

# Charting age-associated cognitive decline

Andrew Costa PhD

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**T**he personal and societal burden associated with a rising global prevalence of dementia will continue to grow as populations age, despite some evidence for declining incidence.<sup>1</sup> Timely diagnosis allows for optimal therapy and end-of-life planning according to Canadian guideline recommendations,<sup>2</sup> but some researchers have estimated that between 29% and 76% of cases of dementia might go undiagnosed.<sup>3</sup> The Mini-Mental State Examination is a commonly used — although imperfect — brief cognitive screening test.<sup>4</sup> Other cognitive tests have been validated,<sup>3</sup> and some are better suited to detect mild cognitive impairment or for time-pressured primary care settings.<sup>5</sup> Yet it may be difficult, in some circumstances, to distinguish between patients with normal age-associated cognitive decline and those with early dementia.

In linked research, Bernier and colleagues<sup>6</sup> report on the development of cognitive charts to differentiate age-associated cognitive decline from dementia, based on serial screening test information from the Mini-Mental State Examination. Data from the widely regarded Canadian Study of Health and Aging were used to develop the cognitive charts, and a validation of the model was performed using the National Alzheimer's Coordinating Center's Uniform Data Set. The cognitive charts allow physicians to account for age and education effects for a single reference test and for progression between tests. The charts also allow for greater diagnostic stability across age and education groups, and offer a useful visual interpretation, albeit with similar overall accuracy compared with common Mini-Mental State Examination cut-off values. The authors conclude that cognitive charts are possible for other brief cognitive screening tests to maximize interpretation in practice.<sup>6</sup>

However, the widespread benefits derived from cognitive charts for any screening examination rests on the assumption that at-risk patients are being screened systematically over time and that results from cognitive tests are communicated to, or can be readily referenced by, physicians. We seem to be some distance away from that reality. Some evidence suggests that patients want to be screened,<sup>7</sup> but screening asymptomatic older patients for cognitive impairment is not recommended.<sup>8</sup>

Current cognitive screening, or case-finding, is largely driven by patient or caregiver complaint or incidental findings, which limits the possibility of detection of cognitive decline in patients who

## KEY POINTS

- Cognitive charts allow clinicians to account for age and education effects for a single cognitive test using the Mini-Mental State Examination and for progression between tests.
- The potential benefits of cognitive charts could extend to other cognitive screening tests that are in common use.
- Lack of systematic cognitive screening of asymptomatic older adults, lack of evidence for screening for cognitive impairment and a current lack of disease-modifying interventions for those with early dementia may limit the utility of applying cognitive charts.
- Clinicians await clinical breakthroughs for treatment and management of dementia.

lack insight into their cognitive decline or who do not readily seek care. We have few functional geriatric and neurocognitive specialists in Canada, so the task of cognitive screening and clinical diagnosis of dementia will increasingly fall to primary care clinicians. A lack of human resources and expertise, and a need for repeated visits will create barriers to primary care-based screening regardless of patient preference or evidence for benefit.<sup>9</sup> The increase in multidisciplinary primary care practices and memory clinics may offer some hope.

It is also necessary to evaluate whether there is benefit to be realized from systematic cognitive screening. Repeated screening and use of cognitive charts assumes that available therapeutic approaches improve outcomes. We await effective disease-modifying interventions,<sup>7</sup> although there is room for greater utilization of symptomatic therapy, and there may be opportunities to treat reversible cognitive decline.<sup>2</sup> A randomized controlled trial of collaborative care for older adults with Alzheimer disease offered some hope that more systematic screening can optimize patient management, safety, crisis avoidance, caregiver well-being and end of life, but the evidence base is incomplete.<sup>10</sup> Large-scale pragmatic trials should examine the effectiveness of practice innovations in patient education and management. The ultimate success of any innovation will depend on vastly improved training for health professionals. With success in screening strategies and therapy, we may see widespread use of cognitive charts as part of an effective dementia strategy.

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**Affiliations:** Department of Health Research Methods, Evidence, and Impact; Department of Medicine, McMaster University, Hamilton, Ont.

**Acknowledgement:** Andrew Costa holds the Schlegel Chair in Clinical Epidemiology and Aging at McMaster University.

**Correspondence to:** Andrew Costa, [acosta@mcmaster.ca](mailto:acosta@mcmaster.ca)