

Future policy, views of a clinician  
(not a politician!)

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- “One view is that providing such technology to diabetic patients treated with tablets or diet is a waste of time and money”
- “Others believe that the information provided by blood glucose testing is a powerful motivating factor”
- “Whether self monitoring is useful in patients at diagnosis and whether it offers advantages over urine testing (which is much cheaper) remains uncertain. None the less, the results of this study should encourage clinicians to discuss the value of glucose testing with their patients and give them the confidence to discontinue if it is providing no benefit”

# BMJ rapid response – one view

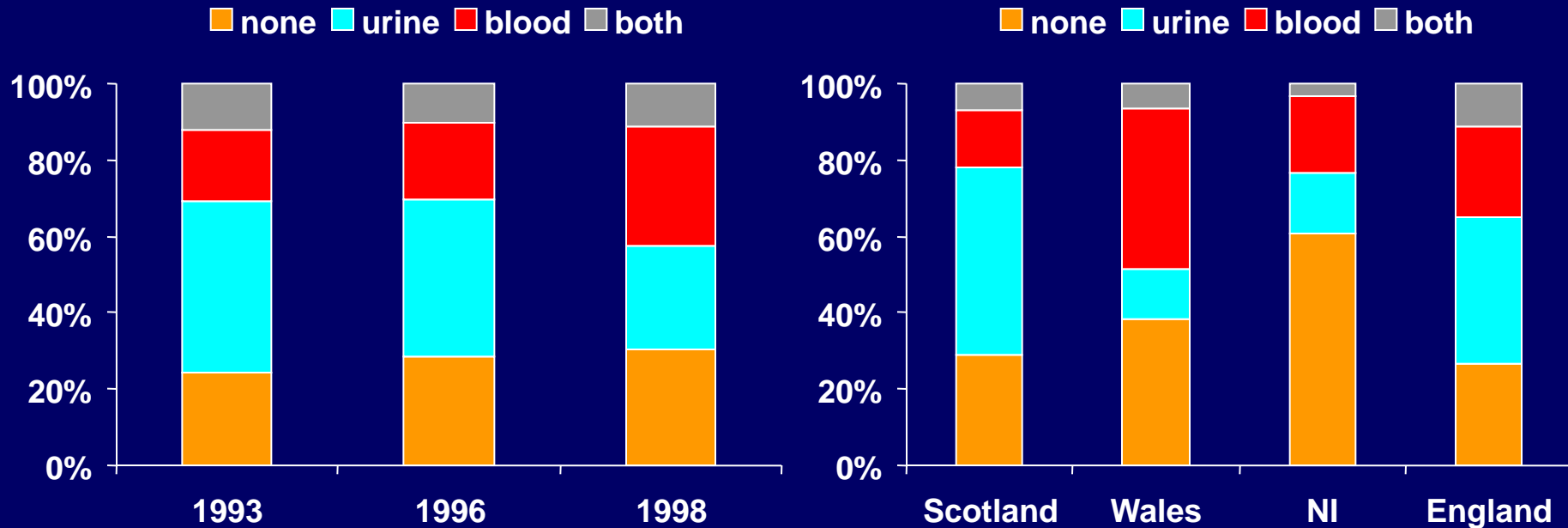
“Therefore I find the contention that self monitoring of blood glucose is not beneficial and the attitude of some of the medical profession towards their diabetic patients extremely arrogant and ill founded”

## BMJ rapid response – another view

“In the current state of knowledge, nothing would persuade us to go back to encouraging or supporting routine self monitoring in stable type 2 diabetes: our results are too good to justify the change”

# Variation in provision of diabetes self monitoring in patients taking oral agents

Data from the General Practice Research Database



# Perceived benefits of self-monitoring blood glucose (SMBG)

- Provides instant and accurate picture on current blood glucose
- Identifies hypoglycaemia
- Motivating
- Its use is associated with improved glycaemic control

Recommended by diabetes associations all over the world for all individuals with diabetes

# Dis-benefits of BGSM

- Painful, inconvenient and unhygienic
- Few patients know what to do with the results
- Limited utility in tablet treated patients
  - Adjusting medication often has little effect on blood glucose
- De-motivating:
  - Repeatedly recording a series of high values
- Expensive

