

ABCD – Harrogate, April, 2008

**Economics of primary and specialist care in the UK
– what is value for money?**

Rhys Williams

Professor of Clinical Epidemiology

School of Medicine

Swansea University

d.r.r.williams@swansea.ac.uk

Diabetes care and prevention – the essentials

Risk of diabetes → Diabetes

Undiagnosed diabetes → Diagnosed diabetes

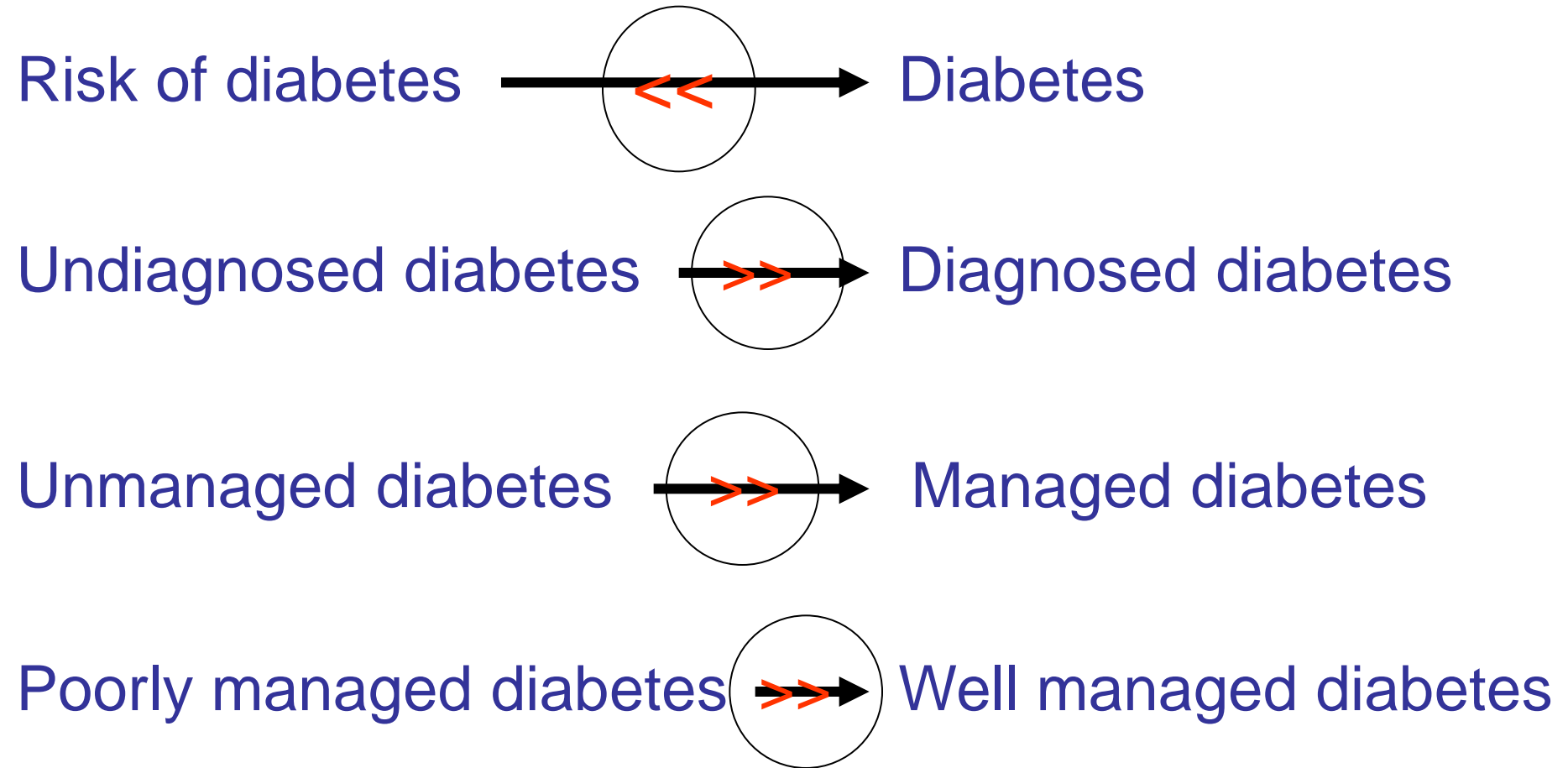
Unmanaged diabetes → Managed diabetes

Poorly managed diabetes → Well managed diabetes

Williams R. IDF Congress, Washington DC (1991)

Adapted by Vinicor F. CDC, Atlanta (1995)

Diabetes care and prevention – the essentials



Williams R. IDF Congress, Washington DC (1991)

Adapted by Vinicor F. CDC, Atlanta (1995)

What should be done?

What should be done?

Ample evidence, much of it high quality

A clear indication of what we should do.

What should be done?

Ample evidence, much of it high quality

A clear indication of what we should do.

How should it be done for maximum cost effectiveness?

What should be done?

Ample evidence, much of it high quality

A clear indication of what we should do.

How should it be done for maximum cost effectiveness?

