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The growing burden of multimorbidity

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K Erny-Albrecht
E McIntyre

Over the past decade the Australian government has initiated a number of health care reforms to address the needs of those with chronic conditions such as diabetes, and heart disease. However, the success of chronic care management models has not been universal.[1,2,3] Failure to achieve care goals in some patients might be because many patients have multimorbidity.[2,4] The recently established Medicare Locals may be well placed to play a central role in providing improved care for those with chronic conditions, and in particular development of management plans that take account of multimorbidity.[4,5] In this *RESEARCH ROUNDup* we define some of the key findings central to future discussions of this issue in the Australian setting.

What is chronic disease multimorbidity?

The World Health Organization (WHO) defines chronic disease as diseases of long duration and generally slow progression.[6] In Australia estimates of chronic disease prevalence vary between 50-80% of the adult population.[7,8,9]

Before embarking on a discussion of chronic disease multimorbidity, it is also useful to clearly define this term since multimorbidity and comorbidity are often used interchangeably yet they represent different health states. Comorbidity is defined as an index (central) disease with one or more comorbid diseases or conditions affecting its course and treatment.[10] The most comprehensive attempt to define the term multimorbidity was recently published by the European General Practice Research Network: Any combination of chronic disease with at least one other disease (acute or chronic) or bio-psychosocial factor (associated or not) or somatic risk factor.[11] The most commonly used measure of multimorbidity is disease count, specifying whether a person has one or more of a pre-defined list of chronic conditions, but it should be noted that this does not take into account disease severity.[12]

What is the prevalence of multimorbidity in Australia?

The increasing prevalence of multimorbidity has been highlighted in a number of settings, with age and socioeconomic deprivation being identified as significant, contributing factors.[8,13-17] The prevalence of multimorbidity within Australia is significant and has been reported in a number of population and clinical studies.[5,7,8,17-19] In summarising these studies, the overall prevalence rates for multimorbidity (where eight or more chronic conditions were included) were approximately half of all adults aged between 45 and 65 years, two of every three adults aged 60 years or older, and approaching four of every five adults aged 75 years and older. The number of chronic conditions included is important because studies based on only 4-7 chronic conditions lead to an underestimation of multimorbidity prevalence.[15] A consistent finding among the Australian studies, irrespective of design, was that multimorbidity increases with age but is not restricted to the elderly. These findings are in line with studies in other countries, and signal a major disease burden that suggests a need to shift health service away from the current focus on single-diseases.[14,15]

Impact on patients and primary health care

Compared with single condition patients, those affected by multimorbidities are exposed to greater risk of mortality, hospitalisation, longer hospital stays, and reduced quality of life.[2,20] A recent Australian study of multimorbidity found the median monthly time spent on health related activity was 5-16 hours per month, and up to two to three hours per day for those with five or more chronic conditions.[21] A report based on 1990s data found that the health care costs for multiple morbidities is greater than the combined cost of the single conditions alone.[19] With respect to out-of-pocket expenses, a survey of older Australians found that individuals with five or more chronic conditions spend on average five to six times more than those with no chronic conditions.[5] In addition to this, a small study of private health insurance (PHI) among older Australians found that many individuals with multiple chronic conditions struggle financially to maintain PHI at the expense of their quality of life.[22]

Most models of primary care focus on single chronic conditions or on an index chronic condition, with treatment and care dependent on the central condition and adherence to evidence based medicine (EBM) guidelines. Unfortunately most EBM guidelines do not refer to patients with multimorbidity, and this problem has recently been highlighted in reports demonstrating the impossible care plans resulting from application of current guidelines to representative hypothetical patients.[23,24] The challenge in multimorbidity is attempting to respond to each of the conditions that differ with respect to aetiology, care guidelines and prescribed treatments, to improve outcomes whilst supporting patients to self-manage.[25] Attempts to identify clusters of chronic conditions in an Australian cohort found no evidence of clustering according to organ or body system, but did observe clinically meaningful clusters of multimorbid conditions.[26] Application of this and results from future surveys could provide clinicians with a set of priority multimorbid clusters as a starting point for improved care plans.

Moving forward

The focus of chronic care management has largely remained on single chronic conditions and according to the *Serious and Continuing Illness Policy and Practice Study* (SCIPPS) current models are failing to adequately support carers and leave participants with multiple morbidities confused and under financial strain.[4,27,28] Current chronic care management

approaches to EBM guidelines and care practices generally do not consider the related consequences for those with multimorbidity such as polypharmacy and care plans that impose considerable burden on an individual in terms of regimen complexity and reduced quality of life[20,24].

Recent examination of the English health system defined ten characteristics of high-performing chronic care systems, and as noted by Paolucci and McRae, the Australian system is 'nudging' in the direction suggested with the establishment of Medicare Locals addressing at least four of the ten criteria.[29,30] Boyd and Fortin identified many of the same issues as being necessary in future health system designs to provide appropriate care for those with multimorbidity.[20] Guthrie suggested ways in which guidelines could be improved to better address multimorbidity; cross-referencing of guidelines, guidance on treatments most likely to benefit and least likely to harm, and identification of patterns of multimorbidity.[23] Perhaps local needs might be best met by a model where Medicare Locals oversee the identification and provision of a range of needed health care services that are coordinated at the patient level by collaborative care partnerships between general practice GPs and their staff, together with specialist consultants to optimise care of patients with multimorbidities whilst ensuring that individual patient needs remain central. Different collaborative care models are being trialled and future approaches could be refined based on outcomes (HARP, TrueBlue, etc.), and whilst Medicare Locals are in their infancy they are moving closer to the goal of coordinating what has been described as a fragmented health system.[29,31,32]

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