

# Comorbidity and Multimorbidity: need for clarification

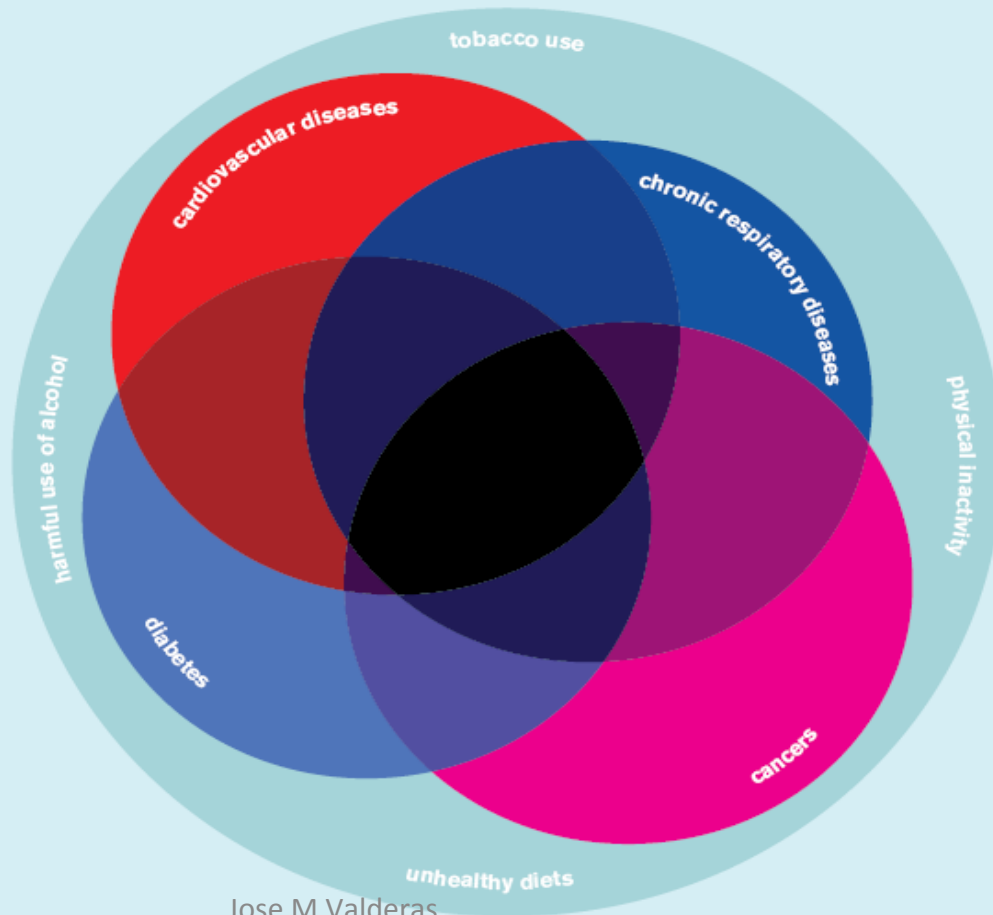
Jose M Valderas

*GP and Professor of Health Services & Policy Research*

**Working in partnership** to prevent and control the 4 noncommunicable diseases – cardiovascular diseases, diabetes, cancers and chronic respiratory diseases and the 4 shared risk factors – tobacco use, physical inactivity, unhealthy diets and the harmful use of alcohol.



## 2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases



# Mrs. Jones

- Female
- Aged 68
- Living with partner, small pension, rented flat, moved recently
- Obese: IMC 31
- Smoker: 10 cigarettes/d (recent relapse)
- Type 2 Diabetes: irregular control with insulin
- Ischemic heart disease: asymptomatic and well controlled with medical treatment
- Osteoarthritis both knees: has been already referred for surgery (left)
- Insomnia: long term and reason for consultation

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- The PI of the research project that uses her medical records



