Planning Healthcare for the 21st Century

Aging Population – Benefit or Burden?

Howard J. Bolnick, FSA, Hon FIA

IAAust BIENNIAL CONVENTION 2003

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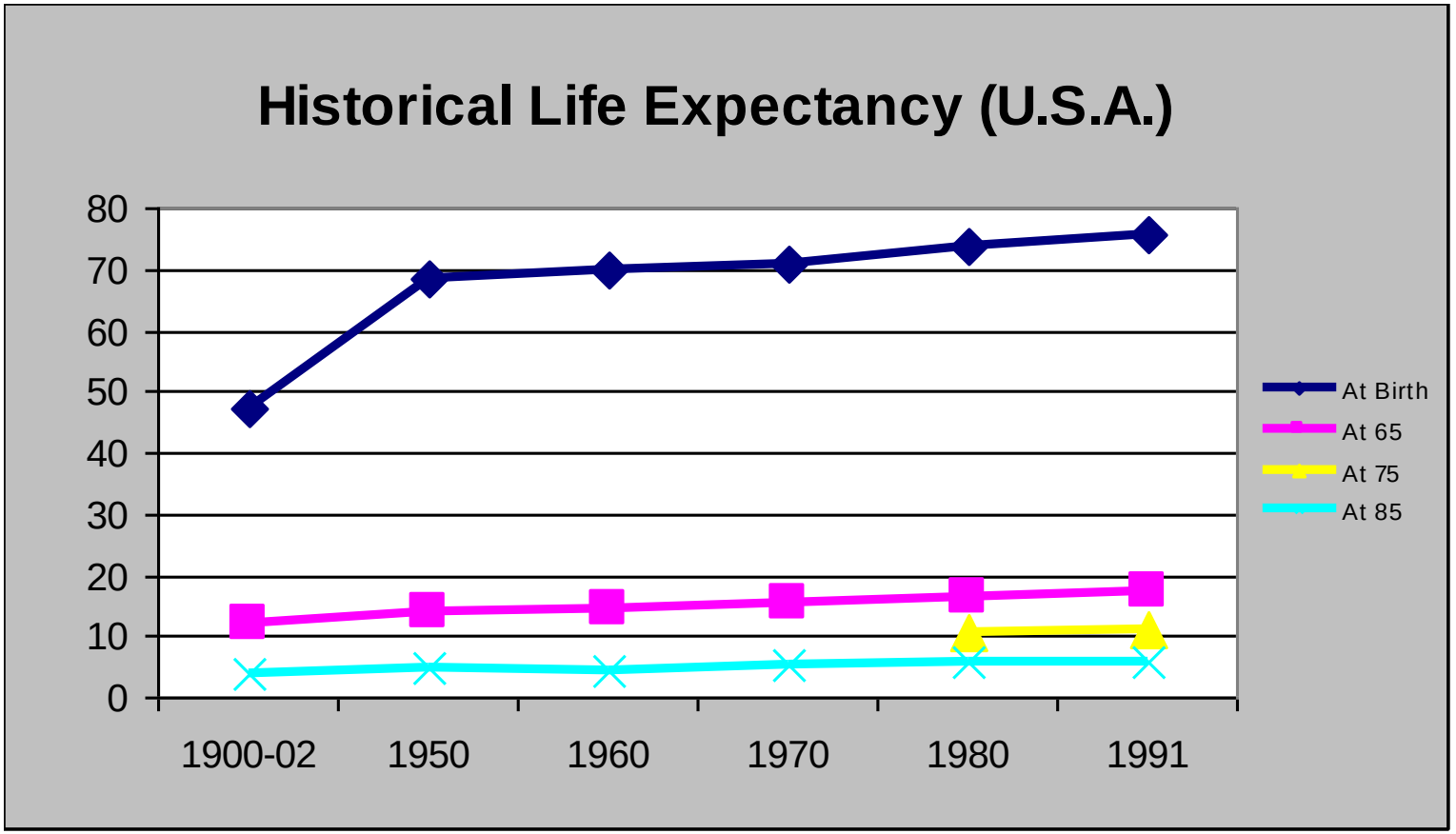
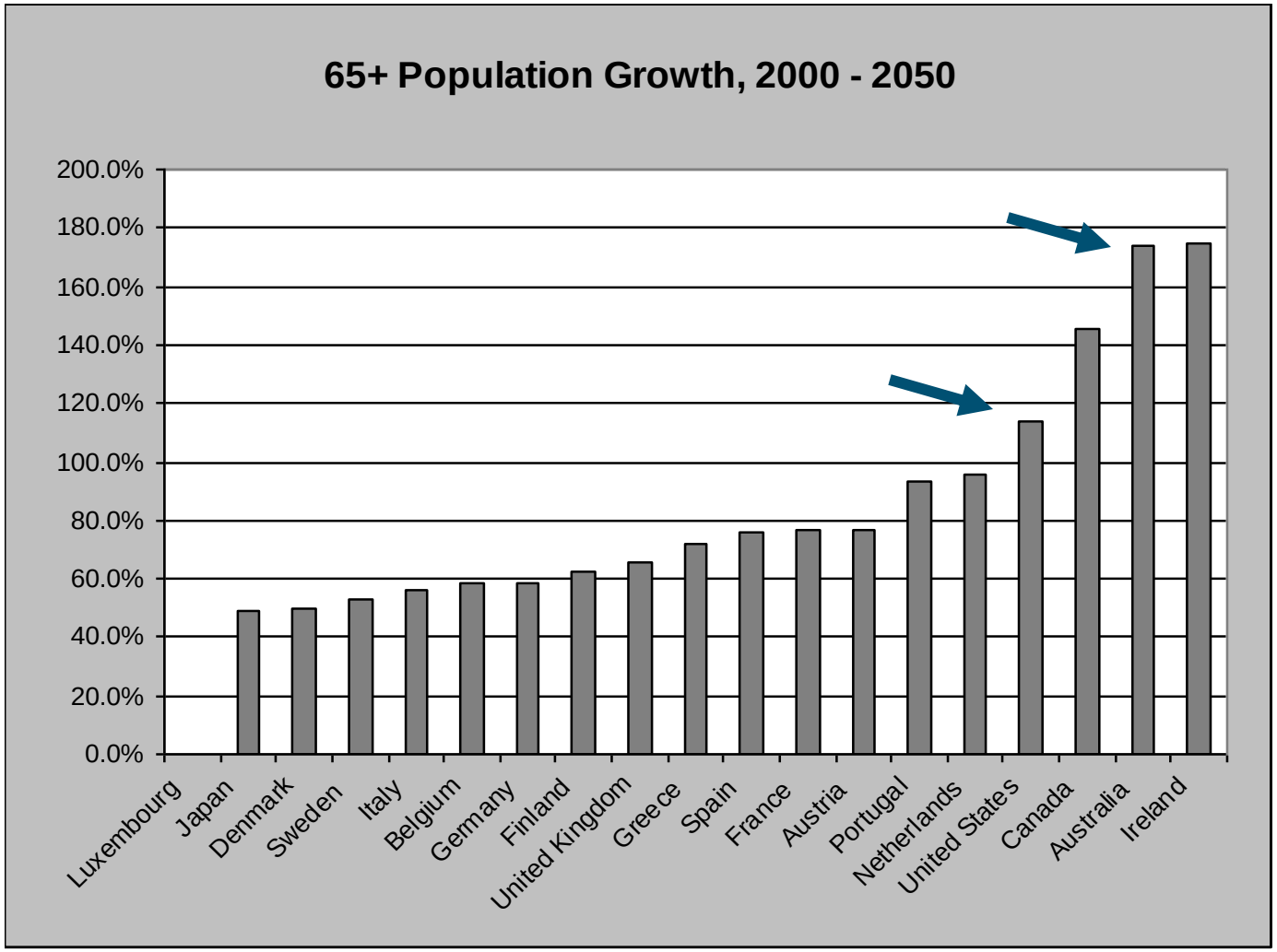
Planning Healthcare for the 21st Century

- Concern: aging population with costly healthcare needs
- History: past relationship between aging and healthcare cost
- Future: a wide range of possibilities
- Evidence and Analysis: is there a more likely future?
- Implications: what does this mean for us today?