# Costs of SMBG

Information from Department of Health

- Between 2001-2003
  - no of 'strip' prescriptions rose from 3.89-5.82 million (39% rise)
  - £85 million to £118 million
  - Annual increase is around £17million
- 5 fold difference between highest and lowest prescribing PCT

# Agreed benefits of SMBG

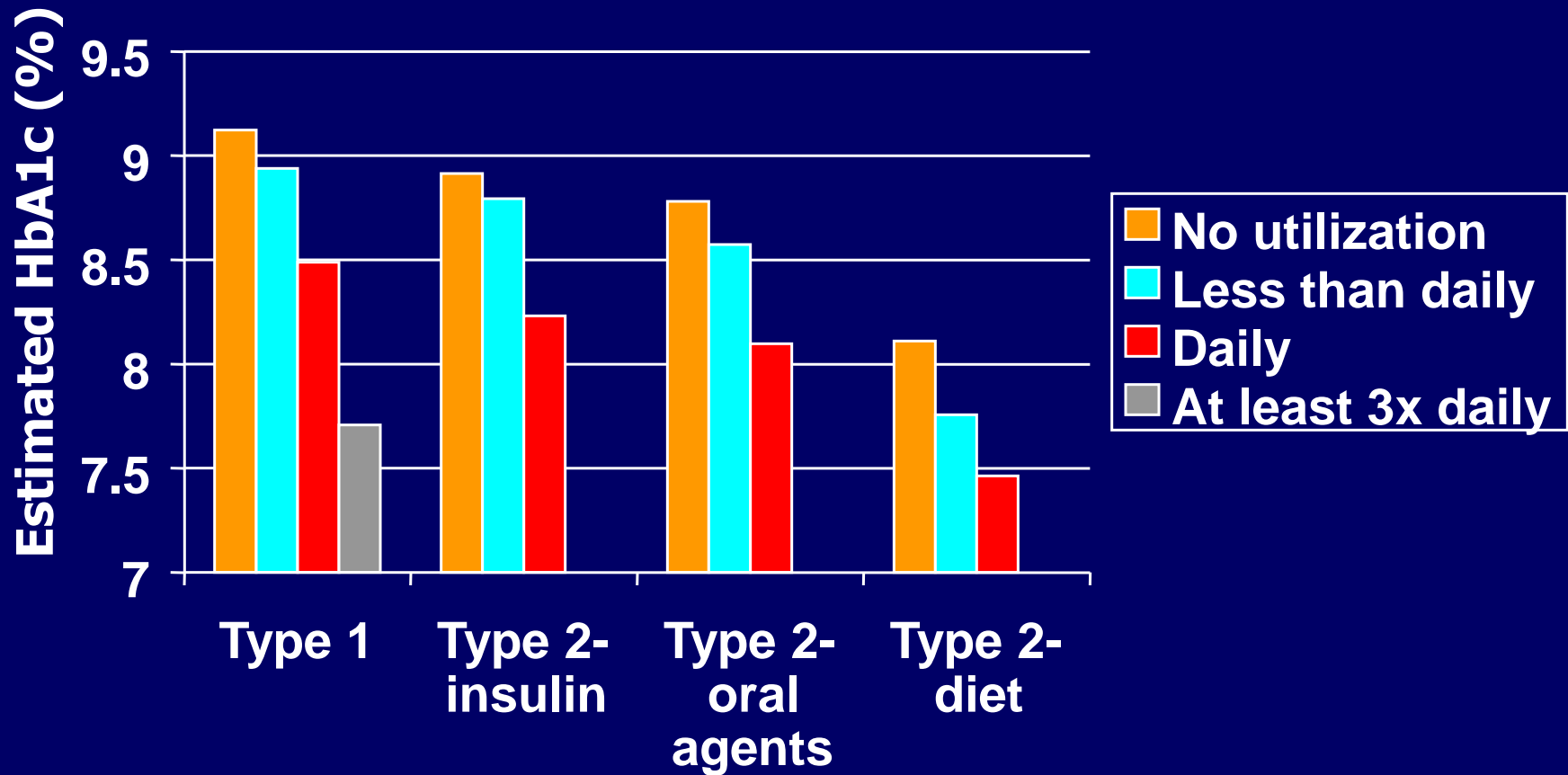
- Can identify hypoglycaemia (useful to those treated with either insulin or sulphonylureas)
- Gives accurate and rapid feedback to individuals
- Allows individuals to measure their success in reaching targets
- Could be an important motivating tool for the right individuals

# Does SMBG lead to:

- better glycaemic control?
- better longterm outcomes?

