Linking HTA to Clinical Research

Dr Máirín Ryan

Health Information and Quality Authority
An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

HIQA & Health Technology Assessment (HTA)

The functions of the Authority include…

Health Act 2007

"To evaluate the clinical & cost-effectiveness of health technologies including drugs & provide advice arising out of the evaluation to the Minister & the Executive"

"To review & make recommendations as the Authority thinks fit in respect of the services, to ensure the best outcomes for the resources available…"

Independent advice to the Minister for Health and the HSE

Health Technologies

Drugs

Medical devices

Diagnostics

Surgical procedures

Organisational & support systems

Health Technology Assessment

HTA answers questions about a health technology including:

What clinical benefits will it deliver?

What effects will it have on patients?

How much will it cost?

What impact will it have on the health service?

Is it good value for money?

Health Technology Assessment

HTA is a decision support tool

Science

Patient wishes

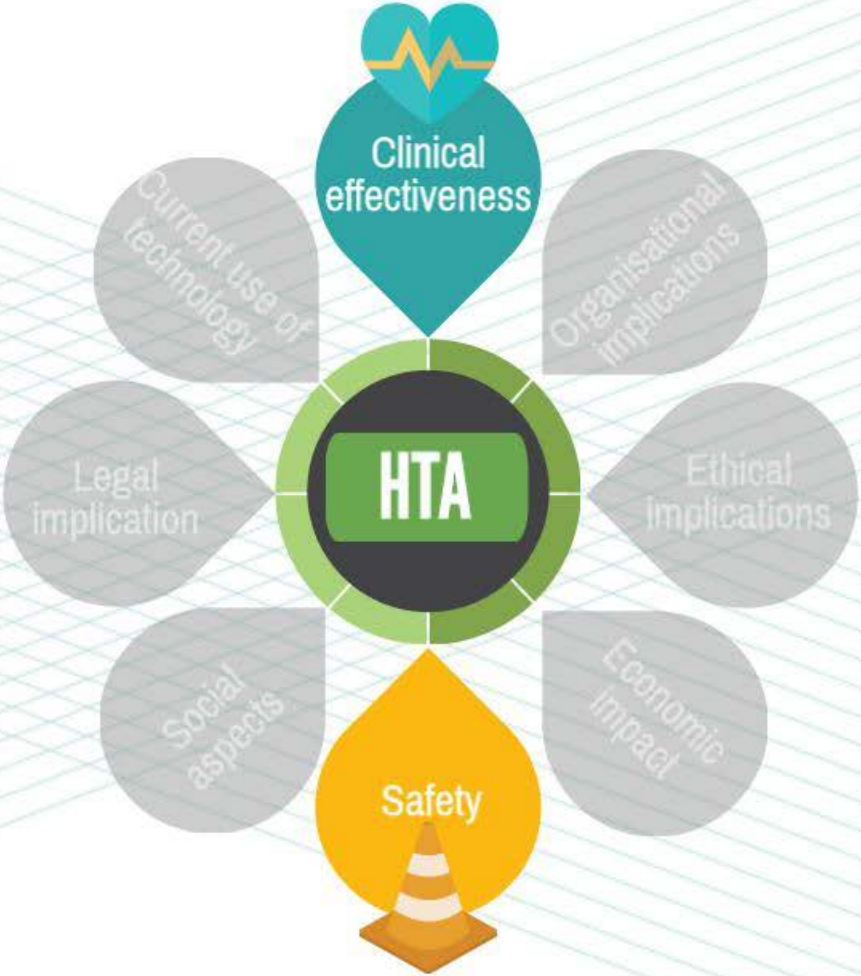
Industry claims

Decision making

Multidisciplinary process, summarises relevant information related to use of a health technology in a systematic, transparent, unbiased and robust manner