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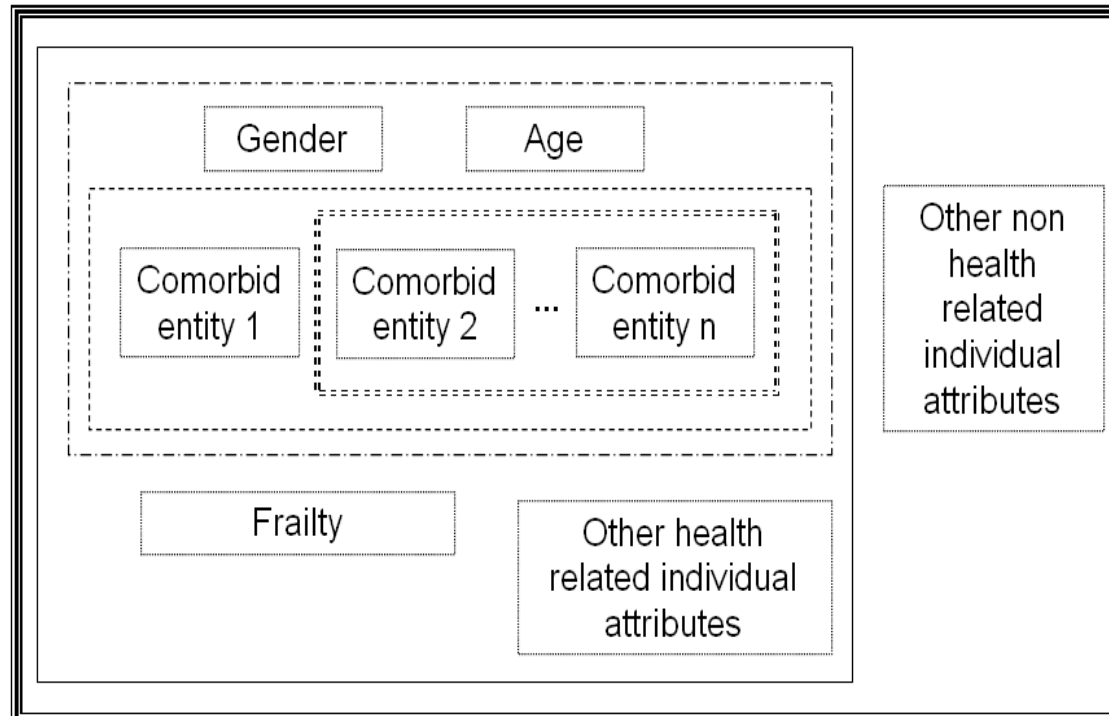
- The General Practitioner
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- The PI of the research project that uses her medical records
- The health policy maker

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- The General Practitioner
- The ortopedic surgeon
- The manager of the hospital (A&E)
- The National Health Service
- The PI of the research project that uses her medical records
- The health policy maker
- ...
- And Mrs. Jones herself



- Comorbidity as referred to an index entity (classical definition). = = =
- Comorbidity as the combination of all entities (=multimorbidity). - - - - -
- Comorbidity as a particular type of patient when compared to other patients (=case-mix) - · - · - ·
- Comorbidity as the overall health status of the individual (=burden of illness). \_ \_ \_ \_ \_
- Comorbidity as the individual's complexity. = = = = =