# Evidence in favour of SMBG

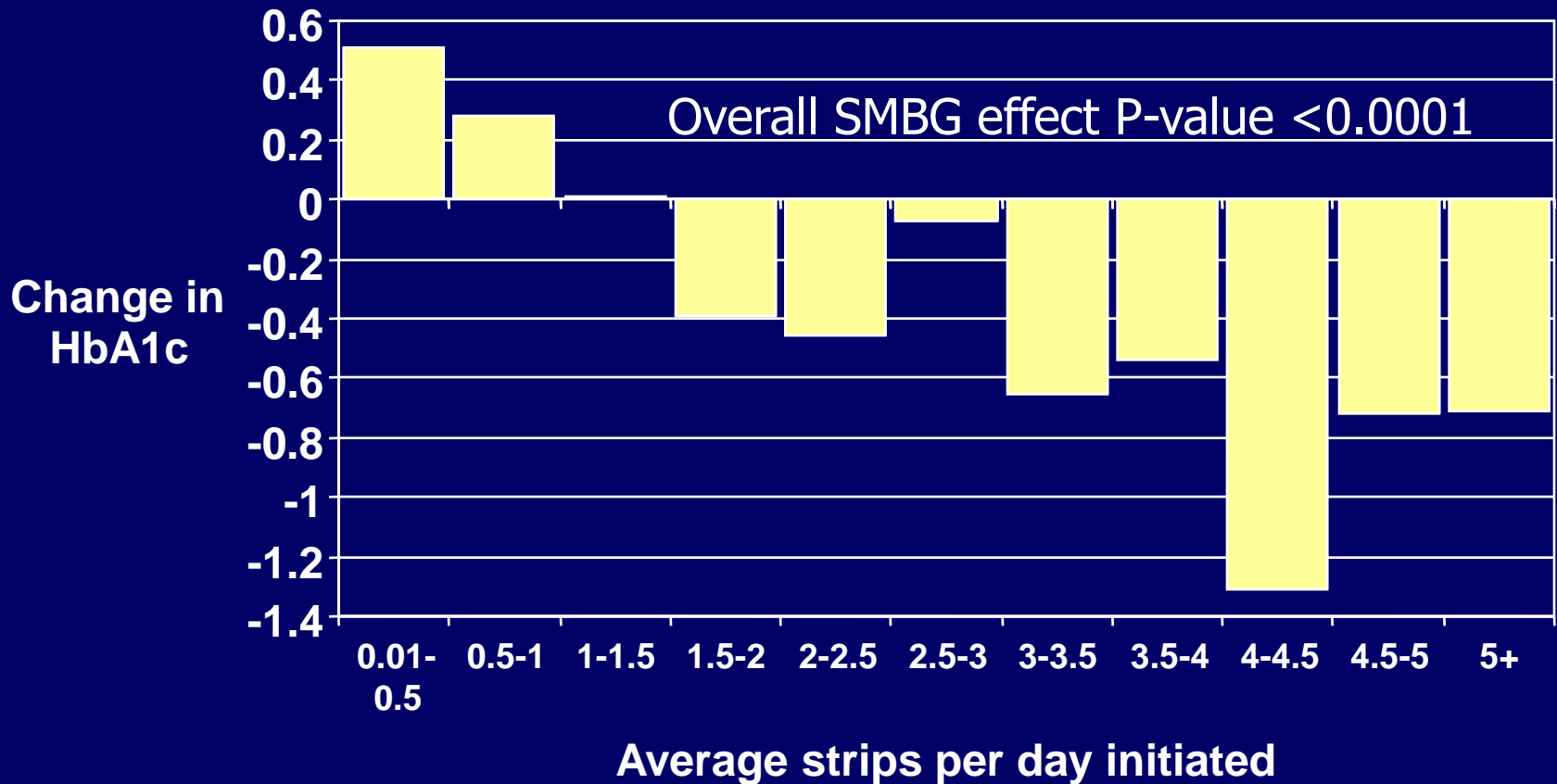
Cross Sectional Data from large Kaiser Database  
Adjusted HbA1c for levels of SMBG utilization (N=25,134)



