Discussion on Multimorbidity:The Concept and its Measure

Introduction, by Martin Fortin, 2007-01-15

Dear IRCMo Member,

The concept of multimorbidity is emerging as the prevalence of chronic illnesses increases. However, this concept is ill defined and there is no general agreement about its meaning and implications. This discussion aims at filling this gap. What would be an accurate and consensual definition of multimorbidity and how can we measure all the dimensions included in this definition? The question behind this is: How can we identify patients for which new models of care should be proposed and applied?

I invite you to read the attached document and let's start the discussion on the Concept of Multimorbidity and its Measure.

Martin Fortin MD MSc CMFC
Discussion Moderator, IRCMo's Concept of Multimorbidity and its Measure

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Re : Introduction, by Catherine Hudon, 2007-01-31

Hi everybody,

Defining the Concept of Multimorbidity and its Measure is a good challenge but a need for primary care research. As stated in the introduction, defining the concept is a preliminary step before building a comprehensive measuring tool.

To start the discussion, I think that a good definition should include a notion of severity. And even if we have to go further with the definition before to elaborate a measuring tool, this tool should be self-administered.

Here are my first spontaneous reactions about this very interesting topic...

Catherine

Re : Introduction, by Elizabeth Bayliss, 2007-02-05

Hello,

I would suggest that although it may be relatively simple to 'define' multimorbidity (which by one of its simplest definitions is simply the

presence of 2 or more chronic conditions), it is much more complicated to measure it.

The choice of measurement will depend on the context. For example, the degree of morbidity that is important to individuals with diseases may be very different from the degree of morbidity that is important to the hospitals that care for them. Part of measuring morbidity may be developing guidelines for which type of measures to use when.

Elizabeth A. Bayliss, MD MSPH

Clinician Researcher, Kaiser Permanente Clinical Research Unit

Assistant Professor, UCHSC, Denver, CO

Re : Introduction, by Marjan van den Akker, 2007-03-02

Hello,

One of the major challenges in this area is to develop a tool that is valid and useful as well as feasible and applicable. The increasing availability of routinely collected health data (in primary care) should be taken into account in this process and should be exploited. If performed properly, this will be helpful in gaining insight in the basic figures regarding multimorbidity.

I fully agree with Elizabeth that it is useful to consider the development of different measures, of course keeping in mind different objectives and concepts (and definitions).

Marjan van den Akker, PhD

Coordinator Registration Network Family Practices
Maastricht University, Dept of General Practice
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The Netherlands

The challenge of the definition, by Martin Fortin, 2007-03-02

Dear all,

I think that the real challenge is the definition. I agree that the definition may vary according to the context but we must rely on strong definitions for every context we may imagine. Hypertension for example is diagnosed on the basis of a certain level of blood pressure and this level is different

for people with no other health problem compared with people with diabetes. But at least we have criteria!

For multimorbidity, if we rely on the definition most agreed in the litterature that is "two or more chronic conditions", then the majority of patients in primary care may qualify for multimorbidity and the measure is really simple: just count the number of chronic diseases. But it doesn't make sense! If everybody fits with the definition then we don't need a definition!

We have had the chance to discuss that isssue in the first focus group of a research we are doing here in Saguenay. Family doctors, when asked to think about patients with multimorbidity, have in mind patients that are pretty much complicated and do not fit with the definition of two or more chronic conditions. The challenge begins right here.

The patients they have in mind: are older (although the limit of 65 or more is a debate and many patients are younger than this), have several problems, may have psychosocial factors interferrring, may have psychiatric conditions, have severe conditions. The question is: where do we draw the line between chronic conditions and multimorbidity? The answer will set the table for the measure of multimorbidity.

In our previous study (**Fortin M**, Bravo G, Hudon C, Vanasse A, Lapointe L. Prevalence of multimorbidity among adults seen in family practice. Ann Fam Med. 2005;3:223-8.) we have shown that multimorbitiy is the rule rather than the exception in primary care. Our measure of multimorbidity was based on the current definition that is two or more chronic conditions and we defined the conditions according to the definition of the World Health Organization instead of a limited list of conditions. We ended up with a majority of patients suffering from multimorbidity in primary care. But that doesn't fit with family doctors' evaluation of how many patients with multimorbidity they do have in their pratices. For family doctors we have interviewed so far, multimorbidity is associated with problems. Patients with two, three or even four medical conditions may not always be considered problematic. If we ask them to think about patients with multimorbidity, they have in mind patients that have a lot of medical conditions along with other factors making the situation more complicated. Although those patients represent a large part of their practices, they are not as frequent as we have measured in our study. So we have to adapt our concept to what family doctors have in mind. The definition of the concept of multimorbidity must represent the concept family doctors (or primary care workers) have in mind and the measure should be adapted accordingly.