Life Expectancy Has Been Expanding



Increasing Elderly Populations



Sources: OECD and EU Economic Policy Committee

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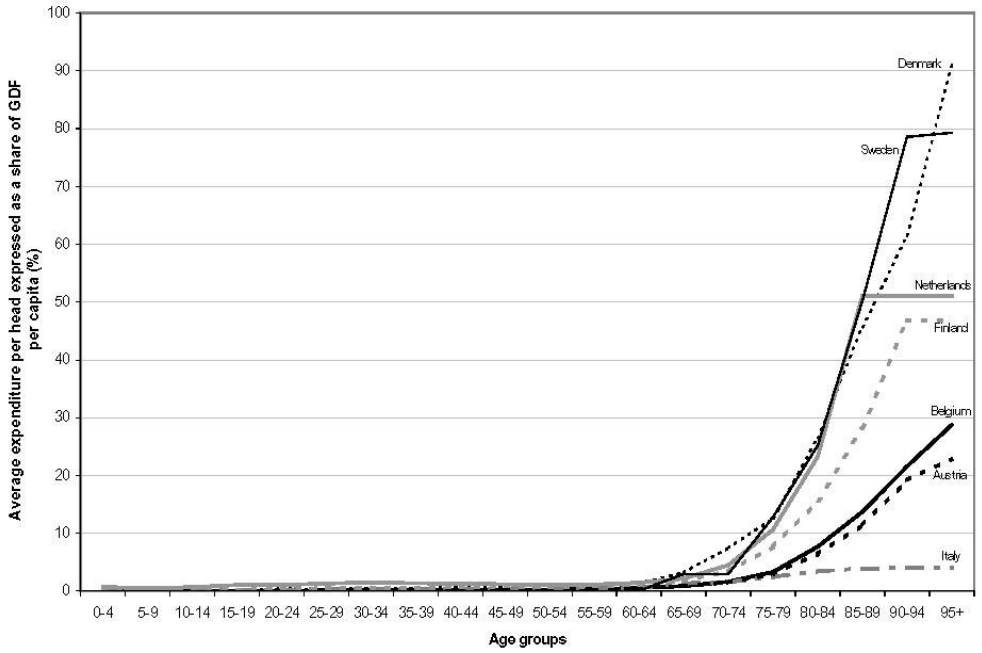
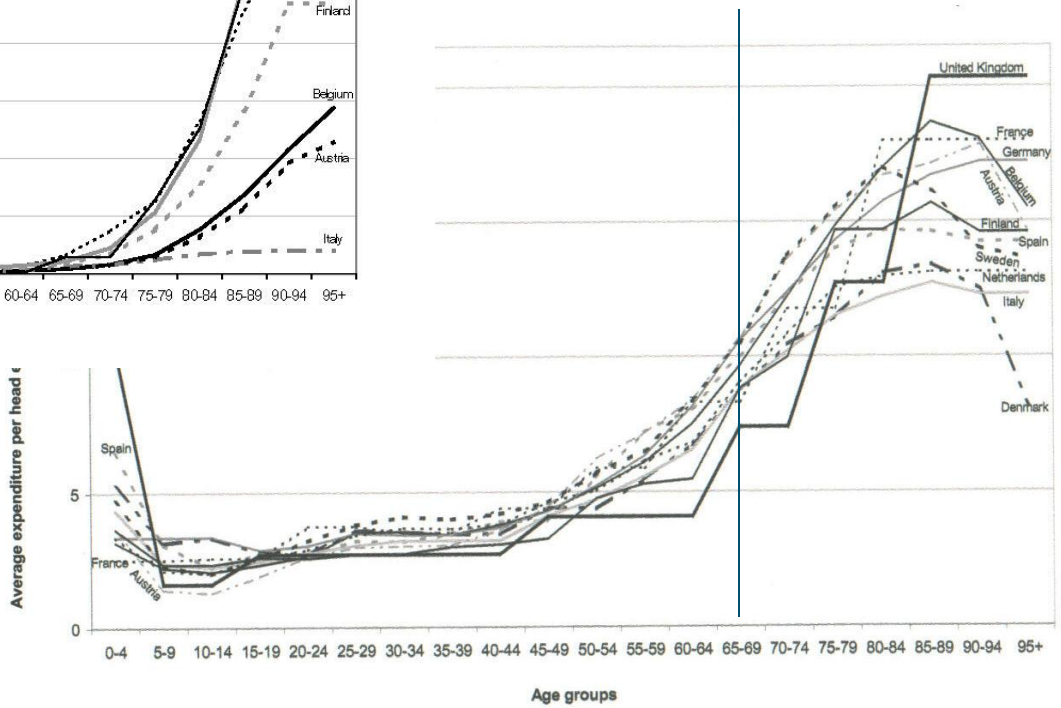
Healthcare Costs Increase with Age

Long Term Care as % of GDP



Medical Care as % of GDP



Source: EU Economic Policy Committee

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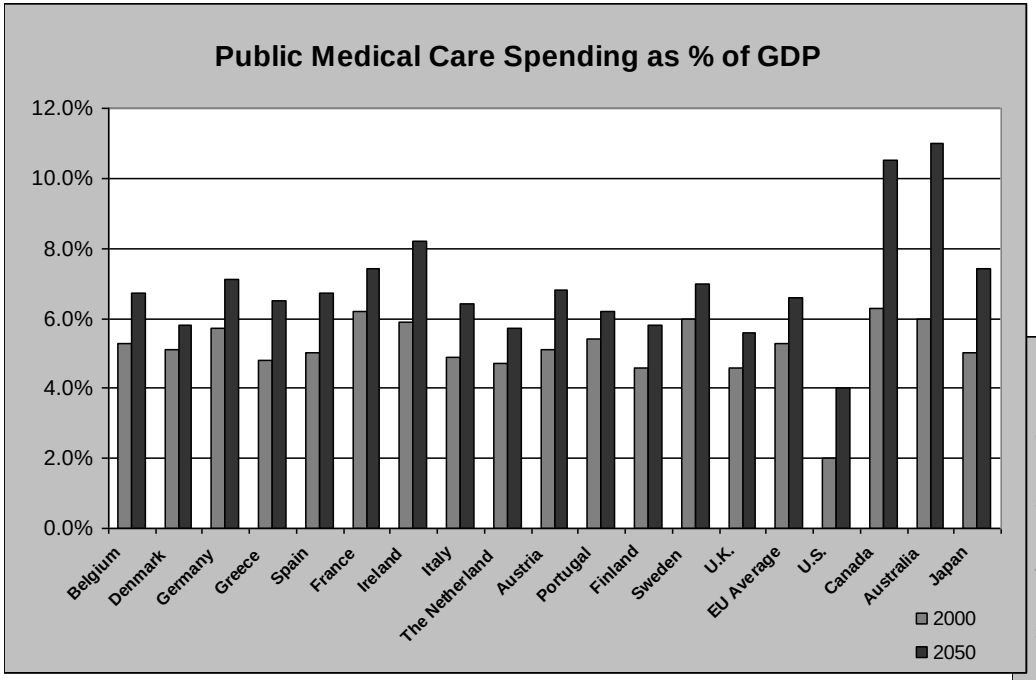
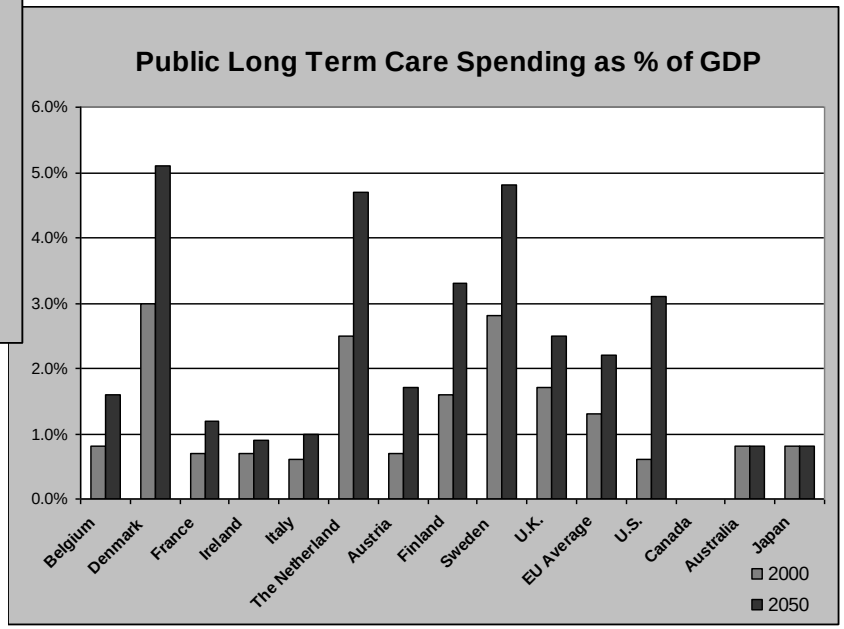
Causing Potential For Large Increases in Projected Spending



Projected public healthcare spending in 2000 and 2050: Based solely on projected demographic changes



Projected increase for EU Members from average of 6.6% to 8.8% of GDP

Source: OEDC 2001 (Dang, et. al.)

