



Advancing cross-national planning and partnership: Proceedings from the International Multimorbidity Symposium 2019

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Kathryn Nicholson¹ , Tine De Burghgraeve², Martin Fortin^{3,4} ,
Lauren E Griffith⁵ , Silvan Licher⁶, Daniel Lizotte^{1,7},
Frances S Mair⁸, Ruben Miozzo⁹, Maede Sadat Nouri⁷,
Bridget L Ryan^{1,10} , Eng Sing Lee¹¹, Susan Smith¹²,
Moir Stewart¹⁰, Amanda L Terry^{1,10,13}, Mayra Tisminetzky^{14,15} ,
Maria Ukhanova¹⁶, Stephen Wetmore¹⁰
and Saverio Stranges^{1,10,17}

Abstract

The International Multimorbidity Symposium was held in November 2019 at Western University to achieve three main objectives: to discuss progress and findings from various jurisdictions; to facilitate collaboration through group discussion to identify strategies to move multimorbidity research forward; and to create concrete plans to ensure advances in multimorbidity research and knowledge can be achieved through cross-national partnership. This event included keynote presentations, elevator pitch presentations and breakout sessions and there was a total of 35 attendees from eight countries, representing diverse disciplines and training levels. The overall themes arising from the event were: the importance of integrating the study and management of multimorbidity from both the primary care and public health perspectives; meaningful engagement and collaboration with patients and caregivers to understand key dimensions of multimorbidity; the considerable benefit of collaborative international partnerships; and the need to

¹ Department of Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, Western University, London, Ontario, Canada

² Academic Center for General Practice, KU Leuven, Leuven, Belgium

³ Department of Family Medicine and Emergency Medicine, Université de Sherbrooke, Québec, Canada

⁴ Centre intégré universitaire de santé et de services sociaux du Saguenay – Lac St-Jean, Québec, Canada

⁵ Department of Health Research Methods, Evidence, and Impact, Faculty of Health Sciences, McMaster University, Hamilton, Ontario, Canada

⁶ Department of Epidemiology, Erasmus MC – University Medical Center Rotterdam, Rotterdam, The Netherlands

⁷ Department of Computer Science, Western University, London, Ontario, Canada

⁸ General Practice and Primary Care, Institute of Health and Wellbeing, University of Glasgow, Glasgow, Scotland

⁹ Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, USA

¹⁰ Department of Family Medicine, Centre for Studies in Family Medicine, Schulich School of Medicine & Dentistry, Western University, London, Ontario, Canada

¹¹ National Healthcare Group Polyclinics, Singapore

¹² Department of General Practice, HRB Centre for Primary Care Research, Royal College of Surgeons in Ireland (RCSI), Dublin, Ireland

¹³ Schulich Interfaculty Program in Public Health, Schulich School of Medicine & Dentistry, Western University, London, Ontario, Canada

¹⁴ Division of Geriatrics, Department of Medicine, University of Massachusetts Medical School, Worcester, MA, USA

¹⁵ Department of Population and Quantitative Health Sciences, University of Massachusetts Medical School, Worcester, MA, USA

¹⁶ Oregon Health & Science University, Portland, OR, USA

¹⁷ Department of Population Health, Luxembourg Institute of Health, Strassen, Luxembourg

Corresponding author:

Kathryn Nicholson, Department of Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry, Western University, 1151 Richmond Street, London, Ontario, Canada N6A 3K7.
Email: kathryn.nicholson@schulich.uwo.ca



spread and scale innovations for health care systems that can better respond to the complex needs of patients and caregivers who are living with multimorbidity. Finally, it was well-acknowledged among the attendees that expanding the collaboration and discussion among international colleagues via in-person and virtual events will be important to move multimorbidity research forward.

Keywords

Multimorbidity, research agenda, partnership, cross-national

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Introduction

In recognition of the need to address multimorbidity using both a population health and primary care perspective,^{1–3} a day-long event – The International Multimorbidity Symposium – was held in November 2019 with collaboration from the Department of Epidemiology and Biostatistics and the Department of Family Medicine at Western University in London, Ontario, Canada. There were 35 attendees from eight countries (Belgium, Canada, Ireland, The Netherlands, Russia, Scotland, Singapore and the United States) and multiple disciplines (including family medicine, geriatric medicine, internal medicine, nursing, rehabilitation science, epidemiology, biostatistics, public health and computer science). The attendees included a mix of trainees (undergraduate, graduate and post-doctoral), clinicians and researchers (junior, mid-career and senior), which contributed to the learning and knowledge exchange among attendees during the symposium.

