



What's in the crystal ball? The future of healthcare HP get ready



**Kjeld Møller Pedersen
Professor of health economics and health policy
University of Southern Denmark
Aalborg University
kmp@sam.sdu.dk**

"Conflict of interest: nothing to disclose"

Outline

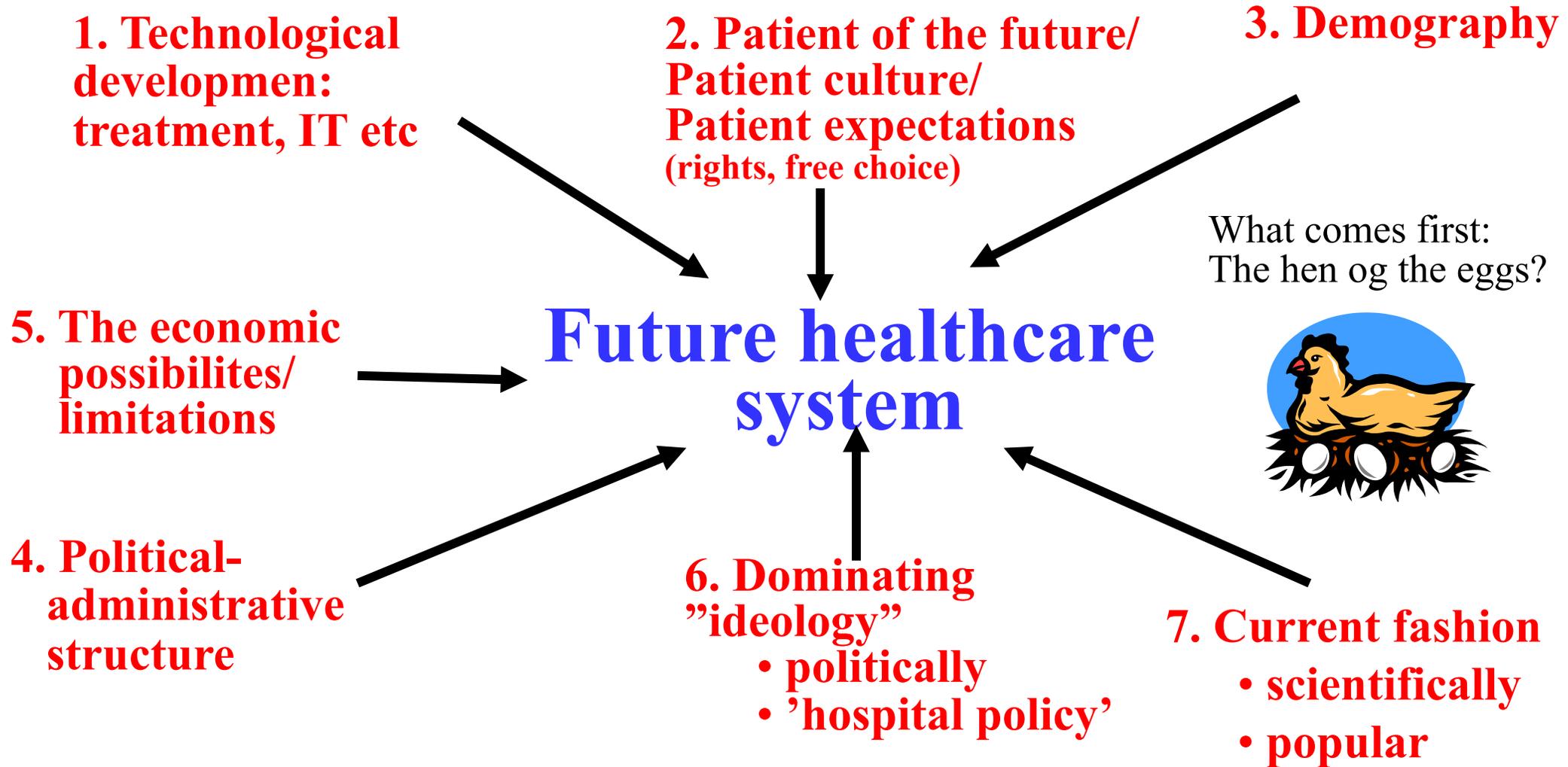
1. Framework for looking at the future of health care
2. Patient of the future
3. Technology – future trends
4. Demography/aging
5. The economics of the future health care
 - Is it sustainable?