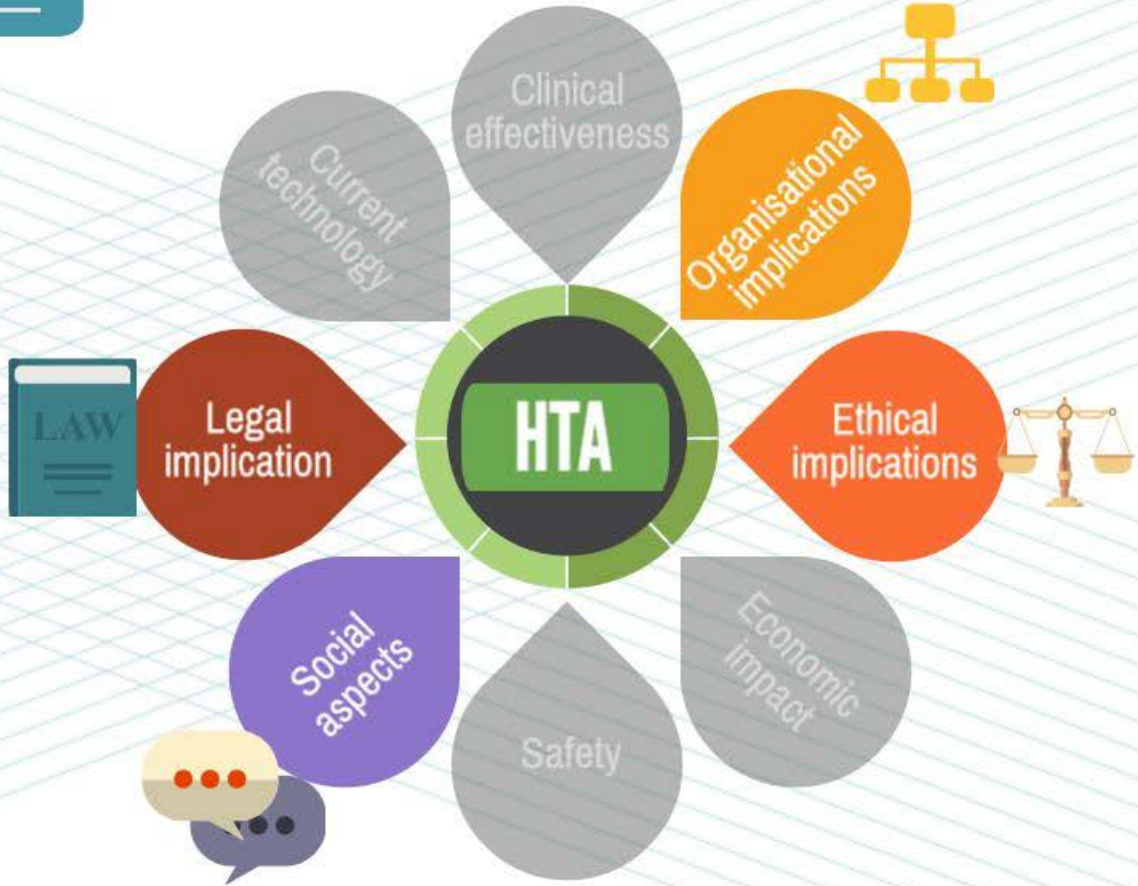
Production of HTA knowledge

Assessment domains



Assessment domains

Assessment domains



Why do we need HTA?

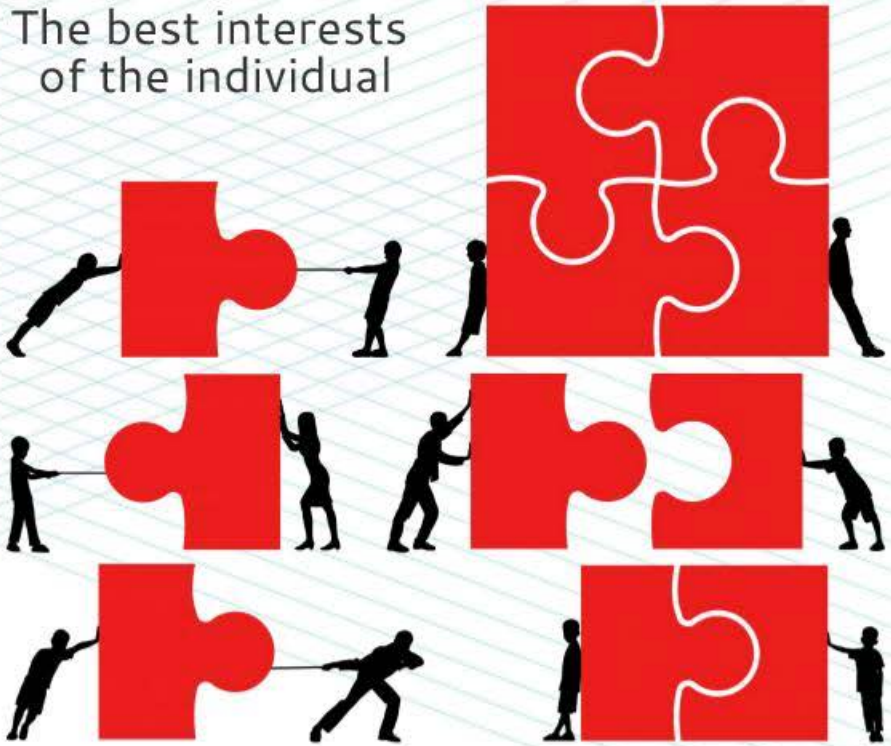
Limited resources

Unlimited 'wants' and new technologies

Choosing between which 'wants' we can 'afford' given our finite resources and budget

Fair & equitable allocation of resources for society

The best interests of the individual



Value-based Healthcare

achieving the best outcomes
at the lowest cost

"the strategy that will fix healthcare"

Parker M, Lee T, Harvard Business Review 2013

HTAs by HIQA

Advice to the HSE

- Chronic disease self management
- Screening for atrial fibrillation in primary care
- Scheduled procedures referral thresholds
- Robotic surgery
- Breast cancer surveillance for high risk women

Advice to the Minister

- Selective BCG vaccination
- National public access defibrillation programme
- ICT to support early warning and clinical handover
- Colorectal cancer screening
- HPV vaccination