The overall aim of the symposium was to facilitate cross-national conversation about ongoing and completed research in public health and primary care, and to identify the next steps for key areas of multimorbidity research. The specific objectives of this symposium were three-fold: to discuss progress and findings that have already been achieved in respective jurisdictions and countries of the participating attendees; to facilitate collaboration through group brainstorming and discussion to identify strategies to move multimorbidity research forward; and to create concrete plans to ensure advances in multimorbidity research and knowledge can be achieved through cross-national partnership, with potential implications for the prevention and clinical management of multimorbidity.

This symposium also built upon recent events involving acknowledged experts in multimorbidity, as well as recent publications that provide a substantial overview of multimorbidity knowledge. These resources included the report from the Academy of Medical Sciences entitled ‘Multimorbidity: a priority for global health research’¹; the symposium organized by the Karolinska Institutet International Symposium entitled ‘Multimorbidity Research at the Cross-Roads: Developing the Evidence for Clinical Practice and Health Policy’^{4,5}; and the European General Practice Research Network (EGPRN) Meeting, which focused on Research on Multimorbidity in Primary Care.^{6,7}

Keynote presentations

The symposium began with two keynote speakers with extensive experience in conducting research related to multimorbidity and associated issues (such as disability, frailty and treatment burden) and who articulated the next priorities for multimorbidity research from both an international and national perspective. The International Keynote speaker was Professor Frances Mair (University of Glasgow) and the National Keynote speaker was Dr. Lauren Griffith (McMaster University).

The presentation by Prof. Mair described the challenges and opportunities of multimorbidity for research and practice. This included a discussion about the patterns of multimorbidity and polypharmacy, risk stratification, treatment and illness burden for patients and caregivers and the currently unsuitable structure of the health care systems for individuals living with multimorbidity. Suggested research priorities included: 1) understanding mechanisms underpinning the development of multimorbidity; 2) exploring and assessing risks versus benefits of treatment for multimorbidity; 3) examining mechanisms underpinning adverse outcomes in multimorbidity; and 4) investigating interventions that will best support individuals living with multimorbidity.

The presentation by Dr. Griffith described the study of multimorbidity from both a population health and primary care perspective. This included a discussion of the epidemiological consequences of different definitions of multimorbidity, population attributable risk and patterns of multimorbidity on patient-relevant outcomes (such as activities of daily living, self-rated physical health, self-rated mental health and social participation), interventions for community-dwelling older adults with multimorbidity and the strengths and limitations in reporting on multimorbidity with health survey data and administrative data. The implications for research included: 1) the need to move the study of multimorbidity beyond simply counting number of chronic conditions; 2) the need to incorporate patient-reported outcomes in the study of multimorbidity moving forward; and 3) the importance of exploring the heterogeneity within multimorbidity at the population-level (such as with population stratification) to better inform cross-national comparisons.

Special guest presentations

The symposium then included three speakers with extensive clinical and research expertise on multimorbidity. These presentations showcased completed research programmes and ongoing training programmes from three different countries (Canada, the United States and Ireland).

The first presentation was by Professor Martin Fortin (Université de Sherbrooke) who discussed key learning from the Patient-Centred Innovations for Persons with Multimorbidity (PACEinMM) programme,⁸ which was a five-year multidisciplinary research study funded by Canadian Institutes of Health Research (CIHR) Signature Initiative.⁹ During this work, the PACEinMM research team developed a new framework for effective interventions for multimorbidity, created new measures for use by other research teams such as the 'Research Tool to document self-reported chronic conditions in primary care' and the 'Patient-centred coordination by a care team'.^{10,11} The research programme also included a transformation or alignment of two existing chronic diseases prevention and management initiatives, which were then evaluated using a purposeful mixed-methods approach.¹²

The second presentation was by Dr. Mayra Tisminetzky (University of Massachusetts Medical School and the Meyers Primary Care Institute) who discussed the Advancing Geriatrics Infrastructure and Network Growth (AGING) Initiative, which is a joint endeavour of the Health Care Systems Research Network and Older Americans Independence Centers (also known as 'Pepper Centers'). The overall aim of the AGING Initiative is to improve the study of multimorbidity,^{13,14} which has been facilitated by the successful development of a repository of measurements and analytic tools, research-ready datasets, support for research projects to move from the pilot stage to multidisciplinary and multi-site research programmes. The AGING Initiative includes the MCC (Multiple Chronic Conditions) Scholars Program to support cohorts of future experts on multimorbidity and the Patient/Caregiver Advisory Council to advise the AGING Initiative leadership on strategies for engaging patients and caregivers in all stages of the research process.