So the question is: What family doctors have in mind when they think about patients with multimorbidity and what measure should we propose according to this definition? What do you think?

Martin

Re: The challenge of the definition, by Hassan Soubhi, 2007-03-04

From a population research and self-management standpoints, patients' perception of what it means to have multiple diseases may also be very important. The definition and the measure that would be derived from patients' perceptions may be different from that of physicians.

Hassan.

Multimorbidity definition, by Catherine Hudon, 2007-03-05

Hello all,

I agree that precising the definition is a preliminary step before to go further with the measurement. I agree also that experts' opinion is probably a good starting point in order to elaborate a definition. Who are the experts on multimorbidity? Family physicians and nurses who take care of this clientele, probably other primary care professionals, persons with multimorbidity, members of their family?, researchers interested in the problematic,... other persons to add?

Each of these experts could help to precise a relevant definition of multimorbidity...It would be interesting to imagine interviews and/or focus groups to identify attributes, followed by a Delphi involving all of these experts to select and precise attributes.

Catherine

Re: The challenge of the definition, by Antoine Boivin, 2007-03-06

Hello everybody, I am quite new to the field but would tend to agree with Dr Fortin that defining multimorbidity is not as simple as it appears and should be a prime focus for this group. I think that the apparent agreement on what constitutes multimorbidity might diseapear as we make our intuitions more explicit. It certainly sounds from the introduction document that very different definitions are proposed. It doesn't appear that we can start talking about the validity of a measure instrument if we are not clear on what we are trying to measure. A parallel with a concept like "socio-economic status" could be relevant to the discussion. This is a concept that is understood very differently by various researchers. In the UK, socio-economic status is understood in terms of occupational class (manual worker, etc) while in the USA, it is more defined in terms of income and/or ethnicity. These conceptual differences have important implications when we try to explain the

associations that are found afterwards between socio-economic status and health outcome (ex. is the higher rate of CHD disease in low socio-economic status group explained by differences in income or by the effect of social stratification, life-course events, group norms, "culture", etc?) [1]. The social epidemiology field has suffered from this lack of clarity in defining its terms and we could avoid this. I think that the search for a definition of multimorbidity is very closely linked to the hypothesis that we want to test. Why are we interested in multimorbidity? What is the "problem" with multimorbidity? Whose problem is it (physicians, health care managers, patients, families)? Are we interested in the impact on patients' prognosis or perceived quality of life? On the interaction that it could have on clinical management, such as drug interactions? On the burden that it poses on the health care system that a simple count of individual disease cannot capture? I think that those questions should be answered first. If there is a high degree of concensus with regards to the purpose of measuring multimorbidity, the definition exercise might just be one of adopting standards (what disease to include; how to rank severity, etc). However, it might well appear that some sub-groups of researchers in this community are coming from very different theoretical background/perspectives which could make the search for a common definition impossible. For example, testing hypothesis regarding the impact of multimorbidity on patient quality of life might require a more subjective definition of the concept. If our prime interest however lies on the impact of comorbidity on the health care system, we might be looking at a definition that is closer to the one given by family physicians in the focus groups done in Saguenay. Although this could be an useful goal, I don't think that the outcome of this exercise should be to come up with a "universal" conceptual definition of multimorbidity. Spelling out different understanding of the concept and why those differences are important to explicit might be as useful. Looking forward to reading your answers, Antoine Boivin, MD MSc candidate, Health services research London School of Hygiene and Tropical Medicine, UK.

[1] Bartley, M., Measuring Socio-Econoic Position, in Health Inequality: an introduction to theories, concepts and methods. 2003, Polity Press: Cambridge

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Re: The challenge of the definition, by Hassan Soubhi, 2007-03-10

It seems to me that the challenge of the definition of multimorbidity reflects the challenge(s) that health care professionals, patients, and family members do have with "having multiple morbidities". I believe that focusing on the kind of challenges that multiple morbidities poses to all care participants (including the patient and family members) may be a useful avenue for an operational definition of multimorbidity.

