

HEALTH ECONOMICS OF TREATING MALNUTRITION: COST EFFECTIVE OR COSTLY?

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Economic considerations

(limited evidence base for nutrition)

- Cost of condition (malnutrition)
- Cost-benefit analysis

All items are in monetary terms

Inform resource allocation within and between different sectors of the economy

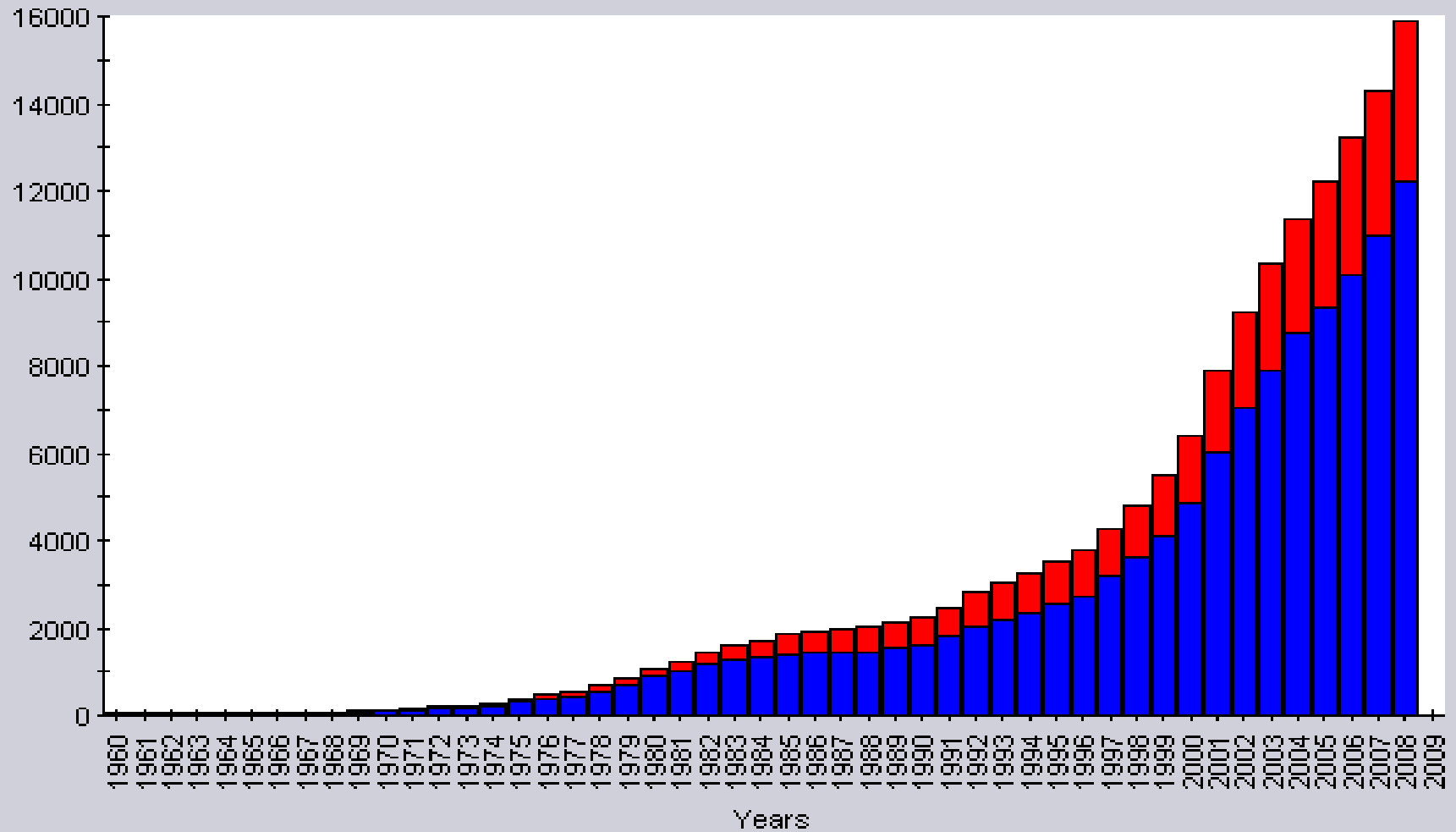
- Cost effectiveness analysis (CEA)

Costs are expressed in relation to an effect e.g. number of infections, or hospital infections or cases of DVT

Cost per QALY is a special form of CEA – cost-utility analysis

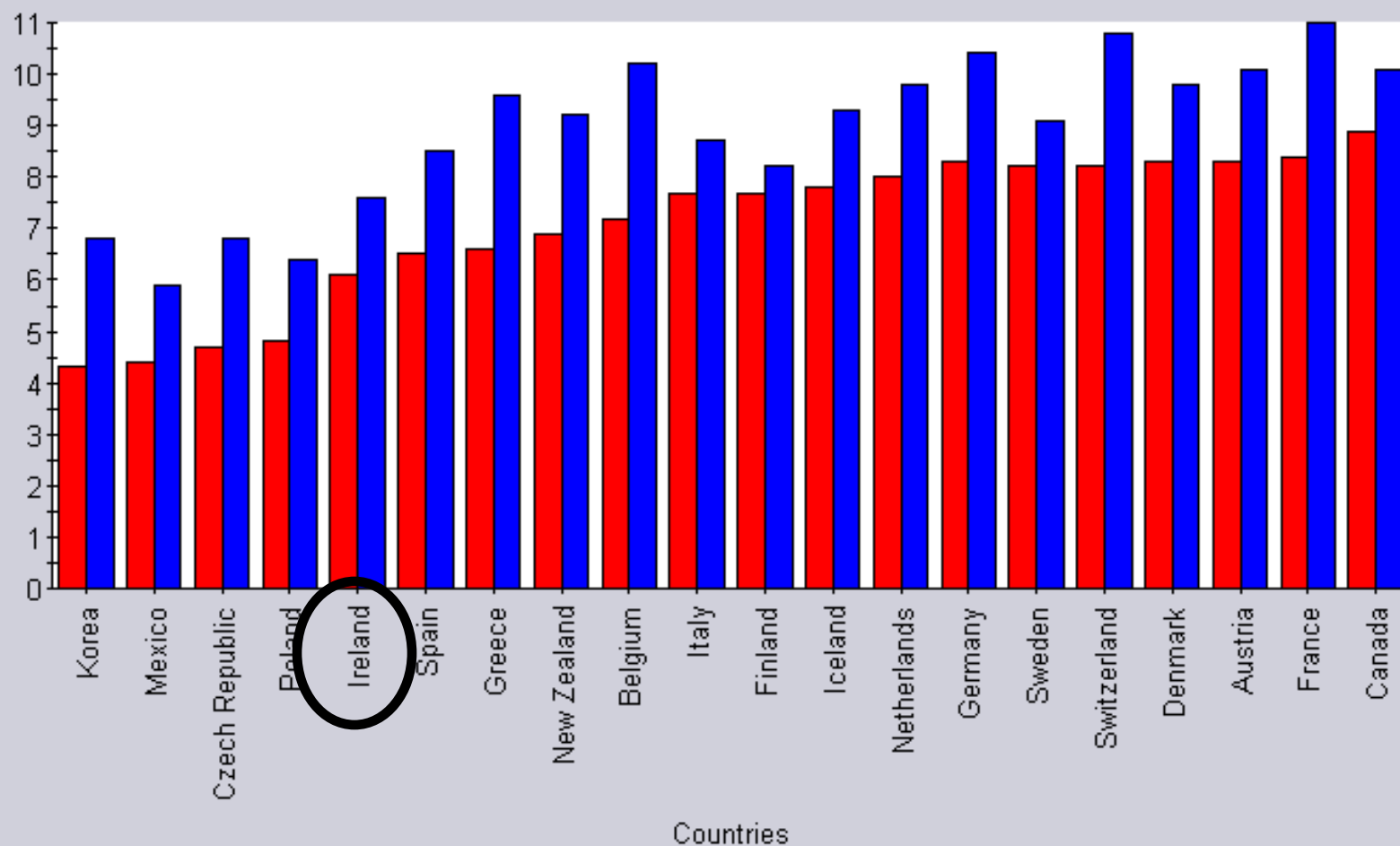
Usually restricted within a sector e.g. health sector