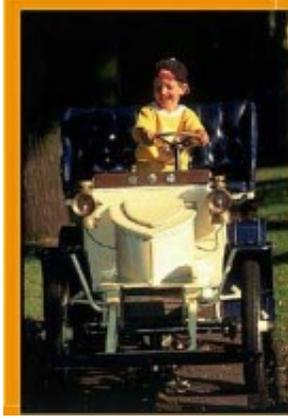
3 self-assessment questions

1. Technological progress (new treatments etc) is the main force shaping future health care? (T/F)
2. Robotic surgery systems are substitutes for surgeons?
(T/F)
3. Income is the main driver of health care spending growth, accounting for about half of the projected growth in health spending? (T/F)

Framework

Factors shaping development in healthcare





Possible relationships



➔ **1. The technological possibilities**

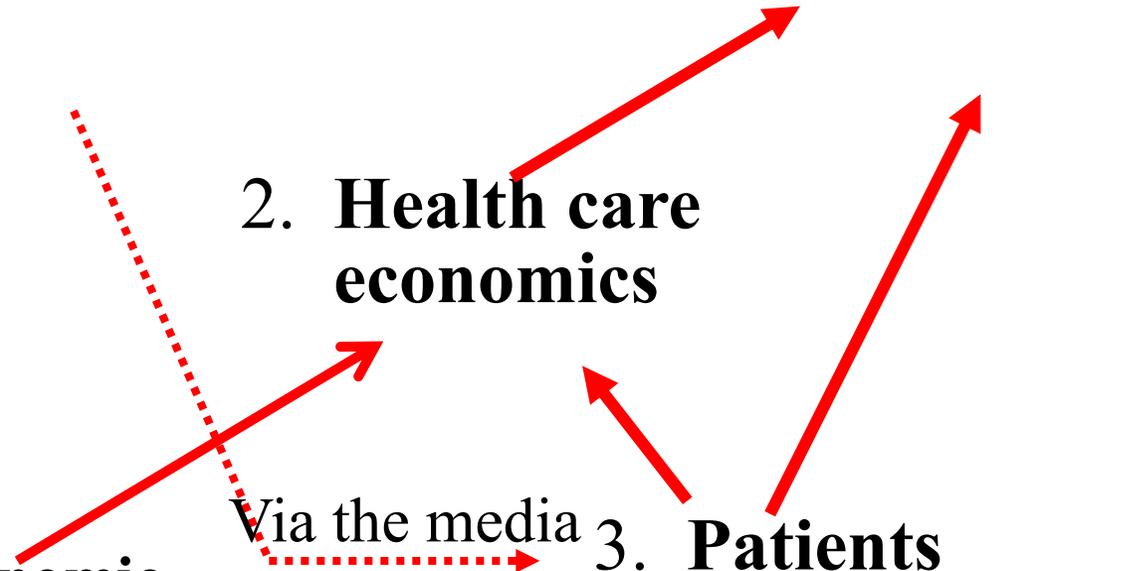
2. Health care economics

Via the media **3. Patients**

- demography
- patient rights

4. Organisational-structure & political-administrative management/ leadership

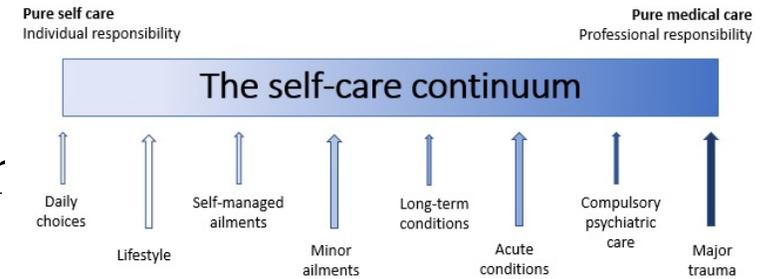
The macro economic conditions/ possibilities



