

Research in multimorbidity: dilemmas and challenges

Prof. François Schellevis MD PhD

NIVEL (Netherlands Institute for Health Services Research), Utrecht

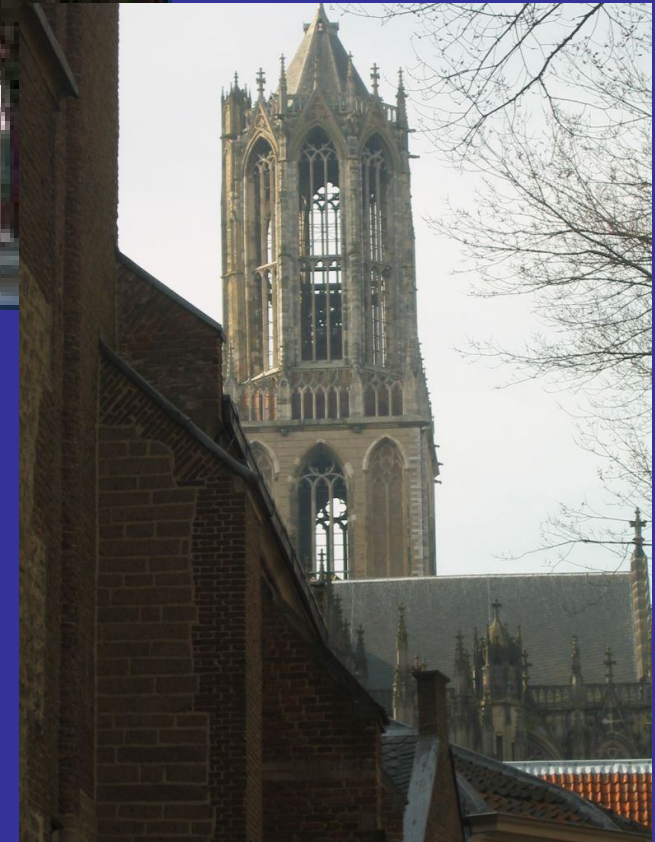
& Dept. General Practice and Elderly Care Medicine / EMGO+

Institute, VU University Medical Center, Amsterdam



VU medisch centrum





VU medisch centrum





VU medisch centrum



What I will talk about...

- Short history
- Current state of knowledge
- Research priorities
- Dilemmas and challenges



Take-home message

We realize that the prevailing single-disease approach in health care is not applicable any more for providing high quality of care to a substantial number of patients, but...



Take-home message

...we need more knowledge about what is best for the patient, for the professional and for the health care system



VU medisch centrum



History: comorbidity

'any distinct additional clinical entity that has existed or that may occur during the clinical course of a patient who has the index disease under study'

Feinstein, 1970



History: multimorbidity

'the co-occurrence of multiple chronic or acute diseases and medical conditions within one person'

van den Akker et al, 1996

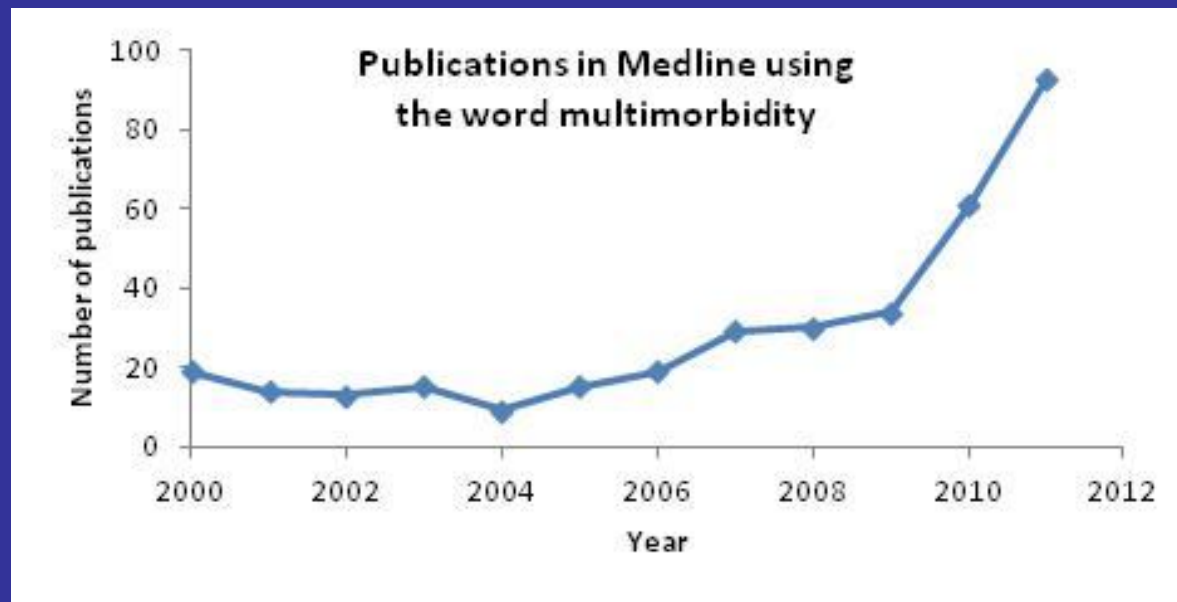


Current state of knowledge

What do we know?

