

# “Measuring Up”

Improving Health Systems Performance in OECD Countries



## CAN WE OPEN THE BLACK BOX OF HEALTH SYSTEMS?

*What can be learned from using a disease-based approach in understanding the performance of health care systems across countries*

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Health  
Canada

Santé  
Canada

Canada

# THE AGEING-RELATED DISEASE PROJECT

- Three conditions to date  
Ischaemic heart disease, stroke, breast cancer
- We acknowledge support from  
the US National Institute on Aging  
the Ministry of Health, Labour and Welfare in Japan
- Key contribution from networks of experts  
60 to 80 experts per network
- Over 20 countries participated in the project

# The goal of the project:

*Use the variations in treatment of particular diseases across countries as a “natural experiment”*

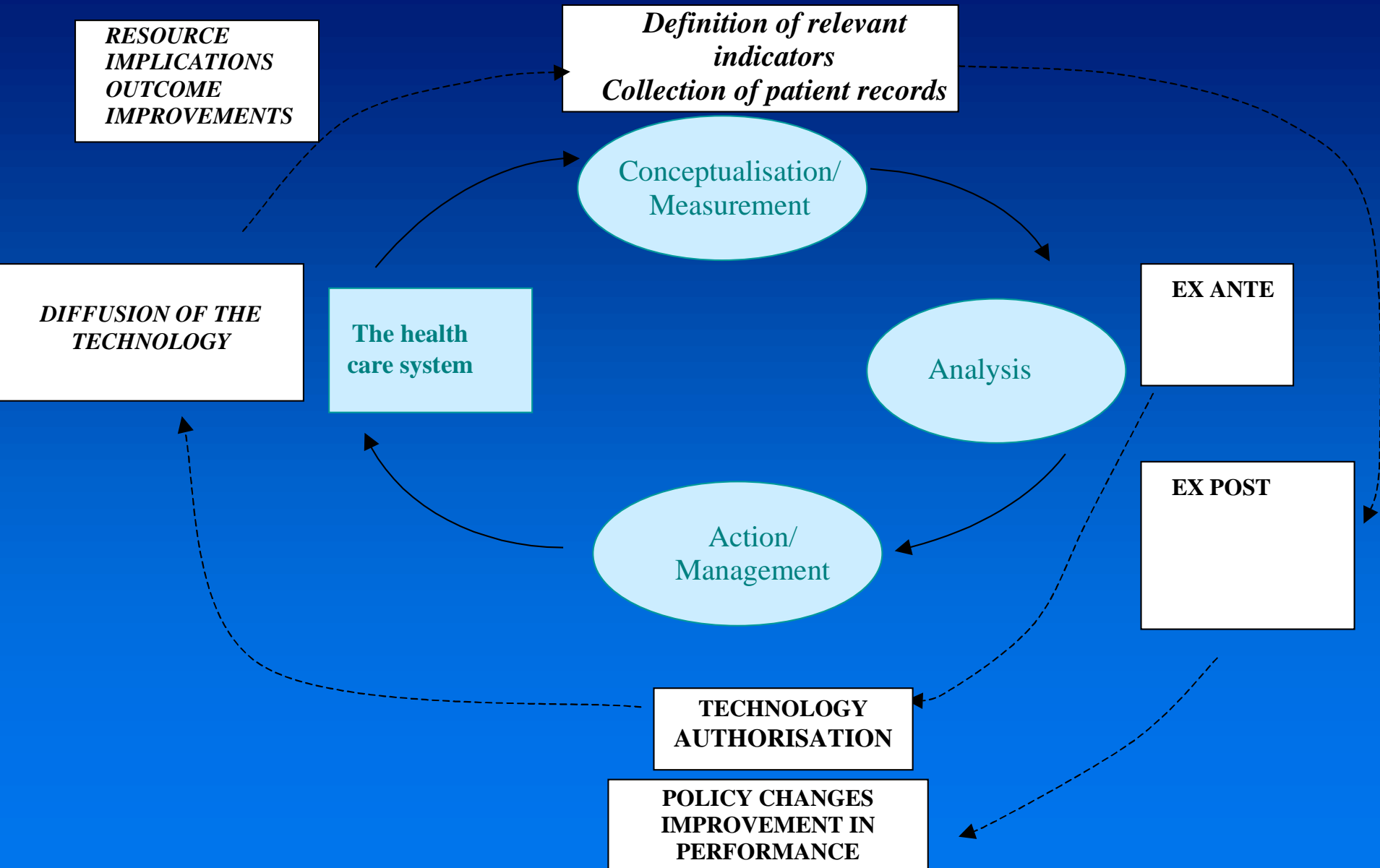
- Are these variations due to
  - Incentives / payment systems?
  - Health policy / regulation / planning?
  - Medical knowledge?
  - Economic circumstances?
- How do countries achieve value for money in treating these diseases?
- Implications for monitoring of health systems

# The approach

- A focus on treatments, costs, and outcomes
- An emphasis on ageing
- Contributions from existing research networks

# An evaluation of technology: Ex “post”

FIGURE 1, THE PERFORMANCE MEASUREMENT AND MANAGEMENT CYCLE AND THE INTRODUCTION OF NEW TECHNOLOGIES



# Reporting on performance

## *The value of a disease-based perspective*

- A disease-based model

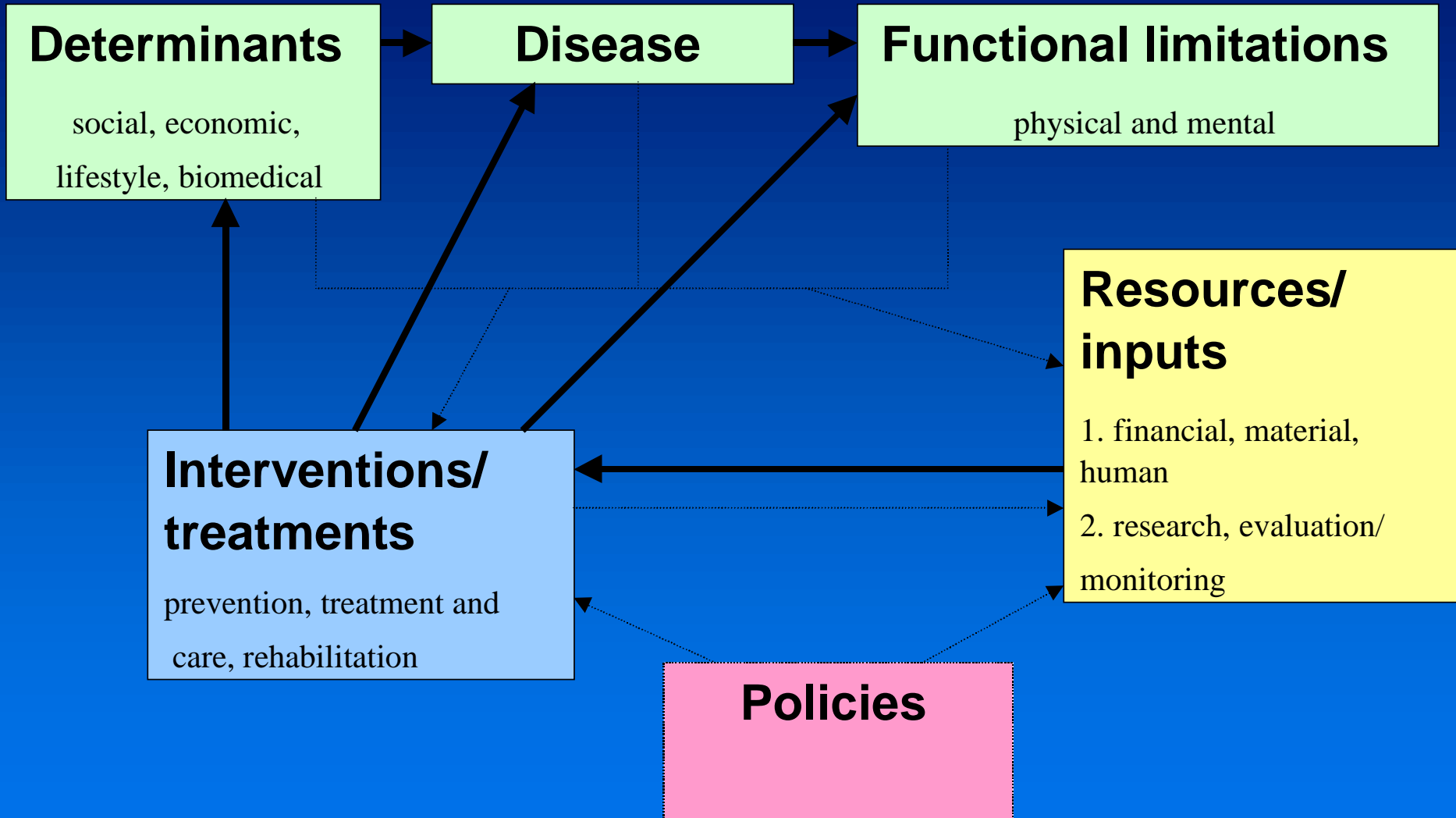
*The potential epidemiological “phases”*

*Interventions/treatments*

*Resources/inputs*

- Actual practice and not clinical trial
- Disease definitions ensure some control for unobserved heterogeneity
- But specific and narrow: several diseases

