



# Health Economics in National Guidance

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## Outline

- “Reference Programs” as piloted in Denmark
- Health Technology Assessment (HTA)
  - Diagnosis and management of Rheumatoid Arthritis
  - Reduction in the risk of cervical cancer by vaccination against human papilloma virus (HPV)
- Comparative Effectiveness Research / HTA
  - Rationality and decision-making

## Clinical Practice Guidelines - Danish National Board of Health's Definition

- A "Reference Program" is a systematic description of diagnosis, treatment, and care of a specific disease or a complex of symptoms
- The description should ideally include organizational and health economic considerations and describe the data collection needed for quality surveillance

# HTA definition

- **HTA** is a multidisciplinary process that summarizes information about the medical, social, economic and ethical issues related to the use of a health technology in a **systematic, transparent, unbiased, robust** manner
- Its aim is to **inform** the formulation of safe, effective, **health policies** that are **patient focused** and seek to achieve **best value**
- Despite its policy goals, HTA must always be **firmly rooted** in **research** and the **scientific method**

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## "The four boxes" - the Danish model

<b>Technology</b> <ul style="list-style-type: none"><li>➤ Area of application</li><li>➤ Effectiveness</li><li>➤ Risk assessment</li></ul>	<b>Patient</b> <ul style="list-style-type: none"><li>➤ Psychological aspects</li><li>➤ Social aspects</li><li>➤ Ethical aspects</li></ul>
<b>Organisation</b> <ul style="list-style-type: none"><li>➤ Structure</li><li>➤ Staff</li><li>➤ Environment</li></ul>	<b>Economy</b> <ul style="list-style-type: none"><li>➤ Societal health economic appraisal</li><li>➤ Operational economic appraisal</li></ul>

# Domains of HTA

- Identified in previous EU projects, particularly EUR-ASSESS and ECHTA/ECAHI
- Promote the wide scope and multidisciplinary nature of HTA

<b>Health problem and current use of technology</b>
<b>Technical characteristics</b>
<b>Safety</b>
<b>Clinical effectiveness</b>
<b>Costs and economic evaluation</b>
<b>Ethical analysis</b>
<b>Organizational aspects</b>
<b>Social aspects</b>
<b>Legal aspects</b>

# Rheumatoid Arthritis (RA) Diagnosis and Management

Clinical Practice Guidelines and HTA defined three scenarios:

- Model A: slowly-acting anti-rheumatic drugs (DMARD) – baseline
- Model B: TNF-alpha antagonists to all newly diagnosed patients plus patients who fail to respond to DMARD
- Model C: TNF-alpha antagonists solely to patients who fail to respond to DMARD

## Rheumatoid Arthritis (RA) Diagnosis and Management

Estimated number of patients in TNF-alpha antagonist treatment after 5 years:

- Model A: – baseline
- Model B: Approximately 6200 - 7400 patients
- Model C: Approximately 1600 - 1900 patients



## Model B. Additional costs of drugs and additional staff

### Infliximab:

- First year: 23 million US \$
- Fifth year: 86 million US \$

### Etanercept:

- First year: 29 million US \$
- Fifth year: 159 million US \$

## Model C. Additional costs of drugs and additional staff

### Infliximab:

- First year: 10 million US \$
- Fifth year: 23 million US \$

### Etanercept:

- First year: 12 million US \$
- Fifth year: 40 million US \$

## National Clinical Quality Database

- DANBIO is a Danish nationwide rheumatological online database of biological and non-biological treatments for Rheumatoid Arthritis [www.danbio-online.dk](http://www.danbio-online.dk).
- All 25 rheumatological departments contribute
- Estimated coverage of patients treated with biologicals: 93 % in 2009
- By end of 2009 a total of **3170 patients** with chronic RA were treated with biologicals

## Danish report on HPV vaccination, 2007

- Investigate the prerequisites for and consequences of introducing the HPV vaccination in Denmark, including a possible implementation of HPV vaccination in the Danish childhood immunisation programme in different scenarios
- Analyse circumstances of HPV infection, cervical cancer and the appropriate vaccines
- Investigate and analyse parents' and young peoples' attitudes to and acceptance of HPV vaccination based on focus group discussions
- Discuss ethical aspects of HPV vaccination
- Assess how to organise an HPV vaccination programme
- Determine the vaccines' effect on the frequency of HPV 16 and 18 infection, cell changes as well as cervical cancer in different vaccination scenarios
- Perform a health economic assessment of an HPV vaccination programme

## Danish report on HPV vaccination, 2007

There are four general target group scenarios for a vaccination programme with the HPV vaccination:

- girls of a certain age, e.g. 12 years
- girls and boys of a certain age
- girls of a certain age, including a catch-up programme
- girls and boys of a certain age, including a catch-up programme

12-year old girls  
ICER:  
US\$ 15,000/ year

Tabel 7.11. Gennemsnitlig levetidsgevinst samt omkostningseffektratio pr. vaccineret årgang givet forskellige vaccinationsscenerier sammenlignet med nuværende praksis (dvs. ingen vaccination).

