Multimorbidity / comorbidity
A challenge for primary care

Martin Fortin, MD, MSc, CFPC(F)
Chaire de recherche appliquée des IRSC sur les services et politiques de santé en maladies chroniques en soins de première ligne /
IRSC, ISPS, FCRSS, CSSSC

November 2010
Acknowledgements and conflicts of interest
Chicoutimi (Saguenay)
Overview

• Comorbidity/multimorbidity

• Why is it so important to address multimorbidity?

• Evidence-based medicine and multimorbidity

• New models of care
Comorbidity \ multimorbidity

What’s in a name...
Introduction

• Ms Tremblay
  • 55 years old
  • Divorced
  • Mother of three
  • Living downtown
  • Unemployed
  • Unhappy with her situation
Introducing Ms Tremblay
Ms Tremblay

✓ Hypertension
✓ Type 2 diabetes with nephropathy
✓ Obesity
✓ Colon cancer, recent surgery complicated by profound venous thrombosis
✓ Asthma
✓ Osteoarthritis
✓ Depression (under medication)
Clinical observations

• Ms Tremblay
  • Huge challenge
  • Frustration
  • Complex intervention
  • Time consuming
  • ...

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Two ways of looking at Ms Tremblay
Comorbidity

- Disease-oriented concept
- Single-disease paradigm
Multimorbidity

• Patient-oriented concept
• Holistic paradigm
• Lack of a consensual definition
Health-disease continuum

- Health
- Preclinical Stage
- Clinically-assessed chronic disease
- Established chronic disease
- Chronic disease with complications
- Chronic disease – palliative stage
Patient with multimorbidity
Mr Tremblay

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Are Ms and Mr Tremblay exceptions?
Prevalence of Multimorbidity Among Adults Seen in Family Practice

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INTRODUCTION
To measure the prevalence of multimorbidity among patients attending family doctor clinics in the Saguenay region.

DESIGN/METHODS
980 consecutive patients.
Waiting room of 21 family doctors.
Saguenay region (Québec).
Medical records reviewed.
World Health Organization’s (WHO) definition of chronic conditions, i.e. “health problems which require ongoing management over a period of years or decades.”

Severity score assigned (Cumulative Illness Rating Scale).

9 patients out of 10 with 2 chronic diseases or more
Multimorbidity prevalence in primary care and general practice

Unpublished
OBJECTIVE
• To compare prevalence estimates of multimorbidity derived from two sources.
• To examine the impact of the number of diagnoses considered in the measurement of multimorbidity.

RESULTS
• Age-standardized prevalence 3 times higher in waiting room population.

DESIGN/METHODS
• Prevalence of multimorbidity based on the co-occurrence of ≥2 and ≥3 diseases.
• 7 diseases considered (arthritis, cancer, diabetes, HPB, cardiovascular disease, COPD, mental health problem).
• Waiting rooms of family practices vs. general population.
Variations in prevalence studies

- **Sampling** (waiting room, whole practice, population)
- Open list of chronic conditions vs limited list of most frequent conditions
- **Sources of data** (chart / paper, EMR, administrative data, questionnaires)
- **Multimorbidity definition** ($\geq$ two, $\geq$ three, specific index score)
- **Confounding factor** (age)
Multimorbidity measures

- Simple count of chronic diseases
- Cumulative Illness Rating Scale (CIRS)
- Disease Burden Morbidity Assessment (DBMA)
- Charlson Index
- Kaplan Feinstein Scale
- Index of Coexistent Diseases (ICD)
- Total Illness Burden Index (TIBI)
- Functional Comorbidity Index (FCI)
What is needed ...

• Solid conceptual development
• Measure that is meaningful, easy to score using different methods, applicable in a clinical and research context, adapted for EMR
• Measure that reflects burden at different levels: patient, provider and practice, allowing for multiple comparisons and to inform resource allocation
Multimorbidity Assessment Tool

- Accounts for all conditions
- Includes weighing for severity
- Gives more importance to conditions known to affect quality of life
- Refinement and simplification of an existing validated tool
Multimorbidity Assessment Tool

Multimorbidity = three or more domains

Cardiovasc (cvd, stroke, others)
Endo (diabetes)
Resp
UGI-LGI
Renal-GU
Musc-sk
Neuro (central or poly)
Psy and social
Cancer (major)
Other*
Multiple disease risk-factors*

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What is needed now in clinics

• Commitment
• Avoid fragmentation
• Focus on the person
• Incentives appropriate for the task
• Advocacy for our patients
Why is it so important to address multimorbidity?
OBJECTIVES

• To assess how well the concept of multimorbidity was covered in the medical literature.
• To compare the number of publications on multimorbidity with the number of publications on three common chronic conditions (asthma, hypertension, and diabetes).

DESIGN/METHODS

• Bibliometric study.
• Search terms: multimorbidity (and its various spellings), comorbidity, asthma, hypertension, diabetes.
• For comparison purposes, prevalence data were taken from published sources.

