

its detection upon arrival in hospital, which also contributed to a relative low prevalence of hypotension in our study.

The median ages seem to be commensurate between our study and the study by Spaitte and colleagues; however, the patients enrolled in these two large datasets are very different: patients with traumatic brain injury of all severities and all ages<sup>1</sup> were considered in our study, whereas patients with mild traumatic brain injury or those aged younger than 10 years were excluded from Spaitte and colleagues' study.<sup>3</sup> A better comparison is the CENTER-TBI study in Europe,<sup>5</sup> for which the cohort had a median age of 50 years (IQR 30–66) and 1254 (28%) of 4509 patients were older than 65 years, compared with a median age of 48 years (33–61) and 17% of patients who were older than 65 years in our study in China.<sup>1</sup> We believe that comparative analysis between various clinical trials is truly meaningful when individual trial design and baseline characteristics are taken into consideration.

We are pleased that the geographical variation observed in our study raised the interest of our European colleague. More analyses based on contemporary cohort data and previous studies will be of great value, and greater emphasis should be placed on current international collaborations and comparative effectiveness studies, as they are more feasible and anticipated than ever in this field.

We declare no competing interests.

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## Patient-centred management of Parkinson's disease

The Personal View by Bloem and colleagues<sup>1</sup> on integrated and patient-centred management of Parkinson's disease proposes a health system organisation to address complex care in chronic neurological disorders, using Parkinson's disease as an example. The proposed hub-and-spoke model envisions the integration of health professionals based on a Parkinson's disease centre of excellence integrated with community hospitals. We share the values put forward as pillars for a framework change in the care of Parkinson's disease and other chronic neurological diseases but would like to offer additional insights for their wider dissemination and implementation.

As mentioned by Bloem and colleagues, it is necessary to adapt any model of integrated health care to local circumstances. However, how the different components of the model might be implemented is unclear and, in our opinion, the most crucial barrier for the effective use of comprehensive care in Parkinson's disease management.

For example, Bloem and colleagues make Parkinson's disease specific training of allied health professionals a fundamental piece of the model. Although we agree with the need for training, this ideal scenario could be impractical in many health-care

environments. The infrastructure needed for training these professionals is substantial and highly trained health professionals could become quickly overwhelmed with patients.

To overcome the practical limitations of multispecialty care for Parkinson's disease, we propose a regional care network that starts by optimising existing allied health programmes and community resources (including primary care physicians) and allows for self-management. We believe this approach would enable implementation of care integration in most health-care models and could be a cost-effective alternative with positive outcomes. We envision a toolkit to guide the application of these care principles to local care settings. Its development requires a multinational, multidisciplinary effort with health-care teams, clinical researchers, health economists, and sociologists. Patient-centredness is paramount to fulfil this vision, and co-designed methodologies should be a framework to develop a care model tailored to patient needs at disease onset and beyond.<sup>3,4</sup>

The COVID-19 pandemic has prompted a change in care delivery with increased uptake of telemedicine and online care resources. It is fundamental to address the question of what the most beneficial and feasible care delivery model is and, consequently, if Parkinson's disease tertiary centres should remain the hub of care. The current scenario is an opportunity to test the hypothesis that a major component of Parkinson's disease care has shifted to the home and community and that any care model must be pragmatic and tailored to the patient's needs. Pragmatism is key in delivering chronic neurological care.

DG reports consultation fees from Valeo Pharma, Sandoz, Department of Justice Canada Government of Canada Clinical trials, CIHR, Biotie Therapies, Genzyme Corporation, and Sanofi. DG reports grants from the Canadian Institute of Health Research, Parkinson Canada, Brain Canada, PSI Foundation, Parkinson Research Consortium, EU Joint Programme-Neurodegenerative Disease Research, and University of Ottawa Brain and Mind Research Institute (UOBMRI). JJF owns stocks in and reports consultancy fees from Ipsen,