Is a healthcare cost crisis unavoidable?

Is demography destiny?

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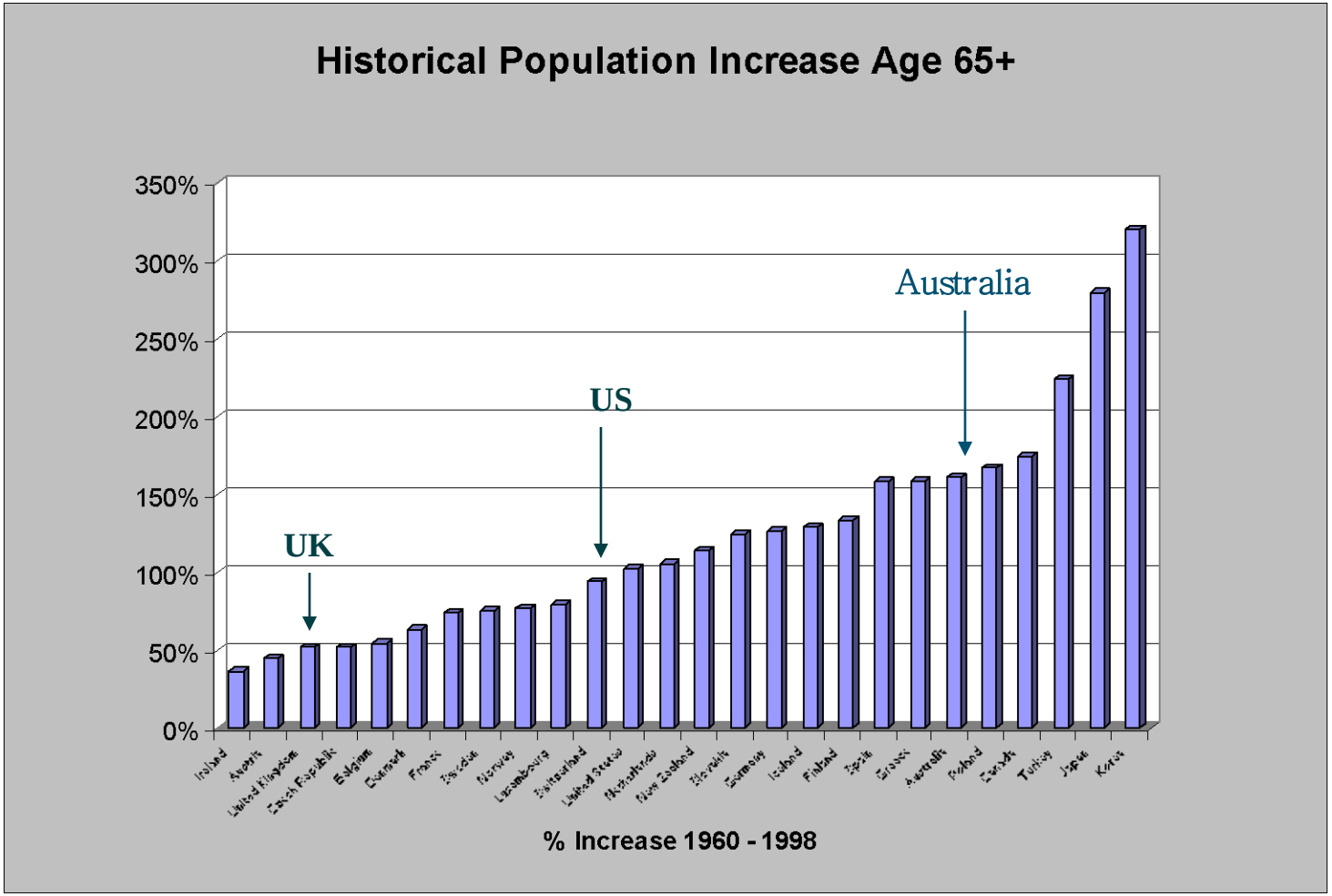
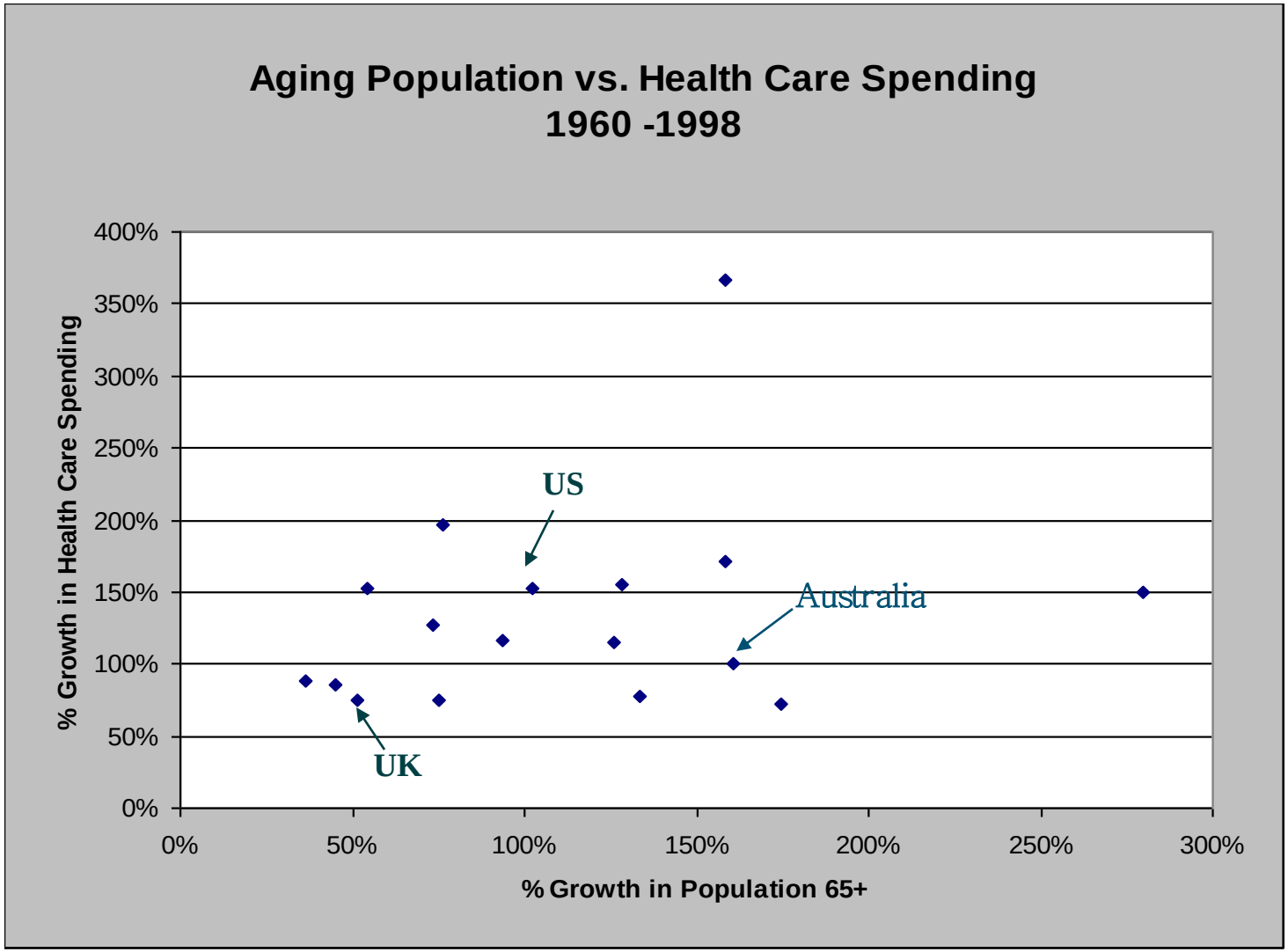
Some Nations' Historical 65+ Population Increases Have Been Quite Large