Topic selection

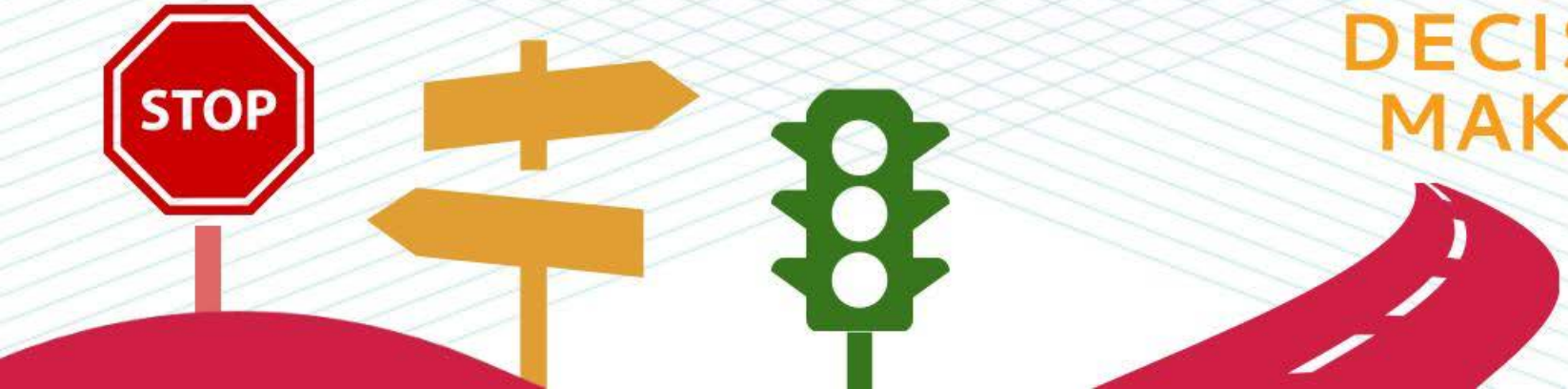
imminent decisions

who decides

what topics

what evidence

DECISION MAKERS



The process

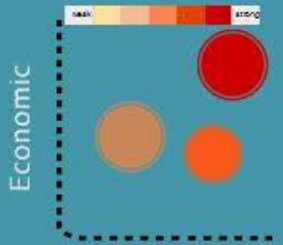
HTA business Inteligence

Horizon scanning

Stakeholder submission of topics

1. Informing topic selection

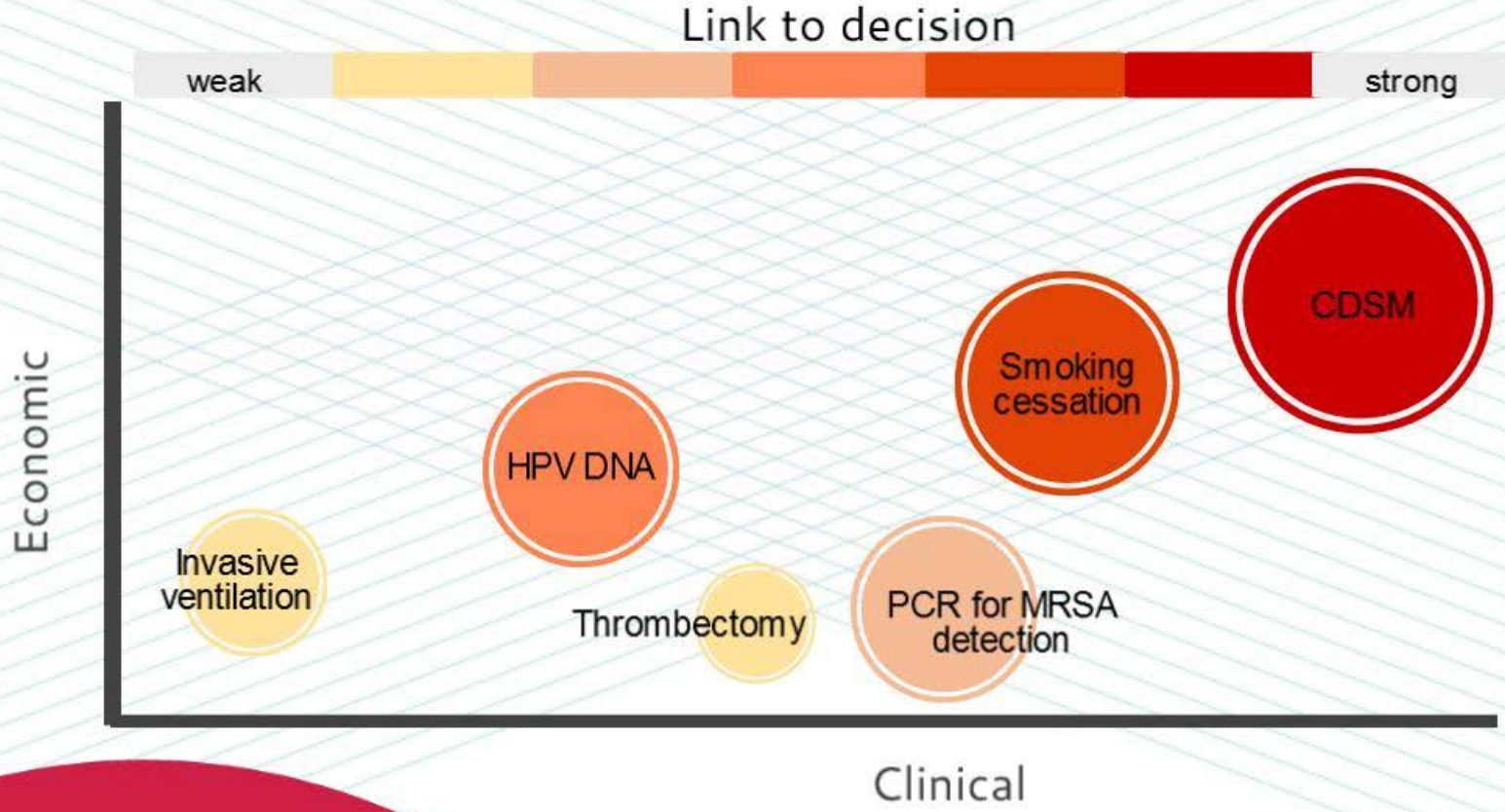
2. Topic selection by decision makers



3. Topic prioritisation

4. HTA workplan

Prioritisation of HTA topics



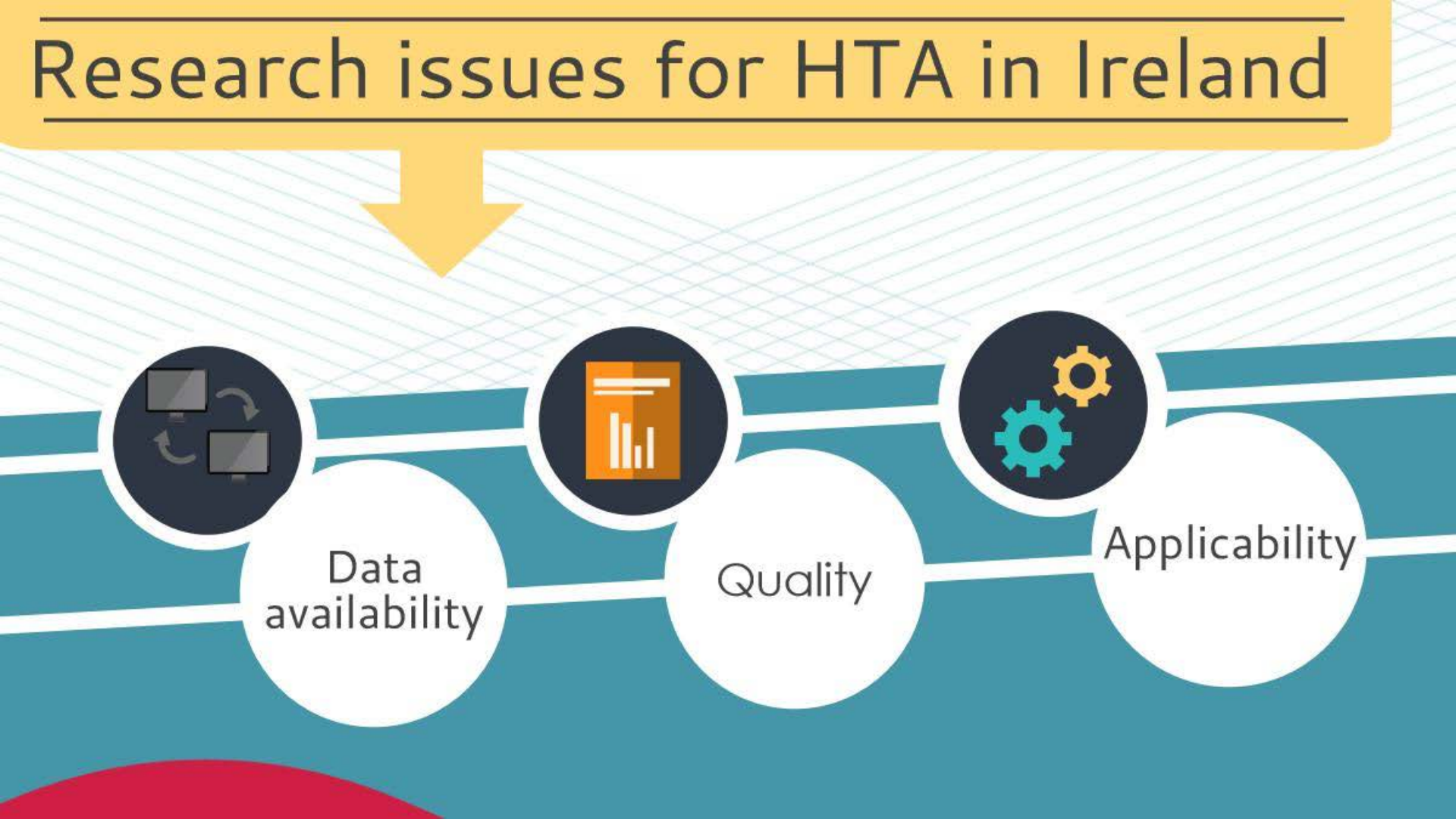
National Clinical Guidelines

"The evidence review should include both clinical and cost-effectiveness to ensure that the clinical guideline is based on best available evidence."

"Resource implications from an Irish health service perspective should be explicit and include equipment, staff, training etc."

NCEC/HIQA QA Criteria 2015

Research issues for HTA in Ireland



Data availability for HTA in Ireland

Epidemiology
NCR, OHCAR (Out-of-hospital cardiac arrest)