Ireland expend. on health - Million NCU



Public Private

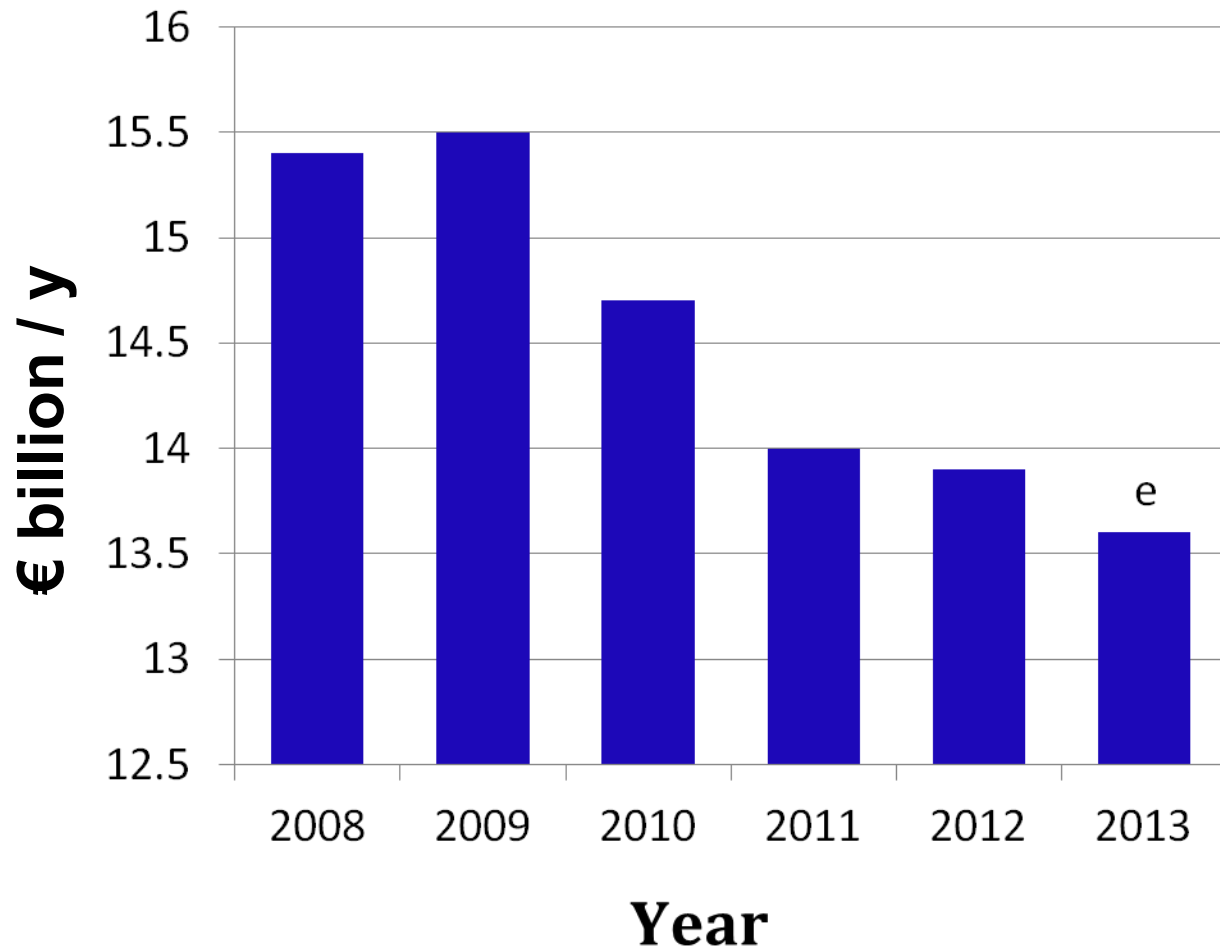
Total expendit. on health - % gross domestic product