Very little evidence, none of it high quality

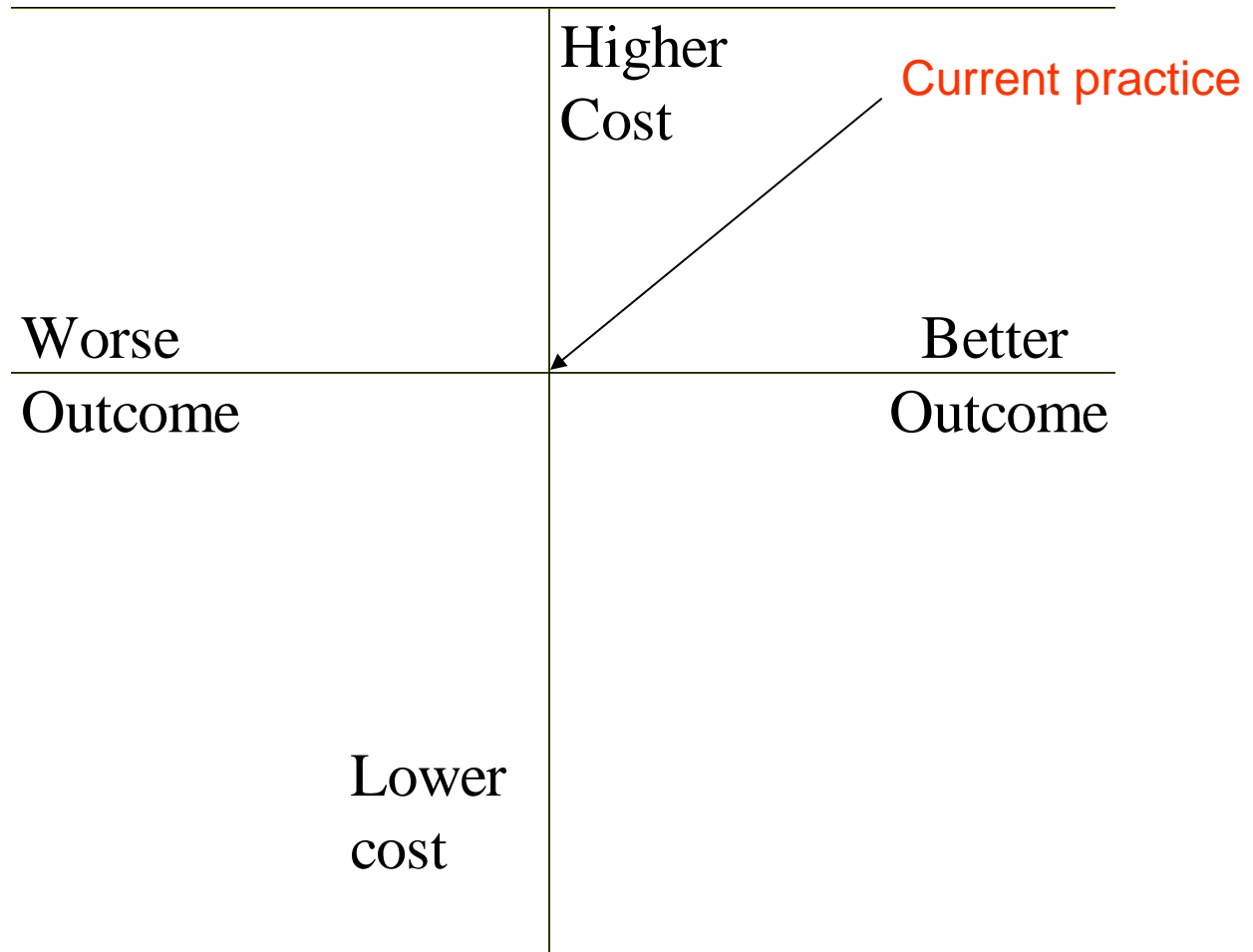
Strong opinions

What is value for money?*

	Higher Cost
Worse Outcome	Better Outcome
Lower cost	

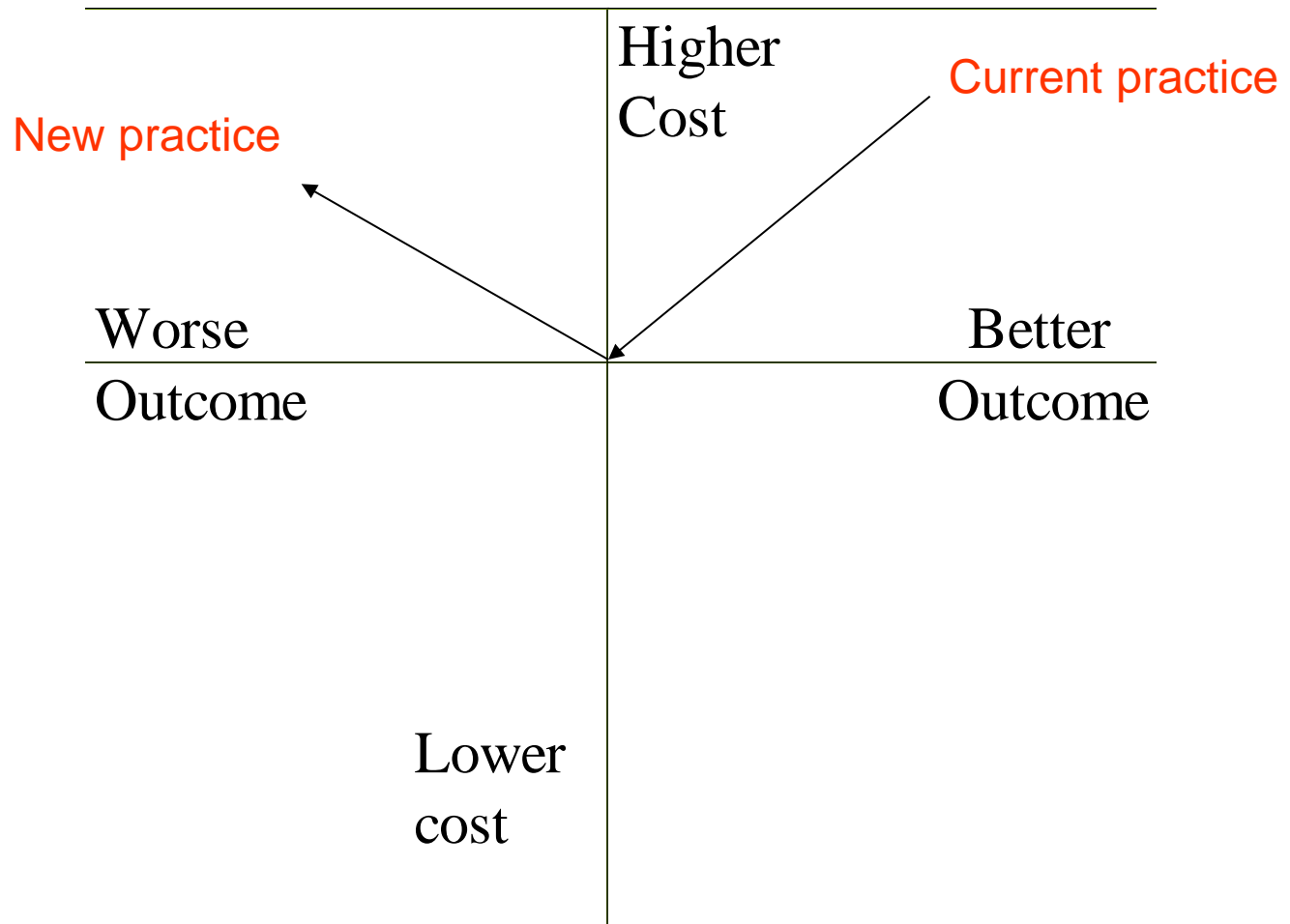
*Laupacis et al, 1992

What is value for money?*