Patient of the future

1. Patient empowerment

- Patient rights
- Shared decision making
- Patient consumerism/activism



2. Patient centered care

3. Respect for health professionals is conditional

4. Boundless expectations

- But not individually deep pockets

5. The digitally smart patient

- The virtual patient
 - Virtual care enables healthcare personnel to collaborate with patients and each other via a digital interface and deliver care remotely.

Google Health
Apple health
Microsoft health
Facebook health

- Much hype
- Influence?

Technological development/ Treatments of the future

- No disruption but gradual development ...



‘technology’ refers to the procedures, equipment and processes by which health care is delivered.

Observations on emerging technologies

1. Most "new" have been in the pipeline for a fairly long period of time
 - Long maturation period – not like a disruptive technology
2. Important questions
 - Size of target group (number of patients)
 - A better alternative than the existing offer or 'novel'
 - New or improved technologies usually lead to increased expenditures
 - More patients can be treated (better) than previously
 - Possible changes in the organization of health care

Examples of emerging technologies

1. Gene therapy

- provides a one-time treatment option by rewriting or fixing errors in the natural genetic ciphering
- CRISPR-Cas9

2. Personalized/precision medicine

3. Regenerative medicine

- process of replacing, engineering or regenerating human cells, tissues or organs to restore or establish normal function
- Stem cells

4. Artificial organs

5. 3D print organs/bones

Emerging Technologies Horizon Scanning Medicines



Increasing interest in horizon scanning:

- Prepare
- Economic consequences



Horizon Scanning

Amgros works systematically to establish an overview of the future opportunities for pharmaceuticals treatments

Denmark



Horizon Scanning overviews **EMA**

Horizon Scanning prepares lists of applications under preliminary evaluation by the European Medicines Agency (EMA). The lists give an overview of applications we expect to have achieved specific status phases in the EMA process at a given point in time.



Pipeline meetings

Pipeline meetings with pharmaceutical companies are an important source of information, when Horizon Scanning forecasts the future drugs on the Danish market

Denmark

What are the consequences of new technology

1. Treat more persons: Better treatment or treatment of hard to treat disease
2. Consequences for health professionals: New ways of working, new competences
3. Financially: New treatments usually mean increased overall costs: Maybe lower unit cost, but if more are treated overall total expenditures will increase
 - Opinions differ, but 25-40% of expenditure increases are due to the introduction of new technology



Demography

- Increasing no. of +65 years old
- Increasing life expectancy
- Increased pressure on the economy

Fairly certain
projections

Inevitable





Development in health expenditures - Is it sustainable?