Clinical effectiveness and safety
Peer reviewed publications

Resource use
HIPE, Clinical care pathways

Unit costs
HSE cost data, Cost of stroke study

Quality of life
Irish data awaited

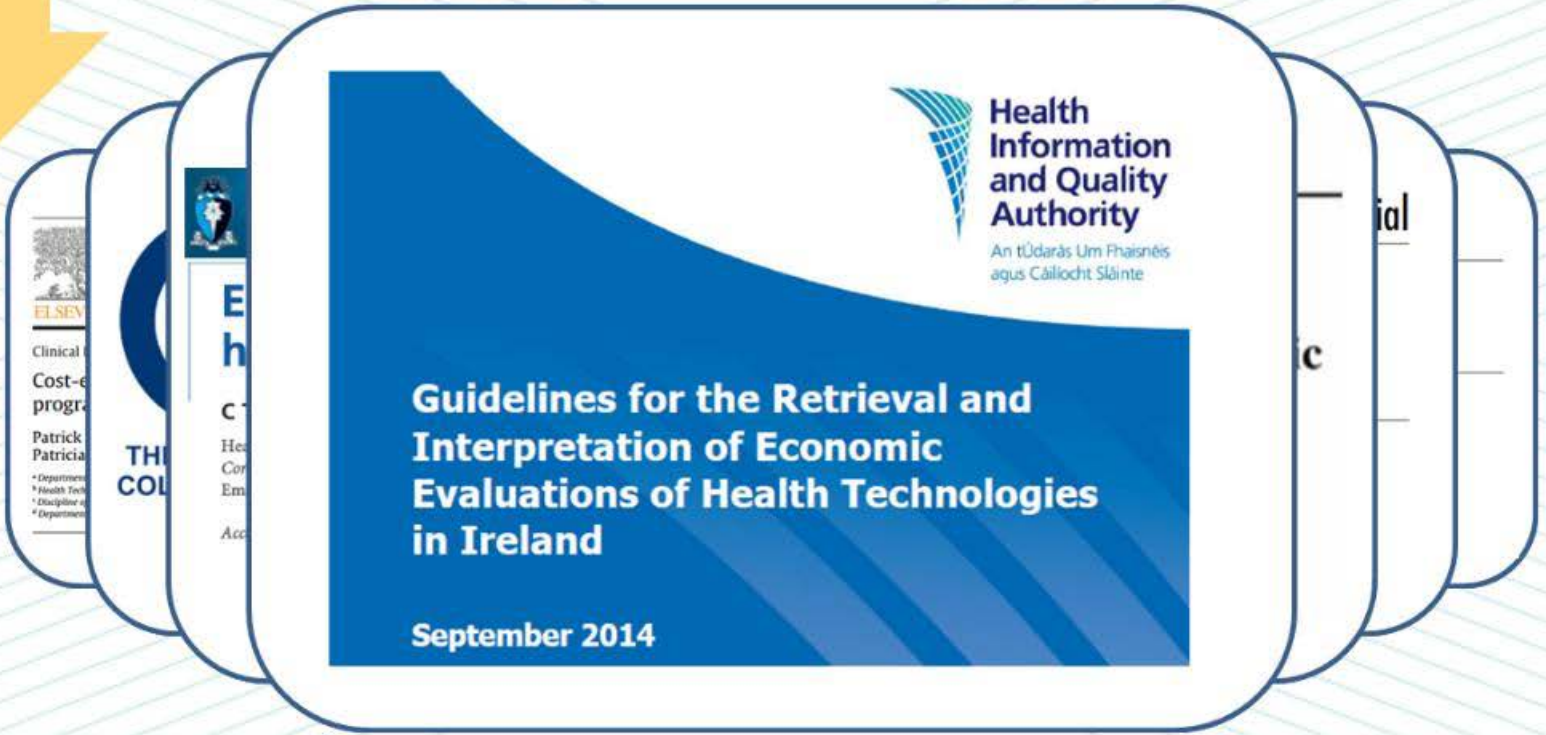
Quality of data for HTA in Ireland

Data quality
