

MS Research Australia
MS Community Consultation on Priorities for MS Research
EXECUTIVE SUMMARY



ABSTRACT

The Australian MS community, including people with MS, friends, family, health professionals and researchers took part in a survey to provide feedback on MS research priorities. The results revealed that developing a cure for MS via repair and regeneration of cells was the very highest research priority. Better treating MS, and preventing MS are also high priorities. Within the better treatment of MS, greater priority is placed on delaying, stopping or reversing progressive forms of MS, followed by preventing relapses.

Lower priority was given to social and applied research to improve management and care of people with MS and research to improve the diagnosis and prognosis of MS. Improving MS management and care (symptoms and rehabilitation) is seen as a progressively higher priority by people with MS who are more severely affected, but remains in fourth place. Research into mobility, cognition, pain and fatigue are the highest priorities for symptom management.

Across all areas of treatment, management and prevention, people are interested in understanding whether lifestyle factors such as stress, diet and physical activity can improve outcomes and quality of life.

Reviewing these priorities against MS Research Australia's research strategy and funding allocations to date, indicates that an increased focus on accelerating the translation of myelin repair discoveries into clinical applications is required. Continuing to develop treatments for progressive MS and translating our comprehensive understanding of MS risk factors into lifestyle-based interventions is important. A slight shift in focus is required for social and applied research to address pain, fatigue and cognition, in addition to mobility.

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Why survey the Australian MS Community?

MS Research Australia set out to seek the Australian MS community's views on the priorities for MS research. It is extremely important to MS Research Australia that the views of the Australian MS community - people directly and indirectly affected by MS, as well as health professionals and researchers - help to guide our research strategy into the future.

How was the survey designed and implemented?

We developed a survey that asked questions about the current MS Research Australia goals, the different types (basic, translational, clinical) and fields (streams), of research that we support in order to achieve those goals. We also asked about the priority people placed on specific research questions within each of the fields of MS research. These research questions were informed by a survey conducted as part of the MS Society UK's very robust priority setting process conducted in 2012 and updated and adjusted for the Australian context. The survey was anonymous, but

demographic information was also collected to confirm that the views of a broad representation of the MS community had been captured.

The survey was widely disseminated in the months of May and June 2016 via the social media channels, website, and print and electronic newsletters of MS Research Australia and Kiss Goodbye to MS, MS Australia, and the state MS Societies. Social media posts about the survey were also shared independently by individuals and MS support groups. A very broad database of MS organisation staff, MS nurses, neurologists and researchers was also directly contacted to complete the survey. The Survey was predominantly completed online, with a print version available if required.

Statistical analysis of survey responses was carried out to accurately identify differing levels of priority placed on the different research fields and questions between groups of survey respondents.

Who responded?

1058 people completed 75% or more of the survey and are included in the analysis. Of these 774 were people with MS (or closely related disorders), 219 were people with a close connection to MS (such as a family member or friend of a person with MS) and 65 were people with a professional connection to MS.

An independent analysis showed that the survey respondents with MS were very representative of the Australian MS population as they were closely aligned with the participants in the Australian MS Longitudinal Study (AMSLS) which has previously been shown to be representative of the Australian MS population¹. The proportion of different types of MS was closely matched, with 65% of the people with MS who responded have relapsing remitting MS, 15% have secondary progressive MS and 10% having primary progressive MS. Another 10% did not know or had another form of demyelinating disease. The respondents with MS ranged broadly in age from 18 to over 60, with a slightly younger average age of 50 years, compared to the AMSLS average of 55 years, and a slightly higher percentage of women, 82% rather than the 77% seen in the AMSLS. People with MS across the full spectrum of severity, from those living well with MS to those with significant levels of disability, were also well represented in the survey.

Those with a professional connection to MS were predominantly allied health professionals, MS organisation staff and nurses, with a much smaller group of researchers and neurologists responding. Researchers and neurologists are very well represented in other areas of MS Research Australia's governance processes, so it is particularly useful to have garnered here, the views of other types of professionals within the MS community.

What do the results say?

A full analysis of the results, with graphs, can be found in the full report. Please note that where we mention differences between sub-groups of survey respondents, these are statistically significant.

