The multiple sclerosis (MS) community has widely endorsed a strategy to maximize lifelong brain health by minimizing delays in the MS care pathway.1,2 Recently, an international survey of 21 MS neurologists defined quality standards for the timings of more than 20 key events in the MS care pathway.3 They agreed timelines to reflect acceptable, good and high-quality brain-health-focused care.

The present study aimed to:

- develop the prototype for a quality improvement (QI) tool based on these global quality standards;
- test the clinical usability and applicability of the tool in different healthcare settings.

### Developing a QI tool for clinics

- MS healthcare professionals from MS clinics in three countries collaborated with a clinical trials specialist to formulate a prototype QI tool.

The prototype QI tool, developed in an Excel workbook, included worksheets for user input, data input and report generation.

To develop the data input worksheet, we assessed the information required to measure the time taken to complete each step in the MS care pathway (Quality standard: Figure 1).1,3 On completion of the required fields, formulae embedded in the data input worksheet computed time intervals of interest, compared data with the quality standards and generated summary reports.5 MS healthcare professionals who were involved in this study provided feedback on the clinical usability of the tool.

### Results: prototype QI tool

The prototype QI tool comprised worksheets to provide information to the user, to input data from patients and to display the summary reports (Figure 2).

- Summary reports auto-populated when the required fields in the data input worksheet were completed.

### Testing the clinical usability of the QI tool

- An initial pilot study to trial the QI tool in a range of healthcare systems was carried out in three MS clinics:
  - Eastern Health (Australia)
  - University Clinic Carl Gustav Carus Dresden (Germany)
  - Plymouth University Peninsula Schools of Medicine and Dentistry (UK).

An investigator at each participating MS clinic reviewed the medical records of 12 adults with MS who met the following inclusion criteria:

- aged 18 years or older with a confirmed diagnosis of MS
- attended the MS clinic at least once during the study period.

A summary data sheet was provided to each participating clinic to stage the activity of completing the QI tool.

To minimize selection bias, investigators selected cases for each of the other three populations:

- From MS clinics in which there are no patients with relapsing–remitting MS who do not receive treatment with a DMT, the investigators extracted four patient records from each of the other three populations.

We found limited data on some of the events in the care pathway, which suggests that these events are not being documented systematically or that they do not occur in every clinic.

- Patients may be best placed to provide accurate data on some of these standards (e.g. length of the initial appointment to discuss the implications of being diagnosed with MS).

### Next steps: refining the QI tool

- Following data analysis, we will refine the QI tool to improve its clinical usability.

- We plan to conduct a larger pilot study using the refined QI tool.

### Conclusions

- MS healthcare professionals and a clinical trials specialist have developed a prototype QI tool that will enable MS clinics to compare their services with international quality standards for timely brain health-focused MS care.

- MS centres in Australia, Germany and the UK have successfully piloted the prototype tool; investigators at participating clinics are analyzing local data to identify areas for improvement.

- Pending further testing, we anticipate that a refined version of this tool will help MS clinics worldwide to bring about improvements in patient care.

### References