The third presentation was by Professor Susan Smith (Royal College of Surgeons in Ireland) who discussed the Health Research Board Collaborative Doctoral Award Managing Complex Multimorbidity in Primary Care. This is a nationally funded programme for a cohort of four multidisciplinary PhD students each year, which aims to inform policy and practice to improve outcomes for patients who are living with complex multimorbidity. The training programme will build capacity in multimorbidity research and includes core training modules, institutional supports, a scientific advisory group and collaboration with international partners and mentors. The four current PhD projects address different priorities in multimorbidity, specifically examining medication adherence among patients; the

impact of clinical practice guidelines on patient costs; a randomized controlled trial (RCT) of linkworkers to support health and social care coordination; and a pilot cluster RCT of a family practice-based pharmacy intervention to address prescribing challenges. The overarching aim of the programme is to incorporate patient and public involvement in the design of interventions and guidelines, thus training the PhD students in meaningful research projects and ensuring reduced treatment burden for participating patients.

Elevator pitch presentations

Next, there were eleven five-minute and five-slide presentations that showcased either ongoing or completed research work related to multimorbidity. There were many topics covered by these eleven researchers from a variety of training levels (undergraduate, graduate and post-doctoral trainees, as well as both junior and mid-career researchers) and countries (Belgium, Canada, The Netherlands, Russia, Singapore and the United States). The topics covered in the presentations included the epidemiology and patterns of multimorbidity and polypharmacy in various countries, methodological approaches for the measurement of multimorbidity, multimorbidity burden in more specific subpopulations (such as psychosis or heart failure patients), opportunities for better management of patients with multimorbidity using digital health interventions and the uptake of preventive services between those with and without multimorbidity. The abstracts of these presentations are available upon request.

Breakout sessions

The objective of these breakout sessions was to facilitate discussion to address the next frontiers of multimorbidity research in the respective areas, as well as how to purposefully engage with patients, caregivers and international colleagues in future research. Summaries of the discussion were prepared based on notes taken by observers, analysis of slides from the symposium presentations and content-checking with co-authors of these proceedings.

Multimorbidity and the intersection between primary care and public health

There were three key frontiers of research for this topic. The first was employing patient-engaged system design whereby citizens and patients are engaged from the outset in any health system design consistent with a patient-oriented approach to research. The second frontier focused on the concept of 'intrinsic-capacity', a concept that may be relevant for both patients with multimorbidity and their caregivers who often have their own health issues. Intrinsic capacity is contrasted against frailty¹⁵ and is defined by the World Health Organization as 'the composite of all

physical and mental capacities that an individual can draw upon during his/her life'.¹⁶ The participants of this topic discussed how focusing on intrinsic capacity might provide a positive framework in which to conduct multimorbidity research, specifically focusing on capacity instead of deficit. The third frontier was a focus on prevention of multimorbidity and minimizing its effects by including programs that cross primary care and public health (such as programs that utilize physical activity for treatment and prevention).

Multimorbidity and data sources

The key frontiers of research for this topic included a focus on using more comprehensive clinical data with more advanced approaches like artificial intelligence and natural language processing. This next stage of research will require interdisciplinary collaboration between both clinicians (such as primary care providers) and analysts (such as epidemiologists or computer scientists). Furthermore, incorporating patient-relevant outcomes will help researchers understand heterogeneity in multimorbidity experience among patients and their caregivers. As well, applying a tailored approach with precision or personalized medicine will be ideal to address health needs (based on genetic, environmental, lifestyle and capacity factors) and personal goals within the context of complexity, while research focused on pharmacogenetics can be used for more sophisticated risk prediction modelling across populations. Each of these interrelated avenues of exploring multimorbidity within diverse data sources was discussed in this breakout session.