1990 2007

Republic of Ireland

Expenditure on Health 2008-2013

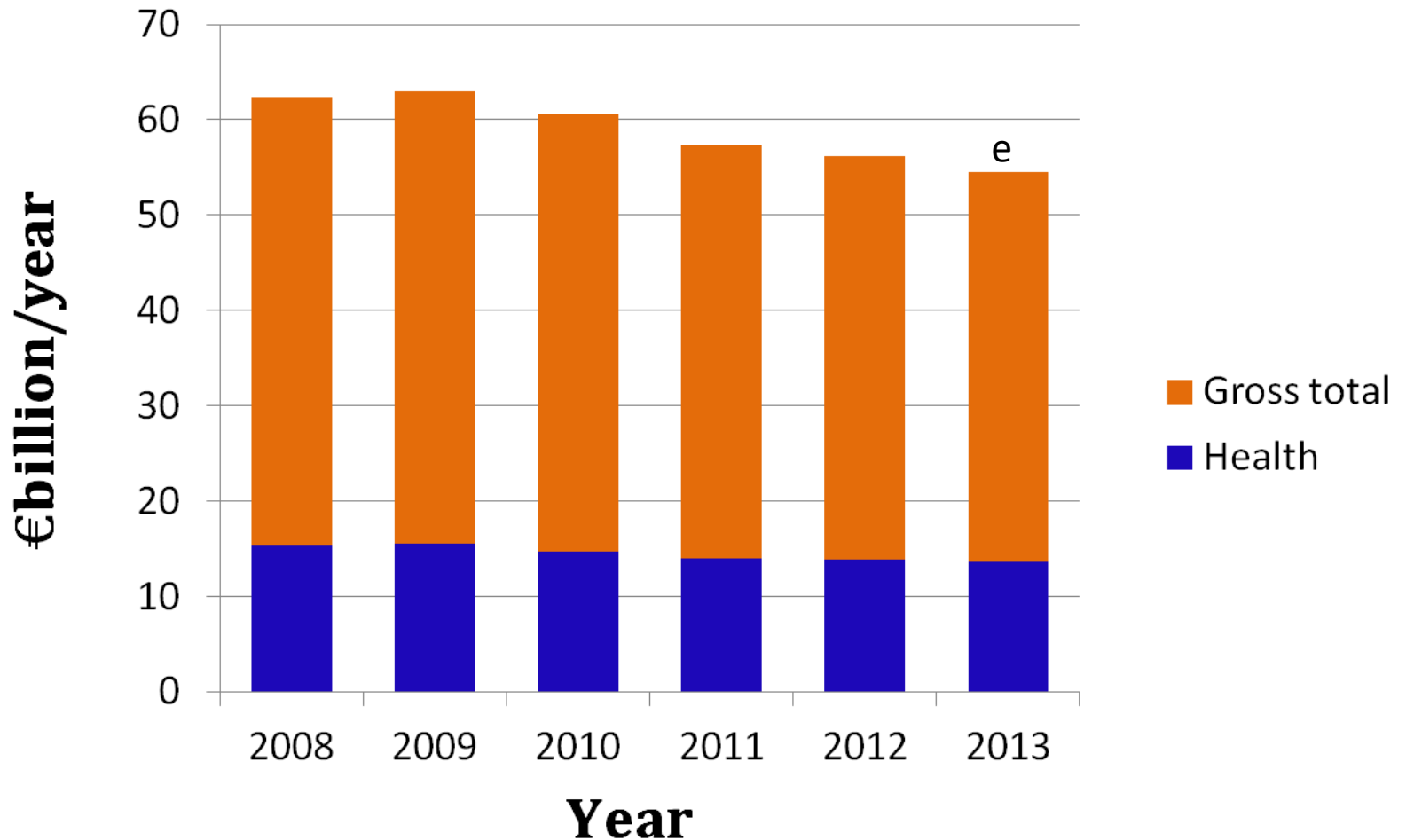


Budget 2013: Department of Finance

e = estimated

Republic of Ireland

Expenditure on Health & total gross expenditure

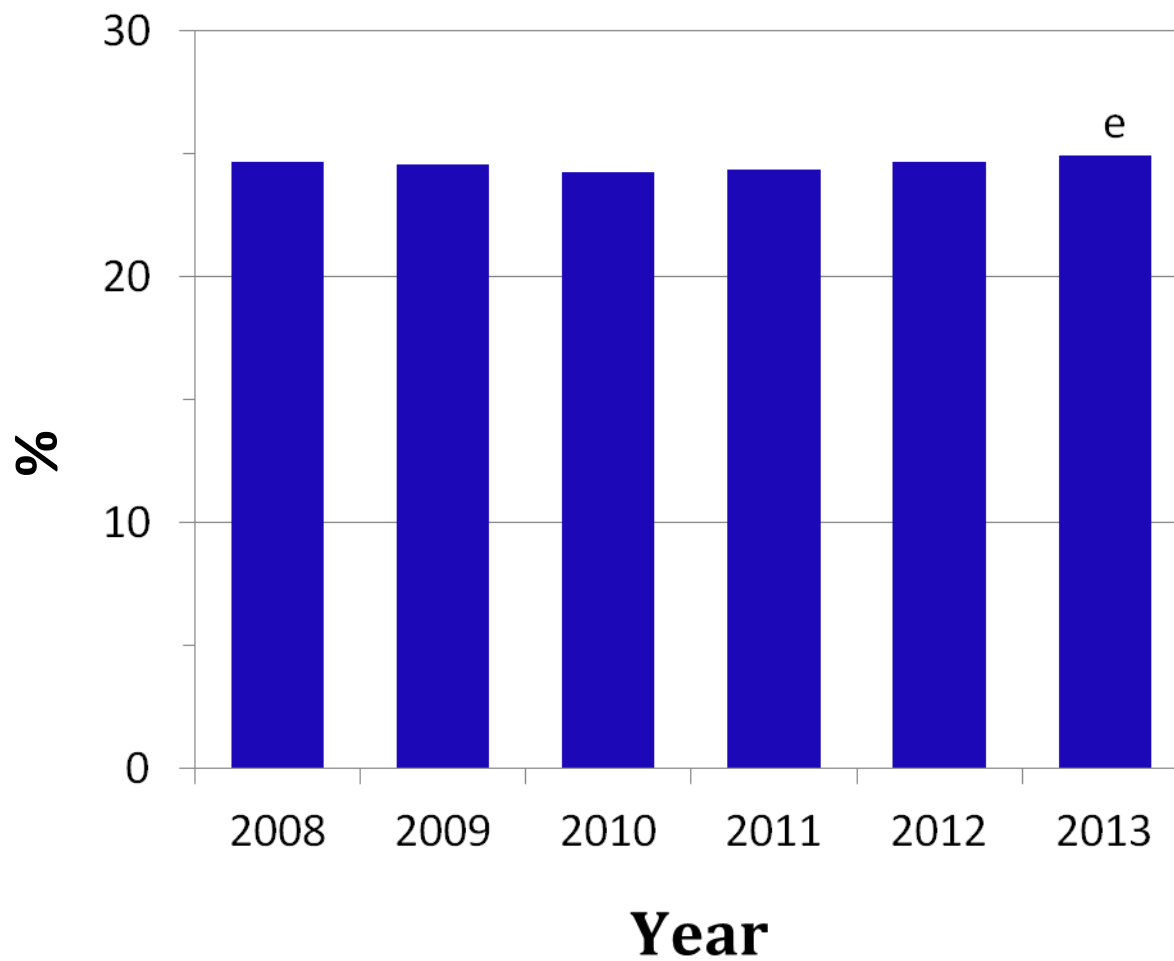


Budget 2013: Department of Finance

e = estimated

Republic of Ireland

Expenditure on Health (% of gross total) 2008-2013



Budget 2013: Department of Finance

e = estimated

IRELAND 2007

Total public expenditure on
health & social care

~ €13.7 billion

~€3,142/capita

Disease related
Malnutrition

> € 1.4 billion

**> 10% of health +
social care exp.**

> €321/ capita

Calculating cost of a procedure (nutritional screening)

$$\begin{array}{ccc} \text{Unit cost} & \times & \text{No. units} & = & \text{Total cost} \\ \downarrow & & \downarrow & & \downarrow \\ \begin{array}{l} \text{Cost of screening} \\ \text{e.g. 5min nurse} \\ \text{time } \sim \text{£1.5} \end{array} & \times & \begin{array}{l} \text{No. screened e.g.} \\ 10 \end{array} & = & \begin{array}{l} \text{£15} \end{array} \end{array}$$