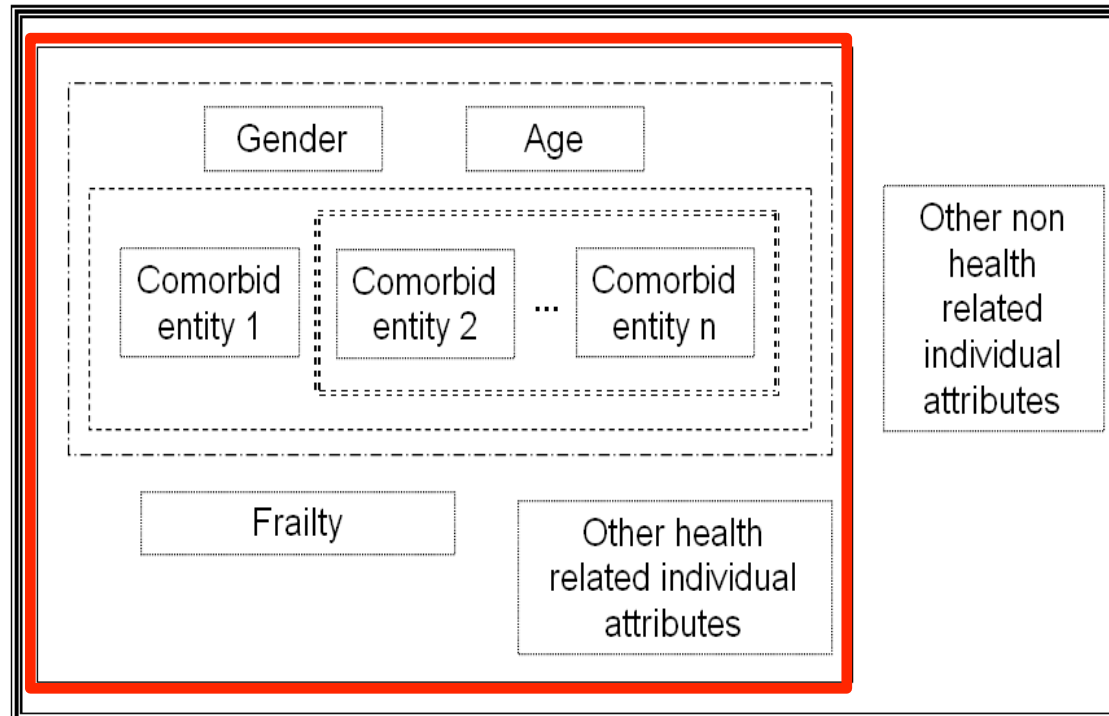
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# Morbidity constructs

- **Comorbidity:** a focus on the presence of diseases, in particular in addition to a specific one (index)
  - *Diabetes: tobacco, obesity, ischaemic heart disease, osteoarthritis, insomnia*
  - *Osteoarthritis: tobacco, obesity, ischaemic heart disease, diabetes, insomnia*
  - ...
- **Multimorbidity:** a focus on the presence of diseases, but a particular emphasis on multiplicity
  - *Tobacco, obesity, ischaemic heart disease, osteoarthritis, insomnia; diabetes; ischaemic heart disease; osteoarthritis; insomnia*
- **Morbidity burden:** a focus on the presence and severity of diseases
  - Tobacco: Faegerstrom: low
  - Obesity; IMC=31
  - Ischaemic heart disease: asymptomatic and well controlled with medical treatment
  - Type 2 Diabetes: irregular control with insulin
  - Smoker: 10 cigarettes/d (recent relapse)
  - Osteoarthritis both knees: has been already referred for surgery (left)
  - Insomnia: long term and reason for consultation

# Morbidity constructs

- **Comorbidity:** a focus on the presence of diseases, in particular in addition to a specific one (index)
  - *Current CPG approach*
  - *Specialist orientation*
- **Multimorbidity:** a focus on the presence of diseases, but a particular emphasis on multiplicity
  - *More familiar to General Practice and Primary Care*
  - *More consistent with constantly changing priorities*
- **Morbidity burden:** a focus on the presence and severity of diseases
  - *Useful for comparing patients and groups of patients and for adjustment in epidemiology and health services research*
  - *Construct implicitly used in clinical practice for finetuning management*



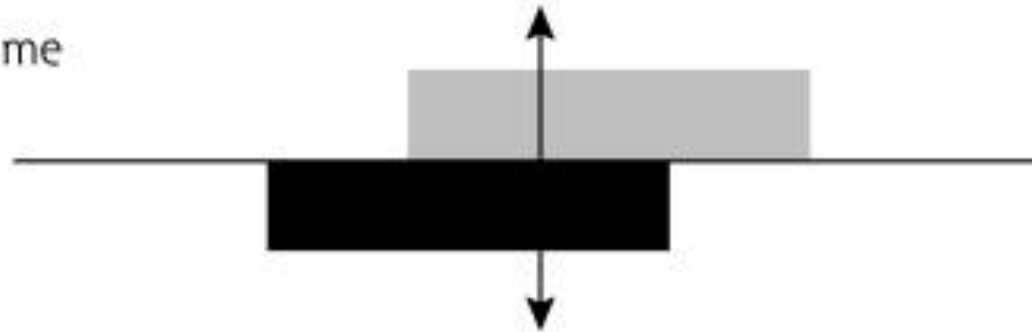
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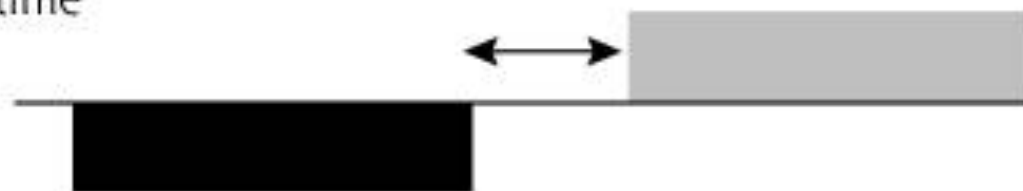
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## Time span