In the first part of the survey, respondents were asked to rank from 1 to 6, the order of priority they placed on the overall goals for MS research. From highest to lowest priority, the goals were ranked as follows:

1. Finding a cure for MS via repair and regeneration of cells
2. Better treating MS (relapses and progression)
3. Preventing MS
4. Improving MS management and care (symptoms, rehabilitation and support)
5. Predicting an individual's disease course
6. Improving the diagnosis of MS

Finding a cure for MS via repair and regeneration of cells was the top priority for all sub-groups in our survey. The very high priority placed on 'Finding a cure for MS via repair and regeneration of

cells' is also reflected in the responses to the specific research questions in this field which are significantly more frequently rated as a 'very high priority' compared to the research questions within other fields of research. This places 'Finding a cure for MS via repair and regeneration of cells' well out in front as the very highest priority.

The top three priorities also remain the same regardless of the respondents' connection to MS, type of MS or severity of MS. However, people with a close connection or professional connection to MS ranked prevention in second place, whereas people with MS ranked prevention in third place. The priority placed by people with MS on improving MS management and care increases with increasing severity of MS, but it remains in fourth place across the whole group of people with MS.

The importance placed on the broad streams, or fields, of research also reflects the prioritisation of the research goals. Neurobiology (research to understand the nervous system and mechanisms of nerve damage and repair) and clinical trials were rated as equally very important, followed by immunology, genetics and epidemiology, and then social and applied research. The importance placed on social and applied research (e.g. research into the social, psychological and economic impact of MS, rehabilitation and symptom management) increased with increasing severity of disease, but not to the extent that it was viewed by these groups as a higher priority than the other fields of research.

By a large margin, the community views **clinical studies and clinical trials**, with the likelihood of more immediate impact for people with MS as a very high priority above translational (mid-term impact) and fundamental research (long-term impact).

Within the area of **finding a cure for MS via repair and regeneration**, all specific research questions were rated universally as a very high priority for all groups of people, with myelin repair and nerve repair being seen as marginally more important than nerve protection and re-wiring the brain via neuronal plasticity.

Within the research area of **better treating MS (relapses and progression)** the question of 'Which medications are effective to slow, stop or reverse progression?' was seen as the highest priority followed by 'Which treatments are effective to prevent or delay the transition from relapsing remitting to secondary progressive MS?' and 'Which interventions are most effective to prevent relapses in MS?'. In fourth position, research to understand the safety and efficacy of autologous haematopoietic stem cell transplant (AHSCT) was also seen as a relatively high priority by all groups, but particularly by people with more severe or progressive forms of disease. It was viewed as slightly less important by people with a professional connection to MS, but still came in fourth place.

Within the research area of **preventing MS**, the broad question of 'How can MS be prevented?' was rated most highly followed by research into 'preventing MS in relatives of people with MS' and research into the 'environmental or lifestyle risk factors that can be modified to prevent MS'. There was a lower level of importance placed on some of the more specific areas of research into prevention, e.g. tackling vitamin D deficiency and Epstein Barr Virus (EBV). However people with mild disease and relapsing forms of MS were more interested in vitamin D and those with progressive or more severe MS were relatively more interested in EBV research.

There was overall lower support for research in the area of **improving MS management and care (symptoms, rehabilitation and support)**. However, within this field a higher priority was placed on research into the role that stress management, lifestyle interventions and diet may play in reducing the impact of MS. This was followed by the role of exercise in fatigue and depression and physiotherapy to prevent disability. People with milder disease placed a relatively higher priority on research into stress, lifestyle and diet than those with more severe disease. However, those with more severe disease were more interested in physiotherapy, the role of cannabis in controlling

symptoms and the role that multi-disciplinary MS services can play in managing MS. Research into interventions to maintain employment, while rated as a relatively low priority, was most valued by those living with a mild or moderate level of impact compared to those living well and those with significant level of disability. There was an overall low level of priority placed on research into the effect that MS has on families and children of those living with MS.

In relation to the specific symptoms of MS, research into treating or managing **walking and mobility, cognition, pain, fatigue, vision, and speech and swallowing** were rated as the highest priorities. Interestingly, people with a professional connection to MS rated research into the treatment and management of specific symptoms as being overall, a lower priority for research, compared to people with MS or those with a close connection. This may indicate that health professionals are aware of a range of interventions and methods to manage many of these symptoms, but greater effort needs to be made to raise awareness and ensure that people with MS and their families get connected to these services. However, it is also possible that the interventions are being broadly utilised by people with MS, but still do not provide satisfactory solutions. Research to investigate this disparity may be needed.