# A disease-based model of health care system



*Adapted from Evans & Stoddart 1990, AIHW 2000*

# And its relationship to performance monitoring

## *Outcomes*

Health  
OUTCOMES

**Disease  
phases**  
(determinants, disease,  
disability)

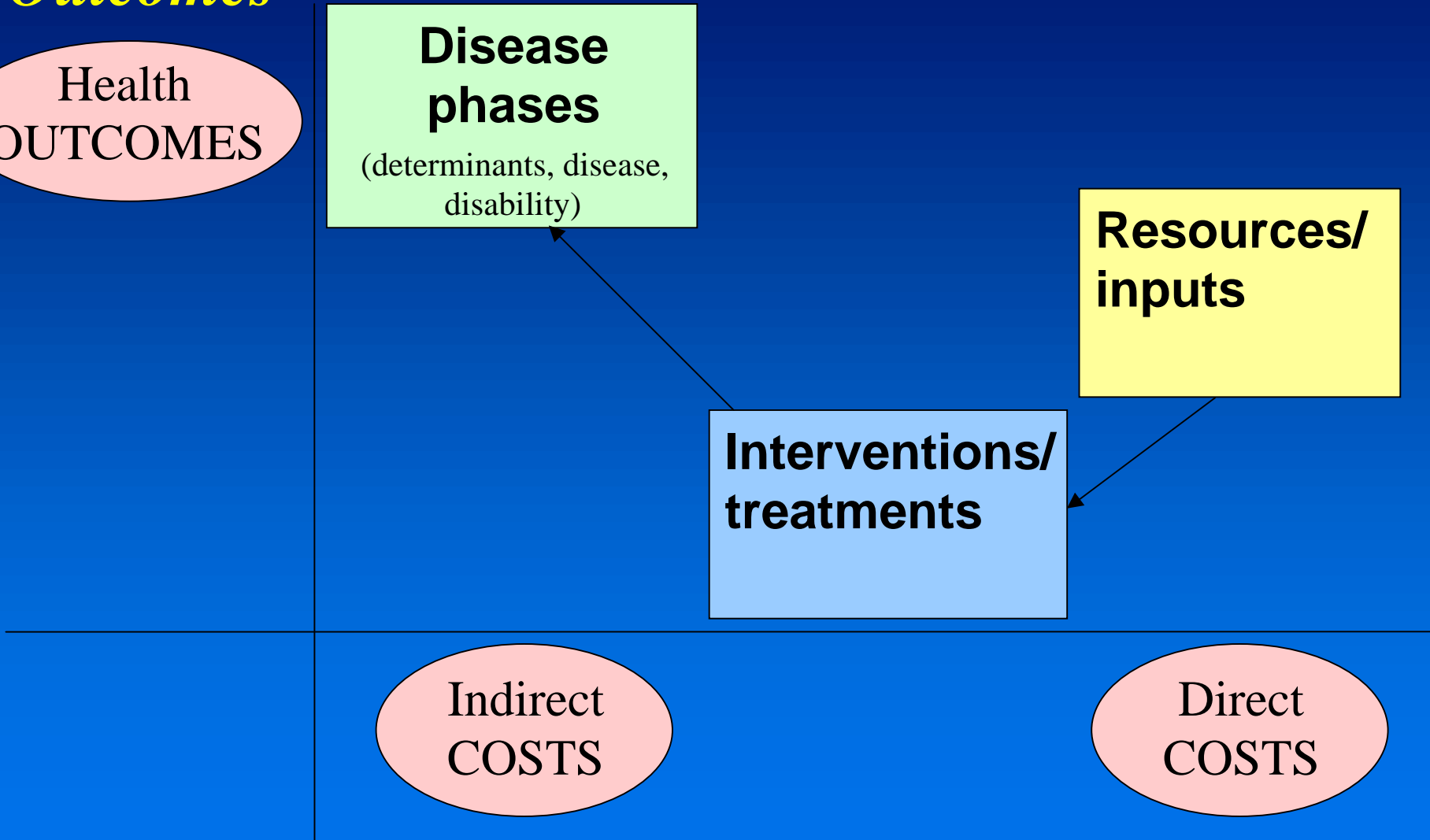
**Resources/  
inputs**

**Interventions/  
treatments**

Indirect  
COSTS

Direct  
COSTS

## *Costs*



# Building the knowledge

## *Making use of existing patient-based health records*

- The value of hospital administrative databases
  - Comprehensive population coverage
  - Link with other records (e.g. death registries)
- Low cost information infrastructure
- Under-exploited for analytical purposes
- Patient-based versus event-based data:
  - Tracking the “episode of care”*
- Outcomes measure: case fatality and readmissions
  - Further need for patients’ perceptions*

# Understanding the drivers of performance

*Medical knowledge, technology and economic incentives*

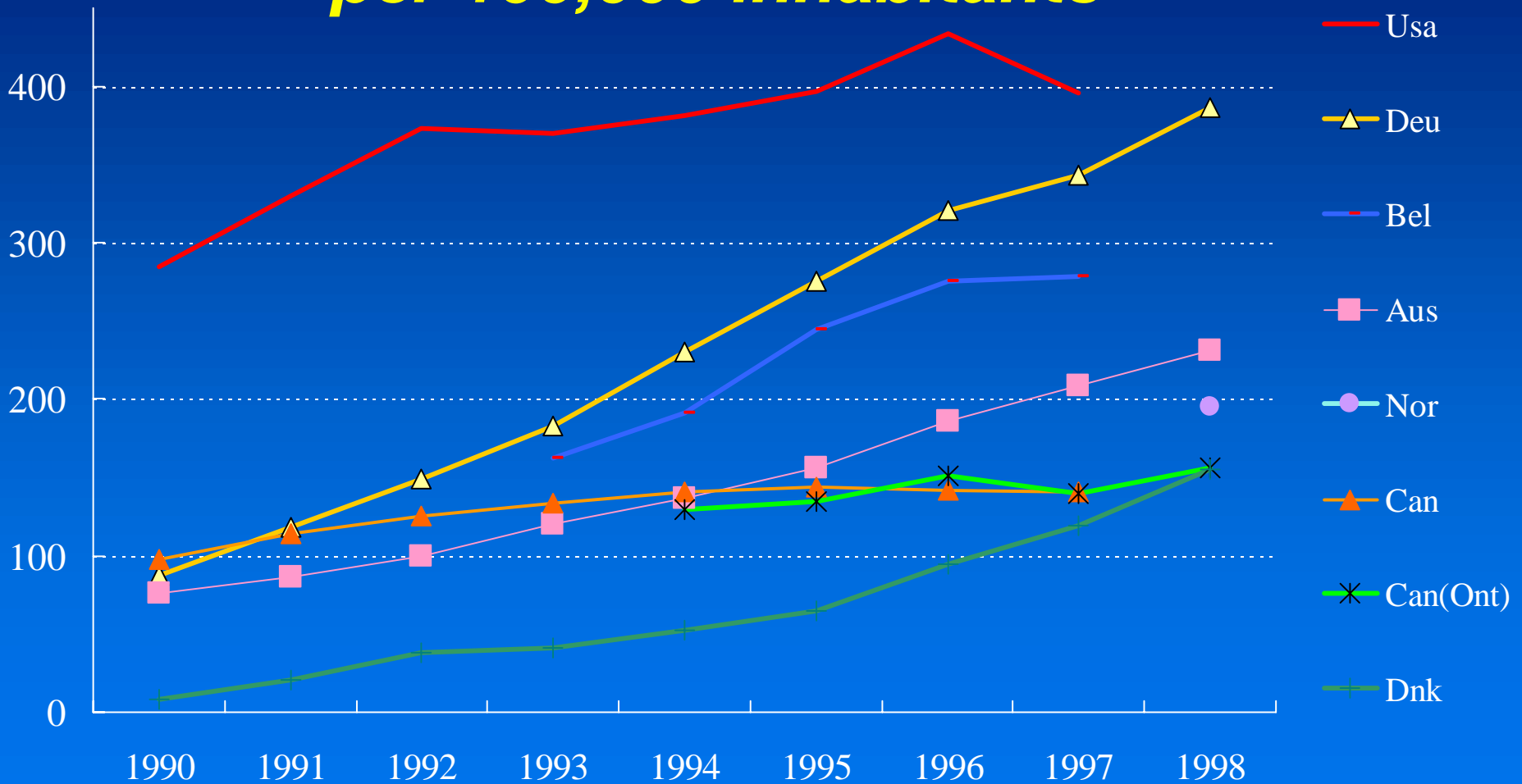
- The rising tide of new technologies and the growth in health expenditure
- Patterns of diffusion and decreasing returns
  - Good technologies “gone bad” ?
  - Assessing the marginal health benefits
- Understanding the results in relation to health outcomes deserve careful examination