Point in time



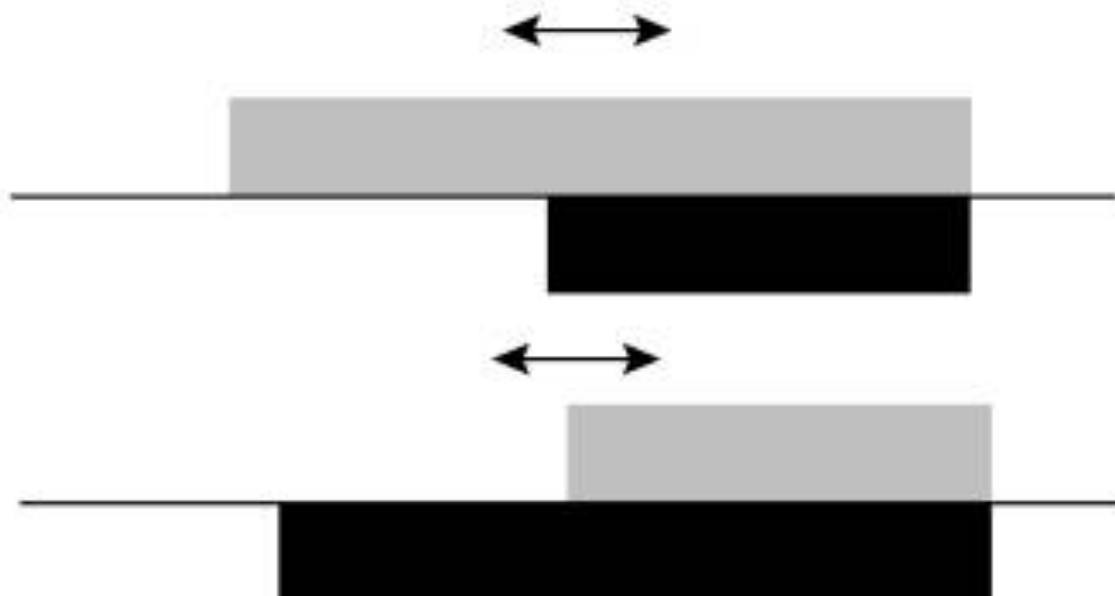
Period of time



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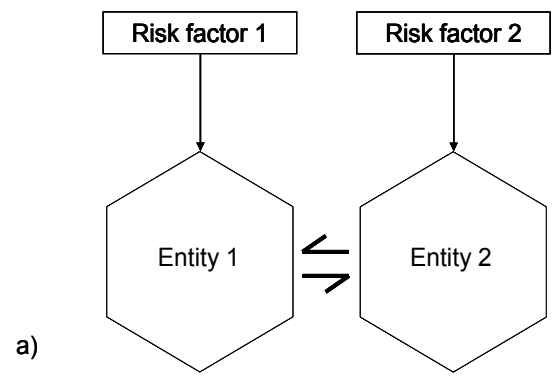