Also of interest is the **higher priority placed on research into certain symptoms by people with a close connection to MS** when compared to people with MS themselves. This was most notable for cognition, pain, vision, speech and swallowing, spasticity, sensory symptoms, bowel symptoms, vertigo/dizziness, upper limb function and tremors. Many of these symptoms may be very worrying for family, friends and carers and/or require greater assistance from them. Again, this may indicate that, as well as further research being needed in these areas, greater efforts are required to ensure that family, friends and carers get access to information and services to support them in helping their loved ones.

Research to improve the ability to provide a **prognosis for people with MS** and **better diagnosing MS**, were ranked as the lowest priorities overall by the MS community. However, within these fields the effect that lifestyle and environmental factors may play on disease outcomes and how they can be modified were rated as higher priorities than predicting the severity, rate of progression or responses to treatment. Reaching a diagnosis earlier and being able to more accurately diagnose the change from relapsing remitting to secondary progressive MS were seen as relatively more important than accurately diagnosing primary progressive MS. There seemed to be very little concern about any variation in the way that MS is diagnosed around the country.

Overall the survey seemed to have encompassed the major issues facing MS research currently, as an open text field which asked '**Did we miss anything?**' did not reveal any significant themes that had not already been encompassed in the questions asked in the rest of the survey. A small number of respondents flagged chronic cerebrospinal venous insufficiency (6 respondents), gut health and gut bacteria (5 respondents), stem cell research which encompassed both AHSCT (3 respondents) which was mentioned elsewhere in the survey (see above) and other types of stem cells (6 respondents). Six people also specifically flagged progressive MS, which was also mentioned elsewhere in the survey.

How well aligned is MS Research Australia's current strategy with the MS community's priorities?

Since inception, MS Research Australia has maintained a broad approach to MS research which has aimed at building capacity for MS research in Australia, supporting Australia's strengths and addressing the broad focus required for research into a complex disease that involves the immune system, nervous system, genes and environment, and has wide-ranging impacts in terms of symptoms and support needs.

MS Research Australia's research expenditure, on both investigator-led grants and collaborative platforms, has been apportioned across the overall research goals with the majority (56%) going to 'Developing better treatments'. This encompasses both biomedical treatments targeting relapses and progression as well as interventions for symptoms and rehabilitation. A third of funds (33%) have been aimed at 'Identifying the triggers for MS' which will ultimately lead to both prevention of MS and better treatment. 'A cure for MS via repair or regeneration of cells' – the research goal identified as the very highest priority in this survey, has received 11% of funds. However, when looking at the expenditure across the different fields of research, nearly a quarter of total funds have been allocated to the field of neurobiology (research to understand how the nervous system is affected in MS and mechanisms of nerve damage and repair and myelin repair) which pertains strongly to a cure for MS via repair or regeneration of cells. This fundamental neuroscience research has been the crucial first step towards developing testable interventions to enhance myelin repair, neuroprotection and nerve repair and reflects the current stage of this research globally. However, there is now a very clear imperative to accelerate the translation of this discovery science into pre-clinical and clinical research.

The heavier focus on 'developing better treatments' and 'understanding the triggers' and contributors to the development of MS, has been a necessary part of building up our knowledge of the fundamental biology of MS. As result we are much better placed now than we were even a decade ago, to understand how we might prevent MS from developing in the first place and effectively and efficiently treat relapsing remitting MS. Research to understand the factors driving progressive MS is also now well advanced, as is our understanding of the mechanisms of repair and regeneration of myelin and nerves.

The survey also indicates a clear imperative for an increased overall focus on progressive MS. MS Research Australia's investment of time and funds as a managing member of the International Progressive MS Alliance is already forming a major part of our strategy to address this greatest unmet need. However, increased focus on directly supporting Australia's significant strengths in this area is also warranted.