# Key revascularisation procedures

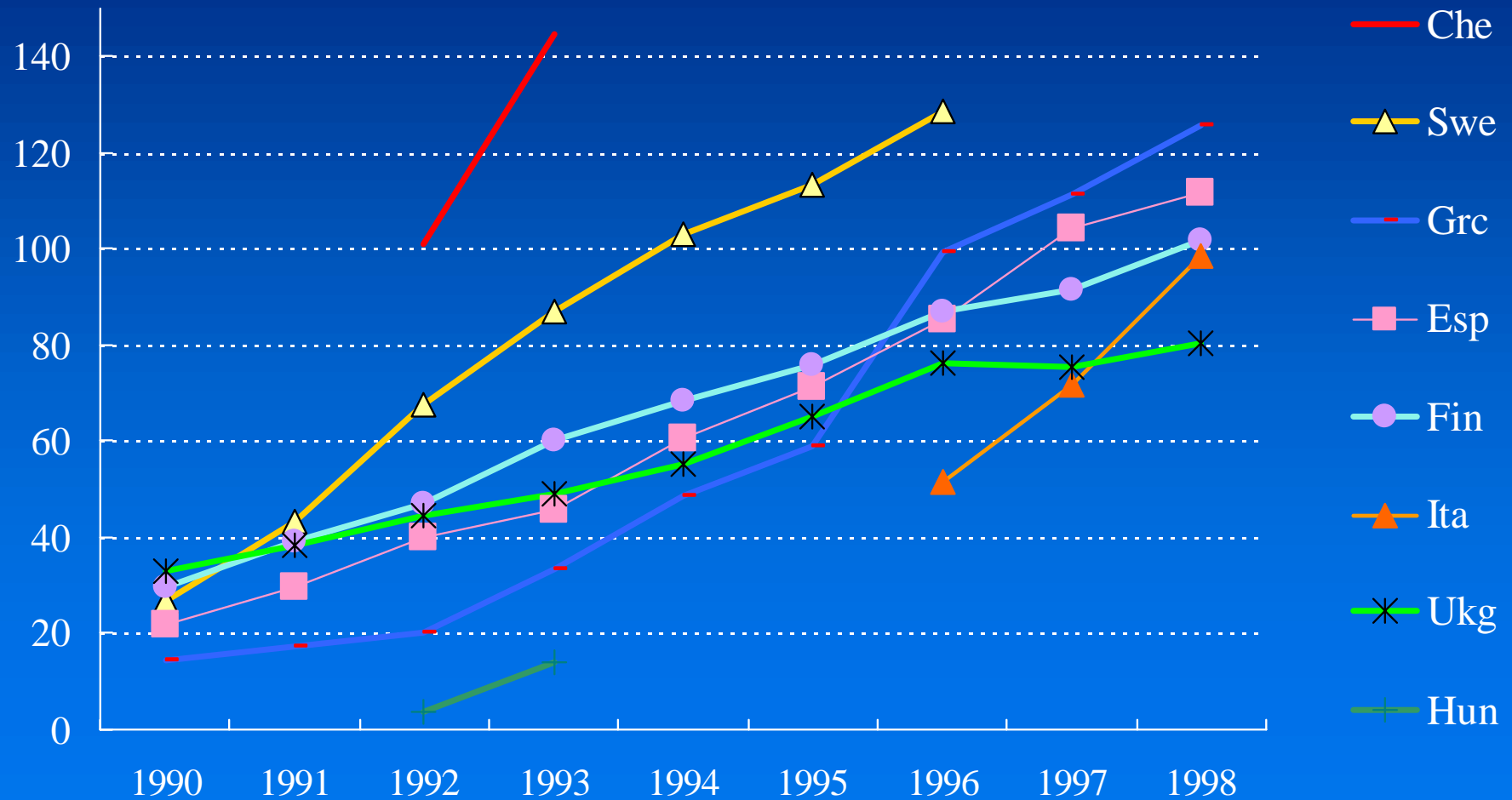
## Ischaemic heart disease

- **PTCAs:** *percutaneous transluminal coronary angioplasty*  
*Catheter into the arterial system + balloon inflated to clear the obstructed area*
- **Bypass:** *the obstructed area is bypassed by grafting veins or arteries*
- **Stent:** *technique to avoid restenosis, narrowing of the artery: a wire rim to keep the blood vessel open*
- **Thrombolytics:** *streptokinase, tissue-plasminogen Activator (tPA) to break down the blood clot and restore the blood flow*

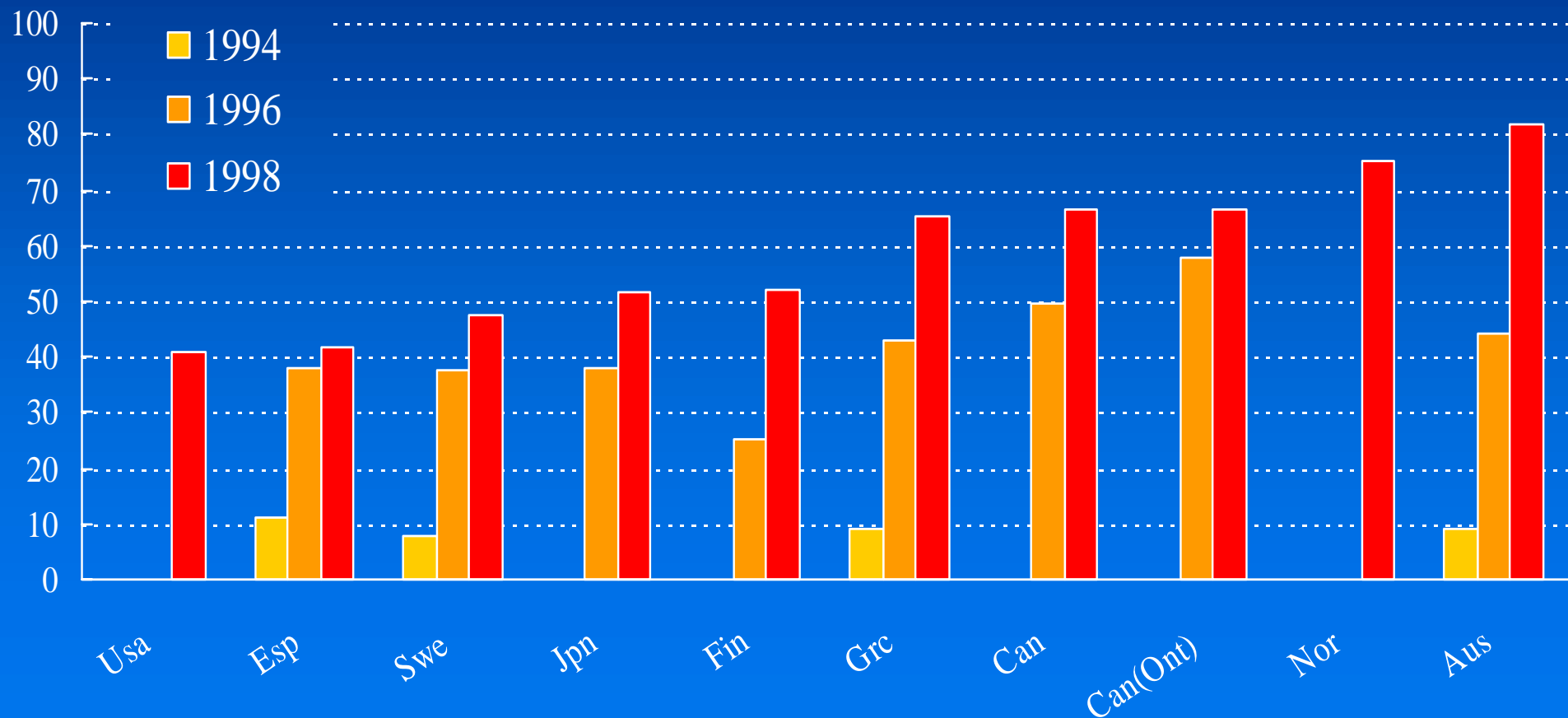
# Number of PTCAs (1990-1998) *per 100,000 inhabitants*



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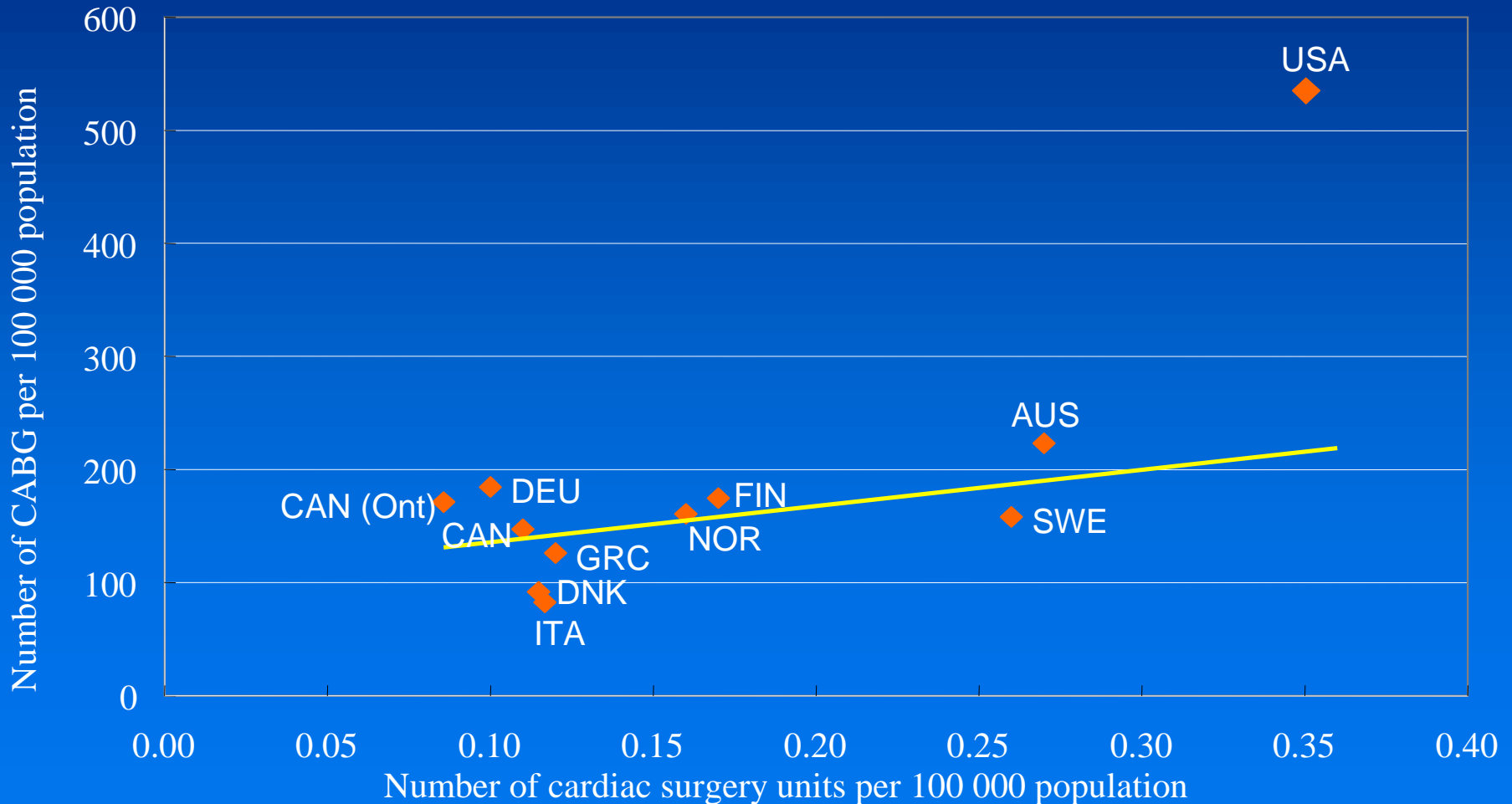
# Use of stents (1990-1998) as a percentage of all PTCAs