Cost in a country for a year

Hospital inpatients = unit cost \times No screened/year

Hospital outpatients = unit cost \times No screened/year

Nursing homes = unit cost \times No screened/year

GP surgeries = unit cost \times No screened/year

GRAND TOTAL = Sum of above

Calculating other costs

- **Nutritional screening**
- **Nutritional assessments***
- **Nutritional interventions****
(includes net ingredient costs of ONS, ETF, PN)
- **Resource use*****
(includes GP visits, hospital admissions and LOS)

* Requires information about proportion screened who are malnourished and referred for assessment by a dietitian and its cost

** Requires information about use of ONS, ETF and PN and its cost

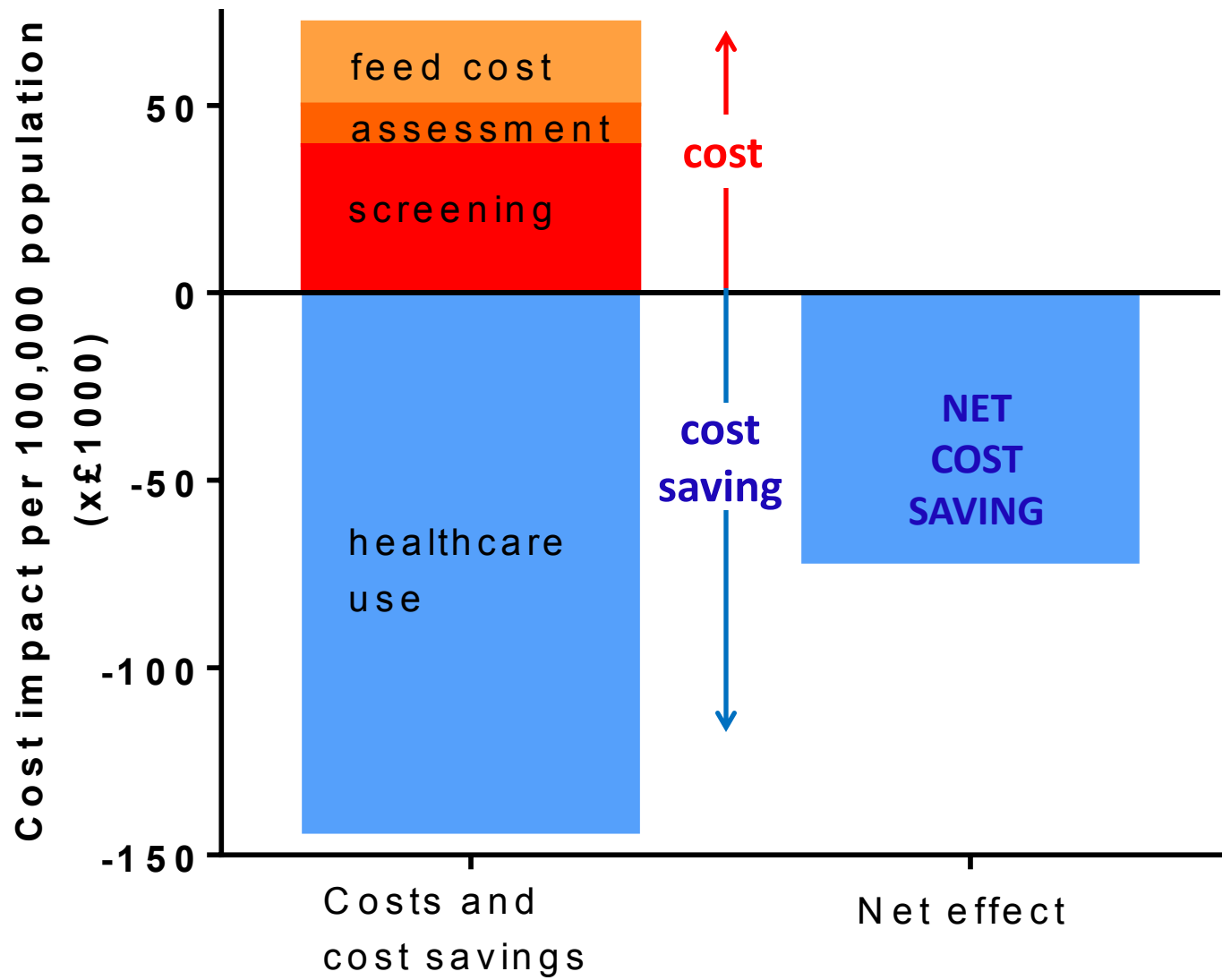
** Requires information about resource use and its cost

Calculating resource impact of intervention

1. Cost of current pathway (as described)
2. Cost of proposed pathway (same methodology)
(increased screening, assessment, and intervention and change in resource use* e.g. effect of intervention on hospital LOS)
3. Impact of intervention
= Costs of proposed pathway – current pathway

Resource impact per 100,000 people

Areas of resource impact	Cost of impact (£1000s)
Increase in screening – direct costs (5 min nurse)	38.9
Increase in nutritional assessments (45 min dietitian)	10.8
Increase in nutritional intervention (ingredient costs etc)	22.0
Decrease in secondary care activity (mainly hospital stay)	-143.6
NET cost	-71.8



