Clinician's Commentary on Pak et al.¹

Approximately 50,000 people in Canada each year experience a stroke, and approximately 300,000 are living with some form of disability caused by stroke.^{2,3} As the current population ages, it is inevitable that the number of Canadians living with stroke will drastically increase. Clinicians involved in rehabilitation for people with stroke already face strict time constraints, which are likely to become more severe as caseloads increase. The use of novel technologies to aid therapists is an attractive option, provided that these technologies do not increase assessment time and that they significantly improve patient outcomes. Laupacis and colleagues have recommended that adopting new technologies into routine practice requires optimizing both clinical and economic outcomes.⁴ Importantly, physical therapists in Ontario have reported that they would like to improve their assessments of balance control in clinical populations but are limited in their ability to do so both by lack of time and by lack of awareness of other potential treatments.⁵

Despite potential barriers to uptake, it appears likely that, over the long term, advanced measurement technologies will become a mainstay of clinicians' practice, supplementing care and assisting with areas of investigation that may previously have been difficult to quantify. Pak and colleagues explore the specific deployment of novel gait and balance assessments with the aid of advanced technology through a qualitative investigation of the experiences of both physical therapists and clients of the Balance, Mobility and Falls Clinic at the Toronto Rehabilitation Institute. The clinic's unique approach integrates cutting-edge research technologies into standard care and relies on clear lines of communication between clinicians and researchers. Specifically, the clinic incorporates outcomes from previous investigations that recommend acquiring spatiotemporal gait measures^{6,7} and quantifying postural responses after external balance perturbations^{8,9} into routine assessments of people with stroke.

Pak and colleagues found that the clinic's implementation of research technologies into clinical practice was generally well received by both clients and therapists, both of whom identified benefits of the testing that would not otherwise have been recognized. Physical therapists indicated that information from clinic reports can help them modify treatment plans and can draw attention to individual deficits. Physical therapists also identified challenges they encountered, such as data interpretation, time constraints, and environmental limitations, while clients reported receiving limited background information about the assessment and experiencing elevated anxiety associated with balance testing. Such barriers are to be expected with such an innovative venture. Pak and colleagues' study, importantly, uncovers a breadth of opinions, which will ultimately inform future implementations of assistive technologies in clinical practice.

Perhaps most importantly, the clinic presents the opportunity for clinicians to become stakeholders in the development of research questions and for researchers to implement patient-driven investigations. Integration between clinicians and researchers is key to effectively disseminating research findings to

the appropriate end users, as well as to empowering clinicians to drive research questions that may apply directly to their practice. As we strive for effective dissemination of research findings, the bidirectional communication that the Balance, Mobility and Falls Clinic fosters between clinicians and researchers offers a tangible model for how individual patients/clients may directly benefit from effective knowledge translation and represents meaningful progress toward implementing research technology into clinical practice.

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