– Administrative

Research study design
– Risk of bias

Applicability of data for HTA in Ireland

HTA research outputs



HTA research outputs

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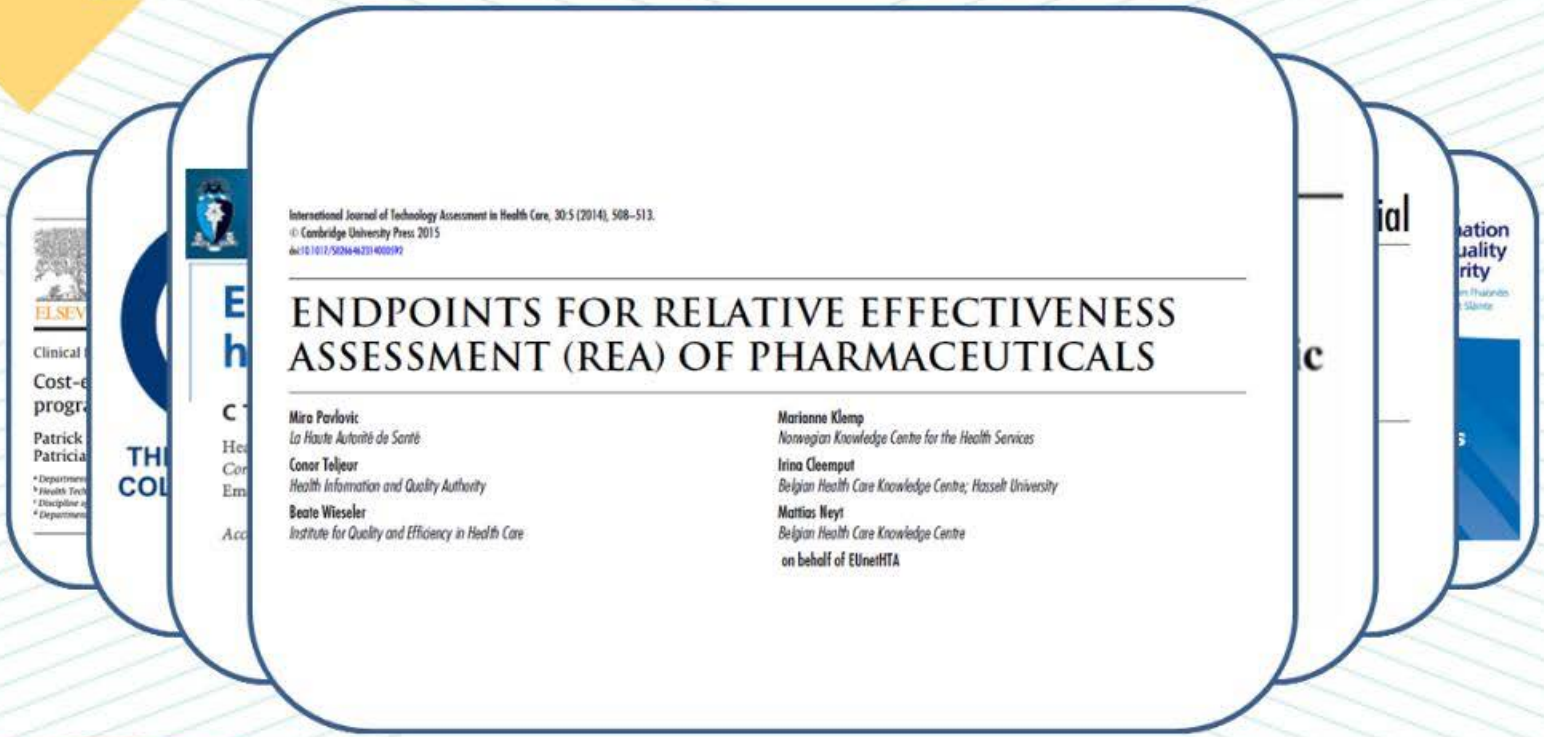
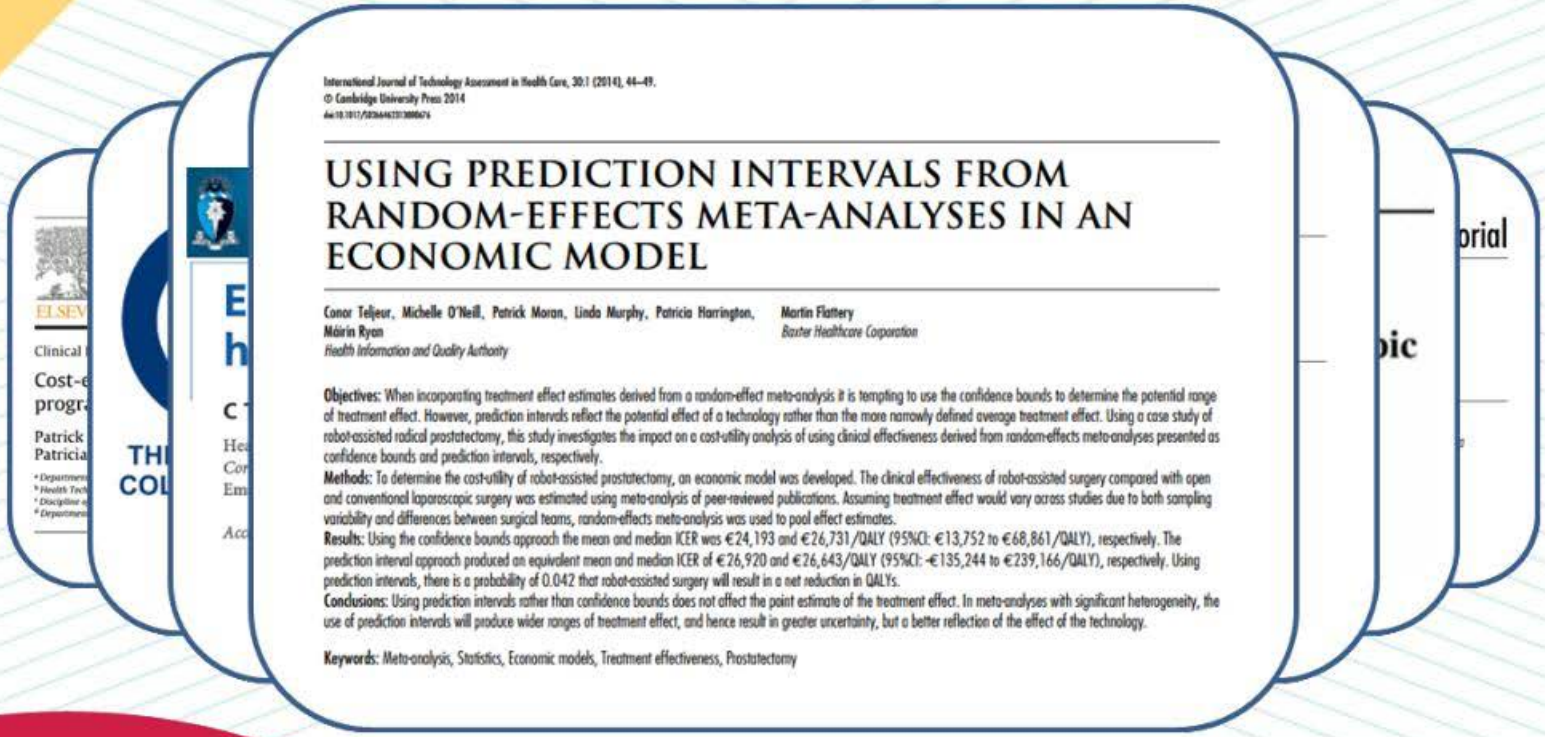