Economic consequences of an ageing population

- **Added pension costs**
- **Added healthcare costs**

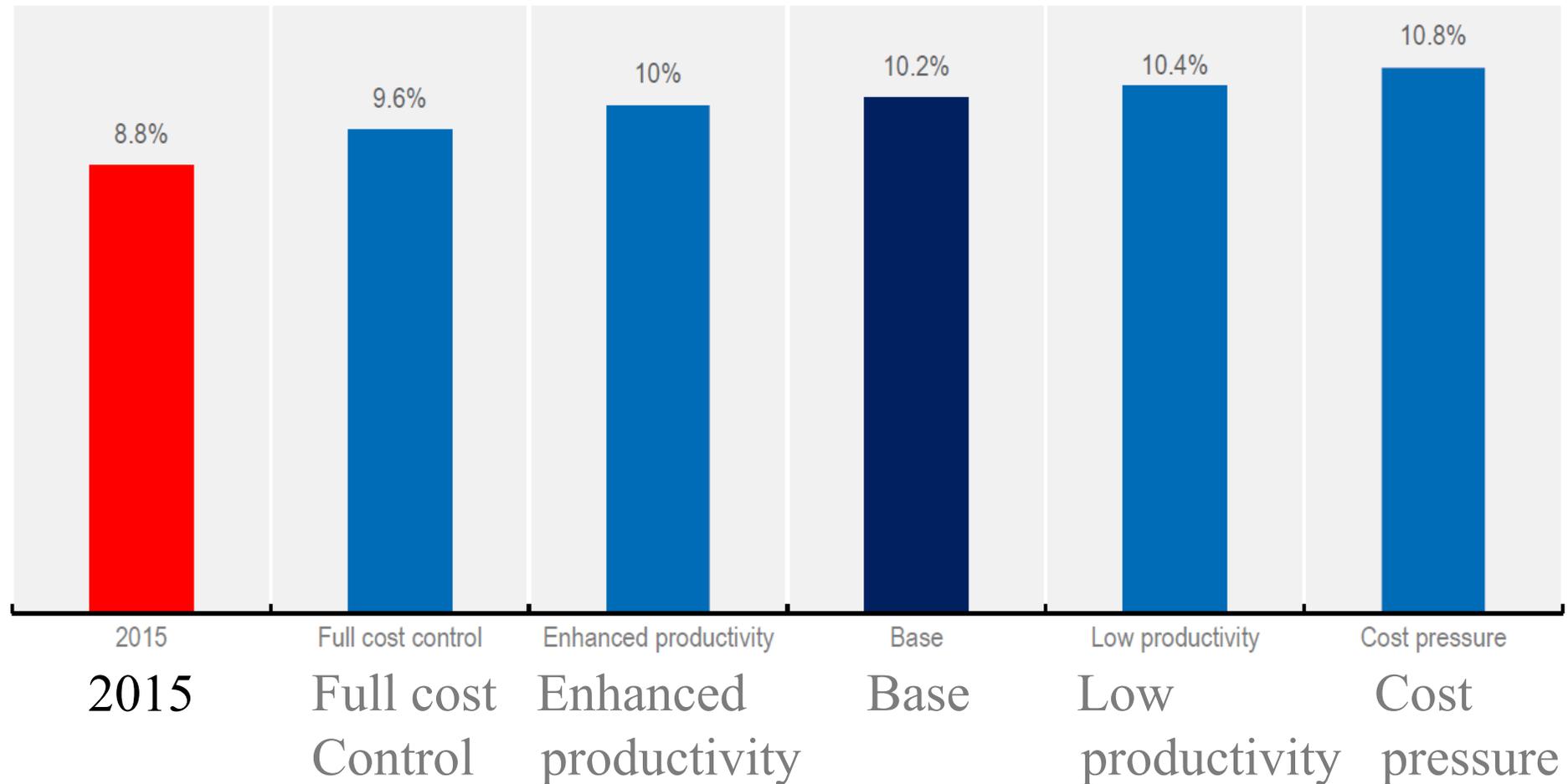
Non-economic consequences

- **Changes in the health care system**
 - **Care of the chronically ill**
- **More medical specialists (hopefully many geriatrics)**

Key drivers of health expenditures

- **Rising incomes (income elasticity)**
- **Productivity constraints (Baumol issue)**
- **Demographic change**
- **Technological progress**

Health spending as a share of GDP, full range of scenarios, 2030. Average across OECD countries



The key issues

1. Is the future growth rate in health expenditures (considerably) higher than the growth rate in the economy at large (GNP growth rate)?
2. If yes: is it sustainable and what is the societal willingness/ability to pay?

Take home messages

1. An aging population is a challenge economically and for the medical specialities. Is geriatrics neglected?
2. Many new technologies are promising – but often overhyped
3. The patient of the future is an impatient consumer focusing on rights
4. It is not realistic for countries to freeze health expenditure.