GlaxoSmithKline, Novartis, Teva, Lundbeck, Solvay, Abbott, BIAL, Merck-Serono and Merz. JJF reports grants from GlaxoSmithKline, Grunenthal, Teva, and Fundação Merck Sharp Dome. AA reports consultancy and speaker fees from Union Chimique Belge (UCB), Boehringer Ingelheim, AbbVie, Zambon, Bial, Ever Pharma, Neuroderm, Therevance, Biogen. AA reports research grants from Chiesi Pharmaceuticals, Lundbeck, Horizon, and the Italian Ministry of Education. AA serves as consultant for Boehringer-Ingelheim for legal cases on pathological gambling. ÁS-F owns stocks in Leuko Labs and Leuko Imaging System and reports speaker fees from AbbVie, UCB, Novartis. ÁS-F reports grants from EU Joint Programme Neurodegenerative Disease Research (JPND), and European Institute of Innovation and Technology Health, and royalties from the Massachusetts Institute of Technology. TL is on the advisory boards for An2H, receives speaker fees from UCB, and reports grants from the Michael J Fox Foundation, Health Research Board Ireland, and JPND. ER reports consultancy fees from AbbVie, Acadia, and Axon, and grants from Horizon 2020, JPND, Michael J Fox Foundation, Czech Health Research Council, and Grant Agency of the Czech Republic. OR is on the advisory board for AbbVie, Adamas, Acorda, Addex, AlzProtect, Apopharma, AstraZeneca, Axovant, Bial, Biogen, Britannia, Buckwang, Cerespir, Cleavel, Denali, INC Research, Lundbeck, Lupin, Merck, MundiPharma, Neurtris, Neuroderm, Novartis, Ono Pharma, Osmotica, Parexel, Pfizer, Prexton Therapeutics, Quintiles, Roche, Sanofi, Servier, Sunovion, Théranex, Takeda, Teva, UCB, Vectura, Watermark Research, Xenoport, and Zambon. OR reports grants from Agence Nationale de la Recherche, CHU de Toulouse, France-Parkinson, INSERM-DHOS Recherche Clinique Translationnelle, Michael J Fox Foundation, Programme Hospitalier de Recherche Clinique, European Commission, Cure Parkinson UK. OR has received a grant to participate in a symposium and contribute to the review of an article International Parkinson Disease and Movement Disorders Society. CE receives consultancy fees from AbbVie and Philyra, and speaker fees from AbbVie, Daiichi Sankyo, Bayer Vital, and Philyra. CE reports grants from Deutsche Parkinson Vereinigung, German Ministry for Education and Science, Horizon 2020, German Research Society, and German Parkinson Society. TM received speaker fees from AbbVie, and the International Parkinson and Movement Disorder Society. TM receives consultancy fees from CHDI Foundation, Sunovion, Valeo Pharma, and is part of the advisory board for AbbVie, Biogen, Roche, Medtronic, and received grants from EU Joint Programme-Neurodegenerative Disease Research, UOBMRI, Ontario Research Fund, Canadian Institute of Health Research, Michael J Fox Foundation, Parkinson Canada, Parkinson Disease Foundation/Parkinson Study Group, LesLois Foundation, Physicians Service Incorporated Foundation, and Parkinson Research Consortium.

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We read with interest the Personal View by Bastiaan Bloem and colleagues on integrated and patient-centred management of Parkinson's disease.<sup>1</sup> We have designed the structure and operation of the Parkinson's disease network in Lombardy, Italy,<sup>2</sup> and wish to compare the two models. Both networks consider a hub-and-spoke model of distributed health-care services and are designed to be implemented in high-income European regions with prevalently public health-care systems. However, there are some considerable differences between the two models.

Bloem and colleagues' model derives from the ParkinsonNet,

originally designed in 2004 as a low-cost network of physical therapists in the Netherlands.<sup>3</sup> It consists of a collection of regional community-based networks of dedicated allied health professionals (physiotherapists, occupational therapists, speech-language therapists, dietitians, and nurses) who are specifically trained on Parkinson's disease management. In this model, the personal case manager is a non-medical professional and there is one hub for the entire country (population of 17.28 million people, area of 41543 km<sup>2</sup>). The connection between a patient with Parkinson's disease and their doctor is mediated by a caring nurse. By contrast, the Lombardy network was developed top-down. The regional health authority commissioned it in accordance with a national provision on chronic diseases. The model structure is based on data analysis done by the commissioning authority from statistics related to Parkinson's disease and health-care providers in Lombardy. In this model, the personal case manager is the patient's doctor and there are 12 hubs throughout the Lombardy region (population of 10.06 million, area of 23844 km<sup>2</sup>).

Bloem and colleagues did not clearly identify objective measures to monitor efficacy and efficiency of network operations. The Lombardy network described in detail criteria for Parkinson's disease diagnosis and staging, referral of non-motor symptoms, management of device-aided therapies, data collection, and quality assessing and governance. Similar outcome measures should be used to compare these two networks. To this end, the Dutch model could possibly adopt the objective measures used in Lombardy and allow comparisons of the two European experiences.

Financial sustainability was a concern in both models. Structured networks could reduce costs, improve timely access to treatment, enable earlier diagnosis, enhance patient