HTA research outputs



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USING PREDICTION INTERVALS FROM RANDOM-EFFECTS META-ANALYSES IN AN ECONOMIC MODEL

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Objectives: When incorporating treatment effect estimates derived from a random-effect meta-analysis it is tempting to use the confidence bounds to determine the potential range of treatment effect. However, prediction intervals reflect the potential effect of a technology rather than the more narrowly defined average treatment effect. Using a case study of robot-assisted radical prostatectomy, this study investigates the impact on a cost-utility analysis of using clinical effectiveness derived from random-effects meta-analyses presented as confidence bounds and prediction intervals, respectively.

Methods: To determine the cost-utility of robot-assisted prostatectomy, an economic model was developed. The clinical effectiveness of robot-assisted surgery compared with open and conventional laparoscopic surgery was estimated using meta-analysis of peer-reviewed publications. Assuming treatment effect would vary across studies due to both sampling variability and differences between surgical teams, random-effects meta-analysis was used to pool effect estimates.

Results: Using the confidence bounds approach the mean and median ICER was €24,193 and €26,731/QALY (95%CI: €13,752 to €68,861/QALY), respectively. The prediction interval approach produced an equivalent mean and median ICER of €26,920 and €26,643/QALY (95%CI: -€135,244 to €239,166/QALY), respectively. Using prediction intervals, there is a probability of 0.042 that robot-assisted surgery will result in a net reduction in QALYs.

Conclusions: Using prediction intervals rather than confidence bounds does not affect the point estimate of the treatment effect. In meta-analyses with significant heterogeneity, the use of prediction intervals will produce wider ranges of treatment effect, and hence result in greater uncertainty, but a better reflection of the effect of the technology.