NICE 2012

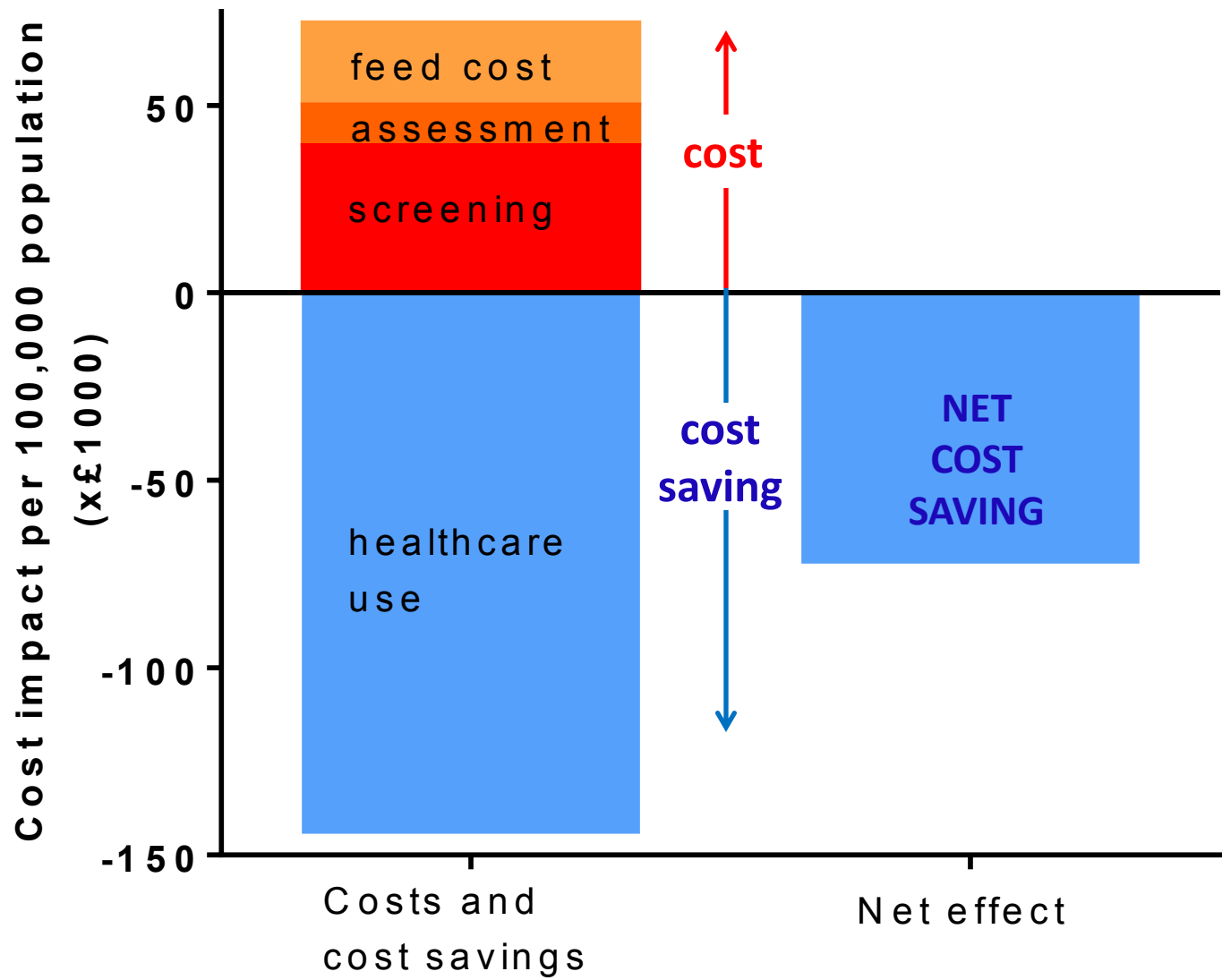
Time taken to screen using 'MUST'

	Time (min)	
	Healthcare worker	Self-screening (OPD)
Some screening tools	10-15	?
'MUST' paper version	≤ 5	5*
'MUST' electronic version	≤ 3	3**
'MUST' wifi electronic system	≤1	1.29***
'MUST' modified wifi electronic system	?≤ 0.5	?0.5