RESULTS/FINDINGS

• There is a large discrepancy between the prevalence of multimorbidity in the population and the number of research studies devoted to it, especially in primary care.
• The scientific basis for managing multimorbidity, therefore, appears to be weak.
• For comparison purposes, prevalence data were taken from published sources.
OBJECTIVE

• to evaluate the effect of the number and severity of multiple concurrent chronic medical conditions on the HRQOL of adult patients seen in a primary-care context.

DESIGN/METHODS

• Evaluation of the association taking into account the severity of the medical conditions.
• Cumulative Illness Rating Scale (CIRS) score.
• Controlling for potential confounders (age, sex, household income, education, self-perception of economic status, number of people living in the same dwelling, and perceived social support).

RESULTS/FINDINGS

• Use of the CIRS revealed a stronger association of HRQOL with multimorbidity than using a simple count of chronic conditions.
• Physical more than mental health deteriorated with increasing multimorbidity.
• Perceived social support and self-perception of economic status were significantly related to all scales of the SF-36.
• Increased multimorbidity adversely affected HRQOL in primary-care adult patients, even when confounding variables were controlled for.
OBJECTIVE
• To evaluate the relationship between psychological distress and multimorbidity among patients seen in family practice after controlling for potential confounding variables and taking into account the severity of diseases.

DESIGN/METHODS
• Evaluation of 238 patients to construct quintiles of increasing multimorbidity.
• Cumulative Illness Rating Scale (CIRS).
• Patients completed a psychiatric symptom questionnaire as a measure of psychological distress.

Psychological Distress and Multimorbidity in Primary Care

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Evidence-based medicine and multimorbidity
Interventions for improving outcomes in patients with multimorbidity in primary care and community settings

Review information

Authors

Susan M Smith¹, Hassan Soubhi², Martin Fortin², Catherine Hudon², Tom O’Dowd¹

RESULTS/FINDINGS

• The review highlights the lack of research to date on interventions to improve outcomes for multimorbidity.
• Limited results to date suggest a potential positive effect of interventions in terms of reduced hospital admissions and improved prescribing and medication adherence.
• There is a need for clear definitions of participants, consideration of appropriate outcomes and further pragmatic studies based in primary care settings.

measures of disability or functional status.
• Measures of patient and provider behaviour including measures of medication adherence, utilization of health services, acceptability of services and costs.
Randomized Controlled Trials: Do They Have External Validity for Patients With Multiple Comorbidities?

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DESIGN/METHODS

• Random selection of 5 RCTs that focused on patients with hypertension.
• Inclusion/exclusion criteria used in each of the 5 RCTs were applied to the 980 patients in our database.
• Patients from our data set who met the inclusion criteria of a given RCT were considered eligible for that RCT.

INTRODUCTION

Clinical practice guidelines are one widespread response to the modern dilemma of combining quality with efficiency to meet patients' needs for and expectations of evidence-based treatment.1 Guidelines are devoted to helping clinicians with clinical decision making.2 An important part of guidelines, which are based on a detailed review of the relevant literature about a given subject, are the published reports of randomized controlled trials (RCT).
RESULTS/FINDINGS

• Mean number of chronic conditions of patients eligible for each RCT ranged from 5.5 ± 3.3 to 11.7 ± 5.3.
• No data available to compare with the participants of RCT
• Classic clinical trials tend to emphasize efficacy at the expense of effectiveness.
• In doing so, they exclude patients with multiple conditions, thereby compromising the external validity and relevance of the trials in this population
• Most research & clinical practice is still based on a single-disease paradigm which may not be appropriate for patients with complex and overlapping health problems.

Table 3. Patients With Cormorbid Conditions

<table>
<thead>
<tr>
<th>Randomized Controlled Trial</th>
<th>Potential Patients: Chronic Conditions</th>
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<tbody>
<tr>
<td>Appel et al\textsuperscript{14}</td>
<td>95 \pm 3.3</td>
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<td>Hansson et al\textsuperscript{15}</td>
<td>30 \pm 5.3</td>
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<tr>
<td>Wing et al\textsuperscript{16} (age range 65–74 y)</td>
<td>17 \pm 4.2</td>
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<td>Wing et al\textsuperscript{16} (age range 75–84 y)</td>
<td>18 \pm 4.5</td>
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<tr>
<td>ALLHAT study\textsuperscript{17} (age range 55–64 y)</td>
<td>17 \pm 4.2</td>
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<td>ALLHAT study\textsuperscript{17} (age ≥ 65 y)</td>
<td>20 \pm 4.7</td>
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<tr>
<td>Sacks et al\textsuperscript{18}</td>
<td>90 \pm 3.3</td>
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* Patients with hypertension meeting the specified age for inclusion.  
\textsuperscript{†} After applying inclusion and exclusion criteria.  
\textsuperscript{‡} Hypertension included.  
\textsuperscript{§} Included patients with normal arterial tension.
Clinical trial development

• Phase 0: pharmacokinetics (low dose)
• Phase I: first trials on humans (multiple doses, tolerability)
• Phase II: efficacy and safety
• Phase III: multicentre randomized control trials
• Phase IV: post-marketing trials and surveillance

All trials:
  – Overly homogeneous patients with the disease
  – Specialized centres
The Zamboni dilemma