Keywords: Meta-analysis, Statistics, Economic models, Treatment effectiveness, Prostatectomy

HTA research outputs

HTA research outputs

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Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

EUROPEAN RESUSCITATION COUNCIL

Clinical Paper

Cost-effectiveness of a national public access defibrillation programme☆

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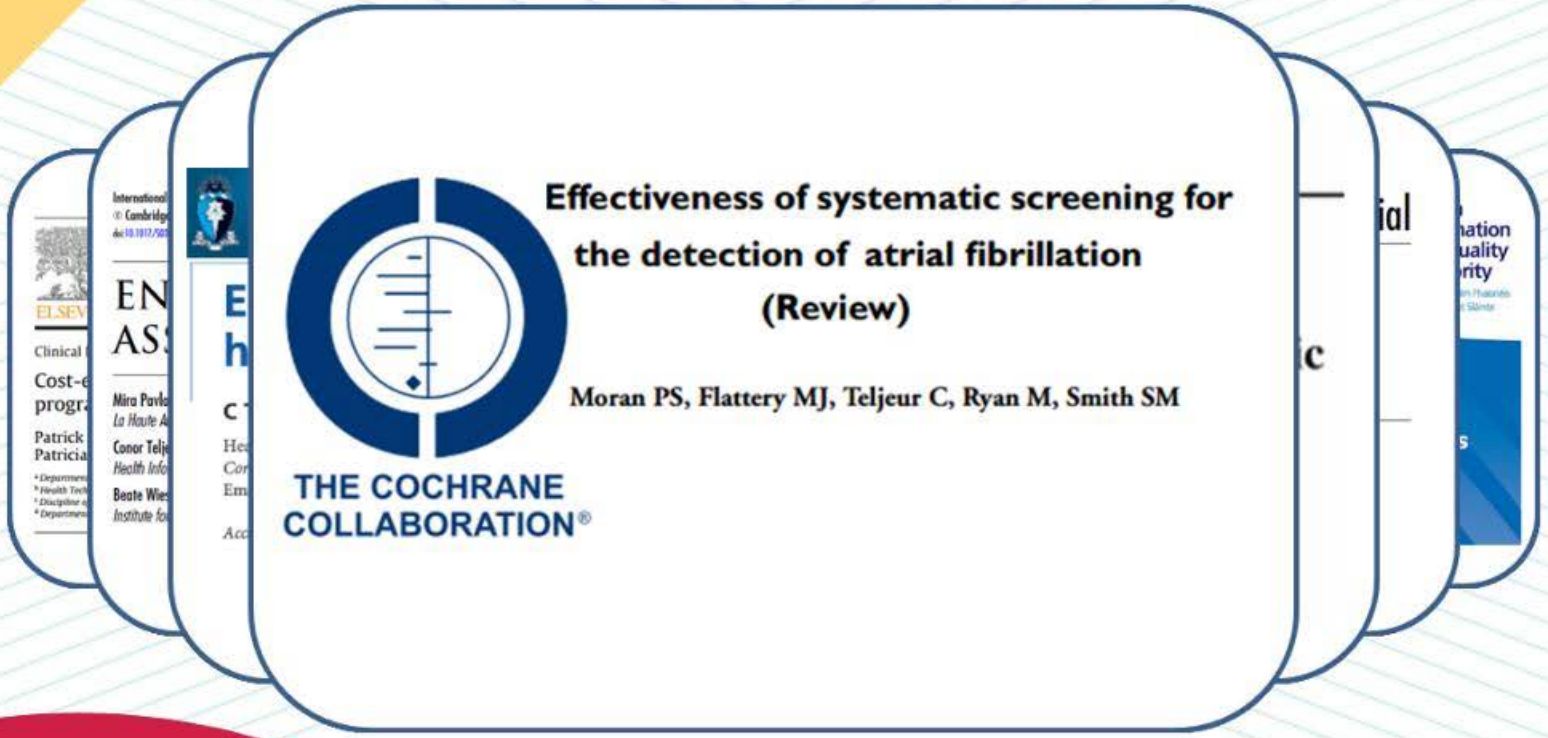
HTA research outputs



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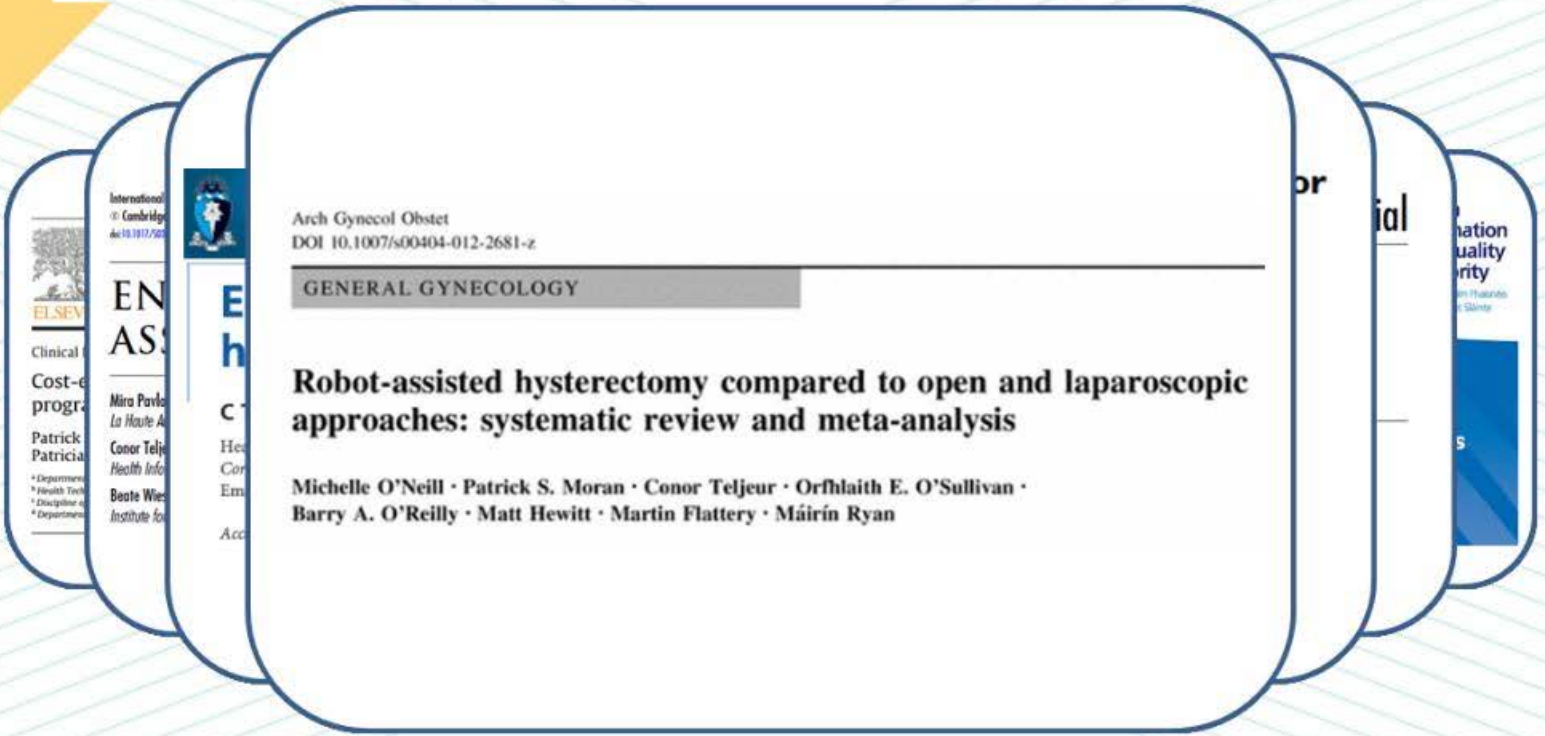