- **Multimorbidity of chronic diseases is the rule rather than the exception**
- **Multimorbidity has an important impact on**
 - Quality of care (diagnostics & treatment)
 - Quality of life, morbidity and mortality
 - Health care organisation and costs

Current state of knowledge



<http://pages.usherbrooke.ca/crmcspl-blog>

Current state of knowledge

- **Library of the International Research Community on Multimorbidity: list of publications: 42 pages**
- **Publication topics**
 - Definition/Methodology/Measurement
 - Prevalence
 - Impact
 - Ideas for interventions: 1 page!

Of all 16 million Dutch
inhabitants

47 million suffer from a
serious illness



Current state of knowledge

Research in multimorbidity is beyond its infancy – time for the next phase!



VU medisch centrum



Research priorities

1. How to prevent multimorbidity?
2. What is the optimal approach for providing multimorbid patients the best health care?
3. How to efficiently organise health care for multimorbid patients?

Prevention of multimorbidity

Clues for prevention: the four C's:

- **co-occurrence: 'by chance'**
- **clustering: observed \neq expected**
- **common cause**
- **complication: relation in time**

van Weel & Schellevis, Lancet 2006



VU medisch centrum



Cluster multimorbidity

- **Statistical association: $P(a+b) > \text{or} < (P(a) * P(b))$**

- **Examples:**

Parkinson's dis * Stroke OR=3.6

Migraine * Diabetes mellitus OR=0.5 !!!

Chronic somatic * psychiatric OR=1.5

Stroke * Dizziness OR=1.3

Nuyen et al, 2006; Health Council, 2008; Maarsingh, 2011



VU medisch centrum



Common cause multimorbidity

- Common (known) pathophysiology
- Examples

Smoking: COPD + lung carcinoma + coronary heart disease

Obesity: diabetes mellitus + osteoarthritis

Dopamin system: depression + Parkinson's disease

Complication multimorbidity

- **Conditional association (incl. time relation)**

- **Examples**

Diabetes mellitus → diabetic retinopathy

Stroke → epilepsy

Challenges in prevention research

- **Associations → hypotheses for further aetiological research**
- **Large study populations and databases**
- **Innovative methodologies (e.g. 'intelligent' data mining)**



Dilemmas in prevention research

- Relevance of etiological research: can multimorbidity be prevented?
- Prioritizing relevant combinations of diseases for prevention research

Research priorities

1. How to prevent multimorbidity?
2. What is the optimal approach for providing multimorbid patients the best health care?
3. How to efficiently organise health care for multimorbid patients?



”...Management of patients with several chronic diseases is now the most important task facing health services in developed countries”

Salisbury, Lancet 2012



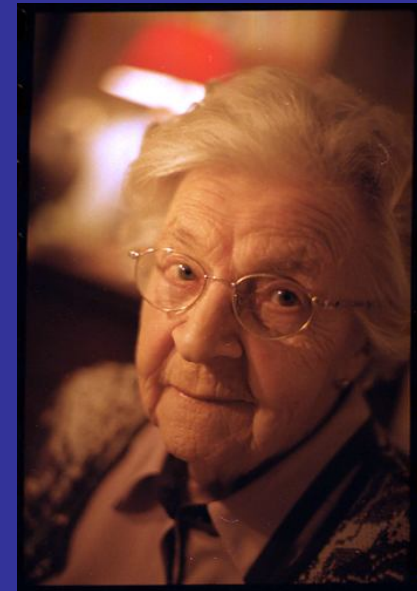
VU medisch centrum



Health care for multimorbid patients

Mrs. F

- 79 years old
- multimorbidity
 - osteoporosis
 - osteoarthritis
 - diabetes type II
 - COPD
 - hypertension



Boyd et al, JAMA 2005



VU medisch centrum



Health care for multimorbid patients

EBM treatment

- 12 different drugs in 19 dosages at five moments a day
- 14 different non-pharmacological advices (rest, exercise, shoes, avoid exposure to allergens)
- nutrition: reduce intake of Na, K, lipids, cholesterol, Mg, Ca, calories, alcohol
- at least 5 doctor visits per year



Boyd et al, JAMA 2005



VU medisch centrum



Health care for multimorbid patients

- What is the evidence for the combined treatment of these five diseases?
- How feasible is this regime?
- Any room for living her own life?