• Considering our current level of knowledge on treating patients with multiple sclerosis, would you be confident in recommending the Zamboni treatment for your patient?
The dilemma

Incomplete Knowledge

Decision

Ethics
Multimorbidity dilemma

- Patients with multimorbidity are too often excluded from clinical trials: would you be confident in applying the recommended treatment for them?
Review of 16 Canadian chronic disease guidelines (2005 and +)

• Issues addressed
  – Treatment of older patients: 50%
  – Treatment for multiple comorbid conditions: 56.2%
  – Treatment for both: 18.8%

• Recommendations
  – Specific rec for one comorbidity: 93.8%
  – Specific rec for two comorbidities: 18.8%
  – Specific rec for more than two: 6.2%
What is needed ...

• More intervention research on multimorbidity
• Pragmatic clinical trials
• Phase III b and IV b clinical trials by pharmaceuticals involving « primary care patients »
• Pertinent guidelines development

What is needed in clinics

• Challenge the results of randomized controlled trials
• Participate in guidelines development
• Always focus on patient potential benefits for any given intervention
• Critical appraisal of publications on new drugs
• Time is wisdom... most of the time...
New models of care

Primary care reform
OBSERVATIONS
• Research on multimorbidity is in its infancy.
• Most research has investigated the epidemiology of multimorbidity, its effect on physical functioning, and its measurement.
• Much less studied is the effect of multimorbidity on processes of care and what constitutes “best care” for these patients.
• Results of prevalence studies reveal a complex picture of coexisting diseases.
• Requirement for a clear conceptual framework that includes consistent measures of multimorbidity and permits comparisons between studies.
• Models of collaborative, patient centered, and goal oriented care are more likely to meet the complex needs of patients with multimorbidity.
What is the Business Case for Improving Care for Patients with Complex Conditions?

Jeff Luck, MBA, PhD\textsuperscript{1,2}; Patricia Parkerton, MPH, PhD\textsuperscript{1,2}; and Fred Hagigi, MBA, MPH, DrPH\textsuperscript{1,2}

Clear Communication
Appropriate Utilization
Higher Satisfaction
Improved Process
Better Outcomes
Lower Cost?

Figure 1. Impact of Improved Care for Patients with Complex Conditions
Key actors in any model of care

- Family doctor
- Nurse
- Other Professionals
- Medical Specialists
- Patient (EMR)
The Patient-Centered Clinical Methods’ four interactive components

I - Exploring Both Disease and Illness Experience

- History
- Physical
- Lab
- Feelings
- Ideas
- Function
- Expectations

II - Understanding The Whole Person

- Disease
- Person
- Illness
- Proximal Context
- Distal Context

III - Finding Common Ground

- Problems
- Goals
- Roles

Mutual Decisions

IV - Enhancing the Patient-Physician Relationship
Patient-centred medical home

- Personal physician
- Physician-directed medical practice
- Whole-person orientation
- Coordination and/or integration of care
- Quality and safety
- Enhanced access
- Payment adapted
Safety and Quality

Care is coordinated and integrated

Whole Person Orientation

Personal Physician

Enhanced Access

Physician Directed Practice

Payment for Added Value

Faculté de médecine et des sciences de la santé
Participant 4-L: “Meeting with my own doctor! I feel that, ... it seems to me (hesitation), of course I would feel more secure with my doctor than with the nurse! Anyway (hesitation), you can meet with the nurse, but ... replacing the appointment with, ah, with a nurse... I don’t know!”

Participant 1-L: (Talking about collaboration between a nurse and his own doctor). "Well in an office, it’s... I don’t know... I would see a nurse... what I mean is... for my medication, those things... it would be OK, not bad but uh... I would still like to see my family doctor to reassure me, to say, uh... really uh... in reality, my family doctor is the one who is aware of everything ... but if it’s for uh... to review a prescription of something like that, I don’t know... will the nurse be able to do medical acts that the, the doctor uh... can do...I don’t know! If I arrive and have a pain somewhere and uh... for sure that she will not be able to give me an examination for uh...”

Nurses joining family doctors in primary care practices: perceptions of patients with multimorbidity
Martin Fortin, Catherine Hudon, Frances Gallagher, Antoine L Ntetu, Danielle Maltais, Hassan Soubhi
BMC Family Practice, accepted November 1st, 2010
Outcomes or care

- Self-efficacy
- Empowerment
- Quality of life
- Functional status
- Psychological well-being
- Goal attainment
- Healthy habits
- **Disease-specific outcomes**
- Healthcare use
- Complication rate
- Hospital stay
- Costs
- Morbidity
- Healthy survival
- Mortality
What is needed ...

• Primary care reform to build on new models or care
• Quality indicators for primary care
• Generic measures for chronic disease care
• Shared understanding of the reform by all disciplines related to primary and specialized care
Research Program: Creating new knowledge

Concept
Epidemiology
Intervention

Training
Graduate
Mentoring
Predoctoral
International
Postdoctoral

Knowledge translation
Decision makers
IRCMo
Primary care providers

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Thanks and welcome to Saguenay anytime!