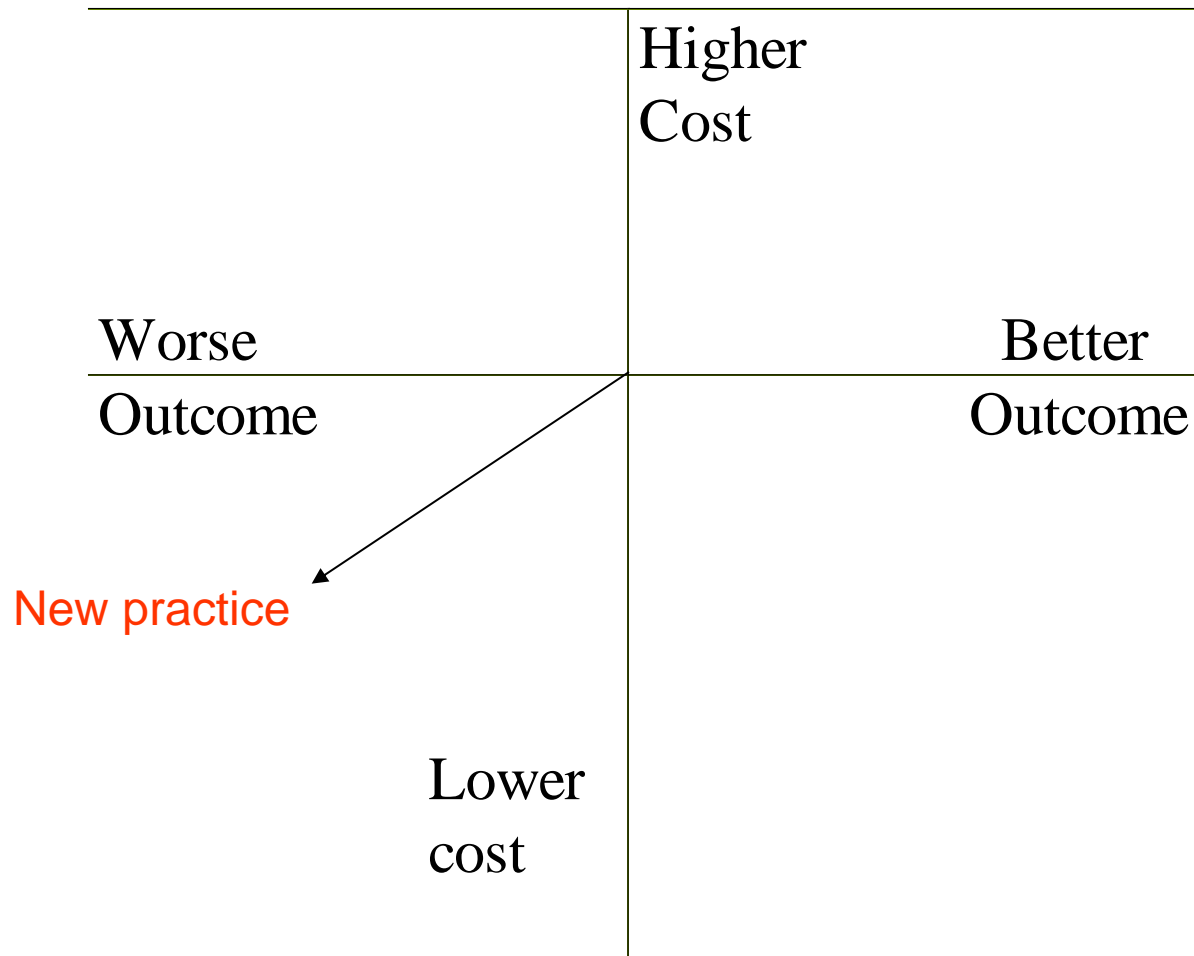
*Laupacis et al, 1992

What is value for money?*



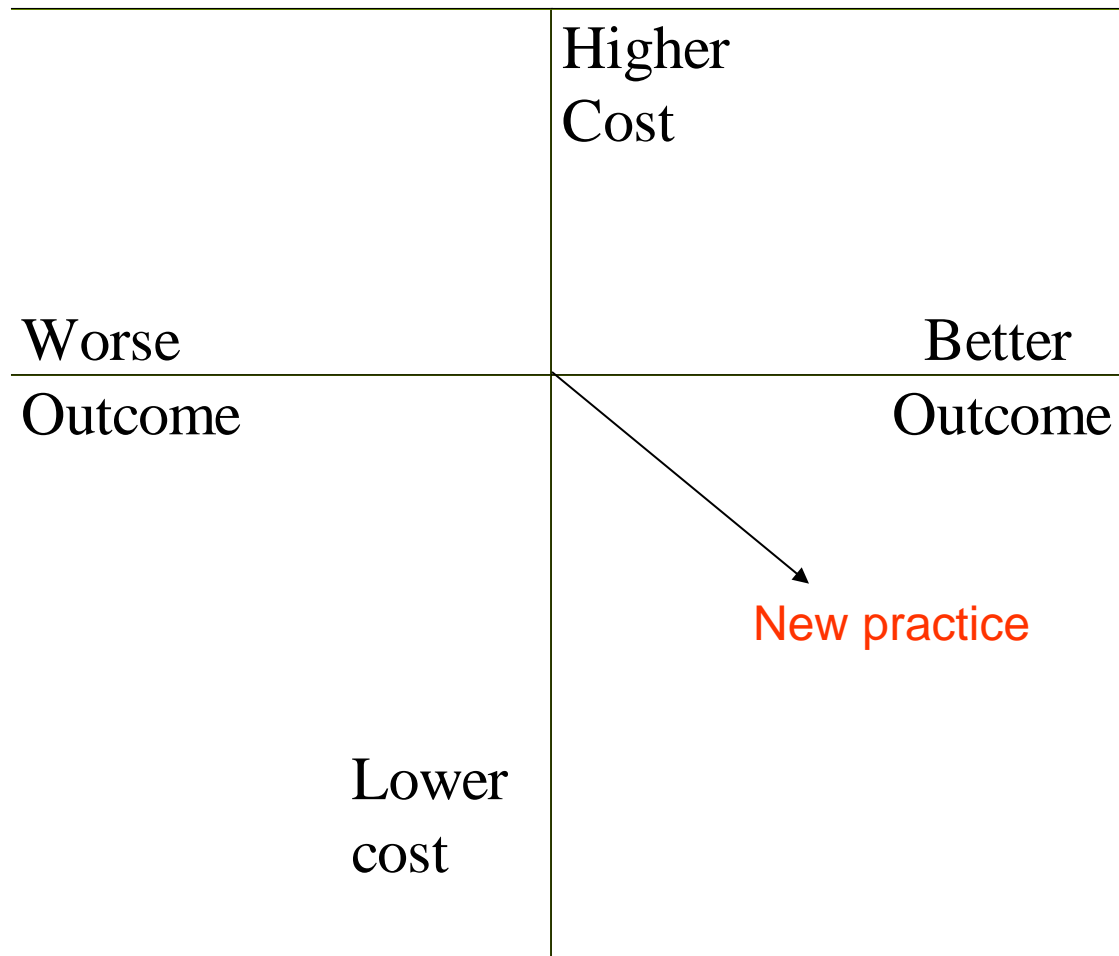
*Laupacis et al, 1992

What is value for money?*



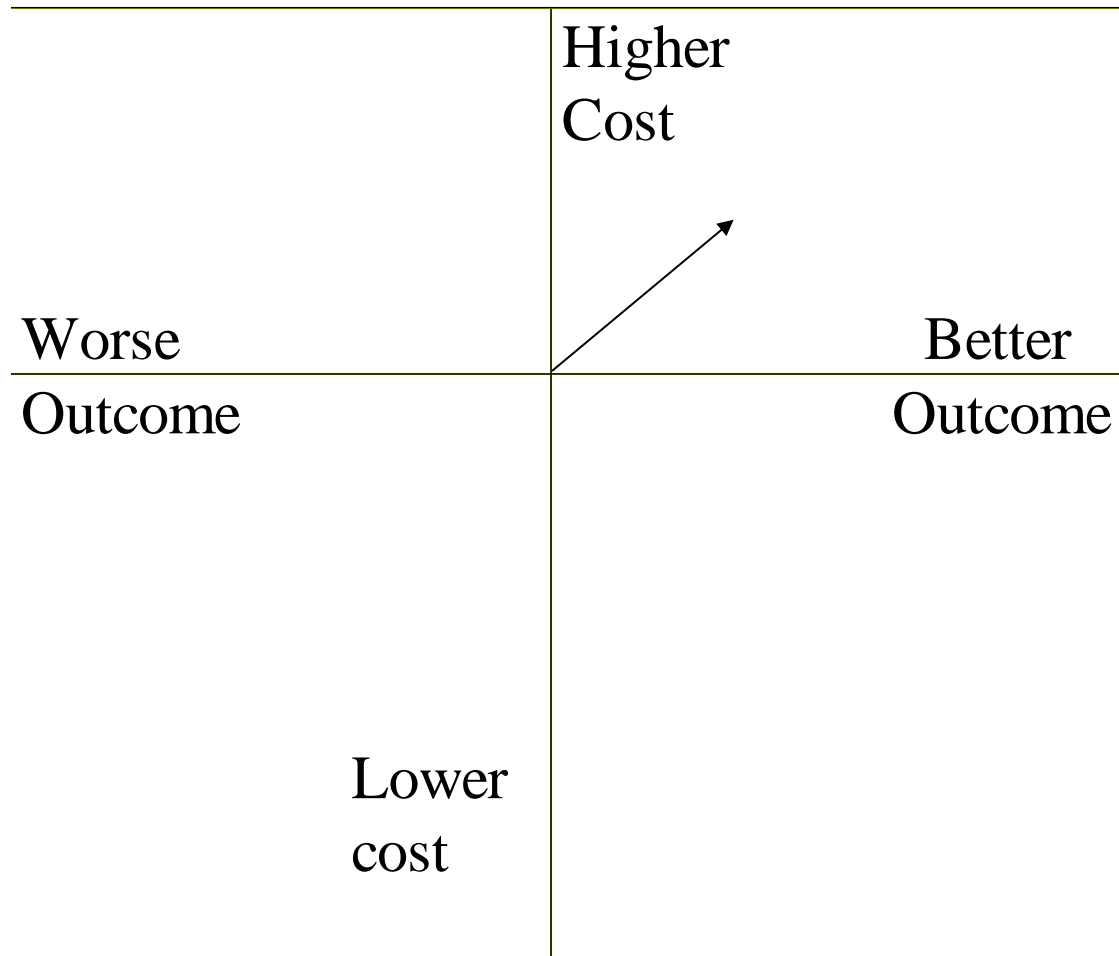
*Laupacis et al, 1992

What is value for money?*



