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CLINICAL REVIEW

Managing patients with multimorbidity in primary care

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Multimorbidity, commonly defined as the presence of two or more chronic medical conditions in an individual,[1] is associated with decreased quality of life, functional decline, and increased healthcare utilisation, including emergency admissions, particularly with higher numbers of coexisting conditions.[2-6] The management of multimorbidity with drugs is often complex, resulting in polypharmacy with its attendant risks.[7-9] Patients with multimorbidity have a high treatment burden in terms of understanding and self managing the conditions, attending multiple appointments, and managing complex drug regimens.[10] Qualitative research highlights the "endless struggle" patients experience in trying to manage their conditions well.[11] Psychological distress is common: in an Australian survey of 7620 patients in primary care, 23% of those with one chronic condition reported depression compared with 40% of those with five or more conditions.[12]

Multimorbidity presents many challenges, which may at times seem overwhelming. This review provides evidence based practice points that are feasible to implement in general practice and offers guidance for general practitioners in organising care delivery.

How common is it?

Recent estimates suggest that one in six patients in the United Kingdom has more than one of the conditions outlined in the Quality and Outcomes Framework, and these patients account for approximately one third of all consultations in general practice.[13] A recent, large scale Scottish study reported that approximately 65% of those aged more than 65 years and almost 82% of those aged 85 years or more had two or more chronic conditions.[14] Although prevalence increases substantially with age, in absolute terms multimorbidity is more prevalent in those aged 65 years or less and is much more common in socioeconomically deprived areas.[14] A recent systematic review included 11 studies relating to patterns of multimorbidity. The most common pair of conditions across studies was osteoarthritis and a cardiometabolic condition, such as hypertension, diabetes, obesity, or ischaemic heart disease.[15] This review also attempted to identify meaningful groups of conditions. In four studies that used factor analysis to identify common factors across combinations of conditions, three were consistent across studies; a cardiometabolic condition factor, a mental health condition factor (most commonly depression or anxiety), and a painful condition factor.[15]

What is the impact of multimorbidity?

Box 1 summarises some commonly encountered problems for patients with multimorbidity. In a recent systematic review, general practitioners identified four areas where they experience difficulties in caring for patients with multimorbidity: disorganisation and fragmentation of care, inadequacy of current disease specific guidelines, challenges in delivering patient centred care, and barriers to shared decision making (box 2).[16] General practitioners also highlighted the sense of professional isolation they experience in managing these patients.

What are the challenges of chronic disease management in multimorbidity?

Inadequacy of single disease clinical guidelines

Managing several chronic conditions with the current single disease focus of clinical guidelines and research is a challenge general practitioners face daily. Guidelines rarely deal with comorbidity, in part because they are designed to be based on evidence from randomised controlled trials and because trials routinely exclude older people and people with multiple chronic conditions.[23-25] This leads to a situation where every individual recommendation made by a guideline may be rational and evidence based, but the sum of all recommendations in an individual is not. Consider the application of five UK clinical guidelines for a hypothetical 78 year old woman with previous myocardial infarction, type 2 diabetes, osteoarthritis, chronic obstructive pulmonary disease, and depression.[26] She would be prescribed a minimum of 11 drugs, with potentially up to 10 others recommended depending on symptoms and progression of disease, and she would be advised to engage in at least nine

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The bottom line

Multimorbidity is commonly defined as the presence of two or more chronic medical conditions in an individual and it can present several challenges in care particularly with higher numbers of coexisting conditions and related polypharmacy

Practices should actively identify patients with complex multimorbidity and adopt a policy of continuity of care for these patients by assigning them a named doctor

The adoption of a policy for routine extended consultations should be considered for particularly complex patients or the introduction of occasional "specific extended consultations." allowing protected time to deal with problems encountered in the management of chronic diseases

Sources and selection criteria

We based this article on the authors' experience and information from published literature. We carried out searches of PubMed and the Cochrane library using the search terms "co-morbidity" *or* "comorbidity" *or* "multimorbid" *or* "multimorbidity" *or* "multi-morbidity". No MeSH term exists for multimorbidity. The searches were supplemented by a review of authors' personal archives as well as relevant articles from the International Research Community on Multimorbidity archive at the University of Sherbrooke, Quebec, Canada (http://crmcspl-blog.recherche.usherbrooke.ca/?page_id=248).