Equally important is to purposefully involve patients and caregivers in multimorbidity research, which has been acknowledged in recent publications.^{1,17} This involvement should be a collaborative and respectful partnership between patients and caregivers with their lived experiences, which can then inform the development of a research project. For example, this partnership can inform the development of meaningful research questions, appropriate study design, relevant outcome measures, effective dissemination of findings and appropriate next steps. Realistically, this partnership can also range from active engagement to knowledge sharing based on the capacity of patients and caregivers to be involved throughout the research process. However, it is ideal that this involvement should be supported by outlining and negotiating the role of the patients, caregivers and researchers beforehand and to clearly articulate roles and expectations.

Future research could support purposeful engagement of colleagues through international benchmarking studies to explore multimorbidity across different contexts. For example, recent publications have focused on a comprehensive review of indices measuring multimorbidity beyond counting diseases¹⁸ and clear recommendation on a core outcome set for research on multimorbidity.¹⁹

Funding opportunities like the Horizon 2020/Horizon Europe and the Wellcome Trust were identified as potential supporters for cross-national and collaborative studies. However, it was agreed that non-funded progress could be made by research teams supporting the development of consensus statements on various topics related to multimorbidity, such as through online communities like the International Research Community on Multimorbidity.²⁰ This approach has previously proven effective as demonstrated by recommendations from Smith et al. on the design and evaluation of interventions to improve outcomes for patients living with multimorbidity, which came from a forum discussion held at the North American Primary Care Research Group (NAPCRG) Annual Meeting in 2012.²¹

Key themes and next steps

The key priorities and recommendations for future research from the various presentations during the symposium have been synthesized in Table 1. In addition to building on the areas of future work as identified in the Keynote Presentations and the Breakout Sessions, there were common themes throughout the symposium discussion. These common themes included: 1) the need for collaborative international partnerships (supported by patient and caregiver involvement in research whenever possible); 2) the need to define multimorbidity beyond disease counting to incorporate patient and caregiver perspectives and to include outcomes relevant to patients such as quality of life and goal-oriented care; 3) the potential of scaling and spreading innovations in the health care system that create necessary shifts from disease-focused to patient-centred; and 4) the potential that can come from purposeful integration of primary care and public health to improve both clinical management and prevention of multimorbidity by tackling both downstream and upstream factors.²

It is important to acknowledge that a limitation of this symposium is that countries with an active programme of innovation and research in relation to multimorbidity were not represented in the attendance (for example: Australia, Brazil, Denmark, England, New Zealand or Spain). While this was due to limited budgets, future virtual events could be more inclusive. Likewise, we must acknowledge that three of the five plenary speakers were editors-in-chief of this journal (which was appropriate as they are leading experts in this field), but external reviewers reviewed this article to avoid potential conflicts of interest.

A notable outcome from this symposium has been planning future in-person meetings, including the submission of applications for funding between cross-national collaborators. These in-person events will be supplemented by online webinars and workshops, which are currently being planned to facilitate continued international community-building. These events will be shared through online sources, specifically the Journal of Comorbidity and the

Table 1. Key priorities and recommendations from symposium presentations.

- Examine multimorbidity beyond the number of chronic conditions (example: clusters, big data sources, longitudinal data sources, exploring frameworks)
- Incorporate related factors for further stratification (example: socioeconomic status to better understand heterogeneity at the population-level)
- Incorporate risk stratification in multimorbidity research to account for heterogeneity (and to avoid ineffective status quo in clinical management)
- Examine mechanisms underpinning the development and adverse outcomes of multimorbidity
- Incorporate direct feedback from patient on whether their care plan is the right thing for them and if they can implement the plan as recommended (if the answer is no, modify plan as needed)
- Incorporate perspectives from multidisciplinary care team on how to most effectively provide patient-centred care to patients living with multimorbidity
- Focus on testing and implementing effective interventions that will provide meaningful improvement patient-reported outcomes in multimorbidity

International Community on Multimorbidity (<http://crmcsp-blog.recherche.usherbrooke.ca/>). The Journal of Comorbidity was highlighted as a primary resource for multimorbidity research and attendees acknowledged the need for both authors and reviewers for this journal. Finally, it was well-acknowledged among the attendees that expanding the collaboration and discussion among international colleagues via in-person and virtual meetings will be important to move multimorbidity research forward.