## Sequence

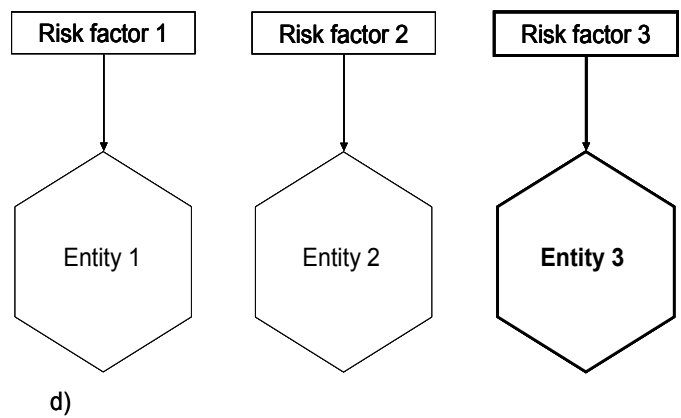
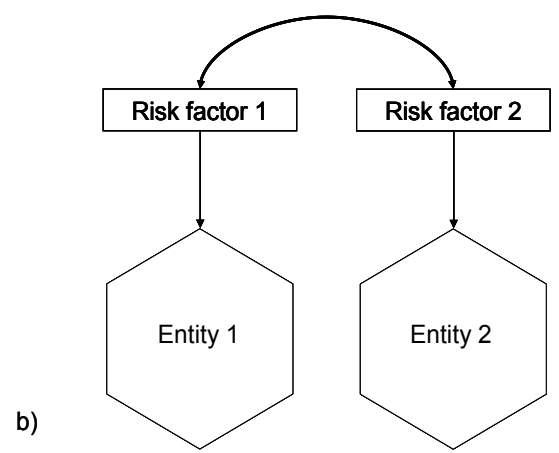
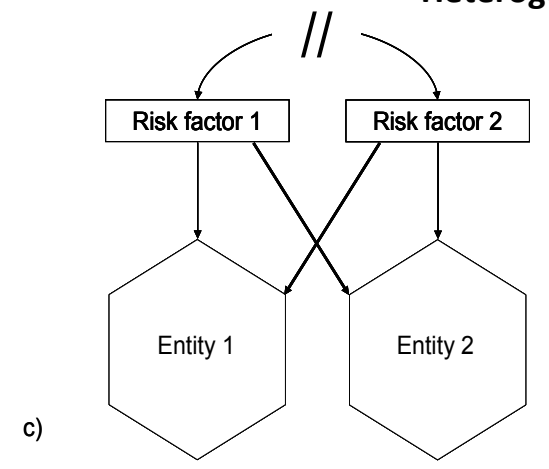


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**Direct causation**



**Heterogeneity**



**Associated risk factors**

**Independence**

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# Impact on processes of health care

- **Pathogenetic** (Kaplan, 1974) [vs. Diagnostic vs. prognostic (cogent vs. non cogent)]

*“...certain diseases (particularly in the cardiovascular-renal system) are commonly regarded as ‘related’ ..., whereas other diseases are regarded as ‘unrelated’”*

- **Homotypic vs. heterotypic** (Angold, 1999):

*“similar [vs. dissimilar] diagnostic groupings”*

- **Concordant vs. non concordant** (Piette, 2006):

*“[comorbid entites are] parts of the same pathophysiologic risk profile and more likely to share the same management”*

## Effect of comorbidity interactions on the medical process: Type 2 Diabetes Mellitus

Medical process	Effect	Clinical entity (process)
Diagnosis and monitoring	Easier (+)	Age related macular retinopathy (based on fundus)
	More difficult (-)	Acute myocardial infarction (based on pain)
	Neutral (0)	Helicobacter pylori infection (based on HbA1C)
Treatment and management	Agonistic (+)	Chronic Obstructive Pulmonary Disease (based on regular exercise)
	Antagonistic (-)	Crohn's Disease (based on corticosteroids)
	Neutral (0)	Depression (based on dietary advice)
Prognosis and outcomes	Better (+)	Sickle Cell Disease (based on HbA1C)
	Worse (-)	Periferal vascular disease (based on mortality)
	Neutral (0)	Osteoarthritis (based on hypoglycemia)

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- Lower than expected co-occurrence of a condition in people with another condition(s)

Random variation (sampling)

Selection bias

Inversely associated risk factors: genetics, environment, behaviour

True protective effect:

Condition

Treatment

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