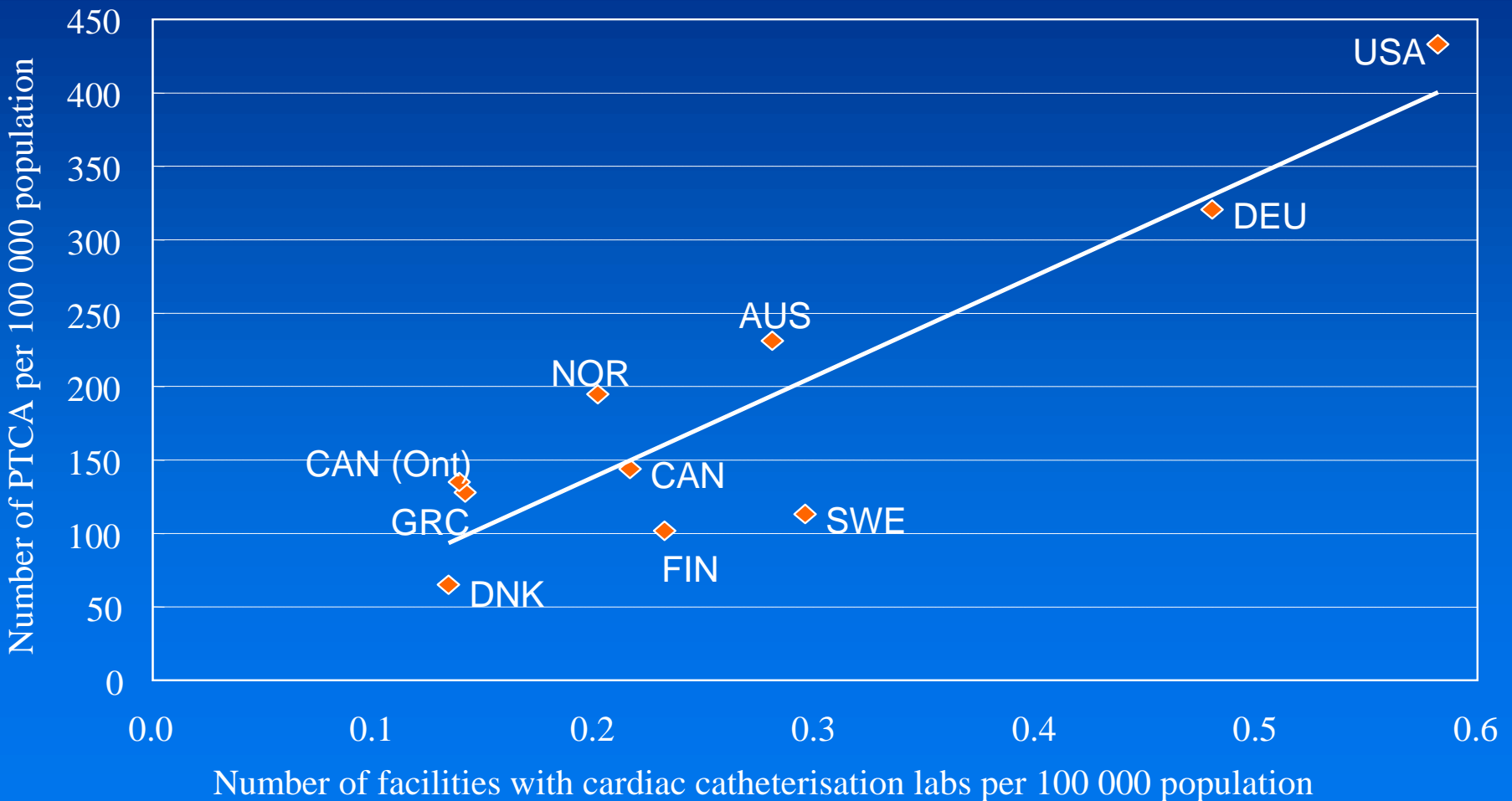
# Further questions

- Are facilities “efficiently used”?
- What happens to patients ?
- How much does it cost ?

# Utilisation rates for CABG and Number of cardiac surgery units per 100 000 inhabitants

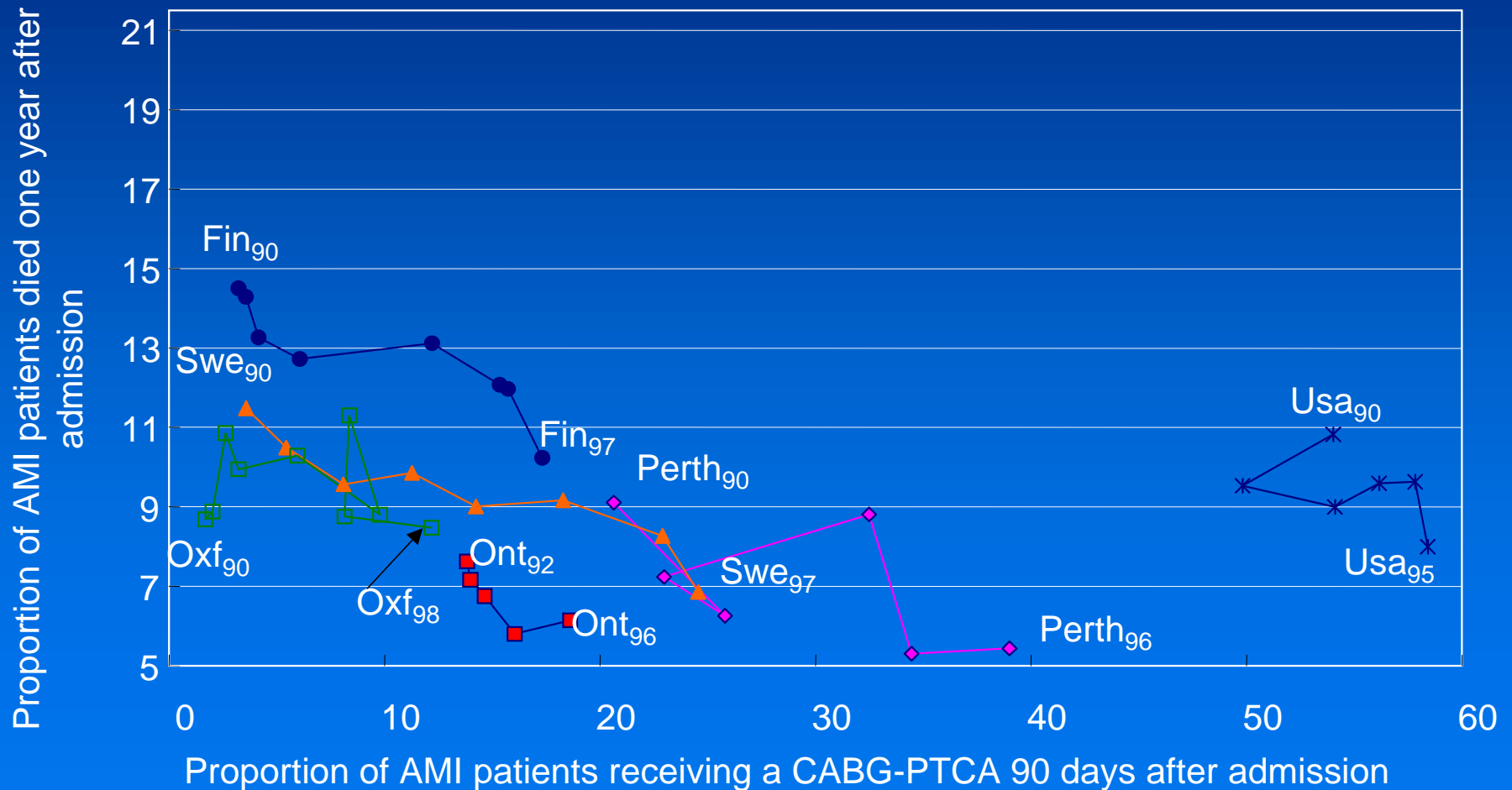


# Utilisation rates for PTCA and number of catheterisation facilities per 100 000 inhabitants



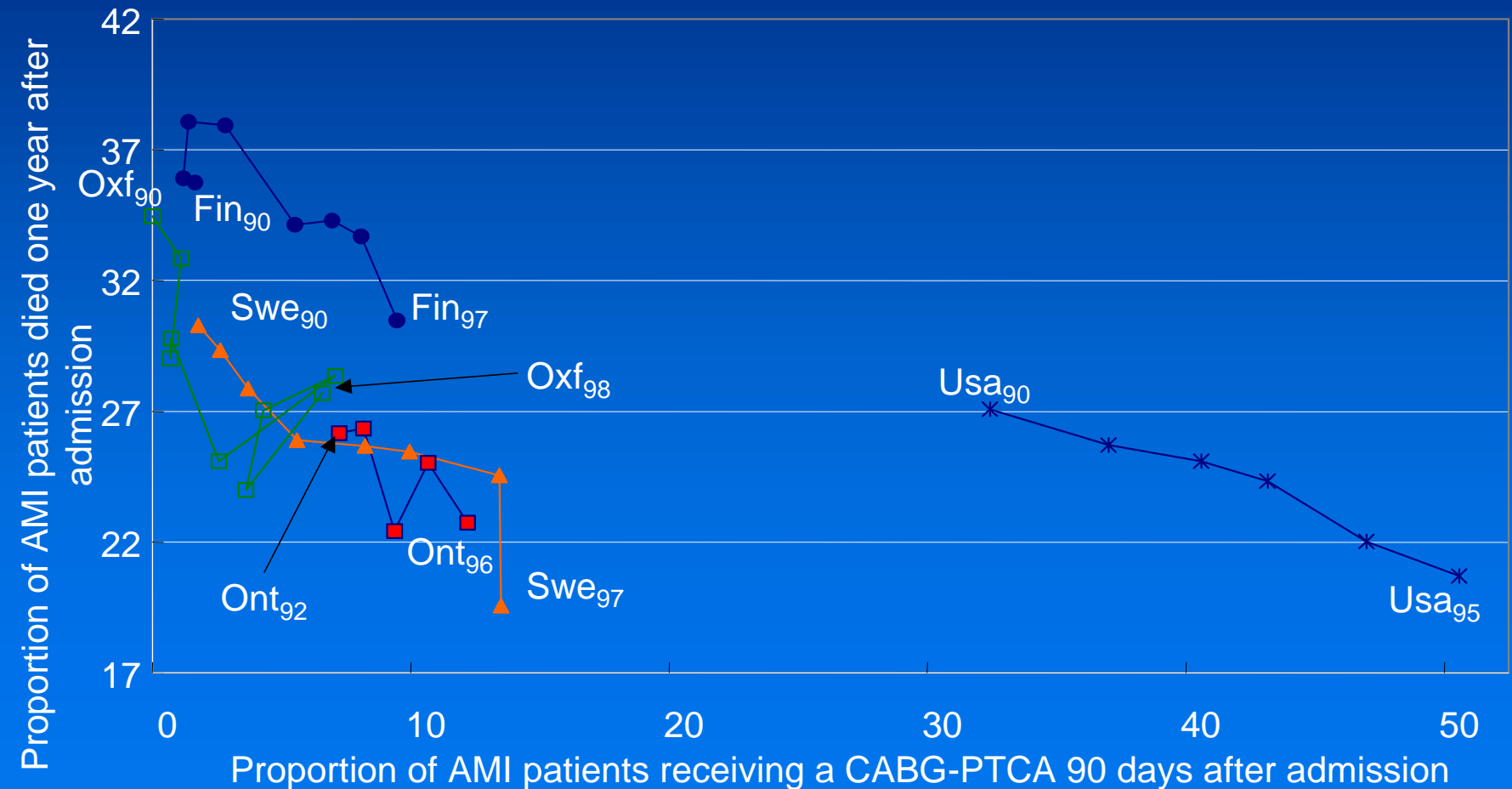
# Technology utilisation and survival one year after a heart attack

