

Technology is starting to disrupt multiple sclerosis



by **Matthew Miles**

We live in an era of advancement, consuming information continually as evidenced by almost 60 per cent of the adults on Facebook for 12.5 hours weekly and more than 2 billion people using UBER – and it is a time of disruption. Disruptive technologies have shaken up everything we thought we knew and understood about the world, destroying existing paradigms. This has made medical research and the not-for-profit sector change its approach and become more digitally focused. In multiple sclerosis (MS) massive changes have occurred in communicating and fundraising. Ten years ago the idea of a digital fundraising platform was something many doubted, today our online fundraising campaign Kiss Goodbye to MS generates more than \$1 million annually for MS Research Australia.

At a combined Harvard and Stamford University panel I spoke on what technologies are on the horizon to assist people living with MS, the technologies available to improve scientific research, and how it will improve diagnosis and treatment of the devastating disease. For the first time, the best minds in medical research globally are now able to seamlessly collaborate regularly. Technology has the power to transcend geographical boundaries and tear down barriers of space, time and distance. This is something the world has not experienced before.

Fundraising is all about embracing technology, 'Kiss Goodbye to MS has gone from an Australian campaign to now operating in 12 different countries. Our global campaign has built a 'virtual community' and we often joke that we are sending them a 'virtual hug'. These are real relationships, real colleagues, and real friendships – with people we may never meet in person. We have also used these technologies in our management role of the International Progressive MS Alliance, empowering the global MS research community to work together towards a powerful and all-encompassing common cause; finding solutions for people with the more debilitating MS. Success can come fast when the shared values are so strong.

What has technology made possible?

- Revolutionising the sharing of information via the open-source and free information from universities (Massive Open Online Courses – MOOCs) which will open up tertiary-level information including medical information and updates on MS
- Lifestyle monitoring with apps that track movement, diet, lifestyle and activity using your smartphone
- Bringing digital MS information and fundraising opportunities to people's hand-held devices such as what is available with Kiss Goodbye to MS
- Social media analytics to help better assess the effects of MS
- Matching up of the huge amount of data from the Australian MS Longitudinal Study with MS Base – a program we recently initiated harnessing the power of data science.
- Use of Nintendo Wii for possible exercise and balance-related benefits for people with mild to moderate MS – a similar program which we funded
- Key learnings from social media analytics including Twitter, Instagram and Facebook

The near future holds ...

- Smartphone platform technology could help detect early warning signs of MS
- Advanced robotics for more precise diagnostic testing
- Leveraging the Australian MS Longitudinal Study data with other sources of MS data to accelerate advances in the field
- Biomarker technology for MS expanding to involve blood tests, MRI exams and big data analysis
- More affordable home technologies including integrative and adaptive temperature controls, design modifications improving access and helping to overcome any decline in memory and thinking skills

In three years...

- The possible use of virtual reality technology for exercise, training, balance and potentially, cognitive behaviour
- Adapted e learning technology to bring doctor and patient closer together digitally

Technology will empower us to all to do more – leaders in the for-purpose sector just need to make sure charities don't get left behind.

Matthew Miles is chief executive of MS Research Australia.

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