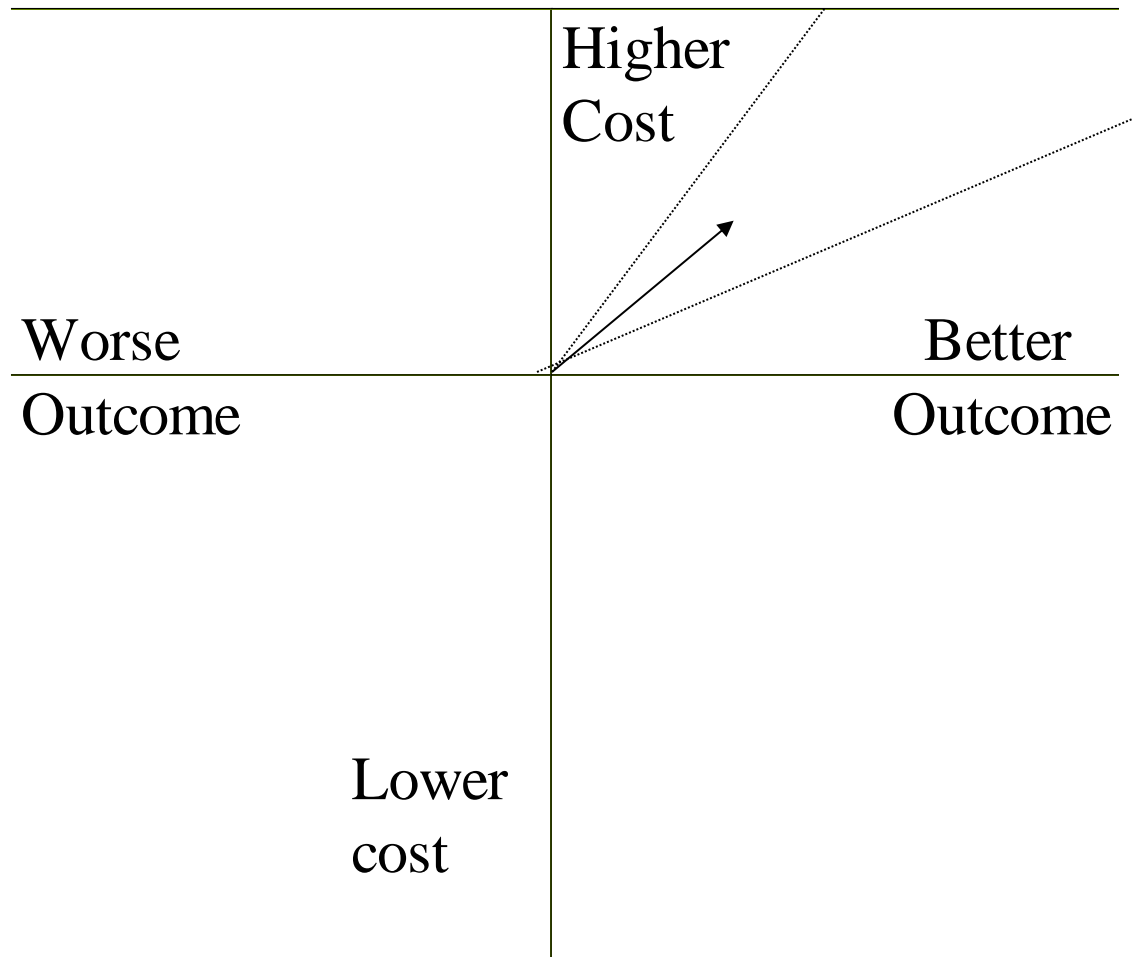
*Laupacis et al, 1992

What is value for money?*



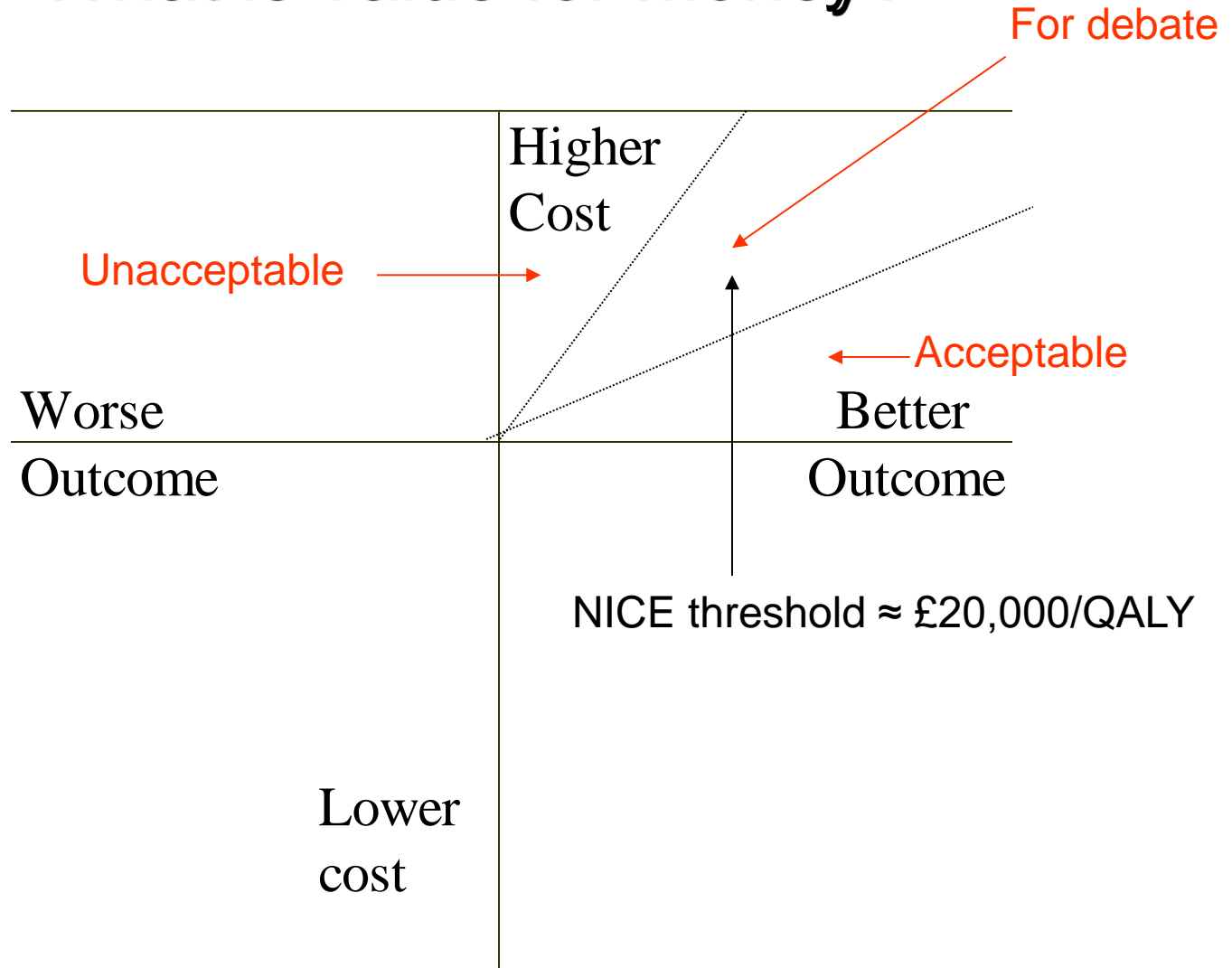
*Laupacis et al, 1992

What is value for money?*



*Laupacis et al, 1992

What is value for money?*



*Laupacis et al, 1992

A trip down memory lane.....

