What is nutrition economics.
Building a community of nutrition economics

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Outline

• Health Technology
• Health technology assessment
• Dimensions that are taking into consideration
• Public health interventions (Nutrition) and their measurement
• Return on investment a concern that matters
• Current existing dimensions and focused metrics
• Initiatives in place
What is technology?

«the systematic application of scientific and other organized knowledge to practical tasks»

Health technology

“Any intervention that can be used to **promote health**, to **prevent**, diagnose or treat a disease or for rehabilitation or long term care. This includes pharmaceuticals, medical devices, procedures and organizational systems used in health care.”

OTA, 1978
“The systematic evaluation of the properties and effects of a health technology, addressing the direct and intended effects of this technology, as well as its indirect and unintended consequences, and aimed mainly at informing decision making regarding health technologies.”

HTA should be conducted by interdisciplinary groups using explicit analytical frameworks drawing from a variety of methods.
Which technologies and dimensions are embraced?

Health technology assessment (HTA) is a multidisciplinary activity that systematically examines the safety, clinical efficacy and effectiveness, cost, cost-effectiveness, organisational implications, social consequences, legal and ethical considerations of the application of a health technology – usually a drug, medical device or clinical/surgical procedure in a systematic, transparent, unbiased, robust manner.

So....
Which properties?

- Technical properties
- Safety
- Efficacy and effectiveness
- Cost and other economic attributes
- Social/cultural, legal, ethical, organizational or political impacts
Why nutrition?
Methodological challenges in assessing Public Health interventions and nutrition in particular

• Long time lag between exposure and outcomes
• Lifestyle interventions affect several diseases
• Interventions affect the social environment (control group)
• Non-intervening factors influence outcome
• RCTs are not always an option
Long time lag between exposure and outcomes

• Lifestyles affect morbidity or mortality after decades

• If risk factors are established as causal it could be more appropriate to measure outcomes in terms of risk factor changes than changes in morbidity/mortality.
Many factors may influence mortality. A reason to measure the risk factor in focus of the intervention.
Social diffusion

• People are not unaffected by his/hers environment, i.e. parents, siblings, relatives, friends or work colleagues influence our lifestyles.

• Estimation: If 10 people quit smoking there will be 2 others who do not start smoking or quit smoking. (Rosén, Int J Epid, 1989)

• A person’s chances of being obese increased by 57% if he/she had a friend who became obese (Christakis, NEJM, 2007)
Return on investment a must

• Why?
  – Build a business case for investment
  – Protect what is currently being done
  – Inform allocation of resources within a programme

• Challenges: (NICE, 2012)
  – Range of people involved in decision making
  – Multiple data sources and tools in use
  – Lack of familiarity with, and understanding of, economic metrics
  – Views differed within and across local authorities
  – Different criteria lead to different decisions
Current existing dimensions and metrics

• Breakdown costs and benefits (health and non-health)
• Range metrics
  – ICER
  – Benefit Cost analyses
  – Net present value
  – Avoidable burden of disease
  – Budget impact
• Variable time horizons depending on the intervention (1 year to 50 years)
Current existing dimensions and metrics (II)

- The EQ-5D is currently the preferred instrument for capturing health benefits in assessing the cost-effectiveness

- Social
  - Adult Social Care Outcome Tool (ASCOT)

- Wellbeing
  - ICECAP capability index, WEMWBS and the ONS-4
HTA point of view. Challenges

- In general, no prescription, no reimbursement => no interest!
- The citizen is the “decision maker”
- Measurement of daily functioning and wellbeing/outcomes over a long timespan
- Need for cross-sectorial working between health and non-health system stakeholders
- Different tools to produce metrics and comparison, but none specific
Challenges in evidence generation

• RCT gold standard for interventions:
  – Long Term follow-up (to establish maintenance of behaviors, side effect profile/surrogates, final outcomes)
  – Adverse events/Side effect profile (especially relevant to comparators). Cohort studies apply
  – Issue of sample size
  – Final health outcomes (eg: death, related morbidities,..)
  – Health service costs
But...

- Food and drink consumption is a particular type of behaviour(s)
- Much of the mortality and morbidity associated with eating and drinking is preventable.
So why not applying the principles?

• Use the best available evidence to answer a defined question.
• Question formulated using the PICO framework.
• Evidence then searched for sensitively and comprehensively.
• Evidence assessed to maximise internal validity.
• Cumulative evidence synthesis.
• Evidence based recommendations
Main reasons

• Absence of good studies exploring the relationships between interventions and outcomes (lack of well conducted trials)
• The absence of plentiful economic information about the costs of the activity.
• Lack of information about how the interventions were done in practice.
Starting points

• 2010 a series of consensus meetings
• Publication of a series of articles
• Define the field of knowledge
  – Differences and similarities
  – Study designs
  – Outcomes to be measured
Starting points

Workshop Report

Workshop Report: concepts and methods in the economics of nutrition – gateways to better economic evaluation of nutrition interventions

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Introduction

The relationship between nutrition and health is well documented, and the impacts of various nutrition interventions have been widely reported. The addition or removal of specific components of an individual’s diet can result in significant health improvements along with potentially important economic benefits. There is growing interest in the economics of nutrition, which broadly can be thought of as the process of researching and characterising health and economic outcomes following nutrition interventions and nutrition recommendations for the benefit of society. Assessing the health and economic impacts of food consumption patterns or specific changes in nutritional behaviour on health and disease is highly relevant for a number of reasons. For example, such assessments have the potential to play an important role in the development of nutrition recommendations and could also inform regulatory processes related to nutrition labelling and health claims.