Box 1: Problems commonly experienced by patients with multimorbidity

Fragmentation and poor coordination of care

Results from seeing multiple health professionals in primary and secondary care.[16 17]

Polypharmacy

Attendant risk of adverse drug events, potentially inappropriate prescribing, and problems with drug concordance[7 18]

Treatment burden

Results from the necessity of learning about and adhering to management plans and lifestyle changes suggested for different conditions and engaging with multiple healthcare professionals[19]

Mental health difficulties

Anxiety and depression are more common in patients with multimorbidity and can impact on patients' ability to manage other long term conditions[2 12]

Patients living in deprived areas are particularly vulnerable to multimorbidity that includes mental health conditions [20]

Those with cognitive impairment are also particularly vulnerable and may have added difficulties in managing their conditions[21]

Functional difficulties

Functional difficulties increase with increasing number of conditions and in people aged more than 75 years[5 6]

Reduced quality of life

Associated with the number of chronic medical conditions[6]

Increased healthcare utilisation

Includes an increased risk of emergency admission to hospital[4 22]

Box 2: Practice points for dealing with challenges in caring for patients with multimorbidity

Disorganisation and fragmentation of care

Identify patients as having complex multimorbidity and adopt a practice policy of continuity of care by assigning them a named doctor

Chronic disease management

Some evidence supports focusing on functional optimisation of patients with multimorbidity and on shared risk factors for several conditions, such as blood pressure and smoking cessation

In the absence of meaningful clinical guidelines, clinical judgment is especially important in the decision making process

Medicines management

Plan regular reviews (at least annually) of drugs (explicit prescribing tools for potentially inappropriate prescribing may be useful in reviewing polypharmacy)

Promoting patient centred care

Shared decision making—asking patients at the outset of a consultation "What is bothering you most?" or "What would you like to focus on today?" can help prioritise management to those aspects of care that will have the most impact on patients

Self management of multimorbidity—research to date is mixed about the benefit of self management, but it may be an option for patients expressing an interest in group based support

Short consultation times

Consider adopting a practice policy of routine extended consultations for particularly complex patients or introducing occasional "specific extended consultations," allowing protected time to deal with problems encountered in the management of chronic diseases

Ensure practice systems are in place to maximise the value of the general practice consultation for both patient and doctor in reaching management decisions—for example, by seeing the practice nurse ahead of an appointment with the doctor

Arrange multidisciplinary team involvement, where appropriate

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lifestyle modifications. In addition to any unplanned appointments, she would be expected to annually attend 8-10 routine primary care appointments for her physical conditions and 8-30 psychosocial intervention appointments for depression and advised to attend multiple appointments for smoking cessation support and pulmonary rehabilitation.[26]

One potential solution is for future developers of guidelines to consider addressing more common clusters of chronic conditions.[27] Although this is an important step, guidelines to cover all combinations of conditions are unlikely and so the value of clinical judgment should be recognised and supported.[28] At times clinical judgment may mean an acceptance that in certain circumstances pursuing stringent disease specific targets is unlikely to be beneficial and may in fact be harmful. Alternatively it may mean prioritising the treatment of depression, which has been shown to impact the ability of patients to manage their other chronic conditions.[29] Policy makers who base performance related payments on disease specific targets need to be aware that such trade-offs based on clinical judgment may represent better patient centred care. Other performance measures that truly capture quality of care for this patient group should be considered.

Targeting function not disease

The Cochrane systematic review of community based interventions to improve outcomes for patients with multimorbidity identified only 10 randomised controlled trials.[30] Of these, six involved changes to the organisation of care delivery, usually through case management, and the remaining four interventions were predominantly patient oriented, including support for self management. Although results were mixed, interventions directed towards particular risk factors shared across comorbid conditions or generic functional difficulties experienced by patients seem promising. One randomised controlled trial delivered by occupational therapists and physiotherapists targeted functional difficulties of 319 patients aged 70 years or older with multimorbidity and improved health outcomes including a statistically significant reduction in mortality two years post-intervention. This highlights the potential importance of a multidisciplinary approach in management and a focus on generic outcomes relevant across conditions.[31]

Medicines management

A recent study of 180 815 adults in primary care reported that approximately 20% of patients with two conditions were prescribed four to nine drugs and 1% were prescribed 10 or more drugs.[32] For patients with at least six conditions, these values increased to 48% and 42%, respectively. Polypharmacy is associated with drug related morbidity such as adverse drug events, potentially inappropriate prescribing, and reduced drug adherence.[8] The prevalence of polypharmacy is increasing, owing largely to changes in population demographics and increasing multimorbidity.