Men (40 to 64)



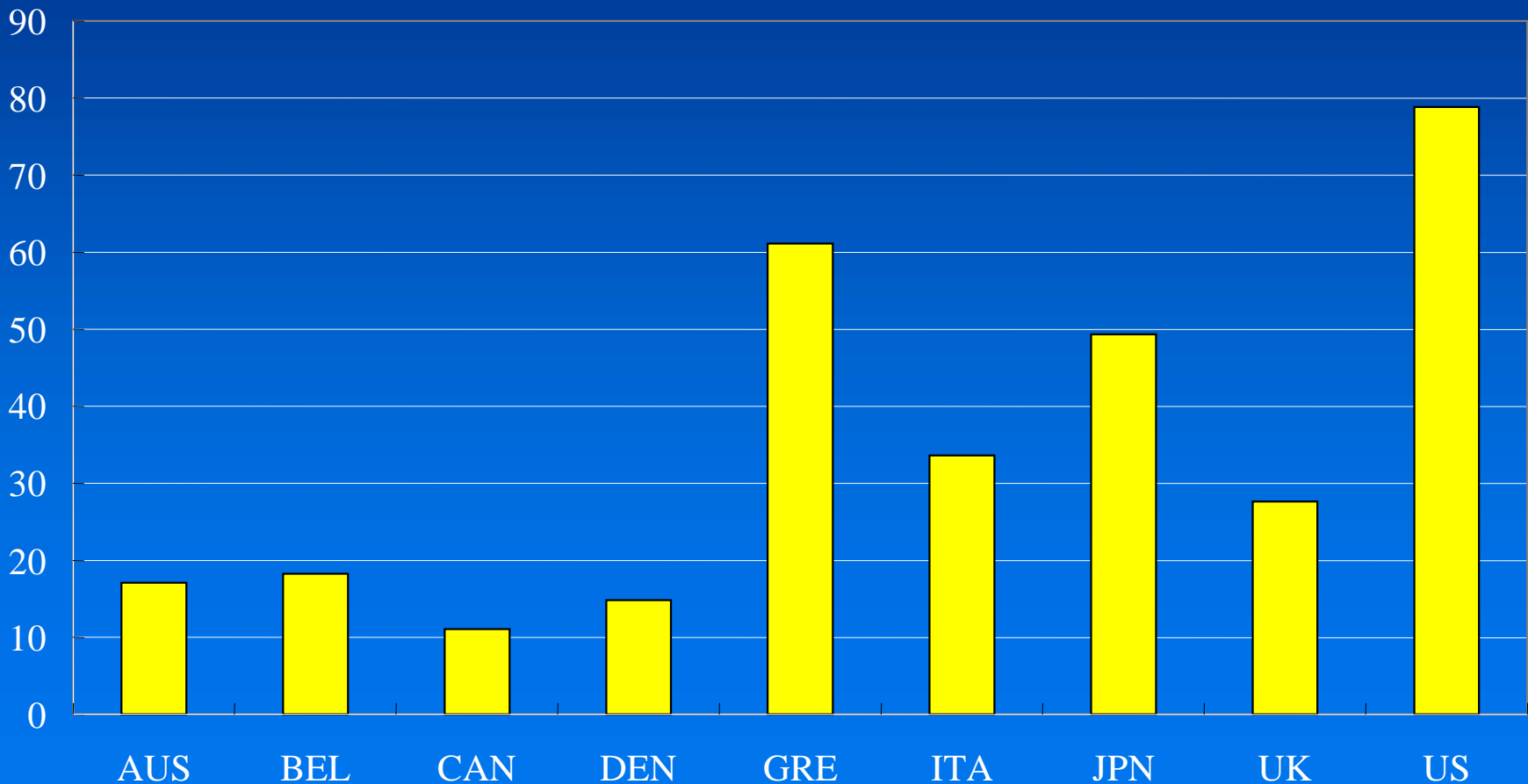
# Technology utilisation and survival one year after a heart attack

Men (70 to 74)



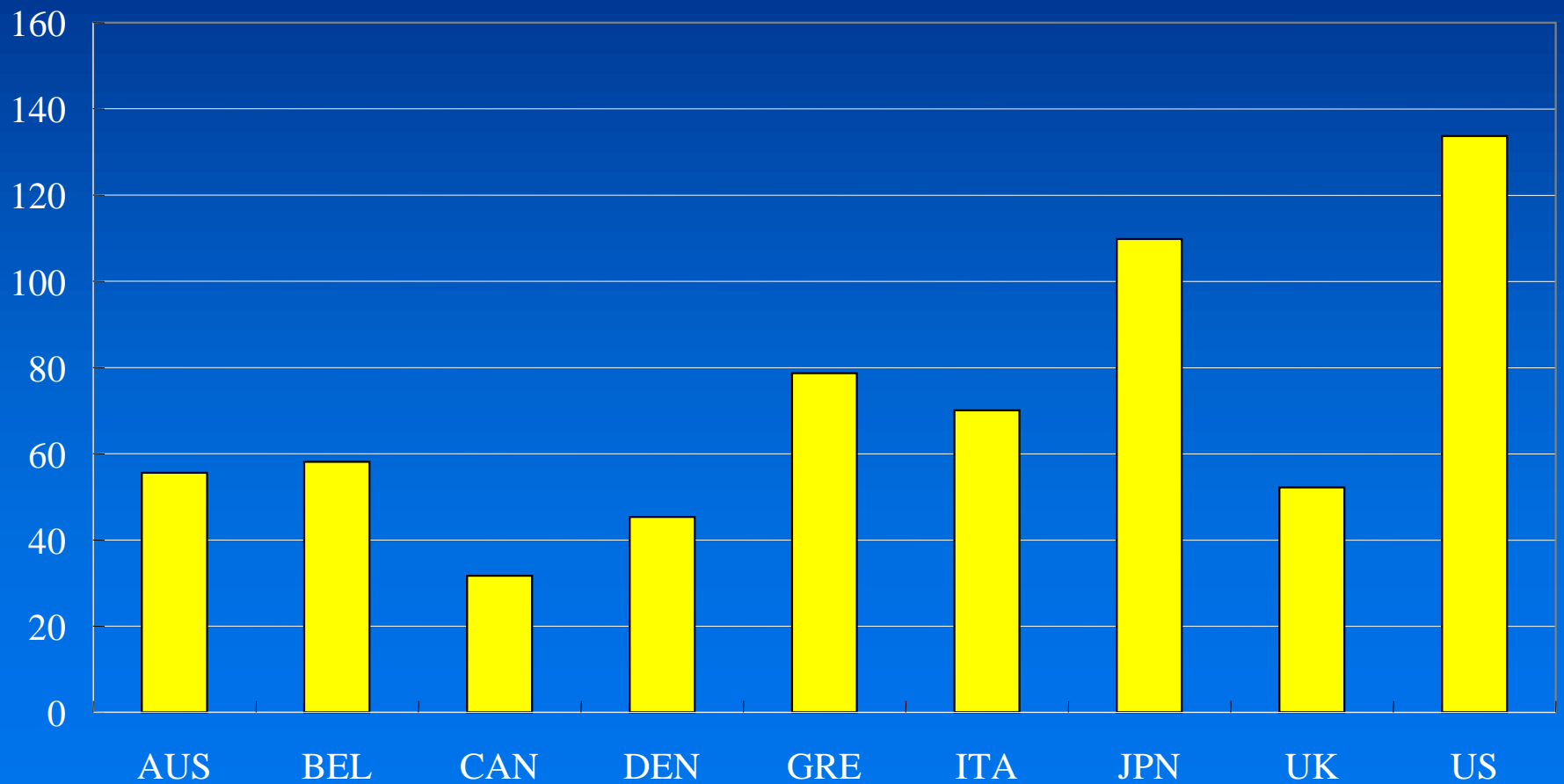
# Unit costs as a proportion of GDP per capita