One way to evaluate the efficacy of a nutrition intervention is to examine the changes in costs and outcomes it causes. This could include measures of utility, reflecting the preference that an individual (or society as a whole) might have for a particular state of health. It has been shown that, when faced with a choice regarding a specific change in nutrition, if a rational individual stands to gain more in utility than the disutility associated with their personal cost of making the change, they are expected to choose a course of action that maximizes their expected utility. The consequences of individual nutrition choices can then be aggregated to determine the impact on populations. A variety of metrics exist for measuring the health economic impacts of nutrition at the macro level. This Special Article provides an overview of current understanding of the economics of nutrition and highlights key areas for future research.

Abbreviations: CHS, health-related quality of life; HTA, health technology assessment; ICT, randomized clinical trial.

Key words: Nutrition economics; Health technology assessment; Preventive interventions; Cost-effectiveness; Public health guidance

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Nutrition economics

• “Nutrition economics” was coined to refer to a specific subfield within health economics: “the discipline dedicated to researching and characterising health and economic outcomes in nutrition for the benefit of society”.

Does this worry HTA bodies?

- How to properly capture utility
- Systematic overview
- Nutrition interventions
- Especial focus on methods
Main conclusions of the overview

- The reports finally included correspond to HiC while those HTA agencies established in LMiC have
- HTA doers/producers confirm the use and utility of systematic reviews and economic analysis methods and its applicability for nutrition interventions
- Number of reports increasing overtime
- However, some measurements such as Quality Adjusted Life Years (QALY) need to be refined to better reflect the impact of these interventions.
Far from ideal…

Can it work?  
Safety and efficacy
Market authorization

Effectiveness
Evidence Based health care

Does it work?  
Prescription

Does it work proper than others?  
Provision

Comparison of effectiveness among different technologies
Comparative effectiveness

Is it worth it?  
HTA  
Organizational, economic, legal, social/cultural, political, ethical

Coverage reimbursement decisions
A step ahead...

- IG on INPHORM HTAi
- INPHORM is an Interest Group of HTAi for individuals who are involved in the research, assessment and/or management of public health interventions and a special focus nutrition-related health states and socio-economic outcomes from a broad perspective, including the individual and the societal level.
Initiatives in place

- Joint action inside EUPHA
  - Panel
- Commissioned Research on new tools for capturing utility. Improving cross-sector comparisons: Beyond QALY
  - [https://www.mrc.ac.uk/funding/how-we-fund-research/highlight-notices/improving-cross-sector-comparisons-beyond-qaly/](https://www.mrc.ac.uk/funding/how-we-fund-research/highlight-notices/improving-cross-sector-comparisons-beyond-qaly/)
- AHRQ programme on Nutrition interventions and their analysis
INPHORM IG

Aim
- Promote early involvement of all relevant parties for establishing nutrition-specific HTA principles and standards
- Build a solid methods foundation for optimally designed population-based nutrition oriented studies.
- Empower professionals and citizens to focus on prevention through lifestyle, including nutrition, as a way to ensure health care systems sustainability

Challenges
- In general, no prescription, no reimbursement => no interest!
- The citizen is the “decision maker”
- Measurement of daily functioning and wellbeing/outcomes over a long timespan
- Need for cross-sectorial working between health and non-health system stakeholders
Update on 2014-2015 actions

- Publication of an Editorial in the IJTAHC
- Poster Presentation at the WCPHN
- Conference at the annual meeting of the Canadian Nutrition Society
- Panel session during the HTAi conference in Oslo
- Abstract submission for workshop at EUPHA (Oct):
  Metrics to analyze public health interventions that aim to impact on CVD prevention: a HTA perspective
- Frontiers Research Topic
- Master course initiative
Conclusions and discussion

• **Health technology assessment** can provide clear guidance in the design of nutrition trials, re desirable characteristics to maximise policy relevance.

• The assessment of the value-for-money of nutrition interventions should be a common goal for regulatory authorities, public health policymakers, and the scientific community.
Conclusions and discussion (II)

• Need to change the policy/decision context to create a level playing field where better nutrition can be supported and where ‘competing’ modalities are required to demonstrate superiority

• Need to encourage critical debate – in context of health system reform agendas

• Joint actions required in a disperse community (EUPHA, HTAi, ISPOR,...)
More...

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