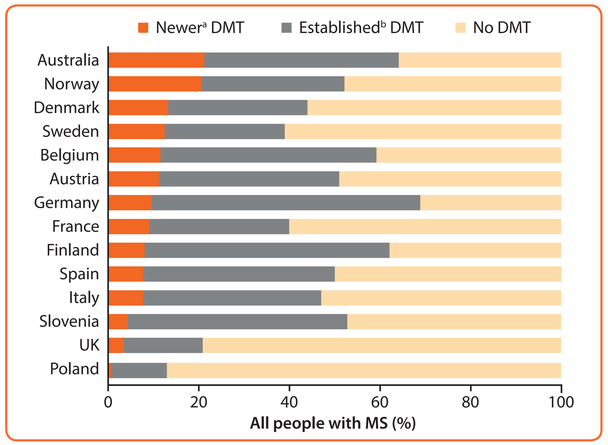

Figure 3. The proportion of people with all forms of MS receiving a newer DMT in 2013 varied considerably between countries.

Data were generated from DMT sales figures as described in the original sources,[11,12] and therefore potentially include people with all forms of MS (relapsing or progressive), and do not differentiate between treatment initiation and treatment switching. All DMTs for Australia: calculation based on sales figures,[12] population[13] and number of people with MS.[14]
[a]Newer DMT is defined as a DMT approved for relapsing forms of MS that has a different mechanism of action from established DMTs.
[b]Established DMT is defined as a DMT approved for relapsing forms of MS during the 1990s or a reformulation or generic version of one of these agents.
DMT, disease-modifying therapy.

Conclusions

- Major policy changes are needed in order to translate advances in diagnostic criteria, treatment options, monitoring procedures and disease understanding into better outcomes.
- The overarching recommendations below aim to facilitate a therapeutic strategy involving proactive monitoring, shared decision-making, and improved treatment access.
  - Minimize delays in the diagnosis of MS and in the time to treatment initiation.
  - Set goals for treatment and ongoing management that will optimize outcomes for every person with MS.
  - Consult the most robust evidence base possible when making treatment and management decisions.
  - Formally record the results of monitoring to generate further real-world evidence.
- This more urgent approach will enable MS healthcare professionals and other stakeholders to strive towards the highest possible standards of care.

To read the full report and consensus recommendations, visit **www.msbrainhealth.org**

References

1. Filippi M, Rocca MA. *J Neurol* 2005;252 Suppl 5:16–24.
2. Rocca MA *et al. Neuroimage* 2003;18:847–55.
3. Rocca MA, Filippi M. *J Neuroimaging* 2007;17 Suppl 1:s36–41.
4. Glanz BI *et al. J Neurol Sci* 2010;290:75–9.
5. Rao SM *et al. Neurology* 1991;41:692–6.
6. Sumowski JF *et al. Neurology* 2013;80:2186–93.
7. Sormani MP *et al. Ann Neurol* 2014;75:43–9.
8. Schwartz CE *et al. Arch Phys Med Rehabil* 2013;94:1971–81.
9. Giovannoni G. 2014. Available from: http://www.slideshare.net/gavingiovannoni/personalizing-treatment-choice (Accessed 17 August 2015).
10. Kobelt G and Kasteng F. 2009. Available from: http://www.comparatorreports.se/Access to MS treatments - October 2009.pdf (Accessed 17 August 2015).
11. Wilsdon *T et al.* 2013. Available from: http://crai.com/sites/default/files/publications/CRA-Biogen-Access-to-MS-Treatment-Final-Report.pdf (Accessed 17 August 2015).
12. Hollingworth S *et al. J Clin Neurosci* 2014;21:2083–7.
13. World Bank. 2015. Available from: http://data.worldbank.org/indicator/SP.POP.TOTL (Accessed 9 February 2015).
14. Multiple Sclerosis International Federation. 2013. Available from: http://www.atlasofms.org (Accessed 3 February 2015).

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Disclosures

G Giovannoni has received consulting fees from AbbVie, Bayer HealthCare, Biogen, Canbex Therapeutics, Five Prime Therapeutics, Genzyme-Sanofi, GlaxoSmithKline, GW Pharma, Merck, Merck Serono, Novartis, Protein Discovery Laboratories, Oxford PharmaGenesis, Roche, Synthon, Teva Neuroscience and UCB; and has received grant/research support from Bayer HealthCare, Biogen, Genzyme-Sanofi, Merck, Merck Serono and Novartis. H Butzkueven has received consulting fees from Genzyme, Biogen, Novartis, Merck and Oxford PharmaGenesis; and has received grant/research support from Biogen, Novartis, Merck and Genzyme. S Dhib-Jalbut has received consulting fees from Bayer, Genentech, Genzyme, Oxford PharmaGenesis, Serono and Teva; and has received grant/research support from Biogen and Teva Pharmaceuticals. J Hobart has received consulting fees, honoraria, support to attend meetings or research support from Acorda, Asubio, Bayer Schering, Biogen Idec, Genzyme, Merck Serono, Novartis, Teva, Oxford PharmaGenesis and F. Hoffmann-La Roche. G Kobelt has received consulting fees from Biogen, Merck Serono, Novartis, SanofiGenzyme, Teva and Oxford PharmaGenesis. G Pepper has received consulting fees from Biogen, Novartis, Oxford PharmaGenesis and Teva. MP Sormani has received consulting fees from Biogen, Merck Serono, Teva, Genzyme, Novartis, Roche, Vertex and Oxford PharmaGenesis; and has received grant/research support from Biogen and Merck Serono. C Thalheim has acted a speaker and adviser on non-product-specific subjects for Almirall, Bayer, Biogen, GSK, Novartis, Roche, Synthon and Teva; and has received consulting fees from Oxford PharmaGenesis. A Traboulsee has received consulting fees from Roche, Genzyme, Teva, Biogen and Oxford PharmaGenesis; and has received grant/research support as a PI on clinical trials with Genzyme, Roche, Chugai and Biogen. T Vollmer has received consulting fees from AbbVie, Acorda, Biogen Idec, Consortium of MS Centers, DeltaQuest, Genentech, Novartis, Novartis Canada, Novartis Japan, Oxford PharmaGenesis, Roche, Teva and Teva Canada; and has received grant/research support from Biogen Idec, EMD Serono, Genzyme, NIH, Novartis, Ono, Rocky Mountain MS Center, Teva and Roche.

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