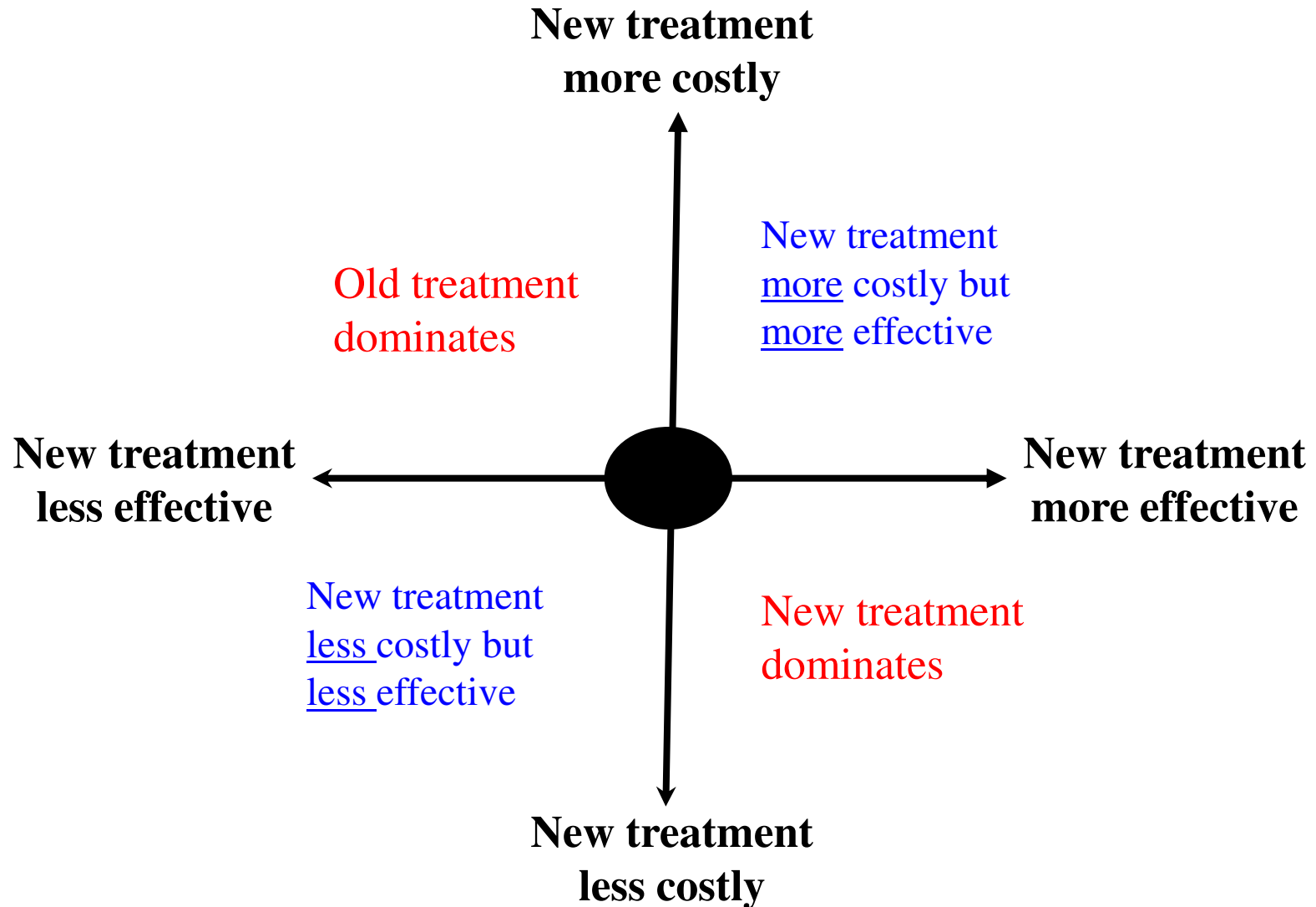
*Am J Clin Nutr 2012

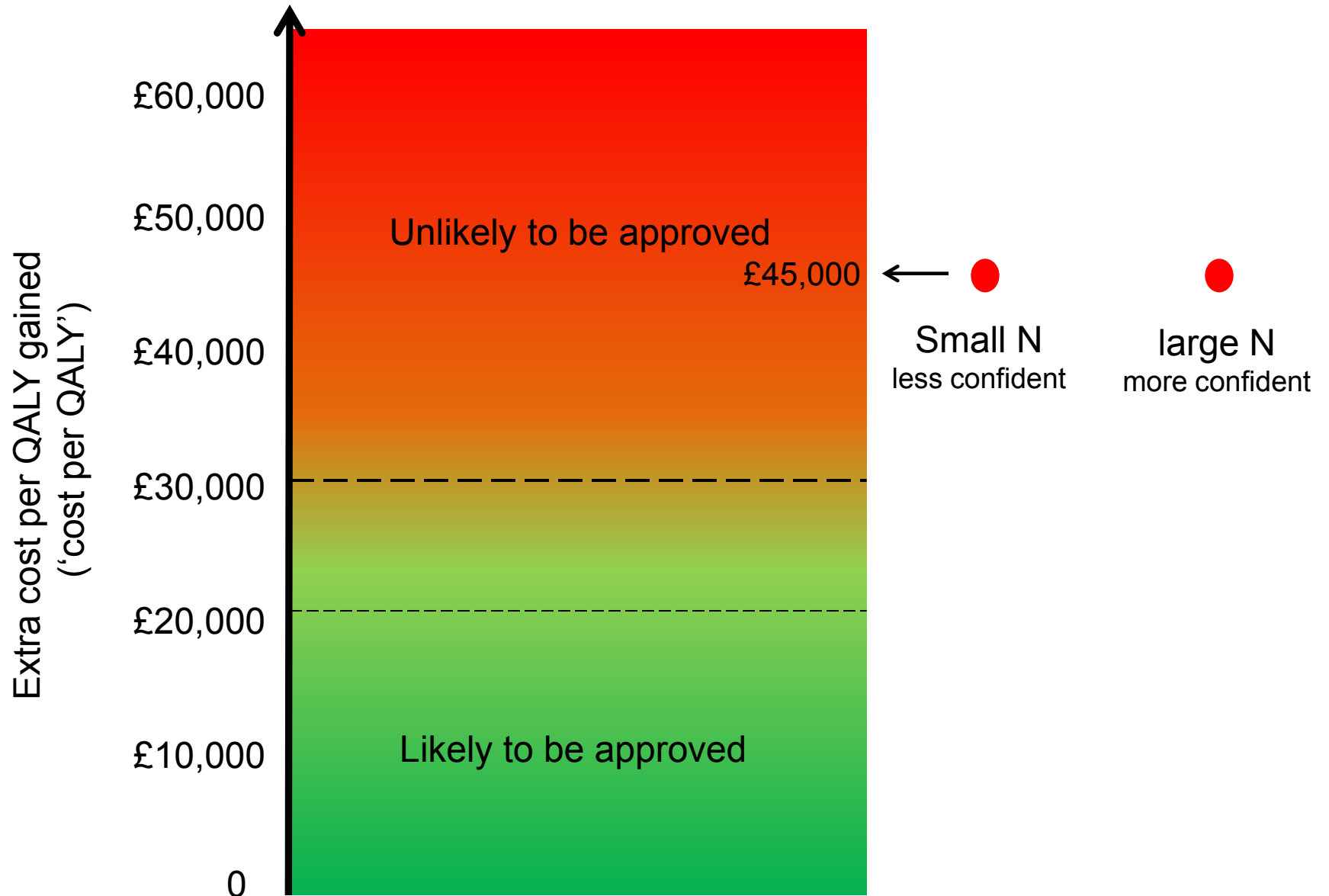
** Clin Nutr abstr 2011

***Nutrition 2013 (in press)



