EU4Nutrition LIVE

CONTINUITY OF NUTRITION CARE

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THE POWER OF CONCERTED EFFORTS AGAINST MALNUTRITION

The European Nutrition for Health Alliance

NESPEN clinical nutrition and metabolism

kenniscentrum ondervoeding

Nederlandse Vereniging van Diëtisten

Nutrition & Healthcare Alliance

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A PAN-EUROPEAN APPROACH TO NUTRITION ECONOMIC RESEARCH

AMSTERDAM ONCA CONFERENCE

Jun 15, 2023

Mark Nuijten, PhD, MD. MBA

A2M - Minerva

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OBJECTIVE

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Objective

- To present nutrition economic research from pan-European perspective.

- Focus on malnutrition:
  1) Concepts: e.g. design of studies
  2) Practical application

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CONTEXT

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Context

Epidemiology:

- The prevalence of people at risk of malnutrition is estimated at 20 million adults in the European Union (EU).
- Malnutrition is prevalent across all healthcare settings, particularly in patients in hospital, as well as prevalent across all age groups.
  - About 1 in 4 (18–34%) adult hospital patients are malnourished or at risk of malnutrition.
  - Among the elderly, a prevalence of malnutrition of 3.1% and a prevalence of risk of malnutrition of 26.5% was made.

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Context

Clinical consequences:

- Malnutrition has functional consequences in adults and older people:
  - Malnourished hospital patients experience significantly higher complication rates than well-nourished patients (30.6% vs. 11)
  - Significantly higher mortality rates have been found in “at-risk” hospital patients compared with “not-at-risk” patients (12% vs. 1%).
  - Poor Quality of Life (QoL) is also reported in malnourished surgical patients, patients with end-stage renal disease undergoing hemodialysis and in general admissions to the acute hospital setting.

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Context

Economic consequences:

- Malnutrition is associated with increased healthcare resource use across all age groups.
  - Increase in length of hospital stay, readmissions and GP consultation. Average length of hospital stay may be increased by 30% in malnourished patients.
  - Higher readmission rates for after hospitalization.
  - The extra cost of treating a patient with malnutrition is 2 to 3 times higher than for a non-malnourished patient.

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Context

Impact MN:

- Nutritional support, including oral nutritional supplements, enteral tube feeding and parenteral nutrition, can be an important part of the management of any patient:
  - Reduction complications
  - Reduction lenght of stay
  - Cost-effective
  - Increase Quality of Life
  - Reduction of hospitalisation costs

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HEALTH ECONOMICS

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Pricing and Reimbursement

Safety, Efficacy & Quality

Clinical & Cost effectiveness

'4th Hurdle'

Affordability and impact on services

'5th Hurdle'

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Cost-Effectiveness

Utility - QALY

- Survival, but also correction for Quality of Life
- Final (hard) endpoint between 0 and 1:
  - Dead: 0
  - Perfect health: 1

	Survival	Quality of Life	QALY
Treatment A	8	0.5	4.0
Treatment B	5	0.9	4.5

- Comparison accross diseases: e.g. depression and asthma

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Cost-Effectiveness

Cost-effectiveness:

- Incremental cost-effectiveness ratio - Cost per QALY
- ICER = (Cost_N - Cost_U)/(Utility_N – Utility_U)

	Survival	Quality of Life	QALY	Total costs	ICER
Treatment A	8	0.5	4.0	10,000	
Treatment B	5	0.9	4.5	15,000	
Difference			0.5	5,000	10,000

- Interpretation: extra Euro 10,000 to gain one year in perfect health!