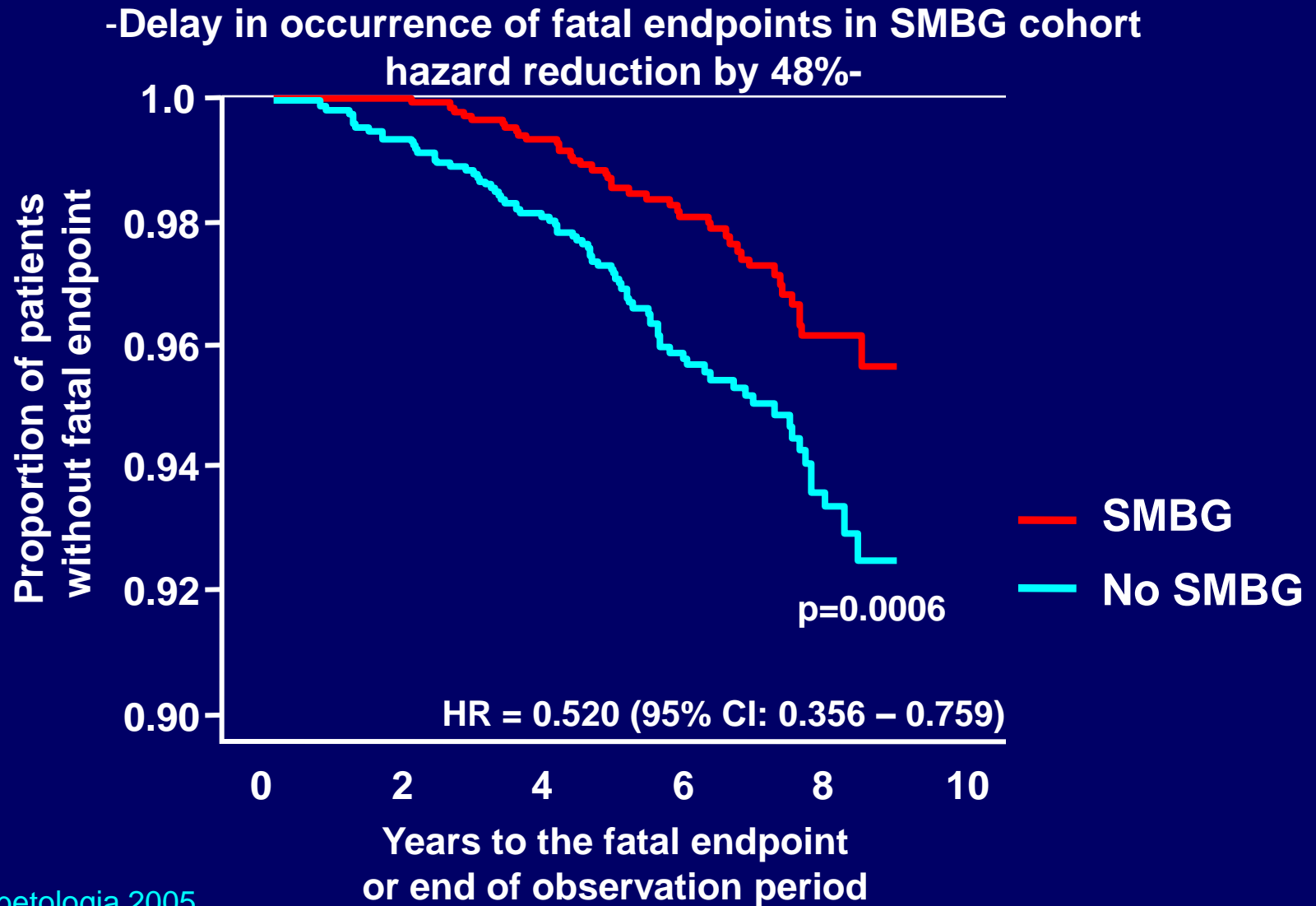
# Prospective observational cohort study

