



*"SME Supply Chain Integration for Enhanced Fully Customisable Medical Implants, using New Biomaterials and Rapid Manufacturing Technologies, to Enhance the Quality of Life for EU Citizens"*

*Integrated Project for SME's, coordinated by*



## **Socio-economic impact of Custom IMD results**

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# What's the problem in health care?

Many different types of health problems  
(world, 2004)

## Mortality

	%
• Ischaemic heart disease	12.2
• Cerebrovascular disease	9.7
• Lower respiratory infections	7.1
• COPD	5.1
• Diarrhoeal diseases	3.7
• HIV/AIDS	3.5
• Tuberculosis	2.5
• Trachea, bronchus, lung cancers	2.3
• Road traffic accidents	2.2
• Prematurity, low birth weight	2.0

## DALYs

	%
• Lower respiratory infections	6.2
• Diarrhoeal diseases	4.8
• Depression	4.3
• Ischaemic heart disease	4.1
• HIV/AIDS	3.8
• Cerebrovascular disease	3.1
• Prematurity, low birthweight	2.9
• Birth asphyxia, birth trauma	2.7
• Road traffic accidents	2.7
• Neonatal infections and other	2.7

**DALYs = disability-adjusted life-years (“disease burden”)**

# Also, our health problems are changing

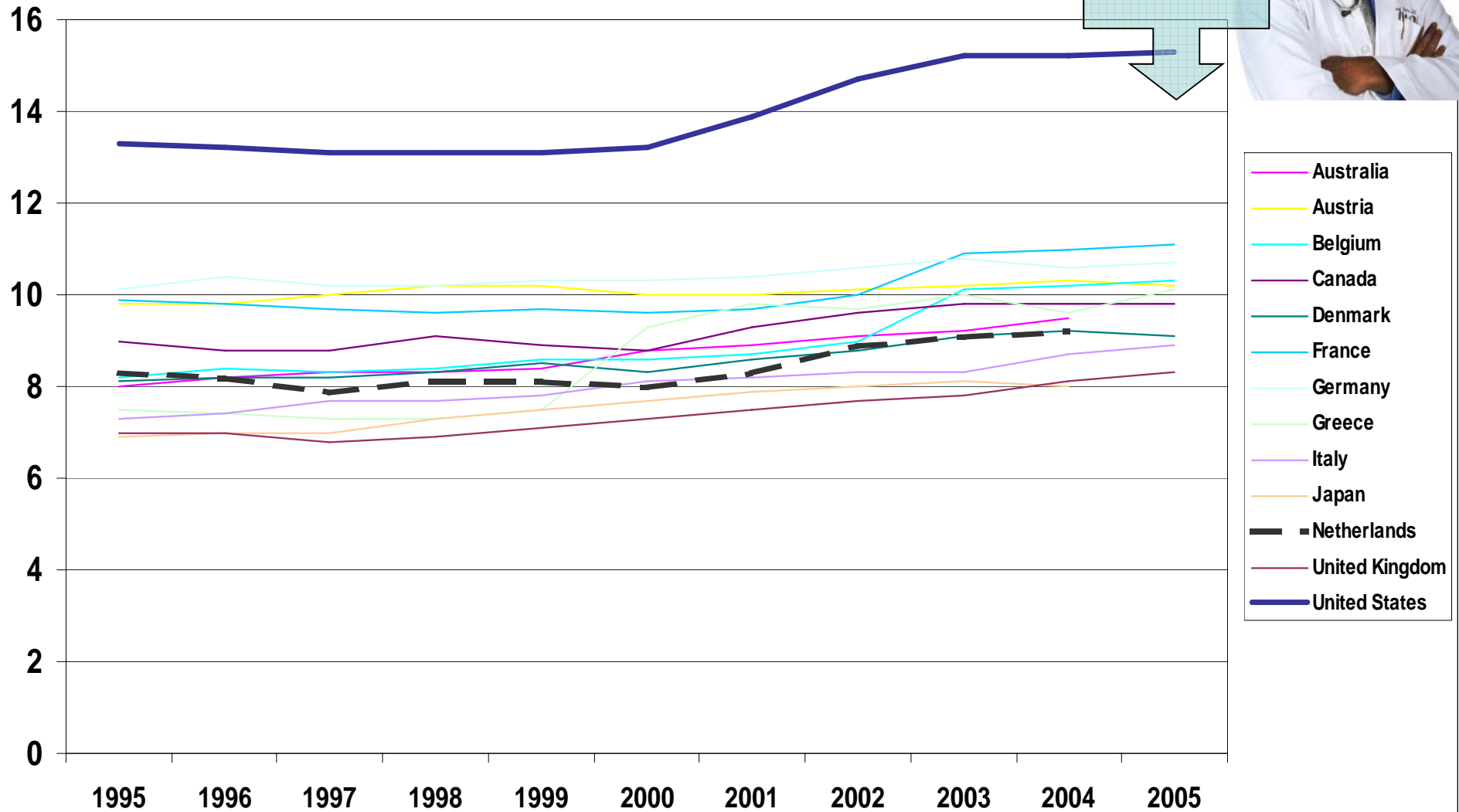
## Leading causes of disease burden (world, 2004 & 2030)