*Elective PTCA*



# Unit costs as a proportion of GDP per capita

*Bypass*



# Breast Cancer

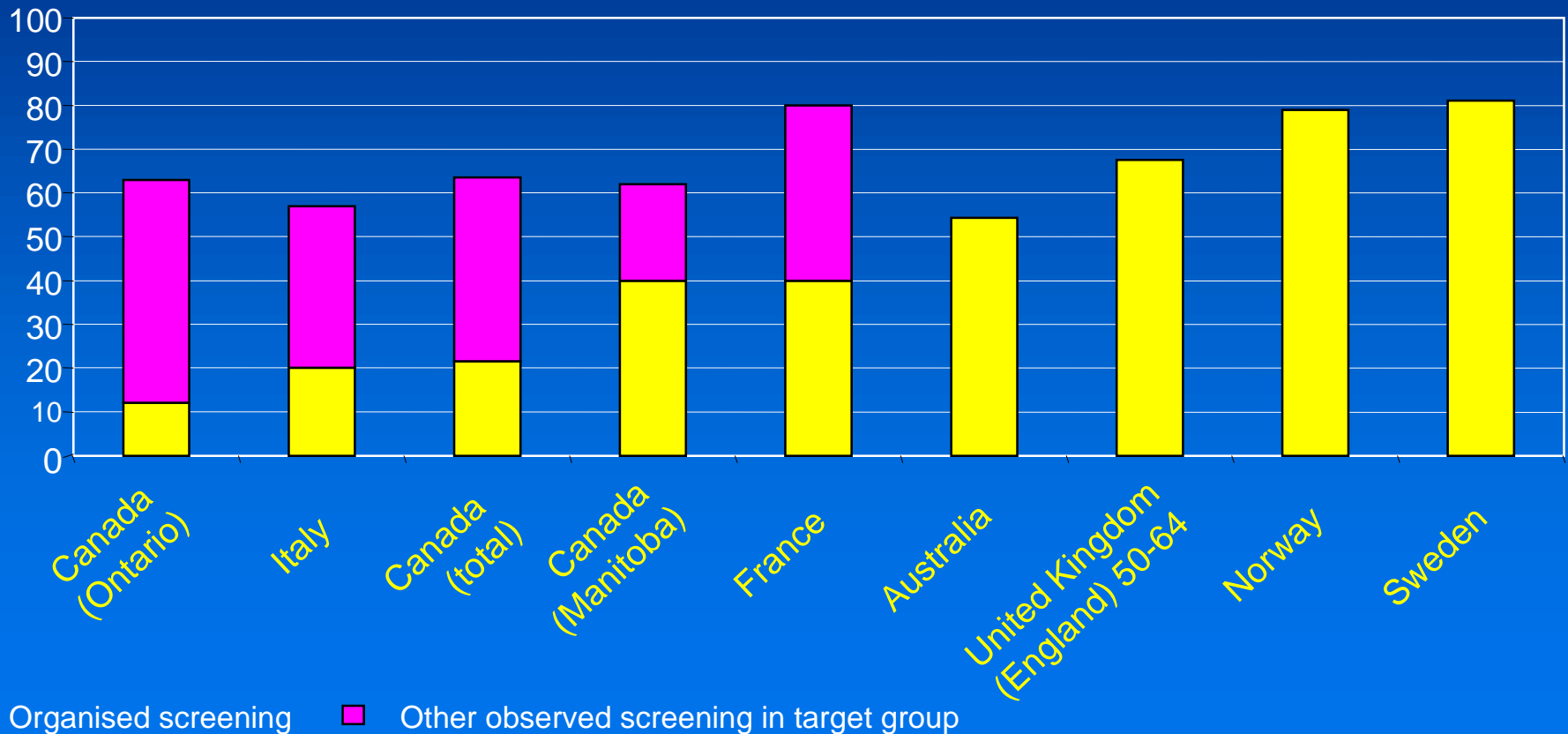
- Epidemiology is endogeneous
- Breast cancer : role for screening and treatment
- New less invasive treatments but more costly in the short run
  - Breast Conserving Surgery with follow up radiation therapy
  - Chemotherapy (as opposed to mastectomy)
- Goal of treatment: survival, avoid recurrence, improve quality of life

# The role of organised screening programmes

- Implemented following cost-effectiveness studies, targeting usually women aged 50-69
- Different methods (CBE; mammography)
- Large proportion of women still receive screening outside programmes in many countries
- Tendency to extend the programmes to higher and younger age groups
- Organised health systems work better in this field, but they need some resources

# Organised screening participation rates

*As a percentage of eligible women*

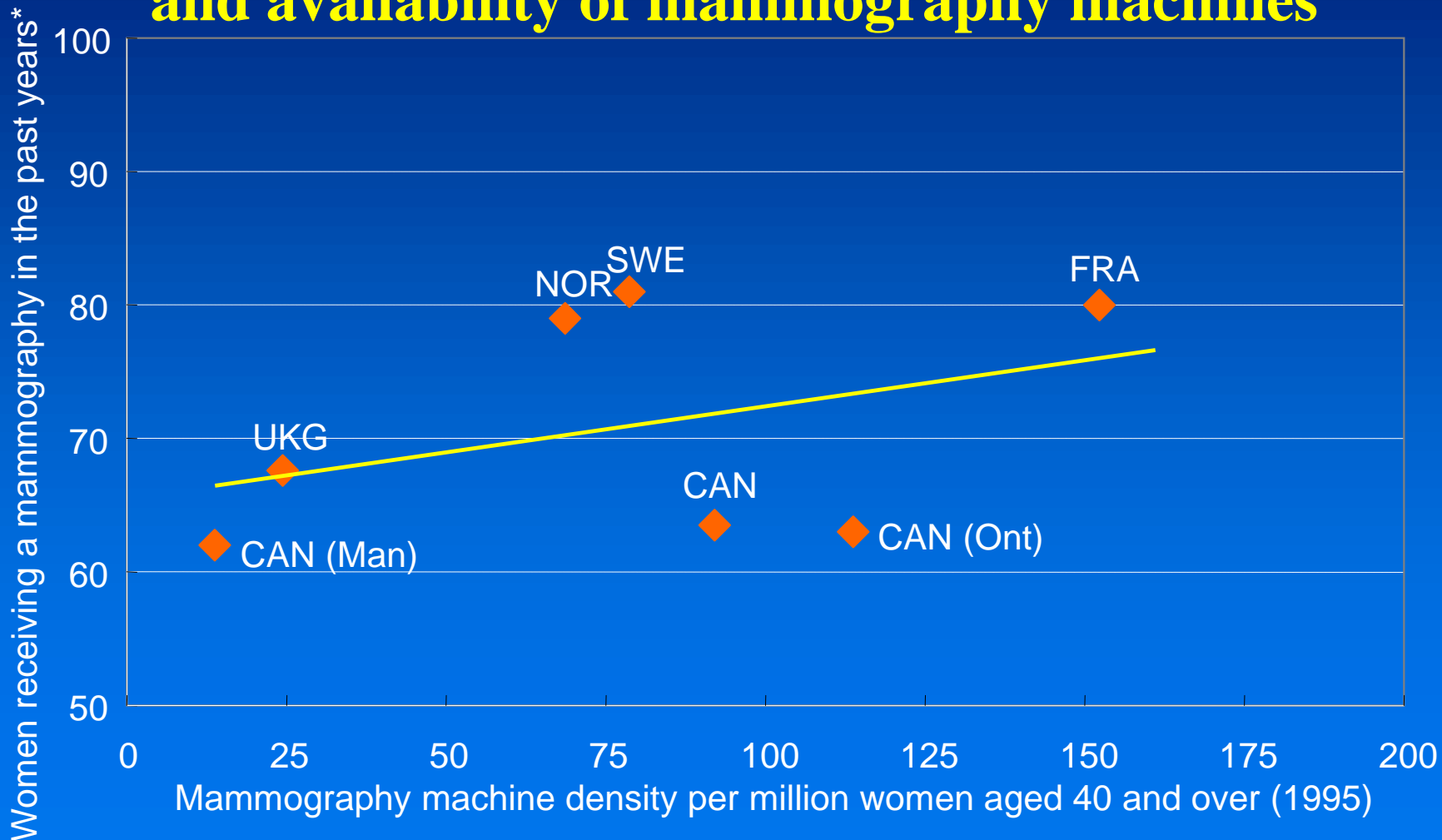


Source: health interview surveys, experts reports, Health Canada 2001

# Key results

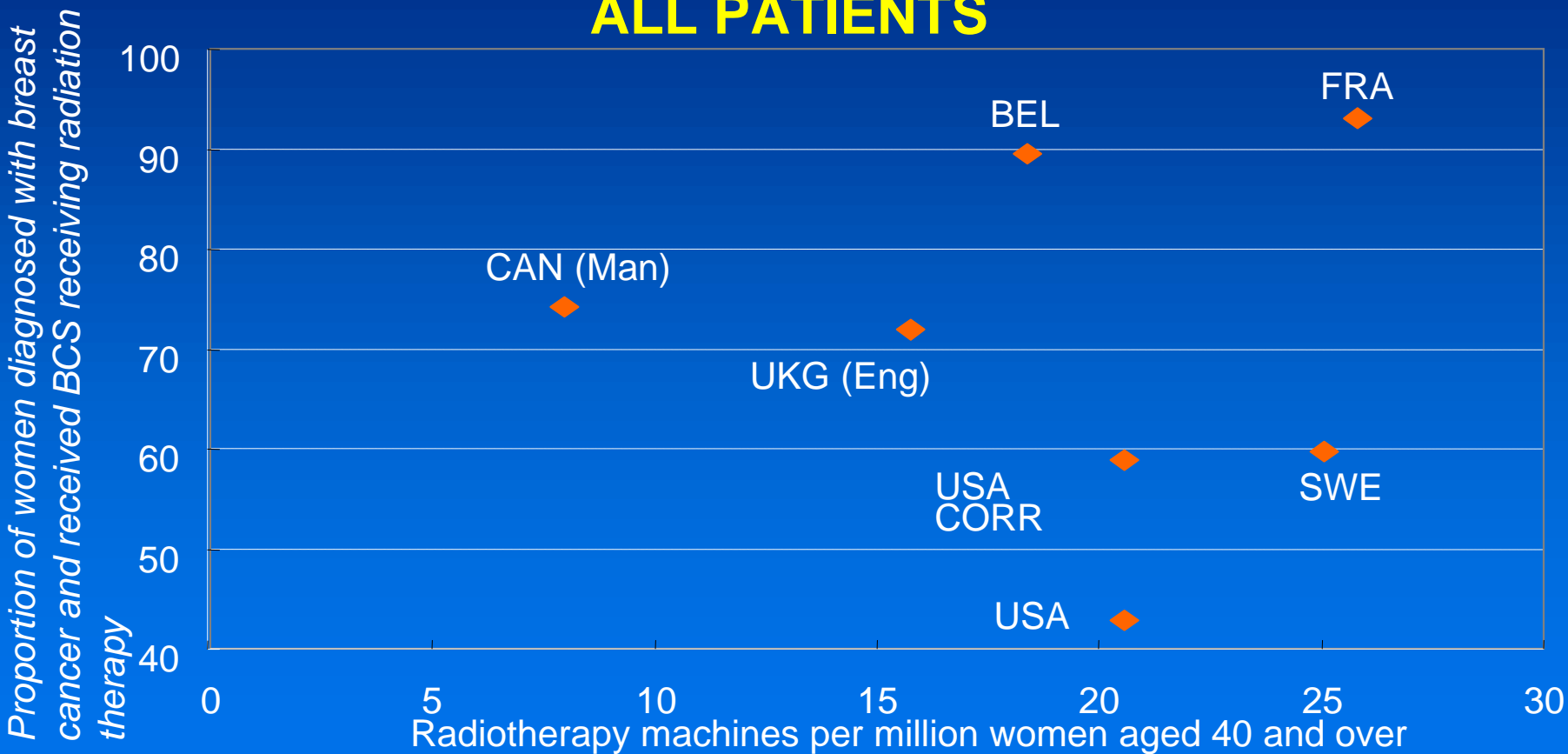
- Prevention is key
- Supply incentives important factors for diffusion of surgical procedures
- Patterns of treatment depend on medical guidelines but also on institutional aspects
- Excessive restriction in spending may constrain access to treatments in some countries for some groups