Vaccinationsscenerium	Tidsperiode	Total gennemsnitlig levetidsgevinst pr. vaccineret årgang (nutidsværdi)	Inkremental omkostnings-effektratio
Årlig vaccination af 12-årige piger (70% dækning)	Vaccination i 62 år (1.-62. år)	447 år	85.145 kr./år
Årlig vaccination af 12-årige piger (85% dækning)	Vaccination i 62 år (1.-62. år)	473 år	111.013 kr./år
Årlig vaccination af 12-årige piger med catch-up til 19 år i første vaccinationsår (70% dækning)	Vaccination i 62 år (1.-62. år)	505 år	101.526 kr./år
Årlig vaccination af 12-årige piger med catch-up til 19 år i første vaccinationsår (85% dækning)	Vaccination i 62 år (1.-62. år)	507 år	138.059 kr./år
Årlig vaccination af 12-årige piger med catch-up til 15 år i første vaccinationsår (70% dækning)	Vaccination i 62 år (1.-62. år)	483 år	88.906 kr./år
Årlig vaccination af 12-årige piger med catch-up til 17 år i første vaccinationsår (70% dækning)	Vaccination i 62 år (1.-62. år)	495 år	95.123 kr./år
Årlig vaccination af 12-årige piger og drenge (70% dækning)	Vaccination i 62 år (1.-62. år)	470 år	233.020 kr./år
Årlig vaccination af 12-årige piger og drenge (85% dækning)	Vaccination i 62 år (1.-62. år)	495 år	280.448 kr./år
Årlig vaccination af 12-årige piger og drenge med catch-up til 19 år i første vaccinationsår (70% dækning)	Vaccination i 62 år (1.-62. år)	509 år	278.838 kr./år
Årlig vaccination af 12-årige piger og drenge med catch-up til 19 år i første vaccinationsår (85% dækning)	Vaccination i 62 år (1.-62. år)	513 år	350.974 kr./år



12-year old girls and boys  
ICER:  
US\$ 40,000/ year

#### 7.3.3.3.3 Inklusion af indirekte omkostninger

De resultater, som er præsenteret hidtil, inkluderer på omkostningssiden ekstra omkostninger til vaccination samt sparede behandlingsomkostninger. De indirekte omkostninger (i form af reduceret produktionstab) medtages i dette afsnit.

Det forhold, at resultater med inklusion af de indirekte omkostninger præsenteres særskilt, hænger sammen med, at det i fx guideliner for sundhedsøkonomiske evalueringer (se fx (127)) diskuteres, om de indirekte omkostninger i det hele taget skal inkluderes eller ej. Det skyldes bl.a., at inklusion af reduceret produktionstab indeholder en alders-

12-year old girls  
ICER including  
reduced production loss:  
US\$ 2,000/ year

**Tabel 7.12. Gennemsnitlig omkostningseffektratio og omkostningseffektratio (inklusive reduceret produktionstab) pr. vaccineret årgang.**

Vaccinationsscenarium	Tidsperiode	Inkremental omkostnings-effektratio	Inkremental omkostnings-effektratio (inklusive reduceret produktionstab)
Årlig vaccination af 12-årige piger (70% dækning)	Vaccination i 62 år (1.-62. år)	85.145 kr./år	11.396 kr./år
Årlig vaccination af 12-årige piger (85% dækning)	Vaccination i 62 år (1.-62. år)	111.013 kr./år	37.265 kr./år
Årlig vaccination af 12-årige piger med catch-up til 19 år i første vaccinationsår (70% dækning)	Vaccination i 62 år (1.-62. år)	101.526 kr./år	27.777 kr./år
Årlig vaccination af 12-årige piger og drenge (70% dækning)	Vaccination i 62 år (1.-62. år)	233.020 kr./år	159.272 kr./år



12-year old girls and  
boys  
ICER including reduced  
production loss:  
US\$ 27,000/ year

## Comparative Effectiveness Research / Analysis – as defined by US Institute of Medicine

- CER is the generation and synthesis of evidence that compares the benefits and harms of alternative methods to prevent, diagnose, treat and monitor a clinical condition, or to improve the delivery of care. The purpose of CER is to assist consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels

IOM. 2009. *Initial National Priorities for Comparative Effectiveness Research*. Washington, DC: The National Academies Press.