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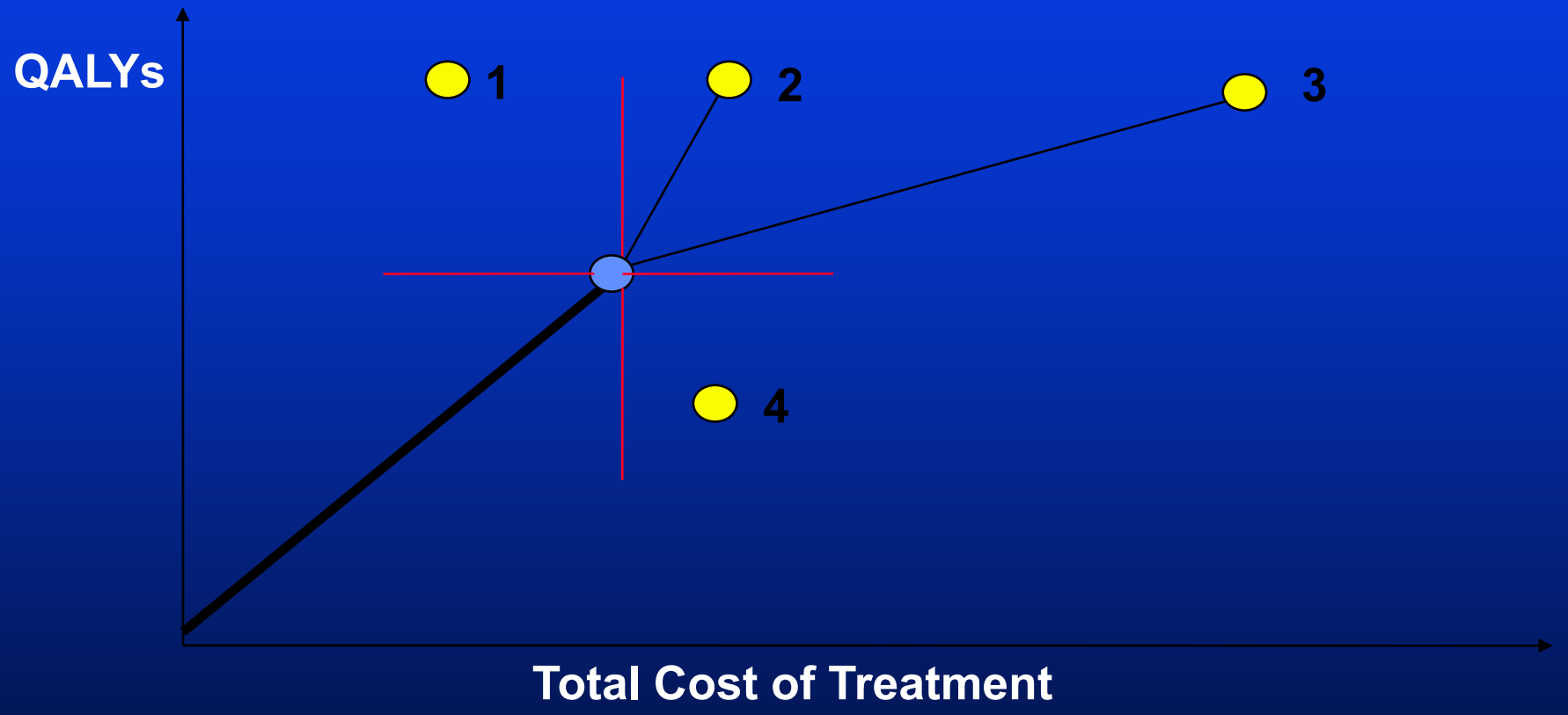
Cost-Effectiveness



$$\frac{\text{Total costs}}{\text{Effectiveness (QALYs)}} < 80.000 \text{ euro}$$

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Cost-Benefit Analysis

Populatıon based assessment

- Preventive programs: e.g screening
- Cost screening is € 4 million
- Total cost of case is € 12,000
- No screenıng: 10,000 * € 12,000 is € 120 million
- Screening: 4,000 * € 12,000 is 48 million+ € 4 million ıs 52 million

	Program	Cases	Cost case	Total costs	QALYs
No screenıng	0	10,000	12,000	120 mıllıon	Monetary
Screenıng	4 mıllıon	4,000	12,000	52 mıllıon	Monetary
Difference				68 mıllıon	

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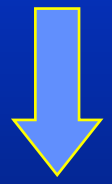
Nutrition Economics

Nutrition

- Need of justification of evidence, but also increasingly need for health economic evidence



- No specific guidelines for execution of health economic evaluations.

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Nutrition Economics

Target audiences

Audience		Drug		Nutrition		Remark		
society	ICER: cost per QALY	yes		unclear		no formal guidelines		
central payor	ICER: cost per QALY	yes		unclear		no formal guidelines		
health insurance comp	cost savings	yes		yes				
medical community	effectiveness	yes		yes		more difficult to convince		
employer	lost productivity	yes		yes				
patient	payment nutrition/benefit ratio	NA		yes				

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PAN-EURPEOAN APPROACH MALNUTRITION

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PAN EU Approach

Development of European core model:

- Selection of pilot country, e.g. England, Netherlands.
- Model structure: 1) reflection most relevant treatment pathways I Europe: 2) country-specific finetuning (e.g. dummy zero, if not relevant).
- Data sources: 1) country-specific, 2) international
- Advisory Board - validation of model structure, data sources and assumptions.