A major difficulty for general practitioners is that many prescriptions are initiated by specialists but repeat prescribing occurs in primary care.[8] Without clear communication it can be difficult to judge the rationale of drug treatment. Optimising drug regimens is an important component of care, and to achieve this regular drug reviews are required for patients with multimorbidity.[8] The evidence for pharmacist led drug reviews for complex polypharmacy in the community is mixed.[33-35] Close collaboration between pharmacists and doctors seems the most sensible approach for this patient group.

Drug reviews should encompass "deprescribing," which involves stopping drugs that are not indicated, have inadequate prognostic benefit, or are causing side effects.[36] Explicit prescribing criteria, such as the Screening Tool of Older Persons' potentially inappropriate Prescriptions (STOPP) and the Screening Tool to Alert doctors to Right Treatment (START), can be useful in maximising the effectiveness of drugs.[37] STOPP consists of 65 indicators of potentially inappropriate prescribing in older populations (aged ≥65 years), which have been validated in both hospital and community settings and have been found to be associated with adverse drug events.[38 39] START comprises 22 evidence based prescriptions for long term conditions relevant to older people.[40] For younger patients, the Prescribing Optimally in Middle Aged People's Treatments (PROMPT) prescribing criteria have recently been developed. Although yet to be validated, these criteria are important steps in recognising and dealing with treatment burden in those aged less than 65 years.[41]

How can organisation and continuity of care be improved?

Patients with complex multimorbidity often see many different healthcare providers working across multiple sites. Communication between providers is frequently suboptimal, which can impact negatively on patient outcomes.[16] Changes in the delivery of general practice service have reduced the provision of continuity of care.[42 43] Patients value continuity, with over 80% of older patients (aged ≥75 years) in a recent UK survey reporting a preference for seeing a particular doctor in their general practice.[44] Continuity of care is also associated with improved outcomes, such as the delivery of preventive care and reduced preventable admissions.[45 46] In a recent US study, higher levels of continuity were associated with lower rates of hospital and emergency department visits, lower complication rates, and less healthcare expenditure.[47] General practitioners are uniquely positioned to provide the necessary relational, informational, and managerial continuity of care, and the importance of this function should not be underestimated.[28 48] A great strength of primary care is the access it affords patients, and regular planned reviews may be helpful in "ordering the chaos" for this group.[49] Another key aspect for general practitioners is rationalising specialist referrals and considering the components of secondary care that will have most impact on patients' wellbeing.

Clinicians are encouraged to identify patients as having complex multimorbidity and adopt a practice policy of continuity of care for these patients by assigning them a named doctor. Identification is not straightforward: the most common research definition of multimorbidity (the presence of ≥2 conditions) will identify large numbers of patients, many of whom will not have particularly complex needs. Evidence is lacking to guide practice in this area, but groups with multimorbidity and demonstrably higher care needs include patients with "complex" multimorbidity, defined as three or more chronic conditions affecting three or more body systems[50]; patients with comorbid physical conditions and depression[51]; patients prescribed 10 drugs or more[8 52]; and patients who are housebound or resident in nursing homes. Practices could also consider running specific multimorbidity clinics that address common clusters of conditions, as there is evidence that targeting risk factors common to comorbid conditions such as diabetes, heart disease, and depression is effective,[30] and this would also reduce treatment burden for patients as they would need less frequent visits.[19] Currently it may not be easy for practices to identify

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such patients and this is a priority for general practice software systems.

What measures can be used to promote patient centred care?

Shared decision making

Shared decision making has been defined as "an approach where clinicians and patients share the best available evidence when faced with the task of making decisions, and where patients are supported to consider options, to achieve informed preferences."[53] Research shows that shared decision making improves patients' knowledge about their condition and treatment options, increases patient satisfaction with care, and improves patient self confidence and self care skills.[54] In the context of multimorbidity it is first important to elicit what matters most to the patient. Asking this at the outset of the consultation allows the rest of the consultation to be utilised most effectively.

A recent model has been proposed to support clinicians in implementing shared clinical decision making in clinical practice.[55] This concerns three key steps: firstly, "choice talk," which refers to the step of making sure that patients know that reasonable options are available, "option talk," which refers to providing more detailed information about options, and "decision talk," which relates to supporting the work of considering preferences and deciding what is best. A range of online shared decision making tools is also available to support this process.[56]

Another tool named the "Adriadne principles" has recently been developed to support decision making specifically during general practice consultations involving multimorbidity.[57] This model places the setting of realistic treatment goals at the centre of the multimorbidity consultation and this is achieved by a thorough interaction assessment of the patient's conditions, treatments, consultation, and context; the prioritisation of health problems that take into account the patient's preferences; and individualised management to determine the best options of care to achieve these goals.