The research to understand the safety and efficacy of AHST for MS was also identified as a relatively high priority within the field of 'Developing better treatments for MS'. MS Research Australia has made significant efforts to contribute to the gathering of data on this treatment via the Australian AHST Registry. We have also reviewed and communicated the international data on this treatment to date, and undertaken a range of collaborative advocacy activities with MS Australia and the medical community to ensure the treatment is made available to those for whom the current evidence suggests it is appropriate and necessary. However, efforts to strengthen and enhance the activities of the Australian AHST Registry will be important as will further consideration of other avenues to promote the understanding of and access to this form of treatment for those in whom other treatments have failed or are not suitable.

The allocation of research funds to 'Improving MS management and care' through the field of social and applied research, which has received 15% of the total past and ongoing funding would appear to be in keeping with the MS community's lower prioritisation of this category of research. What may be required is an adjustment in the areas of research funded within this field to align more closely with the community's priorities. While MS Research Australia funding has seen a strong focus on the top priority symptom of walking and mobility, increased attention is needed on the other top priority symptoms of cognition, pain, fatigue, vision, and speech and swallowing.

The survey also identified the higher prioritisation of interventions relating to stress, lifestyle, diet and exercise in the management of MS. Studies such as AusImmune and the Australian MS Longitudinal Study (AMSL) have been crucial in helping to identify the role that these factors

play in the risk of developing MS and the progression of MS. However, a greater focus is now required on translating this information into robust studies to test whether and how lifestyle interventions can contribute to reducing the risk of developing MS or the impact of MS. The PrevANZ vitamin D trial (MS Research Australia-funded), the PhoCIS UV light therapy trial (NHMRC-funded) and the Phase I adoptive immunotherapy trial targeting EBV (MS Research Australia and MS Society Queensland-funded) have already begun to translate some of these findings into clinical testing of targeted interventions. However, further global investment in studies looking at the role that other lifestyle and dietary interventions can play in reducing the impact of MS is also warranted.

Employment support, which was rated as a relatively low priority in this survey, has been an area of focus for MS Research Australia and our advocacy partners MS Australia and the state MS societies. This has been driven in large part by the important data generated by the Australian MS Longitudinal Study on the historical disparity in employment participation between people with MS and the wider population. In fact, this focus on employment research, and its translation into employment services, together with the ever improving efficacy of drug treatments, appears to have paid dividends – a recent paper from the AMSLS and collaborators showed a significant improvement in employment retention for people with MS occurred between 2010 and 2013.

With respect to the very high priority placed on clinical trials by the survey respondents, it is important to note that of 54 currently ongoing grants and platforms, eight are clinical trials and the MS Research Australia Clinical Trials Network continues to promote MS clinical trial activity. However, other than the very significant financial investment in the PrevANZ vitamin D MS prevention trial and the Phase I EBV adoptive immunotherapy trial, the majority (in number) of clinical studies funded have been in the areas of symptom management. There is a clear gap in that the high priority placed on both clinical trials and a cure for MS via repair and regeneration of myelin and nerves, has not yet been realised in terms of pre-clinical and clinical research into myelin repair and nerve protection. This is, in part, related to this research still being largely in the ‘discovery’ phase, but also relates to the high cost of pre-clinical and clinical research. A strategic approach may be required to accelerate this research along the translational pathway, and to begin developing the necessary funding streams for clinical trials into myelin and nerve repair strategies. In parallel to this it will also be important to continue to develop the necessary tools and biomarkers that can be used in clinical trials to accurately track progression of disease and repair of myelin and hence measure whether experimental medications are working.

In relation to the additional research topics identified in the ‘Did we miss anything?’ open text field, it should be noted that the role of gut bacteria in MS is an emerging field of research in MS and has received pilot funding from MS Research Australia to date. Chronic cerebrospinal venous insufficiency ([CCSVI](#)) [has also received funding from MS Research Australia in the past](#). However, following a considerable level of international attention in this area, there is now a global consensus that abnormalities in venous drainage of the spinal cord and brain are unlikely to contribute to the development of MS and further investment in this area is not currently warranted.

References

Taylor BV, Palmer A, Simpson S Jr, Lucas R; NZMSPS study group, Simmons RD, Mason D, Pearson J, Clarke G, Sabel C, Willoughby E, Richardson A, Abernethy D. Assessing possible selection bias in a national voluntary MS longitudinal study in Australia. *Mult Scler.* 2013 Oct;19(12):1627-31. doi: 10.1177/1352458513481511. Epub 2013 Mar 25. PubMed PMID: 23530001.

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