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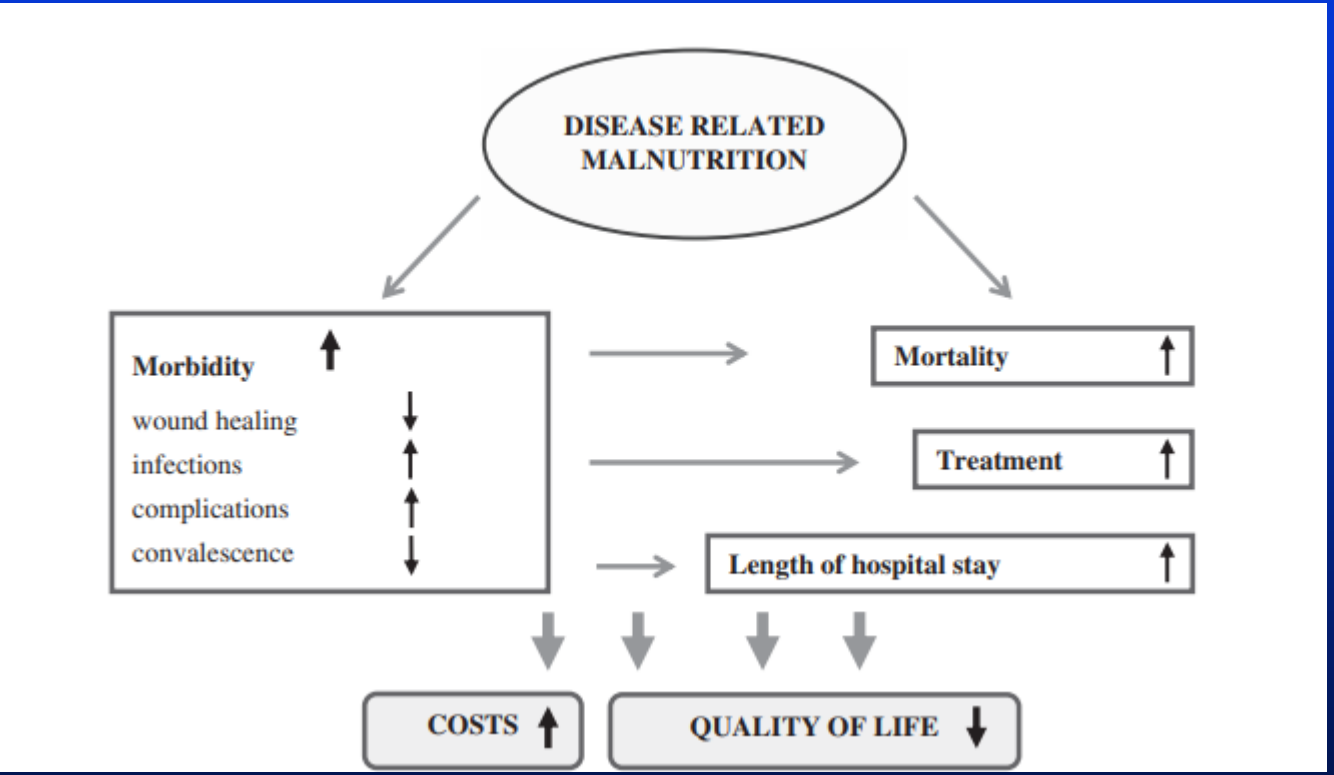
PAN EU Approach

European core model structure:



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PAN EU Approach

Design

- Settings
- Prevalence malnutrition
- Comparison
- Screening malnutrition
- Clinical and economic consequences of malnutrition
- Management of malnutrition
- Impact of MN on malnutrition
- Costs of management malnutrition

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PAN EU Approach

Selection of clinical and economic consequences:

- Setting
- Link to hard clinical outcome
- Perspective

clinical consequences		economic consequences	
complications - all		medical costs	
complications - minor			consultations dietician
complications - major			consultations GP
sepsis			consultations specialist
pneumonia			procedures
pressure ulcers			admissions
number of falls			re-admissions
mortality			LOS
life expectancy			% ICU and LOS - ICU
ADL			cost of episode
survival		indirect costs	lost productivity (days)
QALYs			
boydy weight		non-medical costs	transport
BMI			
hand grip strenght			
Barthel index			

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PAN EU Approach

Management malnutrition:

- Dietary advice
- Dietary advice + ONS

Specified per setting:

- Hospital
- Nursing home - care home
- Community care - mainly elderly

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PAN EU Approach

Impact of MN on malnutrition

- This depends on efficacy/effectiveness of MN on clinical outcomes, which have health economic consequences.
- Ideally use of data for each setting.
- In clinical trials MN is compared with “no treatment” or “diet and advice”.

