



Implementing best practice guidelines through computerised decision support

Providing meaningful tools for
cardiovascular risk and diabetes management

☞ Sunday, 23rd October 2005



THE UNIVERSITY
OF AUCKLAND

NEW ZEALAND

Te Whare Wānanga o Tāmaki Makaurau

Dr Jeff Harrison, Senior Lecturer in Clinical Pharmacy
Dr Sue Wells, Senior Lecturer in Clinical Epidemiology
Prof. Rod Jackson, Professor of Epidemiology

Correspondence: jeff.harrison@auckland.ac.nz

Overview

23rd October 2005

Melbourne

XIII Cochrane Colloquium

- Background
 - The need for action
- Aims of the tool
 - What are we hoping to achieve?
- The PREDICT tool
 - Creating the rules
 - PREDICT CVD-Diabetes in action
- Impact so far
 - Before-After study
- Lessons learnt
 - Issues identified in implementing CCDS (eDS)
- Further work planned

Background

23rd October 2005

Melbourne

XIII Cochrane Colloquium

- ❑ Cardiovascular disease (CVD) is the leading cause of global mortality.
 - ❑ 17 million/year, leading cause of death in 5 of 6 WHO regions

- ❑ CVD is the leading cause of death in NZ
 - ❑ kills 11,000/yr (40% of all deaths, 2001)
 - ❑ mortality rates 2-fold in Pacific Islanders, 2 to 3-fold in Maori

- ❑ Effective, evidence-based interventions are available
 - ❑ aspirin, antihypertensives, lipid lowering agents

There are problems....



23rd October 2005

Melbourne

XIII Cochrane Colloquium

- ❑ Large gap between best evidence and current practice
 - Only 45% of CHD survivors have total cholesterol <4.5mmol/L
 - Only 60% of CHD survivors have BP less than 140/90mmHg
 - Fewer than 40% of people eligible for statins are treated

- ❑ Variation in practice
 - 40% variation in statin treatment rates between health districts
 - Unknown gap between ethnic and socioeconomic groups

- ❑ Applicability of CVD risk calculations to the NZ population
 - Based on data from Framingham, Massachusetts, USA
 - Limited applicability to Maori and Pacific Islanders in NZ

The solution

23rd October 2005

Melbourne

XIII Cochrane Colloquium

- Evidence-based, best practice guideline
 - Screening criteria
 - 5-year risk charts
 - Multiple-risk factor evaluation
 - Lifestyle management
 - Pharmacological intervention

- Diabetes
 - integral to CVD risk and management
 - guidelines released together
 - cross-linked sections in each



Guidelines as architects of change

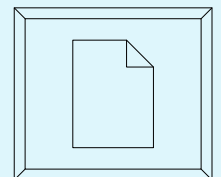
23rd October 2005

Melbourne

XIII Cochrane Colloquium

**Stop pretending that the writing of guidelines
can of itself achieve anything**

David Jewell, ed. Br J Gen Pract 2003



Guideline implementation

23rd October 2005

Melbourne

XIII Cochrane Colloquium

- ❑ Implementation strategies are many and varied
 - ⊕ No good evidence to discriminate between different implementation strategies (Grimshaw 2004)

- ❑ Computerised clinical decision support is one strategy
 - ⊕ Clinical improvement in care delivery 64% (Garg 2005)
 - ⊕ Effects on patient outcome understudied and when studied, inconsistent

- ❑ Reasons to believe NZ primary care doctors would adopt.....

NZ GPs and computers 2003



23rd October 2005

Melbourne

XIII Cochrane Colloquium

- ❑ 98.6% use specifically designed patient management system software
- ❑ 71.8% use computers for full clinical notes
- ❑ 87.6% use system that has built-in lab request or lab results function AND use this function
- ❑ 95% record screening information or keep disease registers on their PMS
- ❑ 90.7% record prescriptions on their PMS

Information Technology Systems in General Practice; 2003;
RNCGP Research Unit, Dept General Practice, University of Otago

Aims



23rd October 2005

Melbourne

XIII Cochrane Colloquium

PREDICT CVD-Diabetes aims to

- Promote systematic CVD risk assessment
- Provide electronic medical record of CVD risk
- Provide evidence-based decision support based on patient-specific profile
 - Improve adherence to best practice
 - Tailored patient education/info
- Provide a database of non-identifiable patient data that can be linked to event data
 - Validation or development of new risk equations for NZ, specifically for Maori/Pacific Islanders

PREDICT CVD-Diabetes

Real-time CCDS – ‘the ultimate guideline’

23rd October 2005

Melbourne

XIII Cochrane Colloquium

Evidence-based systematic risk assessment
& disease management



**Patient-practitioner
interaction**

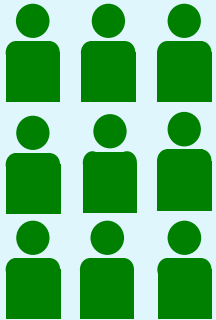
PREDICT CVD-Diabetes

Continuous Quality improvement tool

23rd October 2005

Melbourne

XIII Cochrane Colloquium



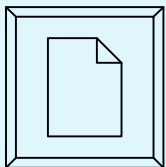
Patient population



Patient-practitioner interaction



audit practice against guidelines



PREDICT CVD-Diabetes

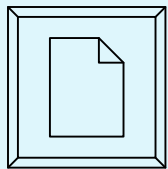
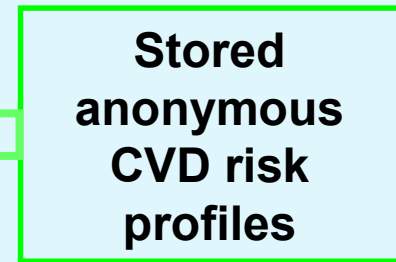
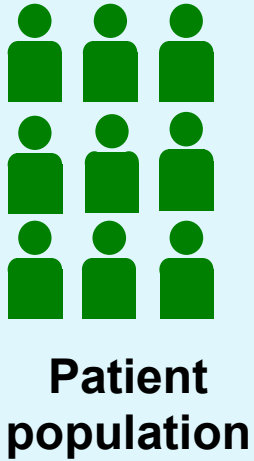
Systematic evaluation and monitoring