Source: OECD Health Data 2001

With No Strong Aging–Cost Relationship



Source: OECD Health Data 2001

Further Historical Evidence for a Lack of Strong Cost-Aging Link

Cause of Growth in
U.S. Medical Care Spending
1960 – 1993

Age/sex mix	**7.2%**
Disposable income	**17.6%**
Insurance coverage	**5.3%**
Technology-inducing	**69.9%**

Source: Peden and Freeland, Health Affairs, Summer 1995

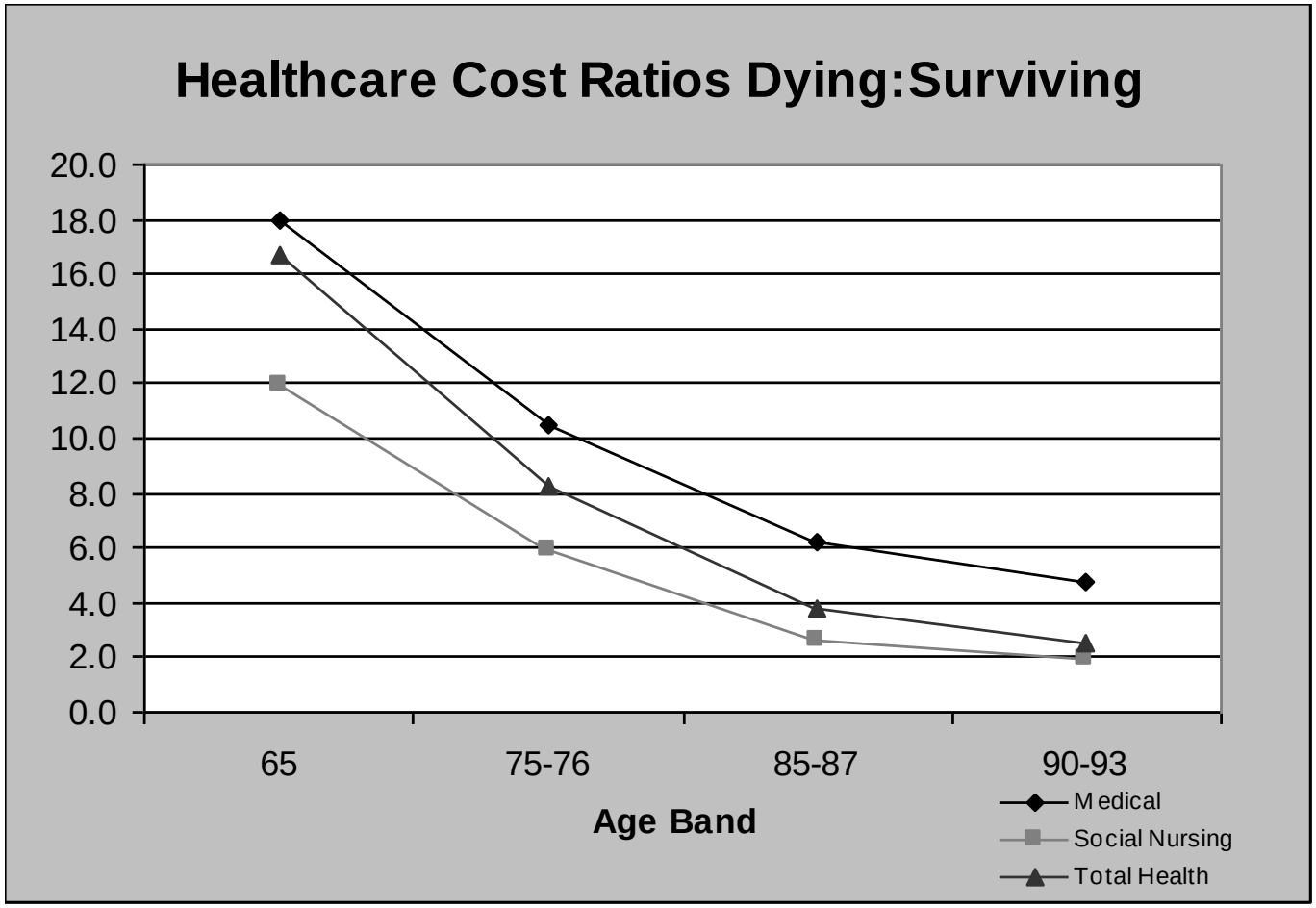
There is no strong evidence for aging as a significant driver of healthcare cost increases …..

So, what's going on here?

Planning Healthcare for the 21st Century

- Concern: aging population with costly healthcare needs
- History: past relationship between aging and healthcare cost
  - Digression: the high cost of dying
- Future: a wide range of possibilities
- Evidence and Analysis: is there a more likely future?
- Implications: what does this mean for us today?

Healthcare Costs in Last Year of Life: The High Cost of Dying



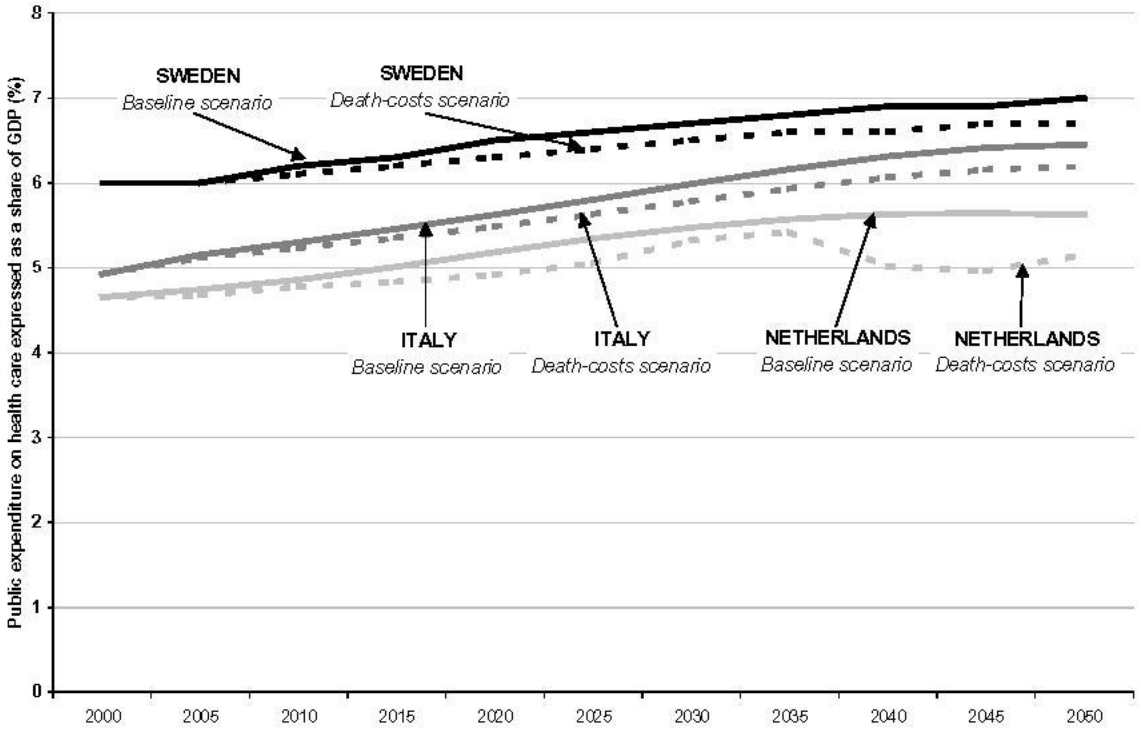
Source: McGrail, et. al., Age and Aging, 2000
Data from British Columbia, Canada

A Correction Reduces Cost Increases

"Death Cost" Projection vs. "Demographic" Projection

Reduces 2000 - 2050 EU cost projections by average of .3%

(from 8.8%to 8.5% of GDP)



Source: EU Economic Policy Committee 2001
Belgium 1995 - 2050

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So, recognizing that the cost of dying is a major factor driving healthcare cost increases reduces cause for concern…

But, there's still plenty to worry about!

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Epidemiological Transition

- **Age of Pestilence & Famine**
  - Stagnation of death rates at extremely high levels
  - Major killers: plagues, wars, influenza, pneumonia, diarrhea, smallpox, tuberculosis
  - Greatest toll on the young and childbearing women
- **Age of Receding Pandemics**
  - Rapid change due to sanitation, living habits, public health, and, in later stage, medicine
  - Elevated risk of dying from chronic diseases
  - Redistribution of deaths to elderly
- **Age of Degenerative Diseases of Affluence**
  - Death rates plateau at level approaching theoretical limit to life
  - Major causes of death: heart disease, stroke and cancer

Source: Omran, Milbank Quarterly, 1971

Have We Entered …
Age of Delayed Degenerative Diseases?