2004 Disease or injury	As % of total DALYs	Rank		Rank	As % of total DALYs	2030 Disease or injury
Lower respiratory infections	6.2	1	→	1	6.2	Unipolar depressive disorders
Diarrhoeal diseases	4.8	2	→	2	5.5	Ischaemic heart disease
Unipolar depressive disorders	4.3	3	→	3	4.9	Road traffic accidents
Ischaemic heart disease	4.1	4	→	4	4.3	Cerebrovascular disease
HIV/AIDS	3.8	5	→	5	3.8	COPD
Cerebrovascular disease	3.1	6	→	6	3.2	Lower respiratory infections
Prematurity and low birth weight	2.9	7	→	7	2.9	Hearing loss, adult onset
Birth asphyxia and birth trauma	2.7	8	→	8	2.7	Refractive errors
Road traffic accidents	2.7	9	→	9	2.5	HIV/AIDS
Neonatal infections and other <sup>a</sup>	2.7	10	→	10	2.3	Diabetes mellitus
COPD	2.0	13	→	11	1.9	Neonatal infections and other <sup>a</sup>
Refractive errors	1.8	14	→	12	1.9	Prematurity and low birth weight
Hearing loss, adult onset	1.8	15	→	15	1.9	Birth asphyxia and birth trauma
Diabetes mellitus	1.3	19	→	18	1.6	Diarrhoeal diseases

# Another problem in health care

## Total health expenditures as % of GDP

Can he do it?



## Need to assess medical technology

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- Big decisions about treatments need to be made
- What is the value of the intervention?
  - e.g., medicine, medical device, screening programme
- Does society need it and should it be reimbursed?
- Will the treatment improve health or reduce costs?
- Need to compare one treatment vs. another
  - is the new treatment more effective than the current treatment?

# Customisation in health care

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- Many treatments in health care are mass produced (a one-size-fits-all approach)
  - Medicines (pills)
  - Many medical devices
- There's an increasing focus on personalised medicine
- Which items should be personalised or customised?
- How will they improve health or minimise costs?

# Customisation in health care

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- What should be customised in health care?
  - Three possibilities (at least!):
    - 1) “Personal treatment”
      - your doctor “treats” us differently from other patients
    - 2) Drugs that are appropriate for us
      - ‘personalised medicine’
    - 3) Treatment that **actually** fits our body
      - customised implants that fit our body
      - this is the focus of the custom IMD study

# Socioeconomic evaluation

Compared to current care, a custom IMD implant has the potential to:

<b>improve health gain</b>	Potentially faster recovery & reduced risk of failure or side-effects
<b>increase patient satisfaction</b>	Health gain, customised treatment, minimally invasive surgery, faster production
<b>reduce costs</b>	maybe higher implant cost, but possibly reduction in other healthcare costs (e.g., operation)
<b>be more cost-effective</b>	Possibly lower total costs & improved effectiveness
<b>become the preferred treatment</b>	Combination of factors: health gain, lower costs, cost-effectiveness, perceived quality, service

So no custom-made pyramids for us



# But custom-made implants ...

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**that fit our body well...**



**and improve the health care system!**