## Comparative Effectiveness Research / Analysis – as defined by American College of Physicians

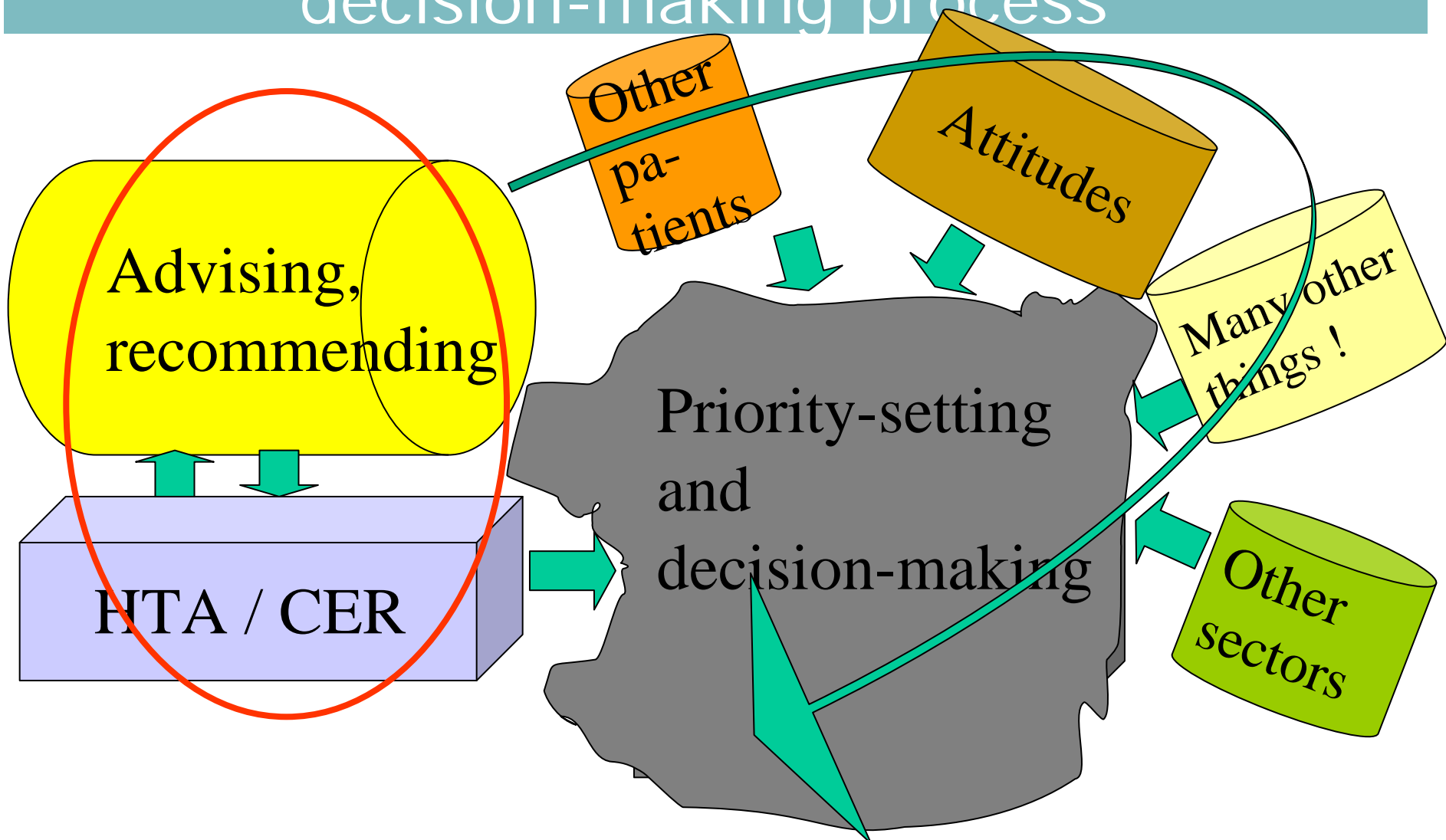
- Comparative effectiveness analysis evaluates the relative (clinical) effectiveness, safety, and cost of two or more medical services, drugs, devices, therapies, or procedures used to treat the same condition
- Although the use of the term comparative effectiveness broadly refers to the evaluation of both the relative clinical and cost differences among different medical interventions, it is notable that most comparative effectiveness research engaged in and used by stakeholders in this country, focuses solely on evaluating relative clinical differences to the exclusion of cost factors

Philadelphia: American College of Physicians; 2008: Position Paper.

## The US Patient-Centered Outcomes Research Institute (The Patient Protection and Affordable Care Act 2010)

- Centers for Medicare and Medicaid Services (CMS) may use Comparative Effectiveness Research to establish differential copayments, which could be used in a value-based insurance design program
- The bill specifically prohibits any cost-effectiveness analysis that would use any adjusted life years factor that would place lower value on the life of elderly, disabled, or terminally ill individuals compared to younger and healthier individuals

# Rationality is only a part of the decision-making process





Thank you !