- Rapid decline in death rates concentrated mostly at advanced ages
- Causes of death remain unchanged (chronic disease)
  - » Heart disease
  - » Stroke
  - » Cancer
- Age distribution of deaths for degenerative causes shifted towards older ages
- Improvements in survival concentrated at advanced ages

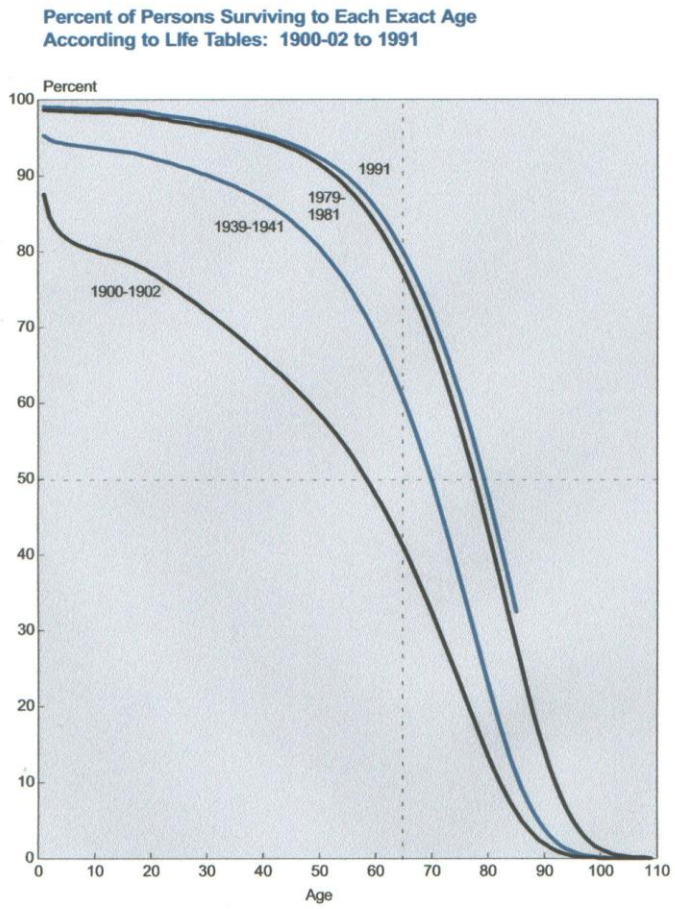
Source: Olshansky and Ault, Milbank Quarterly, 1986

Elderly Morbidity Cost Projections

Cost is an interrelated function of:

- **life expectancy**
- **biological morbidity**
- **scope, intensity and cost of services (economic morbidity)**

Life Expectancy - Theories



- Rectangularization of survival curves
  - ✓ Fixed maximum life span at 115
  - ✓ Life expectancy increasing to 85
  - ✓ 95% of deaths between 77 and 93
- Life expectancy without limits
  - ✓ No fixed maximum life span
  - ✓ No limit on improvements in life expectancy

Source: Fries, Milbank Quarterly, 1983

Biological Morbidity - Theories

- **Compression of morbidity [1]**
  - **Lifestyle changes and early non-medical interventions postpone onset of clinical morbidity**
  - **Morbidity continues to be postponed as life expectancy plateaus**
  - **Elderly live longer and healthier**

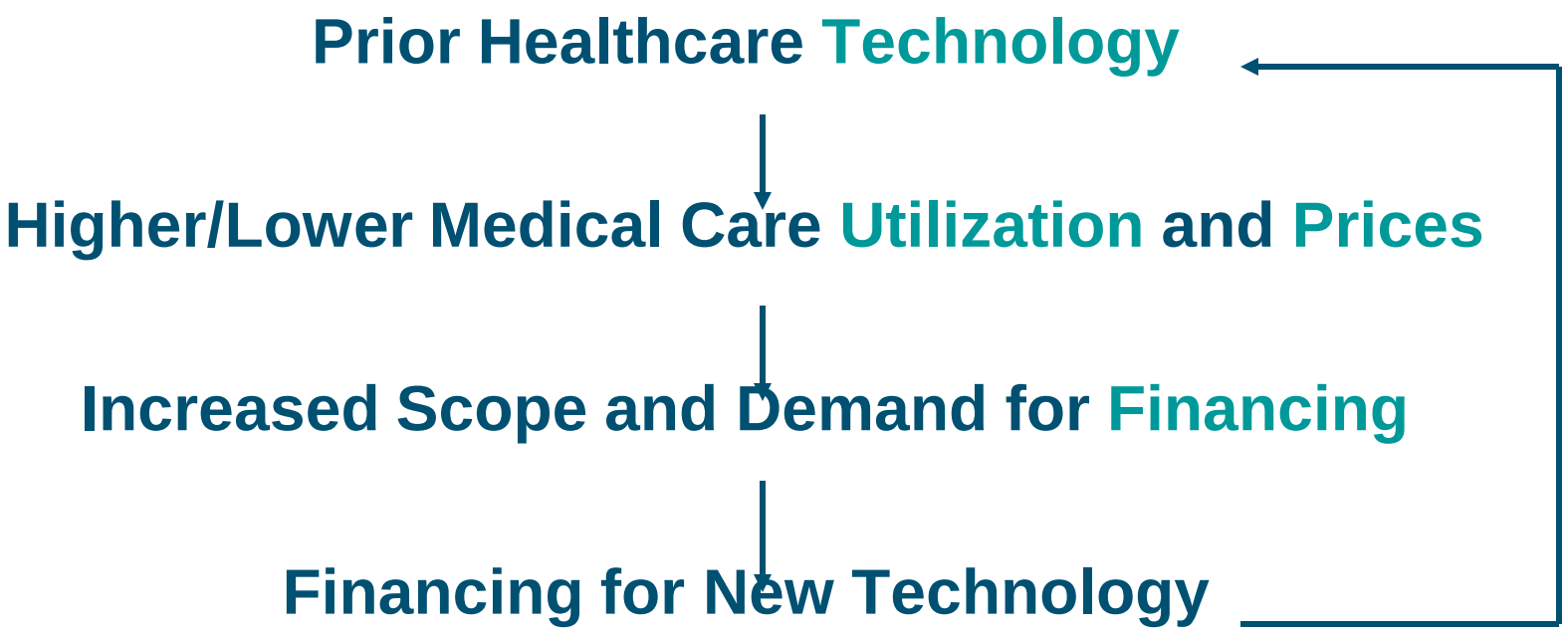
- **Expansion of morbidity [2]**
  - **Longer life expectancy does not postpone onset of morbidity**
  - **Elderly live longer, but sicker**

1 Fries, James F., "Aging, Natural Death, and the Compression of Morbidity", NEJM, July 17, 1980.
2 Brody, Jacob A., "Prospects for an Aging Population", Nature, June 6, 1985