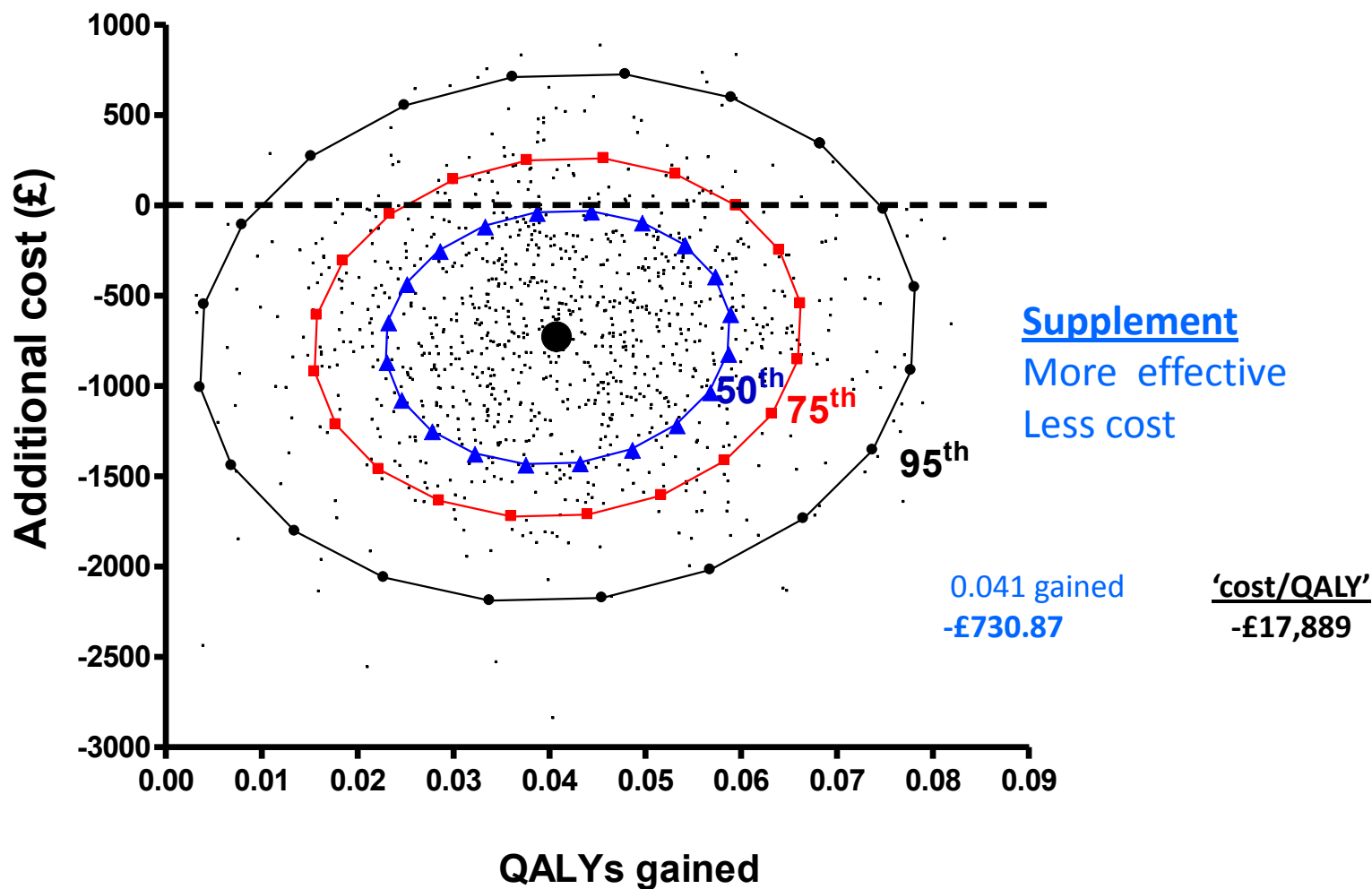
Cost effectiveness plane





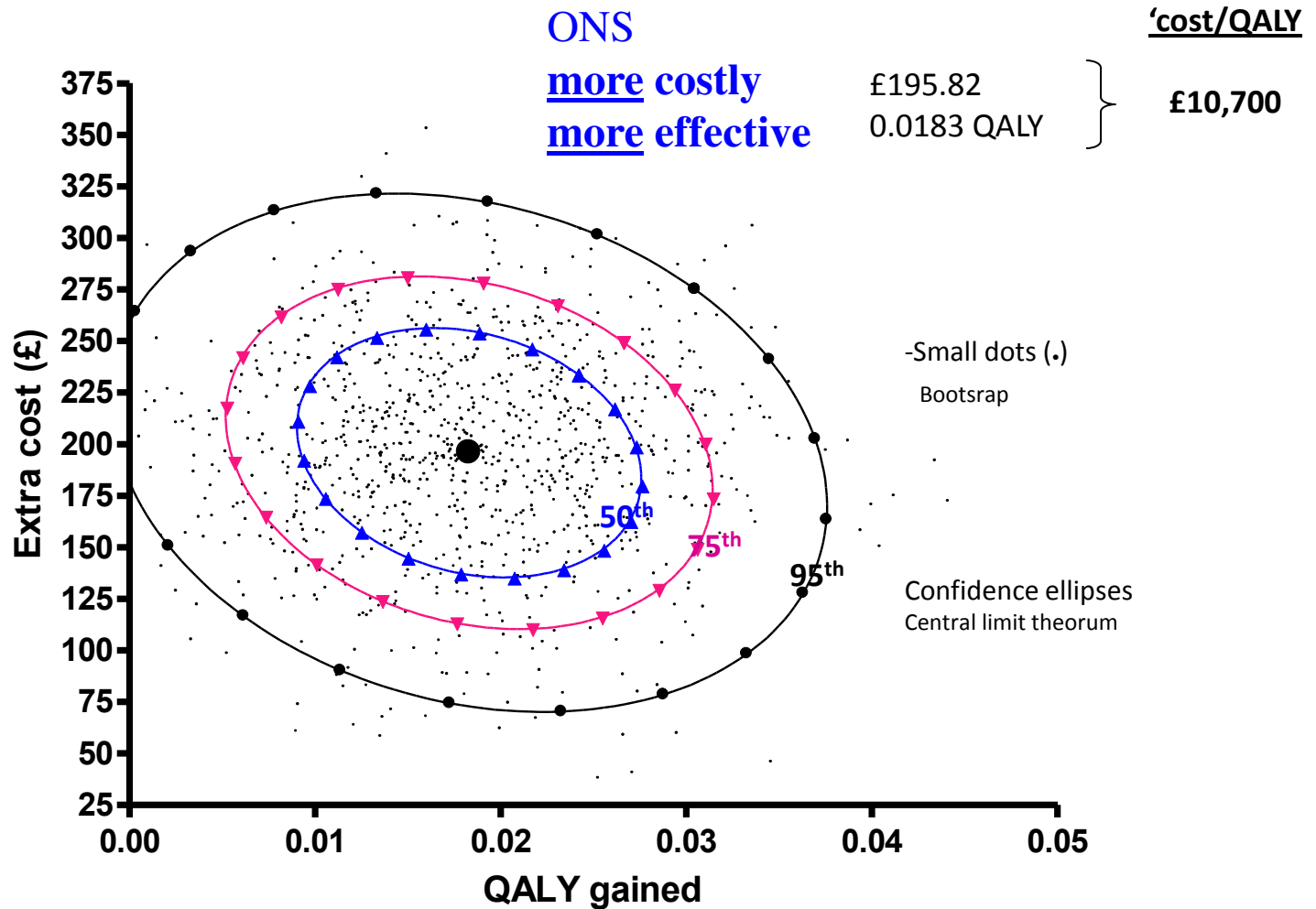
Supplement (milk powder) v dietary advice