What should be done?

Who should do it (i.e. review the care of people with type 2 diabetes)?

“Randomised controlled trial of routine hospital clinic care versus routine general practice care for type II diabetes”*

- 200 patients randomised to continue in hospital care or discharged to GP care
- Duration 5 years
- In GP group:
 - ↓ frequency of review and blood glucose estimation
 - hospital admission ↑ (24% vs. 18%)
 - mortality ↑ (9% vs. 3%)
 - HbA₁ ↑ (10.4% vs. 9.5%)

“Metabolic control of diabetes in general practice clinics: comparison with a hospital clinic”*

- Metabolic control of type 2 patients attending “miniclinics” vs. matched patients attending hospital (221 pairs)
- Separate analysis for diet/OHA/insulin
- No significant differences in:
 - Duration of diabetes, adiposity
 - Frequency of blood glucose, HbA₁ estimations
 - Mean blood glucose (e.g. diet: 6.6 vs. 7.1)
 - HbA₁ (e.g. diet: 9.4% vs. 9.3%)

- “The apparent conflict between the equal standards of glycaemic control found by Singh *et al* (1984) and the poor quality of general practice follow-up described by Hayes and Harries (1984) can probably most adequately be explained by the differing motivation of, and support given to, the practitioners involved in the Wolverhampton and Cardiff schemes.”*

*Williams R. *In*: “Diabetes mellitus” Jarrett RJ (Ed), Croom Helm (1986).

What are the enduring features of the Doctor's role?*

- Capable of the clinical reasoning that underpins diagnosis
- Able to deal with uncertainty/ambiguity and work “off protocol”
- Able to lead when appropriate

*Tooke J. Harrogate ABCD, 2009

Systematic review of all published RCTs of GP vs. hospital care*

- 1,200 studies identified
- 6 met inclusion criteria for quality
- UK (4); Australia (2)
- Short duration (one trial > 2 years +)
- 1,058 people in hospital clinics randomised
- In trials with supported GP care and prompted follow up:
 - Either no differences or better follow-up in GP care

*Griffin S (1989); discussed by Williams R and Griffin S (2002)

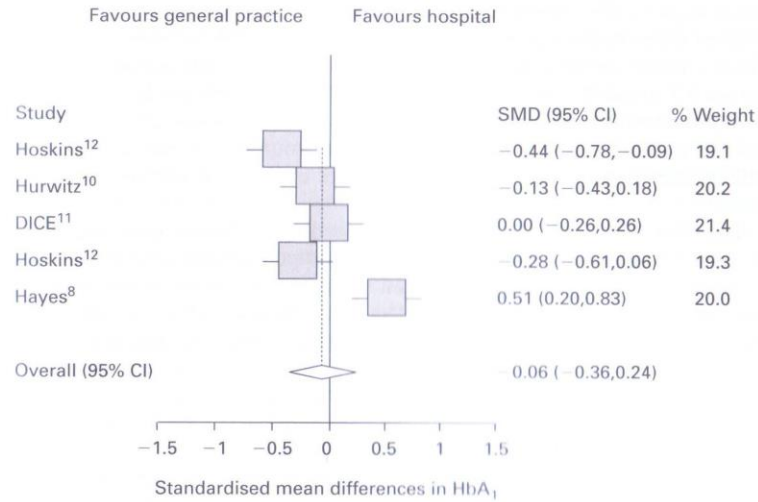


Figure 32.1. Standardised mean differences in HbA_{1c} (%).² Reproduced with permission.

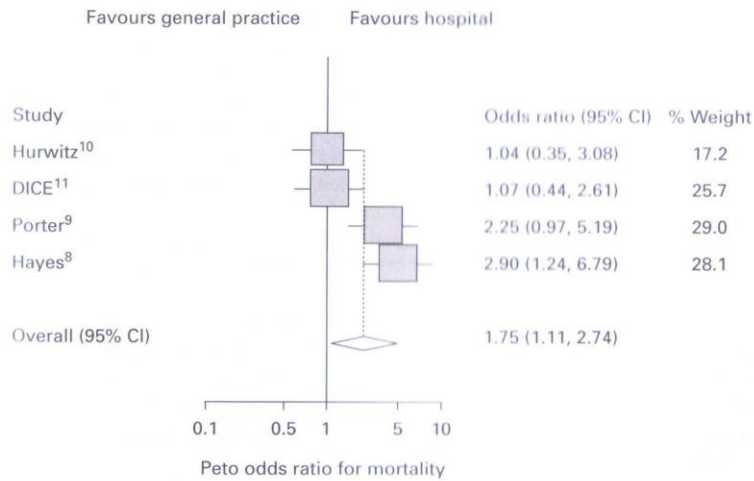
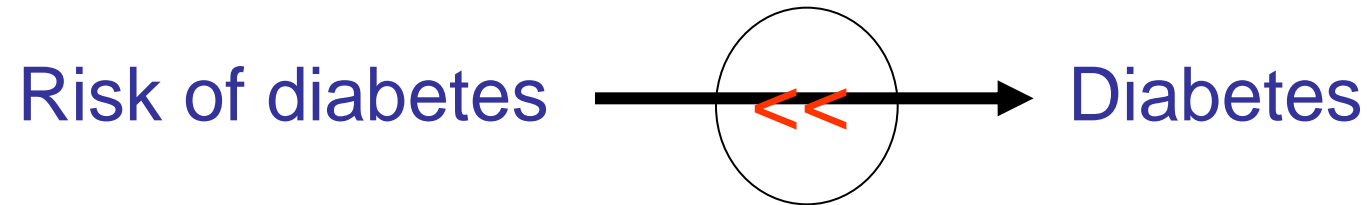


Figure 32.2. Peto odds ratios for mortality in GP and hospital care.² Reproduced with permission.

Diabetes care and prevention – the essentials



Efficacy demonstrated by ‘explanatory’ RCT’s?

Yes, +++: e.g. Finnish Prevention Study, DPP etc.

Effectiveness demonstrated by ‘pragmatic’ RCT’s?