1,682 insulin treated patients (1999-2002)

From Kaiser Permanente database, adjusted for most confounding factors



# Fatal Endpoints reduced in the ROSSO study



# Summary

- Blood glucose monitoring provided a technological revolution
- Ability of patients to identify hypoglycaemia and to contribute to self care has had **major** effects on QoL in a few people
- Variation in use and expense suggests we still don't know how best and in who to use this technology (particularly in Type 2 diabetes)

# Views of the current Diabetes CD

“The bottom line for me is that patients whose emotional and/or physical health would be enhanced by glucose self-monitoring should be able to do so, and those for whom it is of no benefit should not be made to test”

# Providing policy guidance on SMBG in diabetes

## Methods

- Convene a working group
- Widespread and representative ?
  - Patients, industry, clinicians, Diabetes UK, 'reviewers with an understanding of NICE'
- ?Commission (and fund) a systematic review
- Diabetes UK APC stakeholders meeting

# Providing policy guidance on SMBG in diabetes

## Terms of reference

1. commission a systematic review of SMBG in non-insulin-treated Type 2 diabetes
2. identify gaps in the evidence and make recommendations for future research
3. summarise existing guidelines regarding SMBG in the management of non-insulin-treated Type 2 diabetes
4. provide recommendations regarding the place of SMBG in the management of non-insulin-treated Type 2 diabetes in England

# Summary of main issues (1)

- case for stopping blood glucose monitoring in people who derive no benefit, particularly where it damages quality of life
- some with Type 2 diabetes not taking insulin benefit from measuring their blood glucose. In those individuals arbitrary withdrawal of treatment should not occur.
- patients and professional training should support patients who find SMBG important in managing their diabetes successfully and stopping monitoring in those who do not find it helpful

# Summary of main issues (2)

- equipment directly supplied by retail pharmacists is ineffective without additional guidance on how to integrate the information into ongoing care. Guidance should be provided on how to use the technology to aid self-management.
- research should explore factors which determine success in incorporating monitoring in self-management. This will lead development of more effective interventions, evaluated by appropriate designs to inform improved clinical practice
- savings made by stopping blood glucose monitoring among those who don't benefit should support education of both staff and patients

# Recommendations on SMBG

- freely available to those on sulphonylureas
- only provided routinely to people with an agreed purpose or goal
- used only within a care package, including regular review to support those who find it useful while stopping those those who gain no benefit
- Savings from less SMBG should support structured education and training
- research should explore how to identify those who gain most and establish how they integrate it successfully into their approach to self-management.

# Why after over 30 years are we not using SMBG effectively or efficiently?

- Failure to understand limitations of observational studies, RCTs and meta-analyses
  - Belief that initiating SMBG will lead to benefits seen in observational studies
  - Inability to realise that changes in mean values conceal patients doing very well (and badly)
- Failure to understand that technological advances work within a package of self management
- Obsession with HbA1c as the only relevant endpoint
- Only a few well designed trials answering the important questions

# Are about to make the same mistake with continuous glucose monitoring (CMG) and other technological advances?

- SMBG provides only a brief snapshot of blood glucose profile mostly during the day and is inconvenient
- CMG provides far more information
- CMG has potential to improve care
  - Reliable warning of impending hypoglycaemia to those with Type 1 diabetes
  - By allowing patients with Type 2 diabetes to see the effects of eating/exercise in more detail will motivate them to manage their diabetes more effectively

# Conclusions

- Despite the technological advance of SMBG, blood glucose control is often poor and diabetes remains a major burden to most people
- Clinicians have yet to integrate the technology into a generally effective package of care
- Clinicians, manufacturers and those with diabetes should work together to develop effective approaches and evaluate these with appropriate endpoints