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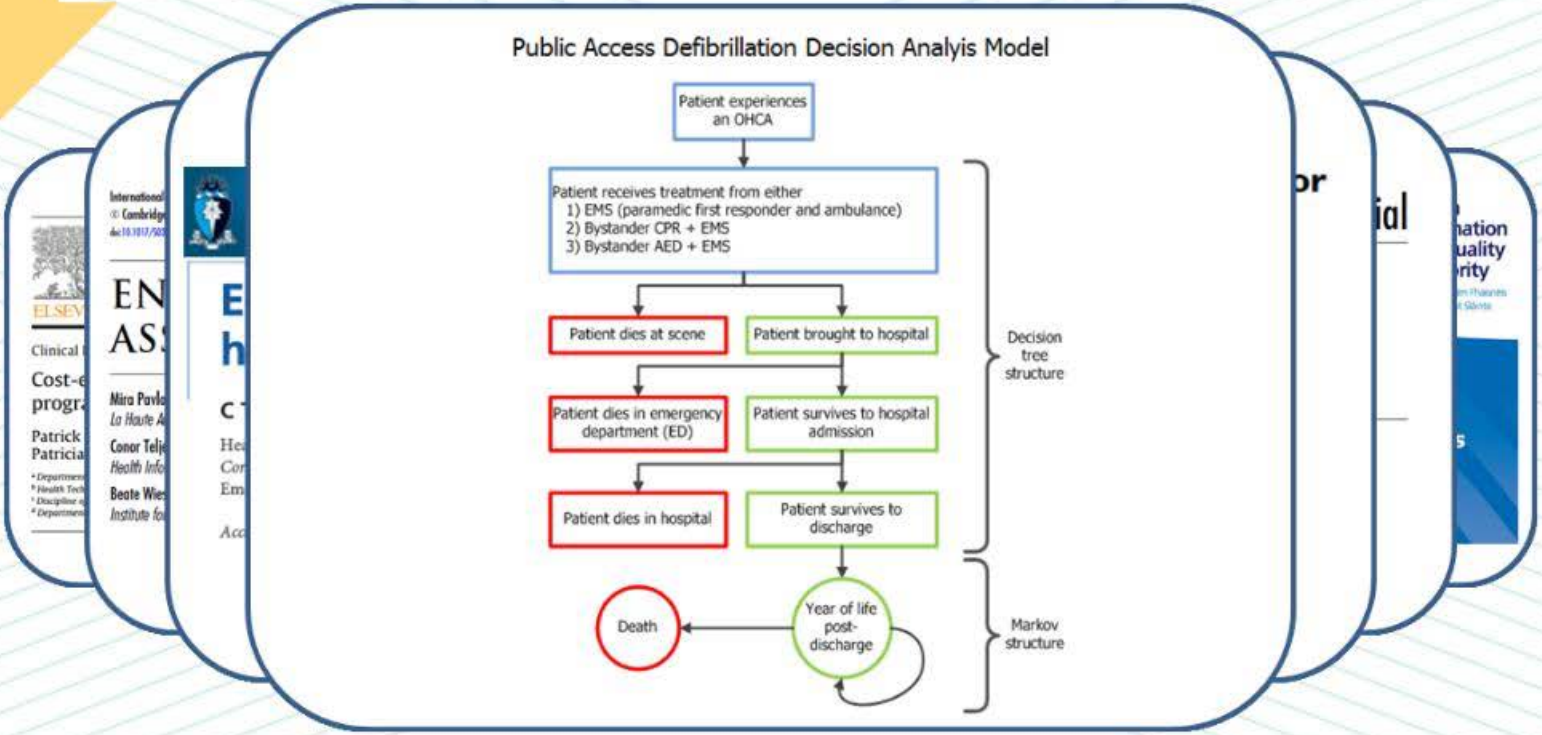

HTA and the research agenda

Focus on translational research and ensuring that research outputs drive improvements in outcomes and services e.g. HTA

Increasing realisation of the value of HTA by DoH and HSE and so HTA increasingly influencing decision making

Opportunity to translate clinical and health services research to outcomes for patients through HTA and National Clinical Guidelines

HTA and the research agenda

- Integral part of Health Services Research
- Dependent on availability of highly skilled researchers
- Dependent on availability of high quality research inputs (data)
- Dependent on availability of high quality research outputs (relevant studies)

Greater integration is required between decision makers, the HTA and research communities to ensure that the right data are available for the right analysis to support evidence-based decision making.

HTA
in a highly functioning
research environment
is a key part of the solution
to sustainable healthcare

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Acknowledgement

Colleagues at the Health Information and Quality Authority