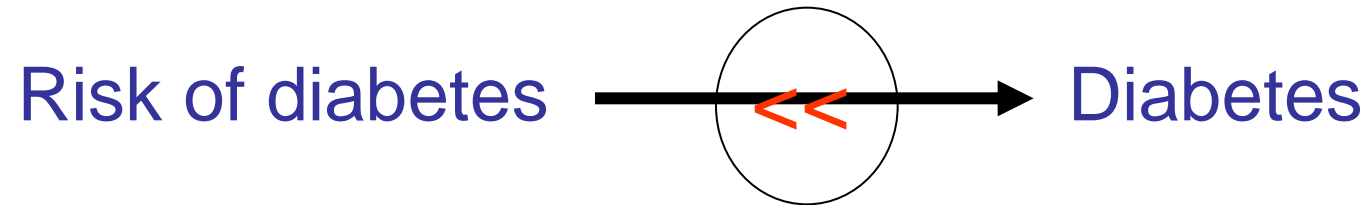
Yes, +: e.g. GOAL Implementation Trial* and

In progress: e.g. Bhopal et al NPRI funded trial

*GOAL = Good Ageing in Lahti (GOAL) Lifestyle Implementation Trial

Absetz P *et al.* Diabetes care 2007; 2465-2470

Diabetes care and prevention – the essentials



Cost effectiveness demonstrated?

Lifestyle interventions for preventing type 2 diabetes

1,100 (US\$/QALY) \approx 560 (GBP/QALY)

Metformin for preventing type 2 diabetes

31,200 (US\$/QALY) \approx 15,800 (GBP/QALY)*

*Narayan KMV *et al.* (2007) – Diabetes Prevention Program Research Group (forthcoming)

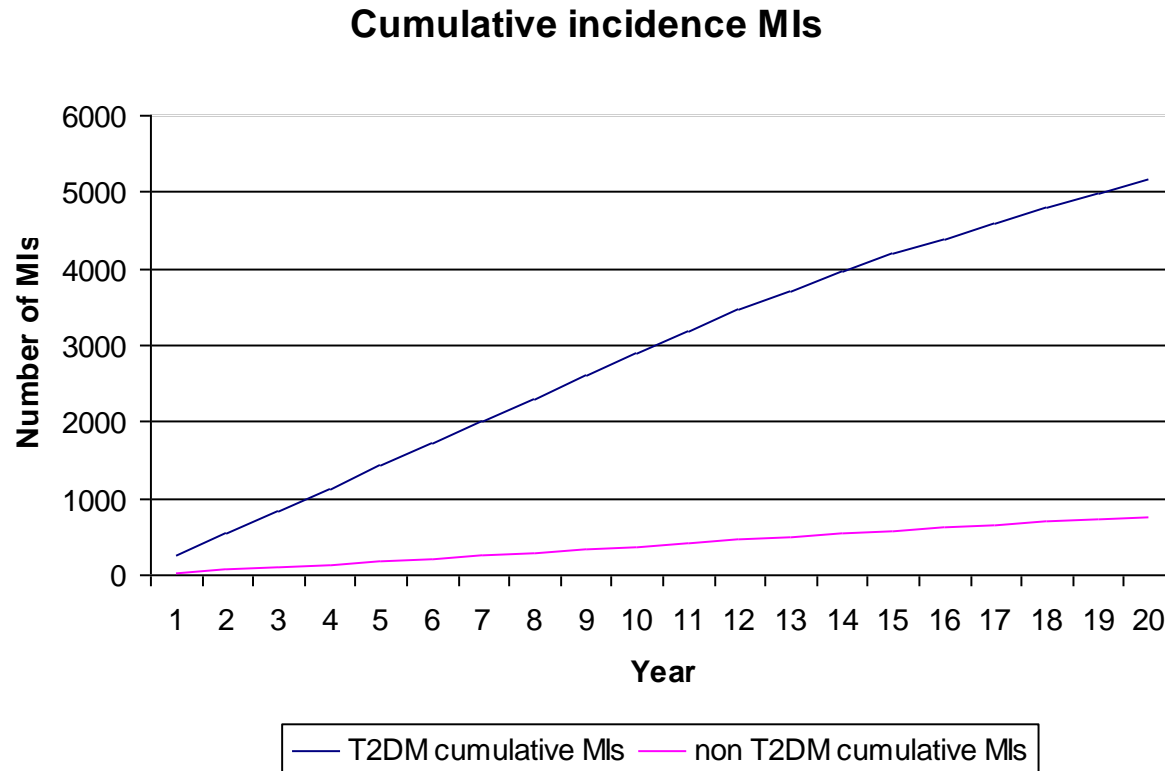
The Cardiff Type 2 Diabetes Model

Acknowledgements: Currie, McEwen, Peters

Expected numbers of myocardial infarction (MI) events

- Comparing cohort of patients (10,000) with type 2 diabetes (UKPDS Risk Engine) and the absence of type 2 diabetes (10,000) (Framingham)
- Delaying onset of type 2 diabetes

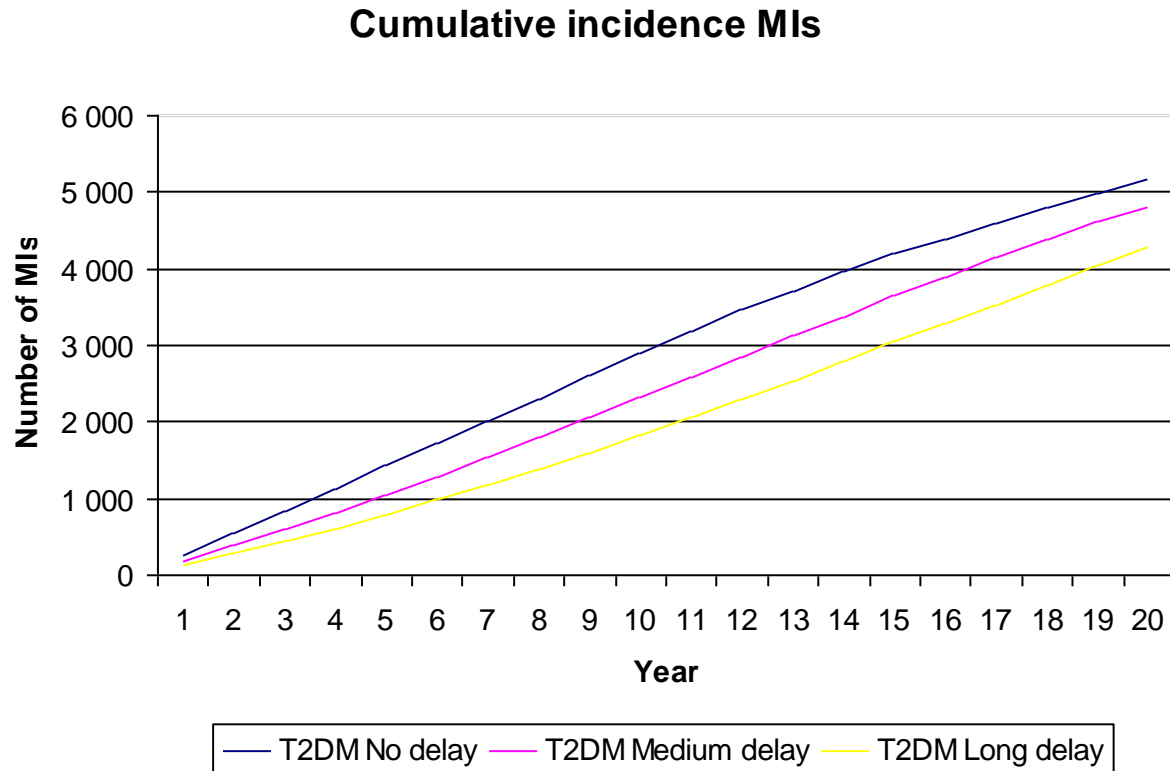
Eliminating type 2 diabetes Effect on MIs