Economic Morbidity: Complex Interactions Driven Mainly by Technology

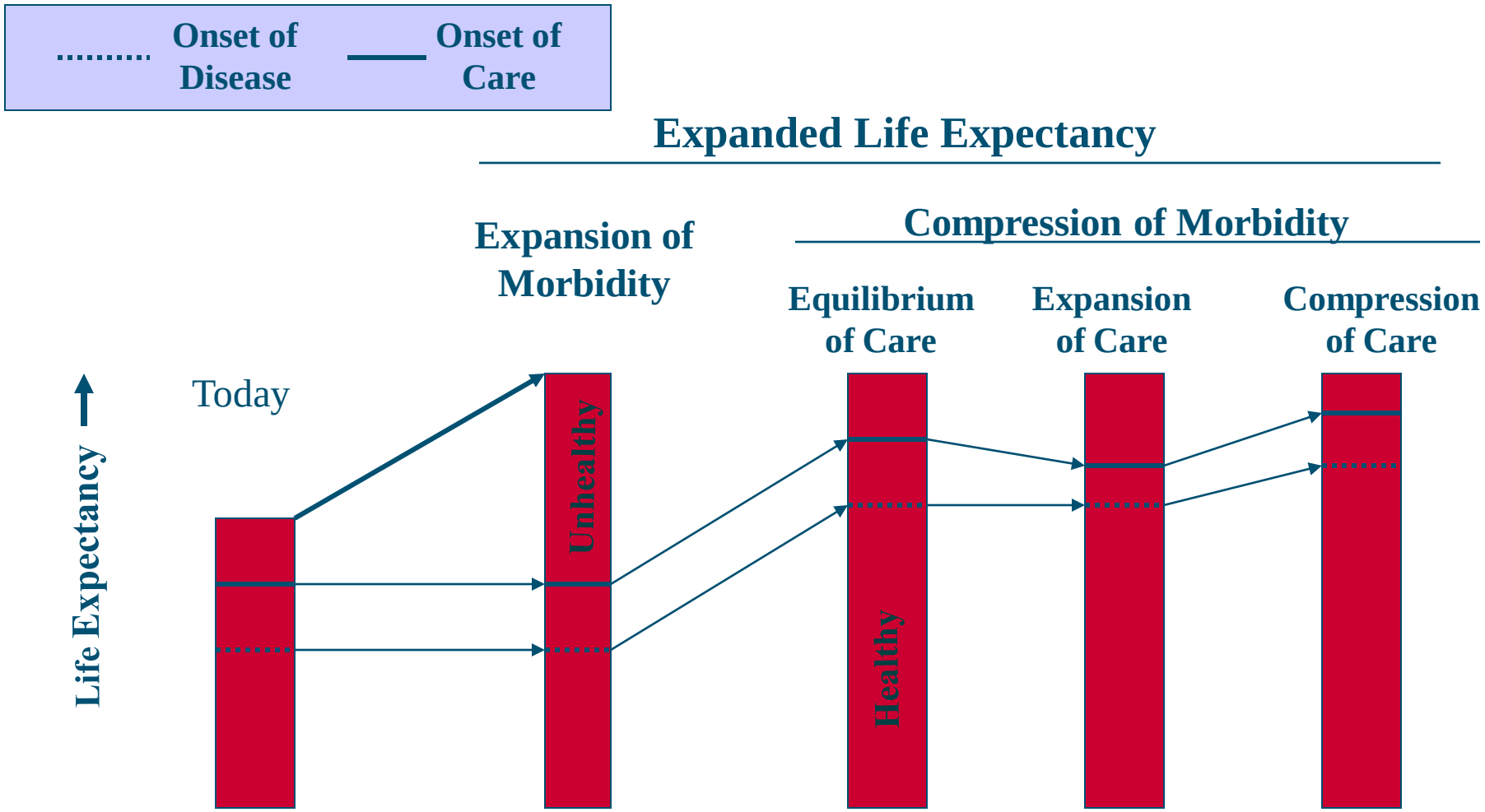
The Healthcare Quadrilemmal

"vicious" or "virtuous" dynamic?



Source: Wiesbrod, Journal of Economic Literature, 1991

Put These Alternatives Together … and We Get a Range of Plausible Futures



Elderly Morbidity Cost Scenario I

- **The Good …. Compression of Care**
  - Life Expectancy
    - **Compression of mortality near end of natural life**
  - Biological Morbidity
    - **Compression of morbidity**
    - **Elderly live additional years in good health**
  - Economic Morbidity
    - **Technology: effective, inexpensive health care interventions**
    - **Lifestyle: good health habits delay debility and illness**
    - **Ethics: end of life debility and illness is clearly recognized and treated with care and support, but not with aggressive medical interventions or institutionalization of frail elderly**
  - Future Costs
    - **Cost increases lower than standard projections**

Elderly Morbidity Cost Scenario II

The Bad …. Equilibrium of Care

- Life Expectancy
  - Compression of mortality near end of natural life
- Biological Morbidity
  - No expansion or compression of morbidity
  - Elderly live additional years, but health about same as now
- Economic Morbidity
  - Technology: continues to expand scope of expensive diagnostic and palliative care
  - Lifestyle: good health habits delay debility and illness
  - Ethics: end of life debility and illness often treated with aggressive medical interventions and institutionalization of frail elderly
- Future Costs
  - Cost increases are significant and in range of standard projections

Elderly Morbidity Cost Scenario III

- **The Ugly …. Expansion of Care**
  - **Life Expectancy**
    - Continued mortality improvement without limit
  - **Biological Morbidity**
    - Expansion of morbidity
    - Elderly live additional years often in poor health
  - **Economic Morbidity**
    - Technology: expands the scope of expensive diagnostic and palliative care
    - Lifestyle: no improvement in good health habits
    - Ethics: end of life debility and illness treated with increasingly aggressive medical interventions and institutionalization of frail elderly
  - **Future Costs**
    - Cost increases are very large and well above standard projections

Potential Range of Costs

E.U. Public Healthcare Spending - 2050

2000 Average	**6.6% of GDP**
Scenario Cost "Guess-timates"	
– The Good	**6.5% - 11.2%**
– The Bad (current trend)*	**13.2%**
– The Ugly	**14.2% - 16.6%**

* Assumes continuation of historical trend of 1.4% annual growth in excess of GDP

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Wow, this is complicated!

Is there evidence for a more likely future?

Planning Healthcare for the 21st Century

- Concern: aging population with costly healthcare needs
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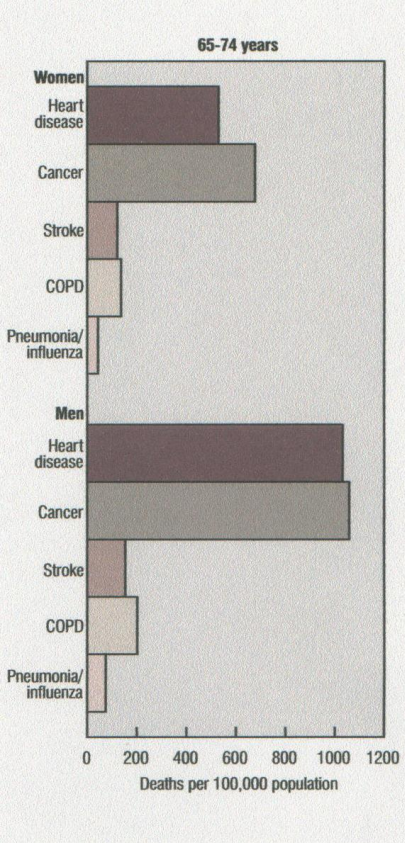
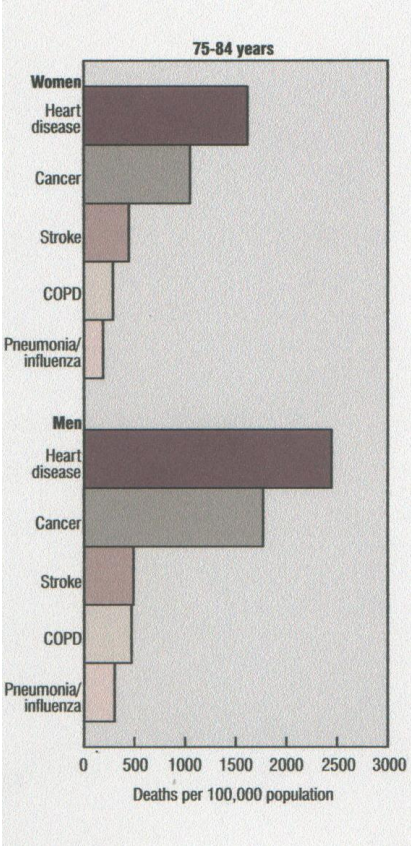
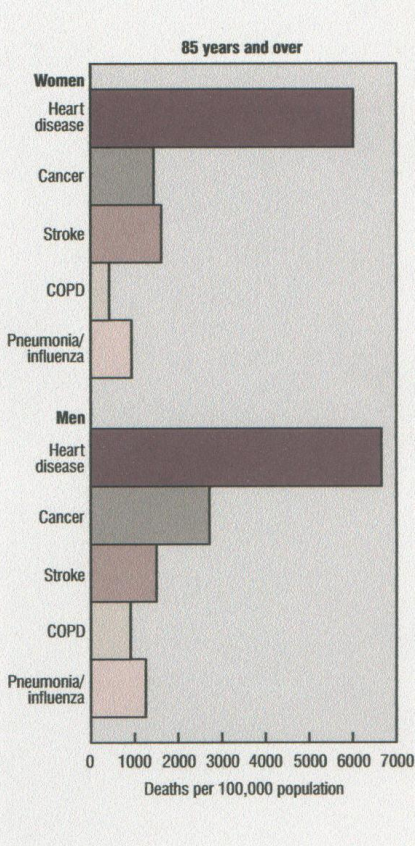
- Evidence and Analysis: is there a more likely future?
  - Key drivers of future costs
- Implications: what does this mean for us today?