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PAN EU Approach

Different types of data

• Epidemiology: prevalence of malnutrition	country-specific
• Distribution of therapeutic choices: and use of MN in each healthcare setting	country-specific
• Probabilities of clinical events, e.g. complications of malnutrition.	international
• Effectiveness of MN	international
• Economic benefits of MN	country-specific
• Costing information	country-specific

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PAN EU Approach

Sources

- Published literature
- Official Dutch price/tariff lists
- Population statistics
- Delphi Panel (optional).
  - To validate the assumptions and handling of data from the various sources
  - To estimate missing data, ideally limited to economic data

PAN EU Approach

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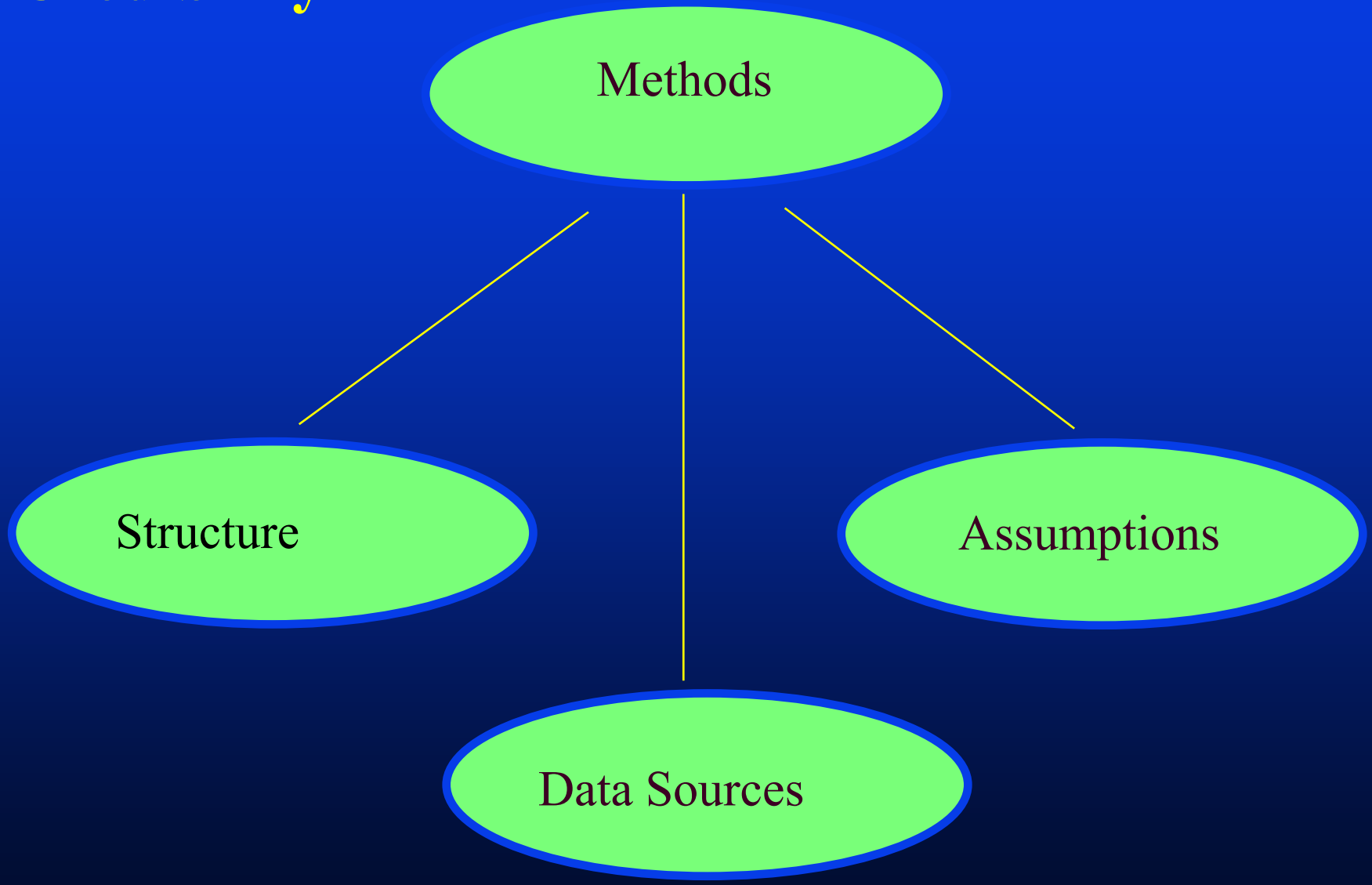
Credibility



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CONCLUSION

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Conclusion

PAN EU approach

- Economies of scale
- Consistency in approach for countries
- Comparison between outcomes of countries

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