# Proportion of women receiving a mammography and availability of mammography machines



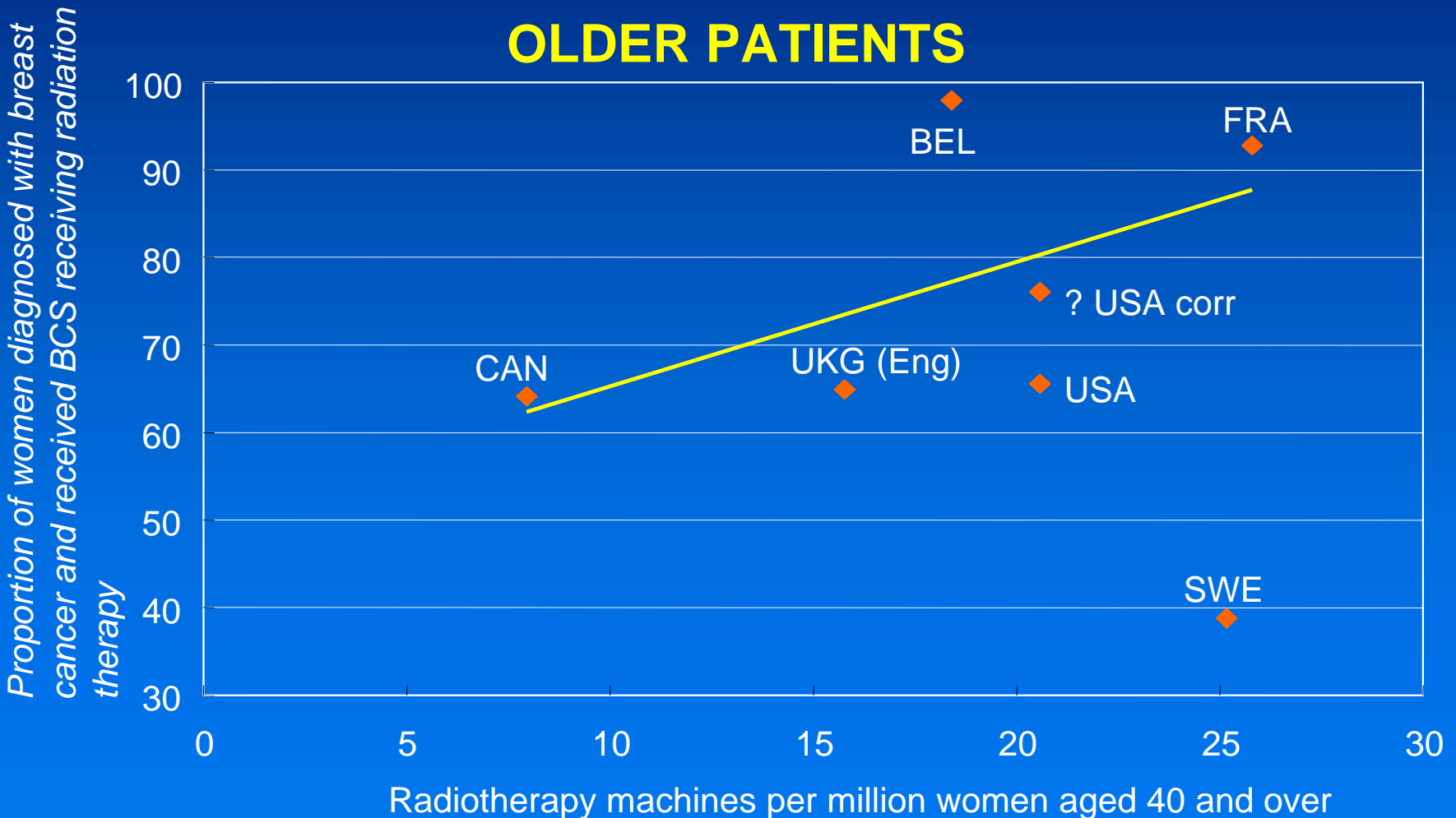
*\*standardised rates from available surveys*

# Breast cancer patients receiving breast conserving surgery followed by radiation therapy and availability of radiation therapy machines (1995-99) ALL PATIENTS

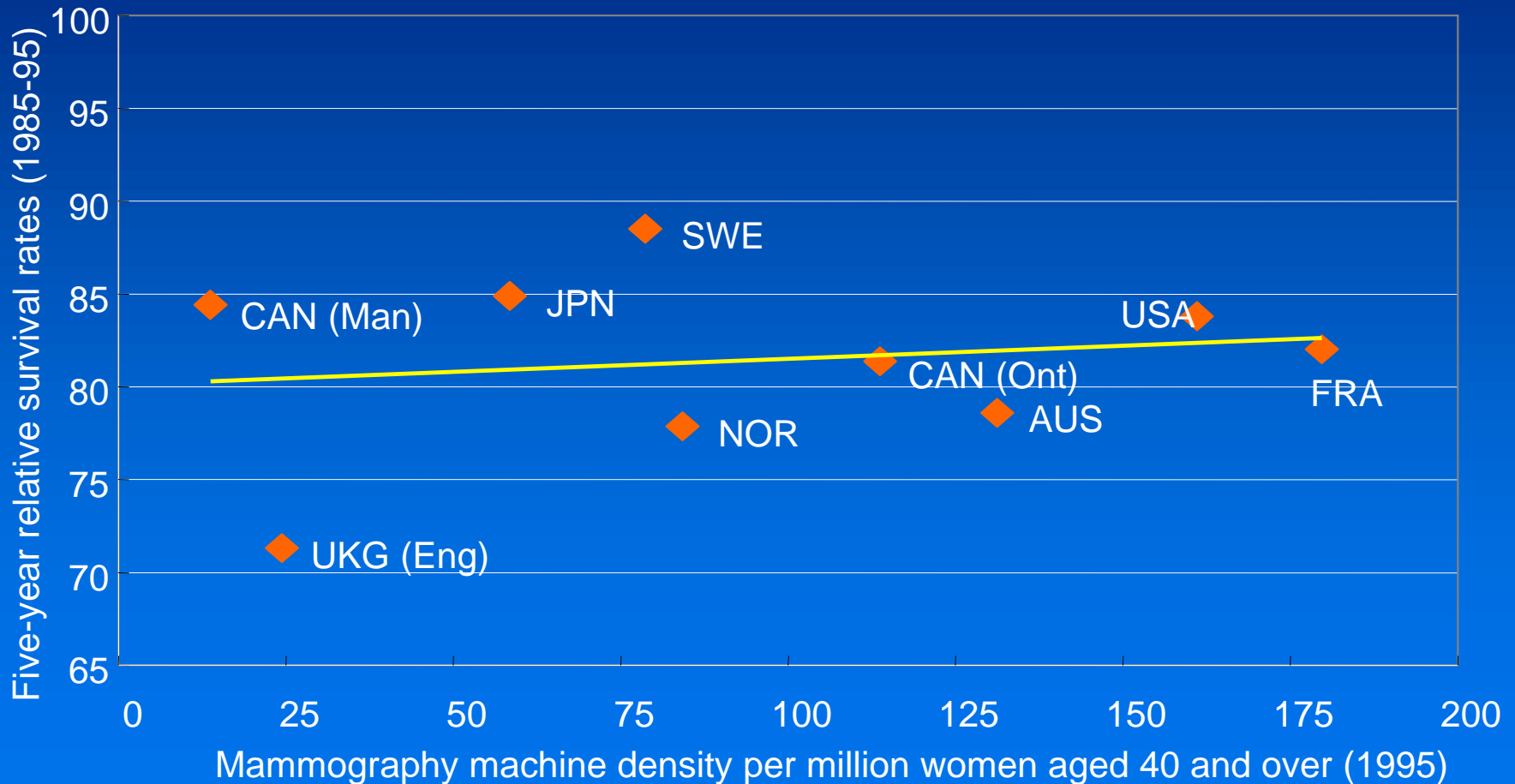


**Note:** a corrected point has been inserted for the US, as the SEER registry data underestimates radiation rates by 14-18 %

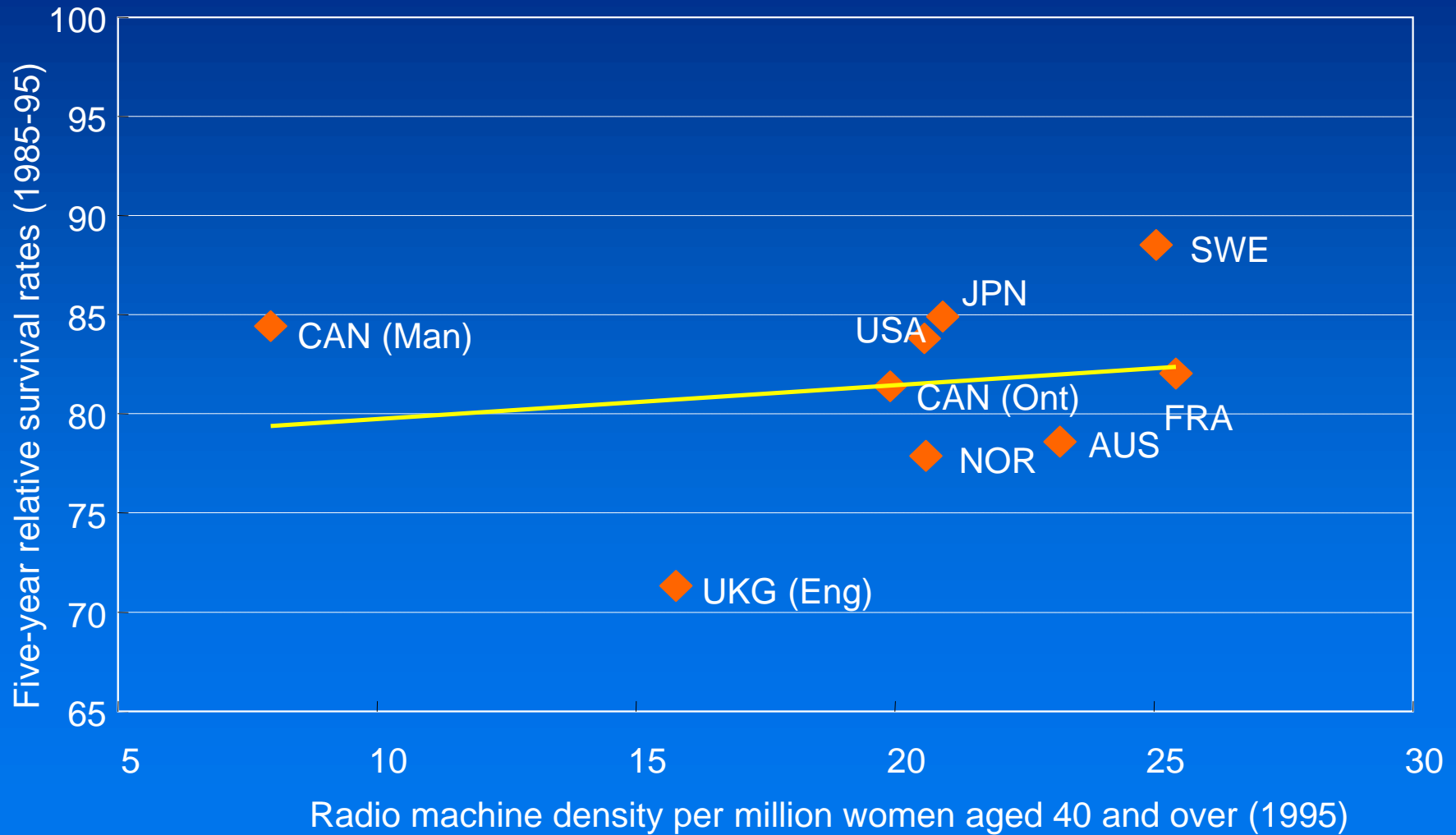
# Breast cancer patients aged 70-79 receiving breast conserving surgery followed by radiation therapy and availability of radiation therapy machines (1995-99)