Health care for multimorbid patients

Research priorities

- Integrating and tailoring single-disease evidence based guidelines
- Management of polypharmacy and non-pharmacological treatment
- Active role of patients, e.g. in priority setting



Challenges in research on health care for multimorbid patients

- Participation of multimorbid patients in clinical trials
- Innovative methodologies:
 - how to deal with heterogeneous study populations?
 - how to deal with individualized care?

Dilemmas in research on health care for multimorbid patients

- Development of (evidence for) guidelines for (all possible?) combinations of diseases
- Goal-oriented vs disease-oriented outcome measures

Research priorities

1. How to prevent multimorbidity?
2. What is the optimal approach for providing multimorbid patients the best health care?
3. How to efficiently organise health care for multimorbid patients?



Organisation of health care for multimorbid patients

Use of health care services:

‘...the more chronic diseases, the more different health care services are being used...’

Westert et al, Eur J Publ Health 2001



VU medisch centrum



Organisation of health care for multimorbid patients

Diabetes mellitus patients: “risk” for specialized care in 1 year

	Outpatient	Hospital
• DM	1.0	1.0
• DM + 1	2.4	3.4
• DM + 2	3.7	6.4
• DM + 3 or more	5.6	9.8

Struijs et al, BMC Health Serv Res 2005



VU medisch centrum



Organisation of health care for multimorbid patients

Focus groups of patients

- Treatment (incl. advices) is not feasible
- Which caregiver is the expert?
- Need for information
- More attention for emotional impact
- Better coordination and communication

Heijmans et al, 2003



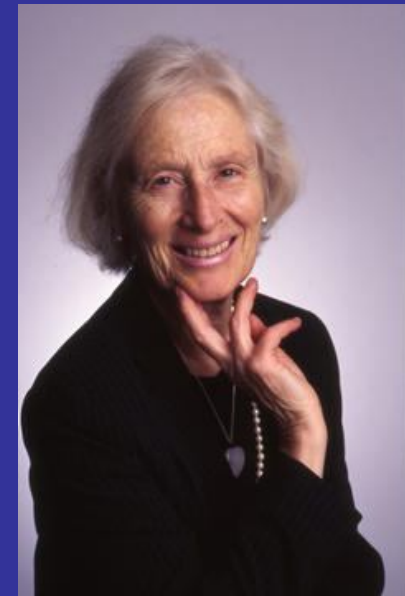
VU medisch centrum



Organisation of health care for multimorbid patients

'...New paradigms of care that acknowledge actual patterns of comorbidities as well as the need for close coordination between generalists and specialists require support...'

Starfield et al. 2003



Evidence about interventions (1)

Review on comprehensive care programs for patients with multiple chronic conditions:

- publications 1995-2011
- evaluation of 28 programs (42 papers)
- categorized according to elements of the Chronic Care Model (Wagner)

Bruin SR de et al, Health Policy 2012



VU medisch centrum



Evidence about interventions (2)

- **No effect of interventions on:**
 - Cognitive functioning
 - Depressive symptoms
 - Functional status/Quality of life
 - Mortality
 - Caregiver burden
- **Heterogeneity of programs**
- **More rigorous evaluations needed**

Research on organisation of health care for multimorbid patients

Research priorities

- Care coordination and cooperation between health care providers
- Rigorous evaluation of care programmes, incl. cost-effectiveness



Challenges in research on the organisation of health care for multimorbid patients

- Health care system is disease oriented and not patient oriented
- Financing of health care fragmented
- Competition between health care providers

Dilemmas in research on the organisation of health care for multimorbid patients

- **Health system characteristics determine care programs – this is an obstacle for international comparative studies**
- **Include social care in care programs?**
- **Patients, health care professionals and policy makers may disagree about optimal care arrangements**

To conclude: three research priorities

1. How to prevent multimorbidity?
2. What is the optimal approach for providing multimorbid patients the best health care?
3. How to efficiently organise health care for multimorbid patients?

Take-home message

We realize that the prevailing single-disease approach in health care is not applicable any more for providing high quality of care to a substantial number of patients, but...



Take-home message

...we need more knowledge about what is best for the patient, for the professional and for the health care system



VU medisch centrum



Thank you for your attention!



VU medisch centrum

