THE PREVENTION CONTINUUM CONCEPT

Diabetes: a case study

Catherine Chittleborough

Population Research and Outcome Studies Unit
Health Intelligence
SA Department of Health

4 May 2006
Diabetes Continuum

1. No diabetes
2. Prediabetes (IFG) ≥ 5.6 mmol/L
3. Undiagnosed diabetes ≥ 7.0 mmol/L
4. Diagnosed diabetes

- No diabetes: 79.6%
- Prediabetes (IFG) ≥ 5.6 mmol/L: 13.8%
- Undiagnosed diabetes ≥ 7.0 mmol/L: 1.0%
- Diagnosed diabetes: 5.6%

Total: 6.6%
Prevention

Risk factors for developing pre-diabetes are similar to type 2 diabetes

- Age 55+
- Family history
- Obesity
- Insufficient physical activity
Prevention

Population-wide prevention strategies best, but often difficult because of

- Invisible benefits
- Budgets
- Many sectors involved
• Benefits of prevention often invisible

“The money saved from preventing a death from smoking or obesity is not money that reaches the pockets of voters, like a tax cut”

Glenn Salkeld
A/Prof Health Economics
University of Sydney

• Need to spend money to save money

Sydney Morning Herald, 2 March 2006
Prevention

No diabetes → Prediabetes → Undiagnosed diabetes → Diagnosed diabetes

- Need to understand the return on public investment in prevention
  - Money saved in the long term
  - Better health, survival
  - More productive members of society

Sydney Morning Herald, 2 March 2006
Prevention

- The bulk of health expenditure continues to be directed at the acute end of the health system, treating people after they get sick.

“We spend 2 to 3 per cent of our budget on 40 to 50 per cent of the disease burden, which is preventable”

Rob Moodie
CEO, VicHealth

Sydney Morning Herald, 2 March 2006
Better Health for All Australians

- $1.1 billion reform package to establish new approach to promotion, prevention, and early intervention
  - Promoting healthy lifestyles
  - Supporting early detection
  - Supporting lifestyle and risk modification
  - Encouraging active self-management of chronic disease
  - Improving integration and coordination of care

Council of Australian Governments (COAG) 10 February 2006
• Not just health system required to prevent poor health

“A real preventive approach to health would look at the food we eat and ensure access to fresh fruit and vegetables was as easy and affordable as junk food. It would look at cities and towns and the way they are planned, ensuring they were designed to encourage people to walk, to make use of parks, and to meet as a community to look after our mental health”

Stephen Leeder
Professor Public Health
University of Sydney

Sydney Morning Herald, 2 March 2006
Prevention

- Not just health system required to prevent poor health

“...people who design our cities, who design our transport systems and who make, produce and sell food products, and advertisers - they are the people who help create the social circumstance in which most non-communicable diseases emerge”

Stephen Leeder
Professor Public Health
University of Sydney

Sydney Morning Herald, 2 March 2006
• Without intervention, approximately one-third of individuals with IFG or IGT will develop diabetes within 6 years

De Vegt et al. JAMA 2001; 285: 2109-2113
NPHP Diabetes Prevention Working Party 2005
• Prediabetes (IFG) prevalence 13.8%  
  = 162,400 South Australian adults

• If 1 in 3 develop diabetes in 6 years  
  ⇒ 54,100 South Australian adults
Lifestyle modification works…
... in controlled environments with intensive, individualised programs

Results from RCTs in Finland, US, China, UK show up to 58% reduction in diabetes incidence over 3 years.

Importance of monitoring

- Lack of evidence that RCT results can be translated into the real world.
- Are South Australians adopting healthy lifestyles?
- Are all South Australians adopting healthy lifestyles?
Prevention

No diabetes → Prediabetes → Undiagnosed diabetes → Diagnosed diabetes

EARLY DETECTION
Diagnosing the undiagnosed
Prevention

No diabetes → Prediabetes → Undiagnosed diabetes → Diagnosed diabetes

**RISK FACTORS**

- Age 55+
- Age 45+ and
  - BMI > 30
  - Hypertension
  - Family history
- Age 35+ and
  - Aboriginal/Torres Strait Islander
  - Pacific Islander, Indian subcontinent, Chinese
- Cardiovascular disease
- Previous gestational diabetes
- PCOS and BMI > 30

NHMRC Diabetes Case Detection Guidelines, 2001
Prevention

- Preventing increased burden among people with diabetes in terms of:
  - Micro- and macro-vascular complications
  - Psychosocial well being/mental health/quality of life
  - Financial costs
Preventing complications requires control of:
- Glucose
- Blood pressure
- Cholesterol
- Smoking
Microvascular Endpoints

37% decrease per 1% decrement in HbA1c

$p<0.0001$

Updated mean HbA1c

UKPDS 35. BMJ 2000; 321: 405-12
Microvascular Endpoints

13% decrease per 10 mm Hg decrement in BP

p=0.0001

UKPDS 35. BMJ 2000; 321: 405-12
UKPDS risk engine

- Mean risk of coronary heart disease among people with diagnosed type 2 diabetes (aged 20-65)
  - Within 5 years  6.8%
  - Within 10 years  15.4%
  - Within 20 years  38.1%
Quality of life across diabetes continuum

Quality of Life Research In Press. 2006
"In search of health lost"
OR
"In search of happiness lost"
Contact details

Population Research and Outcome Studies


Anne Taylor: 8226 6323
Cathy Chittleborough: 8226 0788