Life Expectancy: Can Science "Cure Death"?

Main Causes of Deaths of the Elderly







Source: Health, United States, 1999, Health and Aging Chartbook

Biological Morbidity: Compression, Expansion, or Equilibrium?

Most expensive and prevalent causes of morbidity can be controlled through non-medical lifestyle changes

Most Expensive Medical Conditions
US, 1986

Rank	Disease	% With any ADL/IADL	Controllable Risk Factors
1.	Ischemic Heart Disease	19%	Smoking, weight
2.	Motor Vehicle Accidents	11%	Seat belts
3.	Acute Respiratory Infections	4%	
4.	Athropathies	14%	
5.	Hypertension	14%	
6.	Back Problem	8%	
7.	Mood Disorders	15%	
8.	Diabetes	21%	
9.	Cerebrovascular Disease	55%	
10.	Cardiac Dysrythmias	18%	
11.	Peripheral Vascular Disease	18%	
12.	COPD	7%	Smoking.weight
13.	Asthma	8%	
14.	Congestive Heart Failure	48%	Smoking
15.	Respiratory Malignancies	45%	Smoking

Healthy Lifestyle
The "New" Public Health

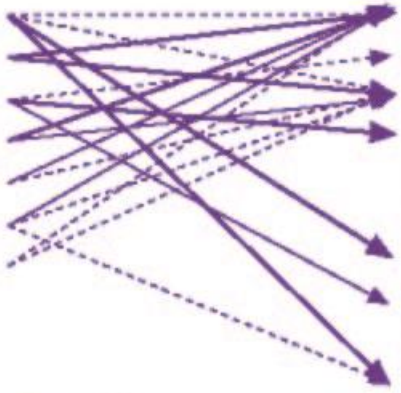
Major Burden of Disease, 2000

Developed Countries

Leading 10 Selected Risk Factors and Their Relationships to Leading 10 Diseases and Injuries

Developed countries with very low or low child mortality levels (AMR-A, EUR-A, EUR-B, EUR-C, WPR-A)

Risk factor	% DALYs	Disease or injury	% DALYs
Tobacco	12.2	Ischaemic heart disease	9.4
Blood pressure	10.9	Unipolar depressive disorders	7.2
Alcohol	9.2	Cerebrovascular disease	6.0
Cholesterol	7.6	Alcohol use disorders	3.5
Overweight	7.4	Dementia and other central nervous system disorders	3.0
Low fruit and vegetable intake	3.9	Deafness	2.8
Physical inactivity	3.3	Chronic obstructive pulmonary disease	2.6
Illicit drugs	1.8	Road traffic injury	2.5
Unsafe sex[a]	0.8	Osteoarthritis	2.5
Iron deficiency[b]	0.7	Trachea/bronchus/lung cancers	2.4



[a] Unsafe sex disease burden is from HIV/AIDS and sexually transmitted diseases.

[b] Iron deficiency disease burden is from maternal and perinatal causes, as well as direct effects of anaemia.

Preventive fractions due to alcohol and cardiovascular disease in some regions are not shown in these tables.

NB. The selected risk factors cause diseases in addition to those relationships illustrated, and additional risk factors are also important in the etiology of the diseases illustrated.

1-24% population attributable fraction

25-49% population attributable fraction

50%+ population attributable fraction

World Health Report, 2002

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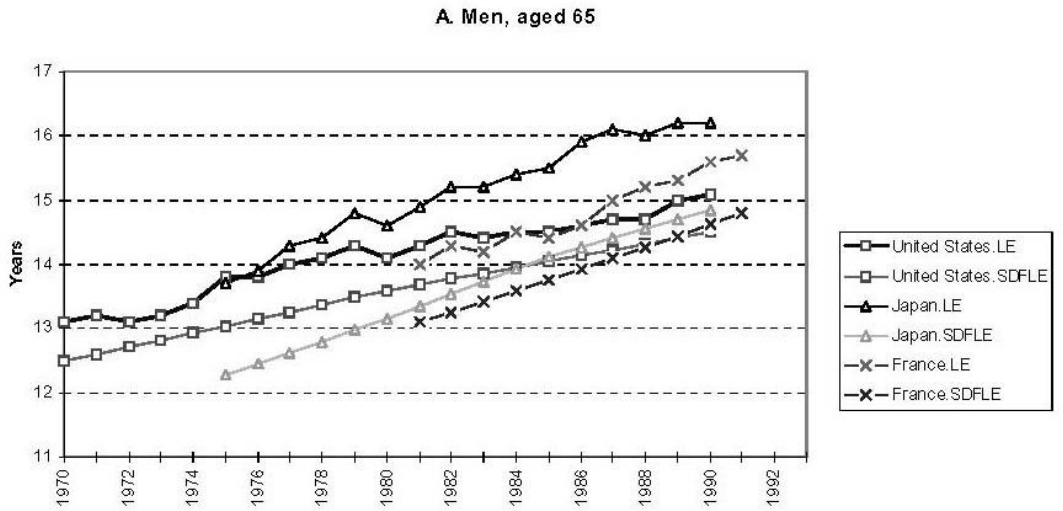
Healthy Lifestyle

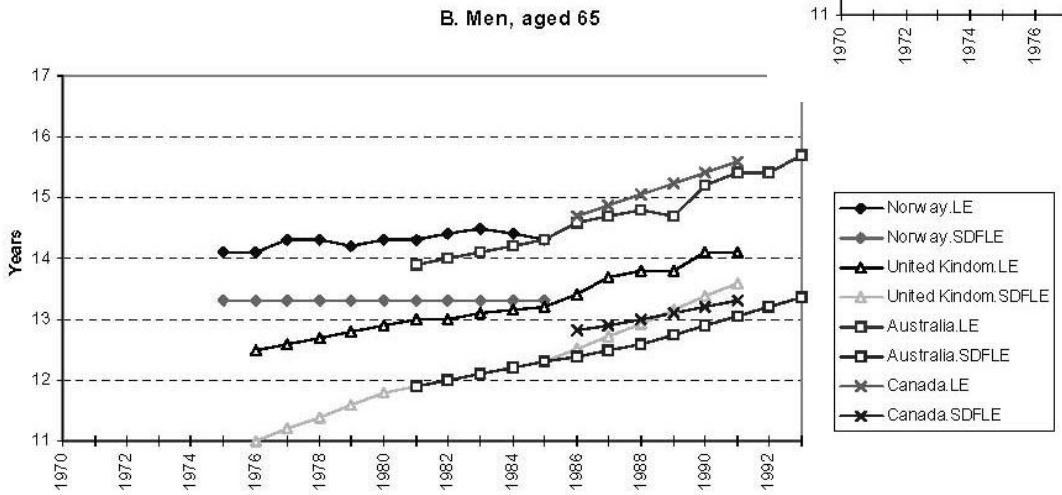
- Smoking cessation
- Drinking alcohol in moderation
- Healthy diet and weight control
- Exercise
- Seat belts
- Clean environment
- Higher levels of education and living standard

These "new public health" interventions will work!

Favorable Trends in Severe Disability

International studies find a rough equilibrium or slight compression of morbidity, particularly in the last two decades of the 20th Century





Source: OECD 1999 (Jacobzone)

Economic Morbidity:
Is There Realistic Hope For the Future?