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ORCID iD

Kathryn Nicholson  <https://orcid.org/0000-0002-9534-4724>
 Martin Fortin  <https://orcid.org/0000-0002-9874-3771>
 Lauren E Griffith  <https://orcid.org/0000-0002-2794-9692>
 Bridget L Ryan  <https://orcid.org/0000-0001-9080-5635>
 Mayra Tisminetzky  <https://orcid.org/0000-0002-8557-2029>

References

1. Academy of Medical Sciences. *Multimorbidity: a priority for global health research*. London: Academy of Medical Sciences, 2018.
2. Nicholson K, Makovski TT and Stranges S. The integration of primary care and public health to improve population health: tackling the complex issue of multimorbidity. *Int J Public Health* 2019; 64(7): 983–984.
3. Mercer S, Salisbury C and Fortin M. *ABC of multimorbidity*. Oxford: Wiley-Blackwell, 2014.
4. Akademikonferens. Multimorbidity research at the crossroads: developing the evidence for clinical practice and health policy, <https://www.multimorbidity2018-stockholm.se/> (accessed 3 February 2020).
5. Calderón-Larrañaga A and Fratiglioni L. Multimorbidity research at the crossroads: developing the scientific evidence for clinical practice and health policy. *J Intern Med* 2019; 285(3): 251–254.
6. European General Practice Research Network. 88th EGPRN Meeting, Tampere-Finland. 2019, <https://archive.egprn.org/88-tampere/> (accessed 3 February 2020).
7. Guthrie B. The challenge of multimorbidity for health services and researchers. *Eur J Gen Pract* 2019; 25(3): 164–175.
8. PACEinMM. Patient-centred innovations for persons with multimorbidity, <http://www.paceinmm.recherche.usherbrooke.ca/> (2014, accessed 3 February 2020).
9. CIHR. Community-based primary health care, <https://cihr-irsc.gc.ca/e/43626.html> (2017, accessed 3 February 2020).
10. Fortin M, Almirall J and Nicholson K. Development of a research tool to document self-reported chronic conditions in primary care. *J Comorbid* 2017; 7(1): 117–123.
11. Ramond-Roquin A, Stewart M, Ryan BL, et al. The ‘patient-centered coordination by a care team’ questionnaire achieves satisfactory validity and reliability. *J Interprof Care* 2019; 33(5): 558–569.
12. Stewart M, Fortin M and Patient-Centred Innovations for Persons with Multimorbidity Team. Patient-centred innovations for persons with multimorbidity: funded evaluation protocol. *CMAJ Open* 2017; 5(2): E365–E372.
13. AGING Initiative. MCC Scholars Program, <https://theaginginitiative.wordpress.com/> (2019, accessed 3 February 2020).
14. Garg T, Anzuoni K, Landyn V, et al. The AGING Initiative experience: a call for sustained support for team science networks. *Health Res Policy Syst* 2018; 16(1): 41–50.
15. Belloni G and Cesari M. Frailty and intrinsic capacity: two distinct but related constructs. *Front Med* 2019; 6(133): 1–5.
16. World Health Organization. World Report on Ageing and Health. Geneva: World Health Organization, 2015.
17. Kulski K, Peckham A, Gill A, et al. What is important to older people with multimorbidity and their caregivers? Identifying attributes of person centered care from the user perspective. *Inter J Integ Care* 2019; 19(3): 4–19.

18. Stirland LE, González-Saavedra L, Mullin DS, et al. Measuring multimorbidity beyond counting diseases: systematic review of community and population studies and guide to index choice. *Br Med J* 2020; 368: m160.
19. Smith SM, Wallace E, Salisbury C, et al. A core outcome set for research on multimorbidity (COSmm). *Ann Fam Med* 2018; 16(12): 132–138.
20. IRCMo. International Research Community on Multimorbidity, <http://crmcspl-blog.recherche.usherbrooke.ca/> (2020, accessed 3 February 2020).
21. Smith SM, Bayliss EA, Mercer SW, et al. How to design and evaluate interventions to improve outcomes for patients with multimorbidity. *J Comorbid* 2013; 3: 10–17.