Focusing on the challenges brings out the idea of complexity in all the usual steps of care management, i.e. competing demands of the illnesses, and multiple alternative hypotheses for diagnosis and treatment. This is a kind of complexity for which there may not be any clear cut solutions, no one-size-fit-all approach, but rather the need to develop flexible strategies, and individualized (sometimes tentative) solutions with continual monitoring and follow-up.

I believe that we may find something useful in considering complexity as a generic defining attribute for multimorbidity. Complexity theory may then be helpful. If we consider only the clinicians' perspective, there must be some identifiable generic dimensions and criteria for assessing the complexity that multimorbidity poses to clinical assessment, treatment, and follow-up. We cannot for example judge the effectiveness of a multifaceted treatment plan for a patient who is a widow, has diabetes, arthritis, cataract, and depression, with the same standardized criteria we would judge a treatment plan focused on controlling diabetes alone. The changes required in the usual standardized clinical assessments may be an indicator of complexity in multimorbidity.

Multimorbidity means different things to different groups, by Elizabeth Bayliss, 2007-05-14

I agree with Dr. Boivin that multimorbidity will mean different things to different audiences. This implies that we will need to measure it differently depending on our outcomes of interest: for example quality of life outcomes will necessarily include some subjective input. There is an intersting article by C Murray and L Chen in Ppopulation and Developement Review vol 18, number 3, September 1992. That talks about measuring morbidity in different contexts.

Could we propose a new definition for multimorbidity?, by Martin Fortin, 2007-06-06

Standard definition of multimorbidity: Two chronic conditions or more.

A little task to foster the discussion...

Updated definition: please read the attached document and vote on what dimension should be included into an updated definition of multimorbidity.

Please fo the folder titled "Cases of multimorbidity" to see two examples of multimorbidity. Are the two of them real cases of multimorbidity in your opinion?

Please share your thoughts with the group.

Martin

Re: Could we propose a new definition for multimorbidity?, by Elizabeth Bayliss, 2007-06-07

This is a great question that is going to take some collaborative thought. I'll start by answering a question with a question:

Is multimorbidity the same as 'complexity'? Or put another way, what makes a patient 'complex'? (Or complicated to care for?) In my opinion, patients can be complex for reasons other than the total number and severity of their medical conditions. So is multimorbidity some measure of the number and severity of their medical and psychiatric conditions; and complexity that plus other factors such as social issues and certain demographic factors?

Liz

Re: Could we propose a new definition for multimorbidity?, by Bruce Guthrie, 2007-06-11

Posted for Bruce by Martin:

I wasn't able to access the attachment to the first e-mail, so forgive me if this is repetitive. I saw this presentation describing a 'total illness burden' measure at Academy Health last week and thought it might be interesting. http://www.academyhealth.org/2007/tuesday/asia2/greenfield.pdf
Starting with measures and working backwards to definitions is obviously the wrong way round, but I thought this was interesting because it helped me identify some dimensions that you might need to consider when trying to create a definition. Its purpose is to predict death in the medium term in research projects (which it appears to do). It measures symptoms (rather than diseases or diagnoses), and specifically severity of symptoms (rather than just presence/absence).
As others have already said, any definition needs to be clear about the purpose of the definition/concept, the context it is to be used in, and its possible dimensions.
1. What's the purpose? Does this vary by context?
• Research eg predicting future poor outcomes; eg for identifying disparities/inequalities between different social groups
• Policy and practice eg identifying patients for different types of care (eg

case management for those at high risk of poor outcomes); eg casemix adjustment in public reporting of provider quality of care, or pay for performance.
• Feasibility is much more of an issue in routine practice than in research. An attraction of diagnosis based measures is that they are much easier to apply to existing routine data.
• Purpose may vary by context. For example, in hospital predicting short term risk of death may be the main aim (which might be adequately done just using diagnoses and maybe professionally defined severity). In primary care, patient defined problems, severity and wider complexity might be as/more important if the aim is to predict service use, or future quality of life.
• But does that mean one definition, with multiple measures for different purposes and contexts? Or should there be different definitions for different contexts? So what is this definition for?
2. Which dimensions might be important?
• Presence of diagnoses/diseases. This implies professional definition of what to include. The focus is often on chronic diseases, but for some acute hospital episodes, acute diseases might be as important.
• Presence of problems. This implies patient definition and patient completion of any measure. Same chronic vs acute issues.
• Severity of diagnoses and/or problems. Could be professionally or patient judged or both.
• Presence and 'severity' of complexity beyond specific diagnoses and problems. This might include an individual's access to resources more generally (socio-economic status, family or community support, etc). Certainly, this is what drives a lot of complexity in patients I see in primary care, although I'm particularly focused on service use when I say that (who comes to see me a lot, who makes me feel useless etc – not the same as who is most likely to die in the near future).
• Bound to be other dimensions – any suggestions?
Bruce