Medical technology

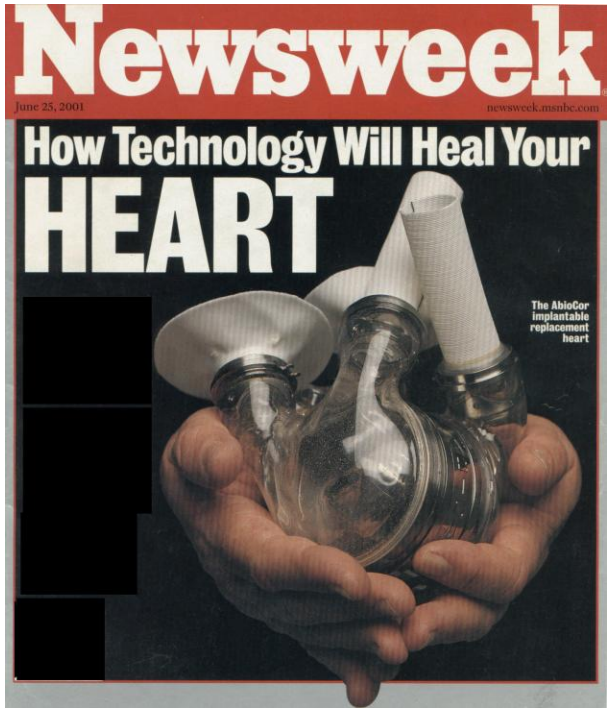
Ethics, attitude and ideology

Healthy lifestyle

Healthcare systems

Medical Technology

A Two-Edged Sword



The hope of improved life

But with,

Potential to increase *or* to control costs

Potential Cost Increase

Potential Cost Saving

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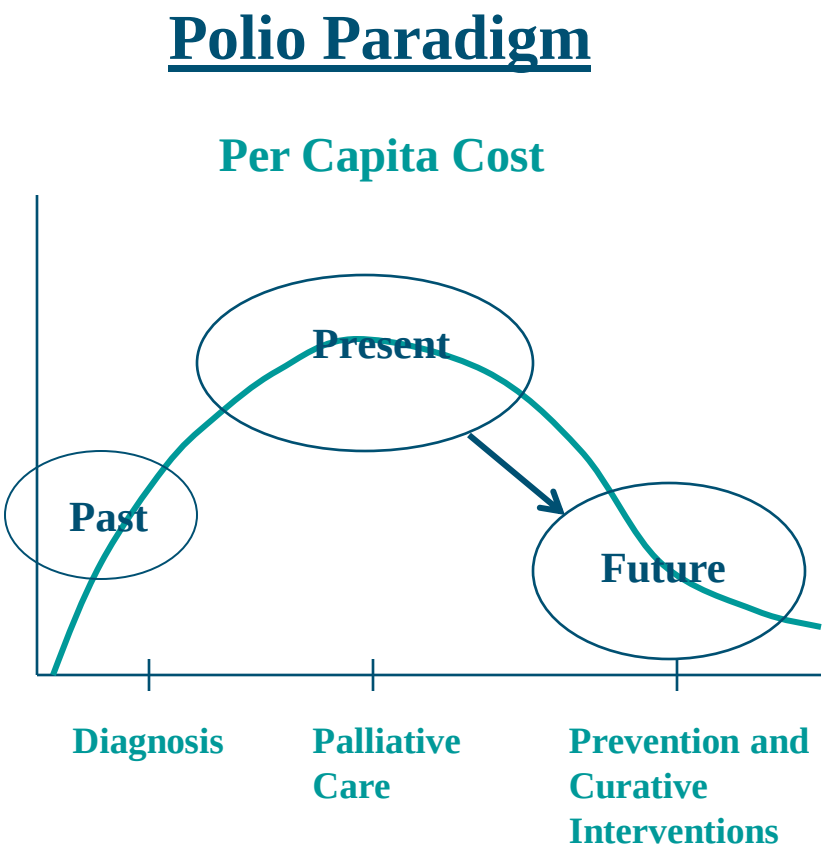
Medical Technology

- Today's technological advances generally increase costs
- Medical research holds out long term (30 – 50 years) hope for inexpensive curative medical interventions
- Health care in 2050 might be significantly different and less costly as a % of GDP than today



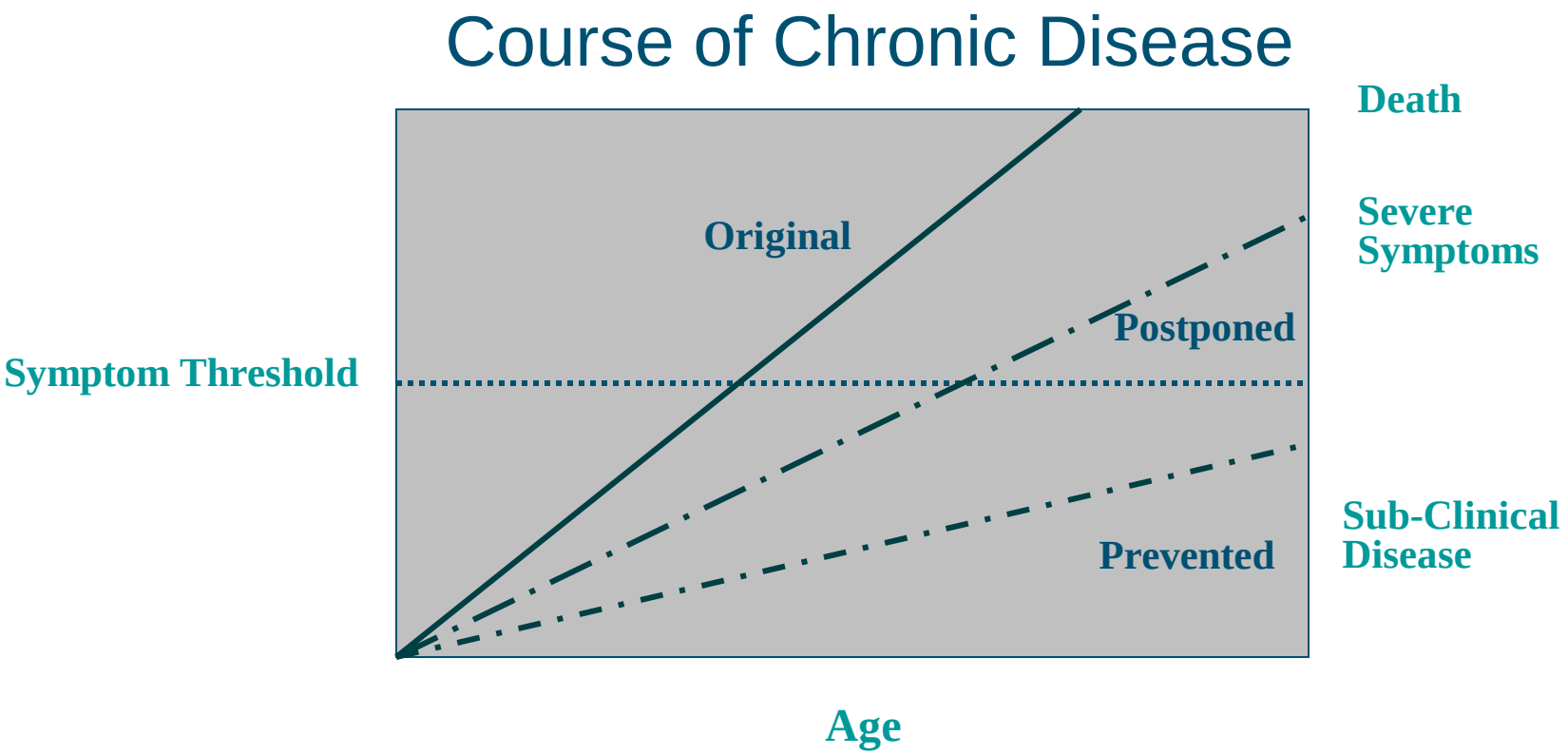
Ethics, Attitude and Ideology

"…at the heart of the crisis is a basic problem of values. We have a system that has believed it could pursue unlimited medical progress to meet all individual needs at an affordable price."

As long as we pursue all the care we want (not need) when we want it … costs cannot be contained

Source: Daniel Callahan, Ph.d., The Hastings Center

Healthy Lifestyle



Source: Fries, Milbank Quarterly, 1983

Healthcare Systems

Control access to healthcare

Control pace of change

DO NOT control the future,
they merely "manage" the process

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Yes - there is a healthcare cost "crisis"
But - demography is not destiny

- Elderly are living longer and may be living healthier
- Aging populations are a causative factor, but not the major one
- Future costs will be determined mainly by factors that are external to healthcare systems
- Medical technology, ethics, and healthy lifestyles are major causative factor in growth of healthcare spending

What Can We Do?

- Design effective incentives for developing cost saving and curative technology
- Promote healthy lifestyles
- Develop non-aggressive attitudes towards medical care, particularly at end-of-life
- Evolve healthcare systems that effectively control costs while providing universal access to healthcare needs

My “Best Guess” Future Scenario?

- 2000 – 2025: Continuation of the past BAD trend
- 2025 – 2050: Medical science and technology to the rescue --- a new GOOD trend develops

2050 EU Average Healthcare Spending

9% to 11% of GDP