# 5-year relative survival rate and availability of mammography machines in a recent year

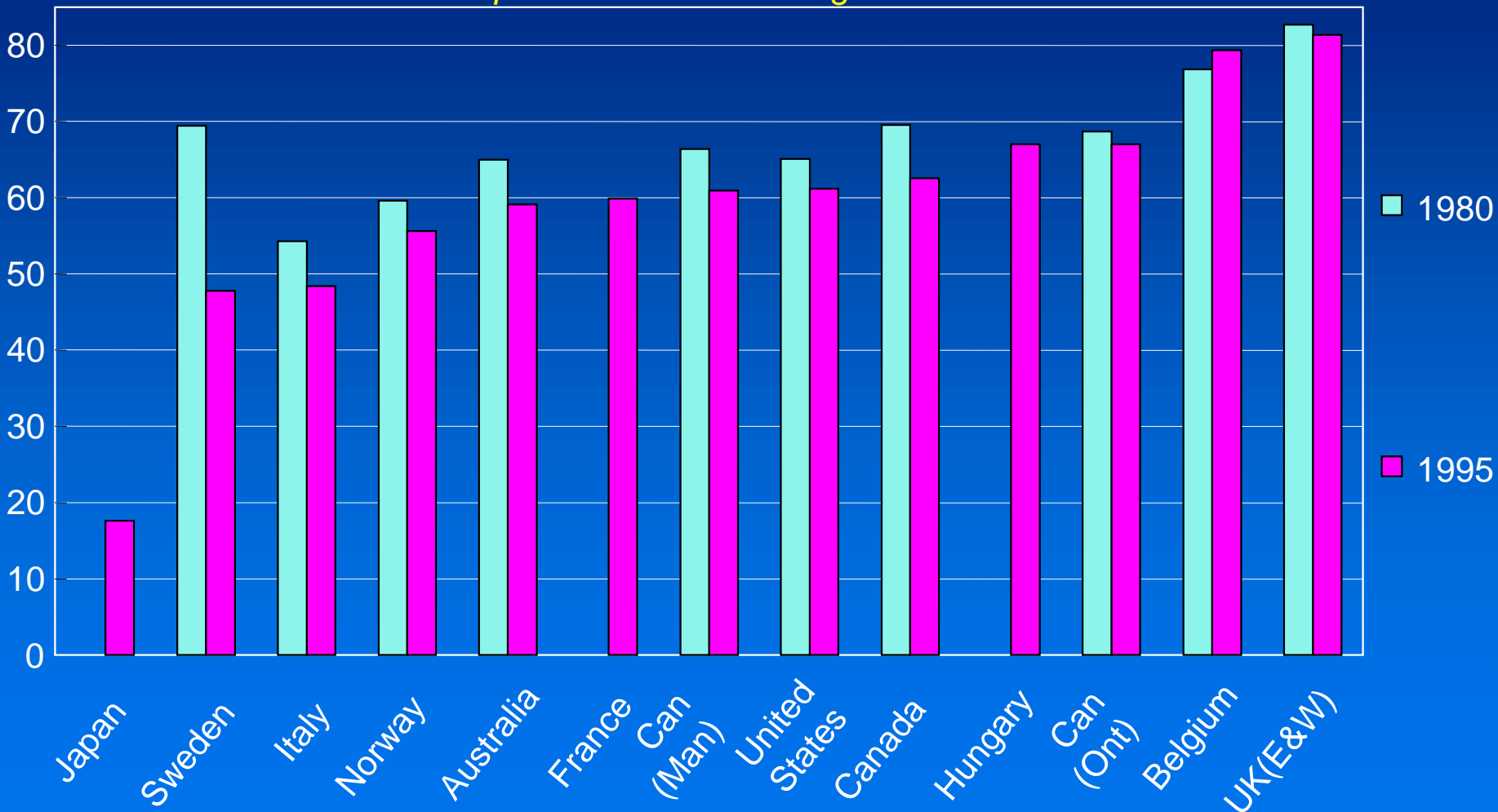


# 5-year relative survival rate and availability of radiotherapy machines in a recent year



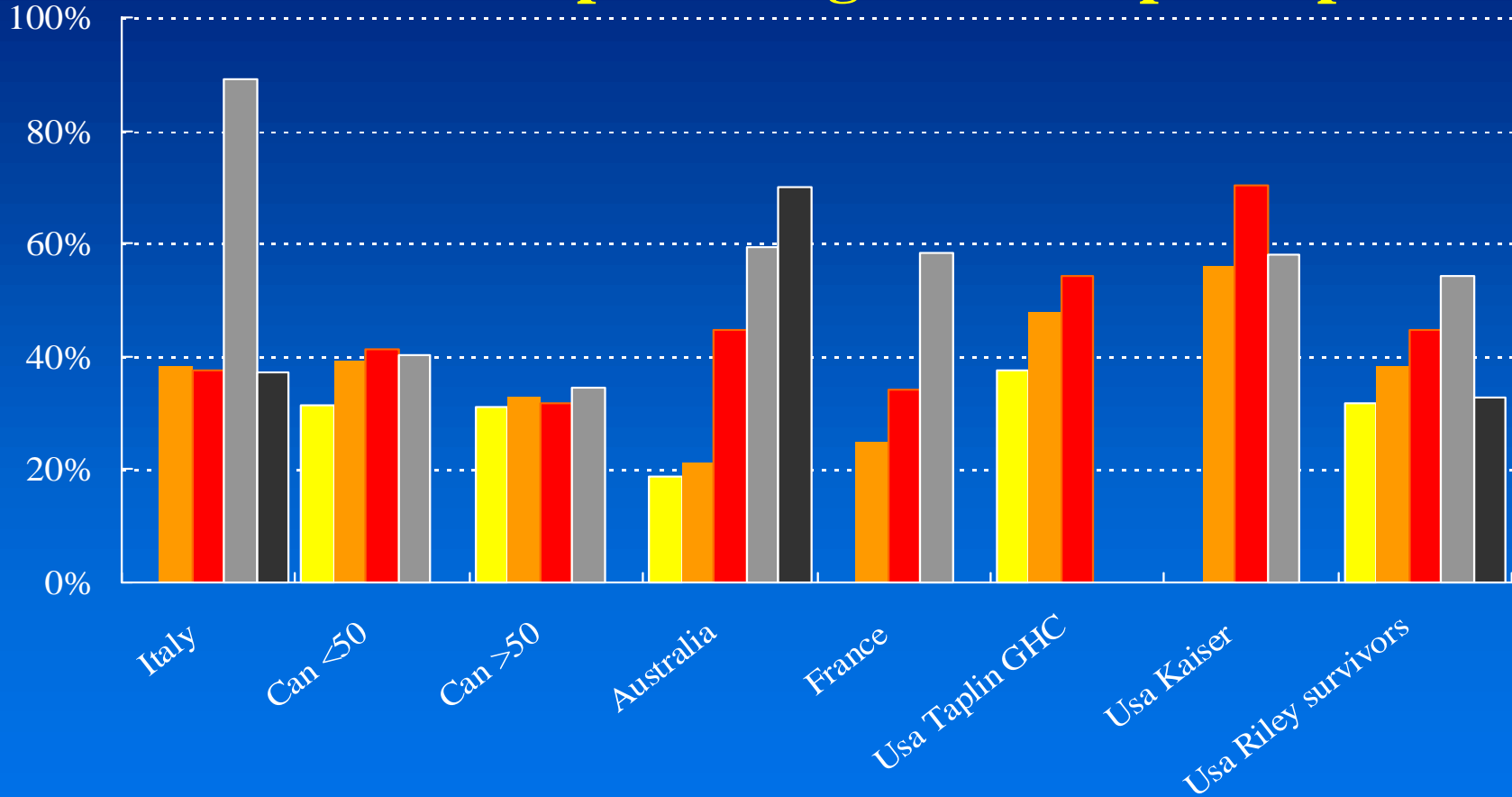
# Mortality rates: A tale of two cities...

*per 100 000 women age 40 and over*



Note: for France, Hungary, Japan, Norway and the United Kingdom (E&W);1983 and 1996 for Australia; 1996 for Italy.

# Variation in costs by stage, first 6 months of treatment as a percentage of GDP per capita



# Policy implications

- Economic constraints facing health systems have multiple and convergent implications
- Trends towards “ambulatory/non invasive care” consistent across diseases
- Caution is needed in interpreting outcomes
  - prevention
  - treatment
  - non controlled variables
- Results strongly “suggestive” but not “conclusive”
- The results by themselves inform performance “measurement”

# A further step in assessing performance?

- Different perspectives

  - Payers and the “macro/public health” perspectives*

  - Patients/physicians with the micro/medical view*

- Where to locate the economic constraint ?

- Which parameters are to be optimised ?

  - These depend on countries various economic and political consensus about health and the role of health care systems*

- The irreplaceable value of information systems

  - Long-term investments to improve the performance of health care systems*