Eliminating type 2 diabetes – effect on costs of MI

	Before	After
Cost	£ 20, 986,955	£ 3, 131, 865
% cost reduction	-	85%

Delaying the onset of type 2 diabetes Effect on MIs

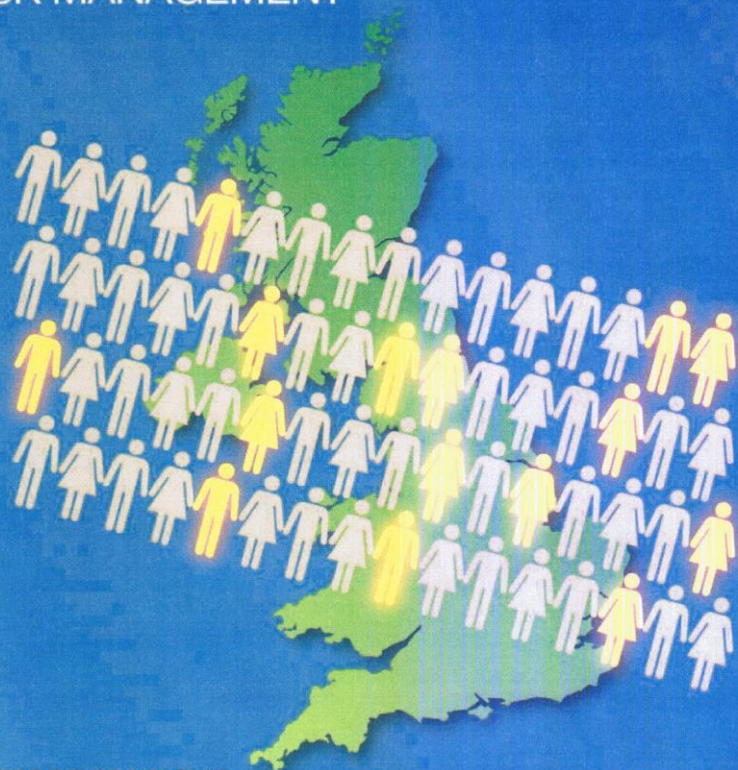


Delaying T2DM

QALYs and Costs

	No delay	Medium delay (5 years)	Long delay (10 years)
Cost Mls	£ 20,986,955	£ 19,679,956	£ 17,402,913
% cost reduction		6%	17%