Re: Multimorbidity definition, by Sarah Andreae-Jones, 2007-10-16

Hi,

in response to Catherine's questions about experts, I feel we should include pain specialists (pain medicine being a cross-discipline specialty) and psychiatrists (especially old age psychiatry). Also are we going to consider iatrogenic aspects of multimorbidity (which should in theory be preventable).

Regards,

Sarah

Re: Multimorbidity definition, by Martin Fortin, 2007-10-17

Interesting point the iatrogenic thing... primo non nocere... or something like that (my Latin being not very good!). Thank you for reminding us our role in the complexity of the patients.

I also take account of your considering psychiatrist and pain specialist, both cross disciplines, into the specialist of multimorbidity.

Martin

Re: multimorbidity means different things to different groups, by Barry Saver, 2007-10-17

Thanks - the article by by Murray and Chen is quite interesting. I think it is probably impossible to come up with a context-free definition of multimorbidity (as exemplified by Murray and Chen's comments on different reported rates of morbidity in different countries and parts thereof, and variation according to SES). There are a number of comorbidity measures out there already, split among self-report measures and diagnosis-driven measures. They have independent predictive ability for major outcomes such as mortality. Combining these approaches, such as in the approach taken by Greenfield and colleagues (referred to elsewhere on this site, with a link to his AcademyHealth presentation slides) will increase predictive ability of a single measure for an outcome. But the same factors will predict different outcomes differently - e.g., some comorbidity measures have been derived to predict mortality, others cost. Almost nobody looks at interaction terms between different morbidities (e.g., for a specific outcome, is the effect of having, say, diabetes, hypertension, rheumatoid arthritis, and breast cancer together different from what one would expect based on adding [or multiplying, depending on the model] the predicted effects of the individual conditions?) - because there are an infinite number of potential interactions, data and computational resources are limited, etc. In addition, we tend to change the definition of medical conditions over time - e.g., we redefined diabetes to include lower fasting blood glucose levels.

Another issue relates to level of control and its effects. Hypertension with average BP 200/120 is pretty different from 141/91. And the meanings of these at ages 30 and 60 are quite different. Furthermore, controlled hypertension from the different baseline BP levels also means different things - controlling BP does not reduce all risks to "normal," so the controlled hypertensive patient who started at 200/120 is still at higher risk than the one who started at 141/91.

Choice of outcome(s) will have to affect choice of measure(s). A key question is who chooses the outcome(s). Does/should patient preference/autonomy take precedence over paternalistic goals (e.g., get your HbA1c under 7% so I can get a P4P bonus)? The patient preference literature is quite clear - there is no "best" method to determine patient preferences for future health states and different methods can yield different results. And humans have many well-known flaws in reasoning, such as discounting long-term benefits in favor of short-term benefits (put down that cheesecake!). But much of what we do in primary care is treatment of asymptomatic conditions for potential long-term benefit. Patient preference-driven decisionmaking might lead to less control of hypertension in healthy, young persons, looser blood sugar control, much less use of statins for primary prevention, etc., in a rational, informed fashion. This could also lead to unhappiness/morbidity/expense down the line (and preferences change when the future becomes the present). Where do social factors that impinge on health and health care enter? E.g., homeless people often must focus mostly on short-term survival and less on long-term health issues. Since we can't prescribe stable housing and food, is trying to get these patients to adopt long-term prevention strategies helpful? Patients may be unwilling or unable to engage with them, or they may do so and divert attention from their more immediate needs because we have scared them so much (I have had homeless diabetic patients, on oral agents, who have been convinced of the importance of checking fingerstick blood glucose levels daily, despite the lack of good evidence for this practice).

So I think we will have to work backwards from goals and rationale to define what population we are considering, how we choose the key outcomes, and then figure out the most appropriate way to define and measure multimorbidity for that situation. Or choose to agree upon an existing measure or group of measures, ideally combining diagnoses and self-report, and acknowledge and understand the inherent limitations of that approach.

I'm hoping the forum will have a good summary of the discussion on Sat. at NAPCRG; it turns out I'm not arriving till Sun. so I will miss it.

Barry Saver

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