malnourished COPD patients in the community

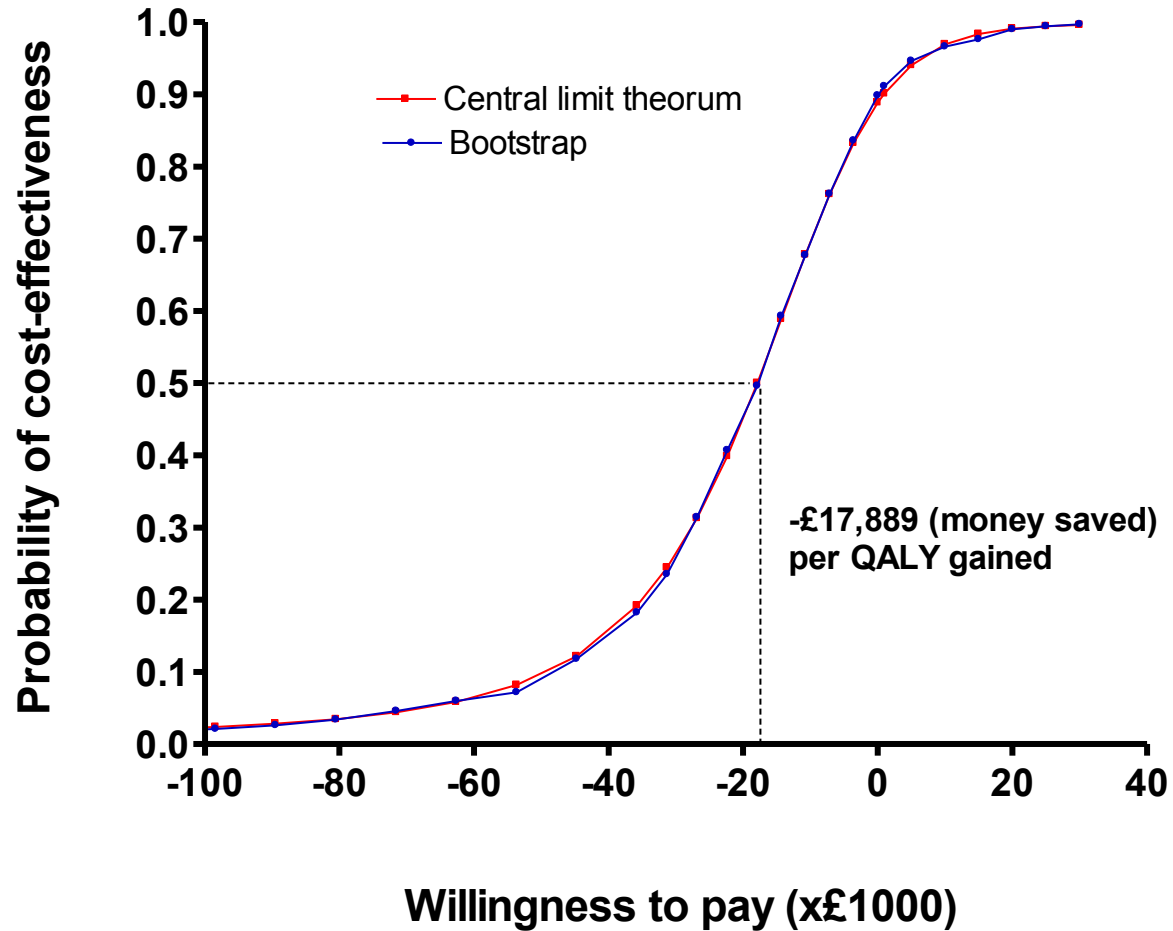


ONS v simple dietary advice

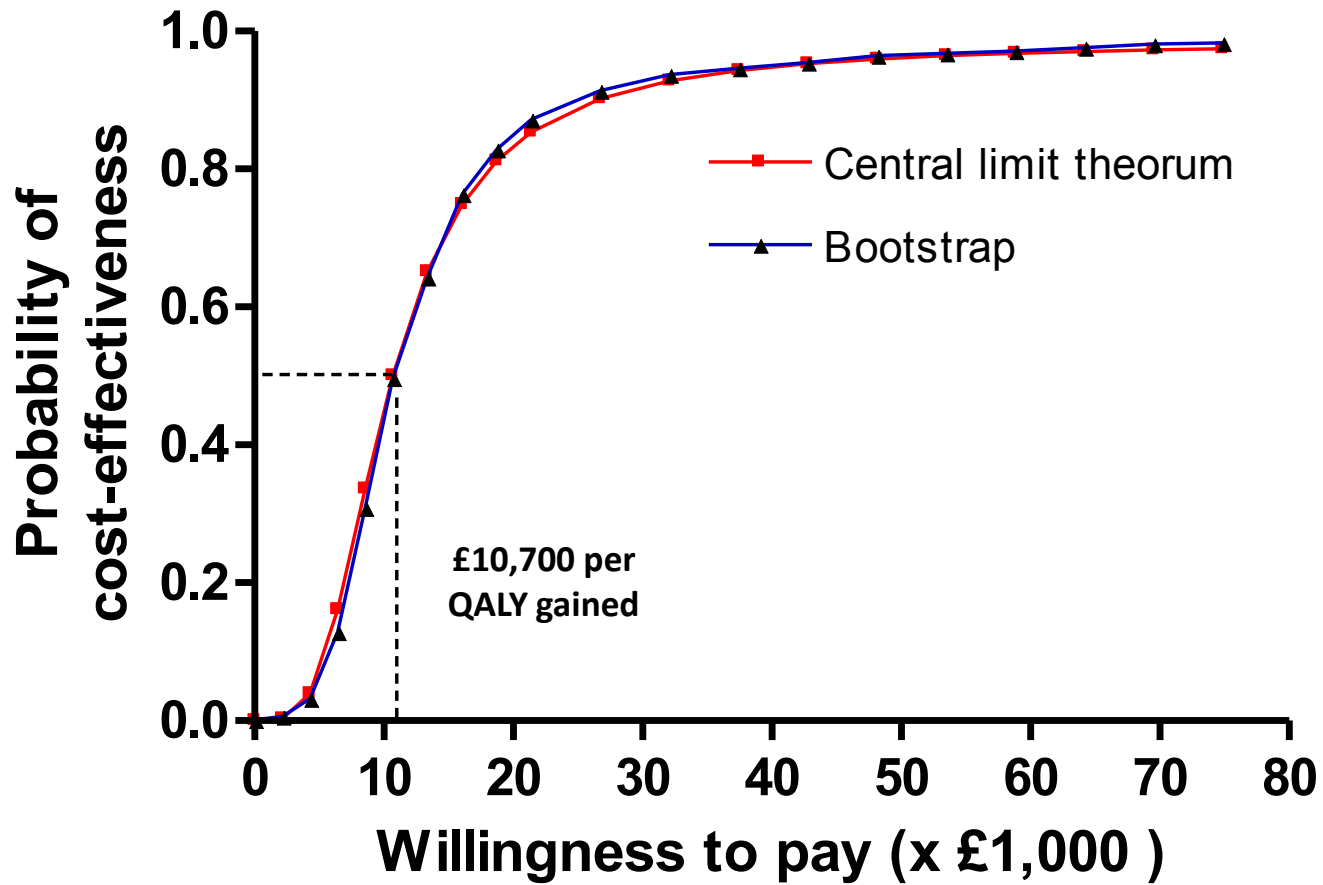
Randomised trial of malnourished elderly care home residents



Cost-effectiveness acceptability curve



Cost-effectiveness acceptability curve



Cost-effectiveness ('cost per QALY') gained by a screening programme (with supplements), by malnutrition risk and baseline mortality (>65y)

Mortality (60d)
3% 5%

Malnutrition

(Medium + High risk)

4%	£9,000	£6,000
6%	£8,000	£5,700
8%	£7,200	£5,200

(NICE 2006 report; part of 2-way sensitivity analysis)

Conclusions

- The budget for healthcare has decreased in the Republic of Ireland in recent years. The effect of this on nutritional care is uncertain.
- Economic models of nutritional interventions, by NICE, suggest that improvement in nutritional care results in a cost saving and is cost-effective
- Economic models of specific conditions also indicate cost-effectiveness of oral nutritional support
- There is a need for critical systematic reviews on the economics of nutrition interventions and of existing templates for economic modelling.

Who said cost-effectiveness analysis is useful (email circular)?

- There is more money being spent on breast implants and Viagra today than on Alzheimer's research.
- This means that by 2040, there should be a large elderly population with perky boobs and huge erections and absolutely no recollection of what to do with them.