THE HANDBOOK FOR VASCULAR RISK ASSESSMENT, RISK REDUCTION AND RISK MANAGEMENT



A REPORT PREPARED
FOR THE UK NATIONAL
SCREENING COMMITTEE

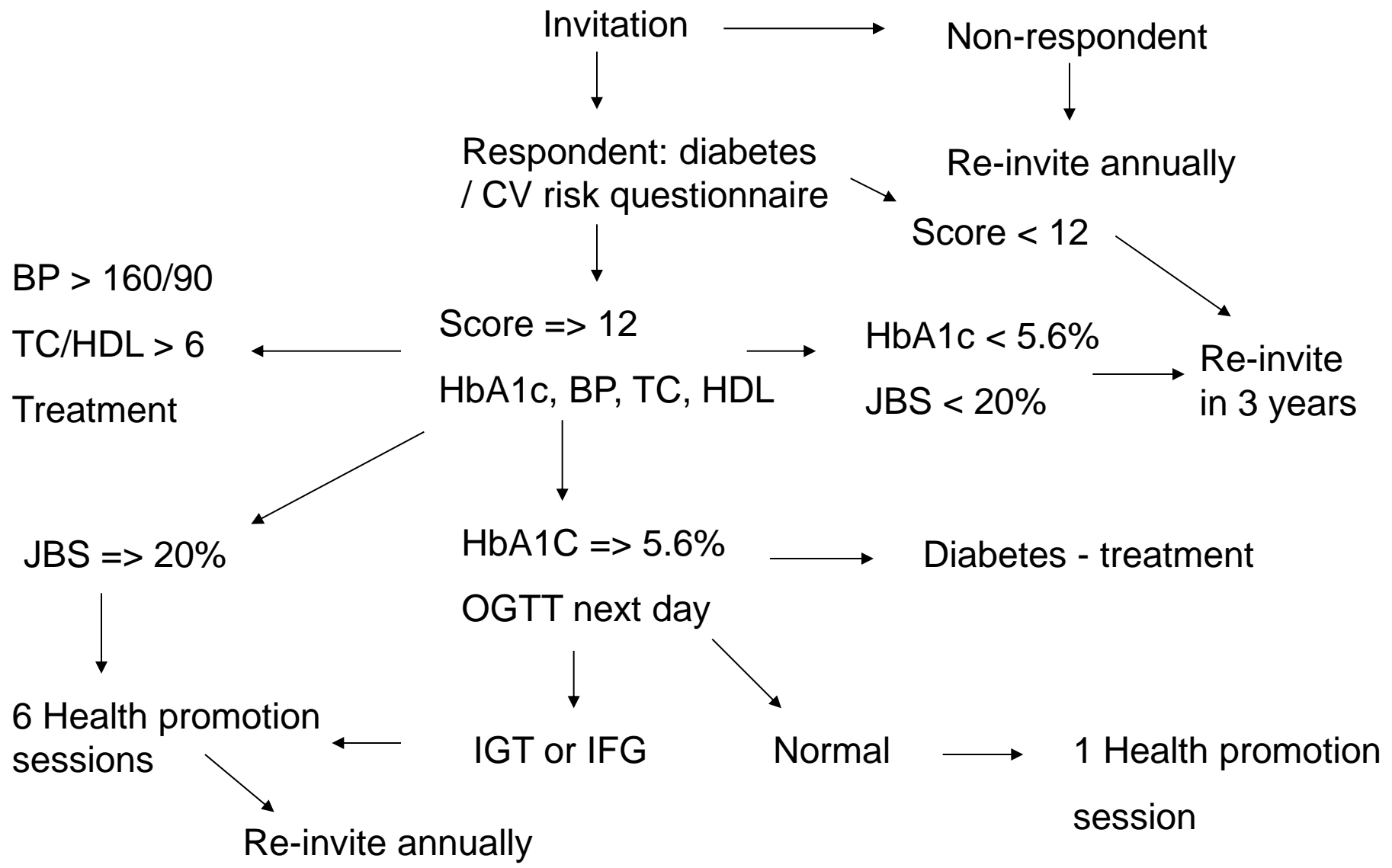
BY



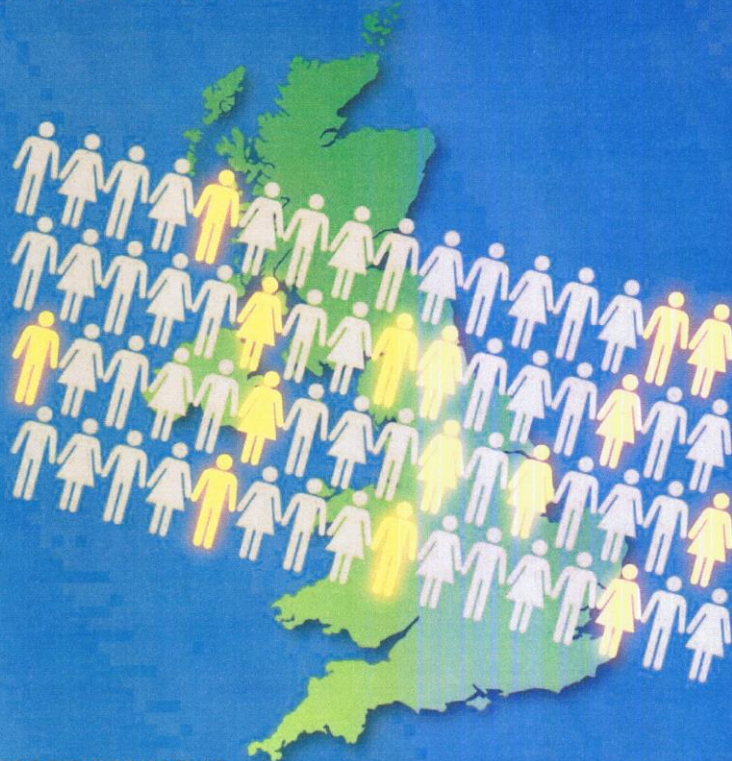
**University of
Leicester**

MARCH 2008

Screening algorithm



THE HANDBOOK FOR
VASCULAR RISK ASSESSMENT,
RISK REDUCTION AND
RISK MANAGEMENT



A REPORT PREPARED
FOR THE UK NATIONAL
SCREENING COMMITTEE

BY



MARCH 2008

**Implicit that these activities
are primary care based.**

**No mention of the role of
specialist care in:**

Therapy of complex cases

Leadership to implement

**Little detail on the economic
consequences of risk
assessment, risk reduction
and risk management**

Diabetes care and prevention – the essentials

Efficacy demonstrated by ‘explanatory’ RCT’s?

Yes: +++ e.g. DCCT, UKPDS, Steno 2

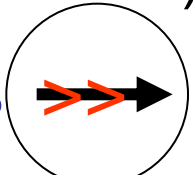
Cost effectiveness demonstrated?

Yes: Glycaemic control in people with HbA_{1c} > 9%

Cost saving

Glycaemic control in people with HbA_{1c} > 8%

34,400 (US\$/QALY) ≈ 17,500 (GBP/QALY)*

Poorly managed diabetes  Well managed diabetes

*Narayan KMV *et al.* (2007) – Diabetes Prevention Program Research Group (forthcoming)

Diabetes care and prevention – the essentials

Efficacy demonstrated by ‘explanatory’ RCT’s?

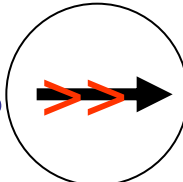
Yes: +++ e.g. DCCT, UKPDS, Steno-2

Cost effectiveness demonstrated?

Yes: Blood pressure control in people whose blood pressure is > 160 / 95 mmHg: Cost saving

Foot care in people with high risk of ulcers

Cost saving

Poorly managed diabetes  Well managed diabetes

*Narayan KMV *et al.* (2007) – Diabetes Prevention Program Research Group
(forthcoming)

Secondary prevention

Secondary prevention

- Base case
 - Number of MIs with no intervention
 - Same patient profile as before
- Four cases of intervention
 - Lower HbA1c from 8% to 7%
 - Improve lipid profile: Total cholesterol lowered 10% and HDL increased 10%
 - Systolic Blood Pressure lowered by 10%
 - Multifactorial intervention: All of the above

Steno-2 Study

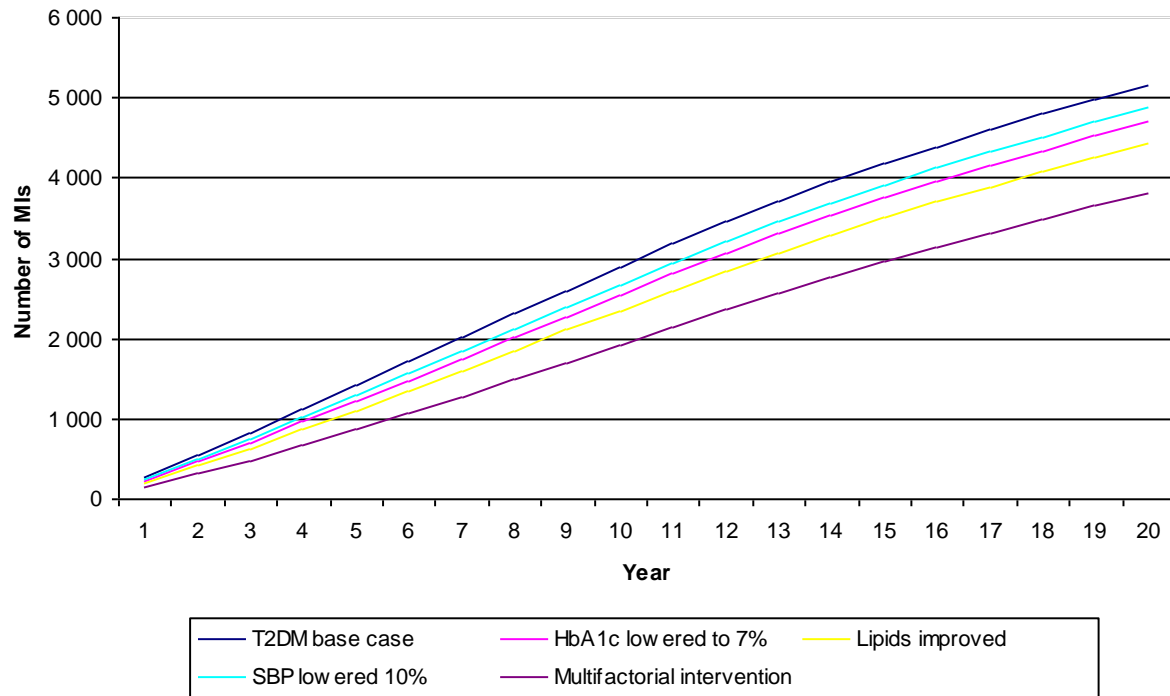
Gaede, P., P. Vedel, et al. (2003). "Multifactorial intervention and cardiovascular disease in patients with Type 2 Diabetes." N Engl J Med 348(5): 383-393

Pedersen, O. and P. Gaede (2003). "Intensified multifactorial intervention and cardiovascular outcome in Type 2 Diabetes: The Steno-2 study." Metabolism 52(8): 19-23

Secondary prevention

Effect of different interventions

Secondary prevention - Effect on number of MIs



Summary

Effect on cost

	Reduced cost for MIs over simulation period
Reducing HbA1c	9.6 percent
Improve Lipid profile	20.2 percent
Blood pressure lowered	6.0 percent
Multifactorial intervention	28.0 percent

Diabetes in the NHS:

Commissioning and providing specialist services



National Diabetes Support Team, September 2007

Diabetes in the NHS:

Commissioning and providing specialist services



- “Needs considerable expertise to get the best results”
- “Specialist expertise..... locked into secondary care.”
- “treatment is based on accumulated clinical experience....”
- “Not everyone in general practice has the skills they need to carry out routine care.”

Diabetes in the NHS:

Commissioning and providing specialist services



- “Working as part of a local diabetes community, a diabetologist ensured that at least one member of each GP practice has a diabetes diploma, which involved mentoring and workshops to support learning.”
- “Specialists have an important role in introducing new ideas such as.. Insulin pumps.....”

“The cost-effectiveness of continuous subcutaneous insulin infusion compared with multiple daily injections for the management of diabetes”*

- Markov modelling
- “Key parameters” obtained from the published literature – CSII vs. MDI
- Over an 8 year period:
 - Incremental cost per QALY: £ 11,500 (\pm £ 3,600)
- “CSII is a worthwhile investment when targeted to those who might benefit most”

ABCD – Harrogate, April, 2008

Economics of primary and specialist care in the UK – what is value for money?

“The aspirations, hopes and frustrations are clearly stated, demonstrating how diabetes consultants remain dedicated to the delivery of high quality integrated care. Those commissioning diabetes services ignore their skills and leadership at their peril!”*

*Richard Holt > McLeod et al. Diabetic Medicine 2007; 24: 946-954