In practice, asking a patient at the outset of a consultation "What is bothering you most?" or "What would you like to focus on today?" can help prioritise the management of aspects of care that will have the most impact for patients. Once patient priorities are identified, using available shared decision making tools may help support the process.

Self management in patients with multimorbidity

Some evidence supports lay led self management education programmes for single chronic diseases in improving certain outcomes, such as self efficacy and self rated health.[58] The evidence for such an approach with multimorbidity is, however, mixed.[30] Patient preference should guide the utilisation of lay led self management groups.

The evaluation of the UK expert patient programme showed improved self efficacy and energy levels at six month follow-up but no reduction in healthcare utilisation.[59] In a recent randomised controlled trial in the United Kingdom general practice staff were trained about available resources, including an assessment tool for the support needs of patients, guidebooks on self management, and a web based directory of local resources. At 12 month follow-up there were no reported improvements in shared decision making, self efficacy, or generic health related quality of life.[60]

What can be achieved in a 10 minute consultation?

Internationally, general practitioners have highlighted lack of time as a barrier to providing care for patients with multimorbidity.[61 62] Some evidence suggests that longer consultations result in more preventive health advice, less prescribing, and increased patient satisfaction rates.[63] However this review was limited by the inclusion of only five older studies with short term follow-up. In deprived areas, increased consultation times have been shown to increase patient enablement and reduce general practitioners' stress.[64]

With demand for general practitioner services increasing, it is difficult to schedule extra consultation time for patients with multimorbidity. Practices may decide to flag certain patients with complex needs to allocate longer routine consultation times, or arrange "specific extended consultations" to allow protected time on occasion to review chronic disease management and drugs. Having robust practice systems in place to ensure appropriate monitoring with the practice nurse before the appointment with a general practitioner would facilitate the most efficient and effective use of both patients' and doctors' time. Practice nurses or other multidisciplinary team members can contribute in specific ways, including undertaking target assessment of chronic disease and psychological or functional capacity assessments that can support doctor and patient shared decision making. Multidisciplinary input is an essential component of care for these patients, and referrals to relevant disciplines should be arranged when indicated and available.

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Questions for future research

What is the role of complex interventions to improve function in multimorbidity?

The UK National Institute for Health Research is examining a complex intervention for multimorbidity patients in general practice (http://public.ukcrn.org.uk/search/StudyDetail.aspx?StudyID=16067). The intervention is a coordinated three dimensional review of multimorbidity and includes the assessment of quality of life, patients' priorities and disease measures, the identification and treatment of depression, and measures relating to simplification of drug regimens and adherence

What is the role of integrated chronic disease prevention and management in patients with multimorbidity?

In Canada, the Patient-Centred Innovations for Persons with Multimorbidity (PACE) team is developing and testing interventions of integrated chronic disease prevention and management for patients with multimorbidity in primary care (http://crmcspl-blog.recherche.usherbrooke.ca/?p=716)

Will extended general practice consultation times improve outcomes for people with multimorbidity?

The ongoing Scottish CARE PLUS randomised controlled trial, which is examining a general practice system-wide approach, including extended general practitioner consultation time, to improve outcomes for people with multimorbidity living in deprived areas will add to the limited evidence base in this area

Additional educational resources

Resources for healthcare professionals

Medicines optimisation: helping patients to make the most of medicines. Good practice guidance for healthcare professionals in England (www.rpharms.com/promoting-pharmacy-pdfs/helping-patients-make-the-most-of-their-medicines.pdf)—This guide, developed as a collaboration between patients and practitioners, describes four principles of medicines optimisation

American Geriatrics Society Expert Panel on the Care of Older Adults with Multimorbidity. Guiding principles for the care of older adults with multimorbidity: an approach for clinicians. *J Am Geriatr Soc* 2012;60:E1-25 (www.guideline.gov/content.aspx?id=39322)—This guide summarises the evidence for clinicians in managing older patients with multimorbidity across five domains; patient preferences, interpreting the evidence, prognosis, clinical feasibility, and optimising therapies and care plans

Resources for patients

US Department of Health & Human Services. Agency for Healthcare Research and Quality. Questions to ask your doctor (www.ahrq.gov/patients-consumers/patient-involvement/ask-your-doctor/index.html)—Tips for patients to get the most out of their doctor appointments

Ottawa Health Research Institute. Ottawa personal decision guide (http://decisionaid.ohri.ca/decguide.html)—A resource to support patients in making decisions about their health

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