23rd October 2005

Melbourne

XIII Cochrane Colloquium



PREDICT CVD-Diabetes

Epidemiological database

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Electronic medical record



Patient-practitioner interaction

patient-specific outcomes: hospital admissions, deaths

patient-specific CVD risk factor profiles

PREDICT CVD-Diabetes

NZ risk prediction (Maori/non-Maori)



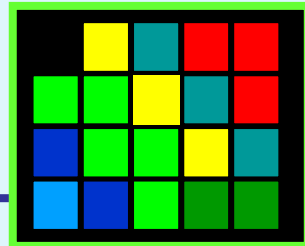
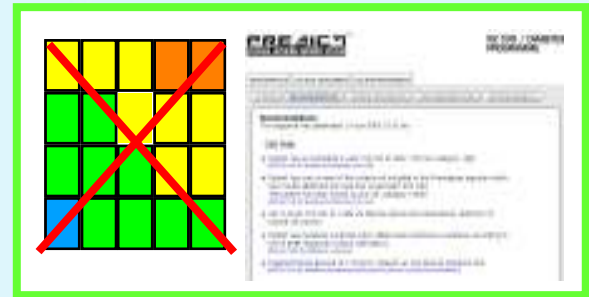
23rd October 2005

Melbourne

XIII Cochrane Colloquium



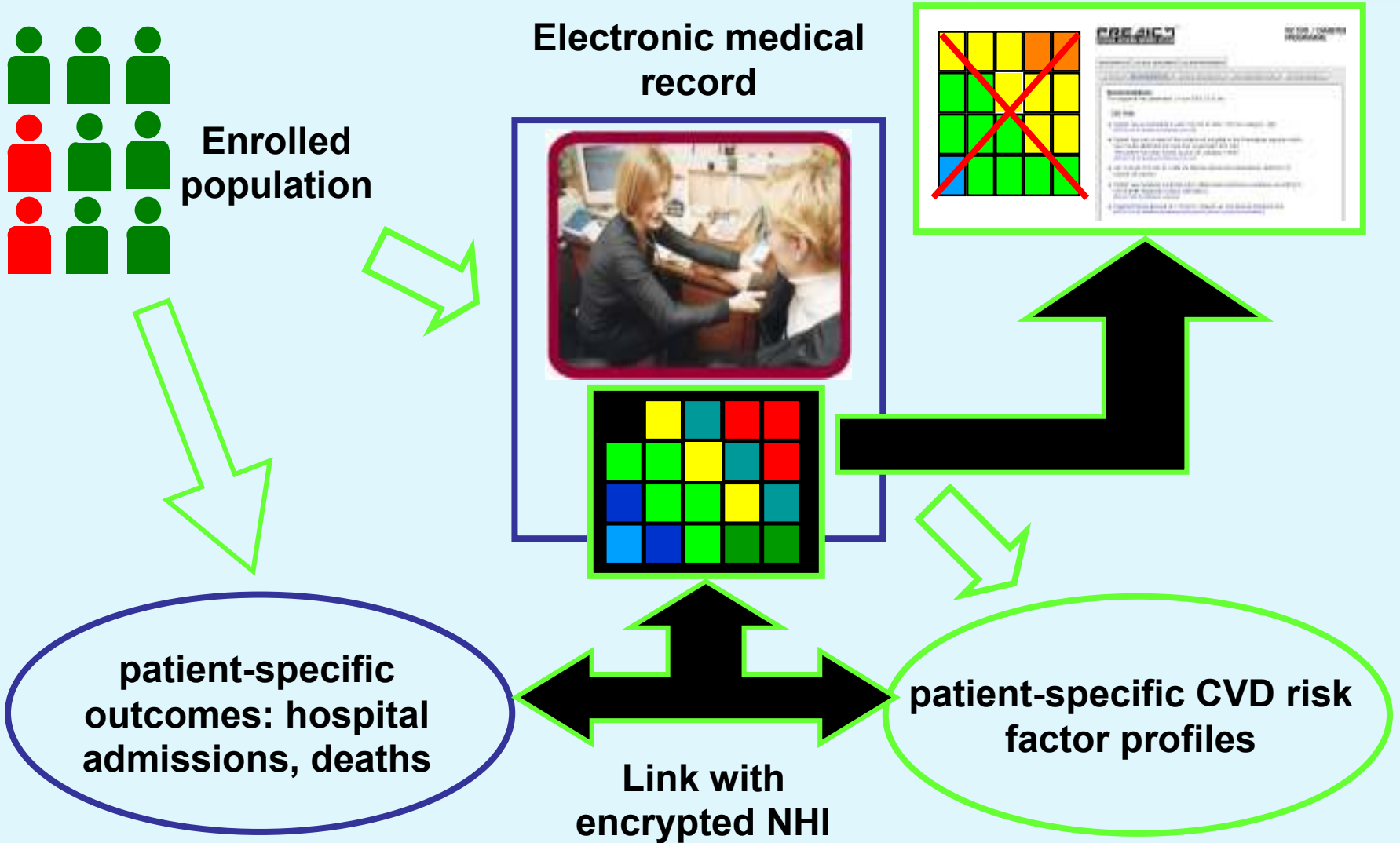
Electronic medical record



patient-specific outcomes: hospital admissions, deaths

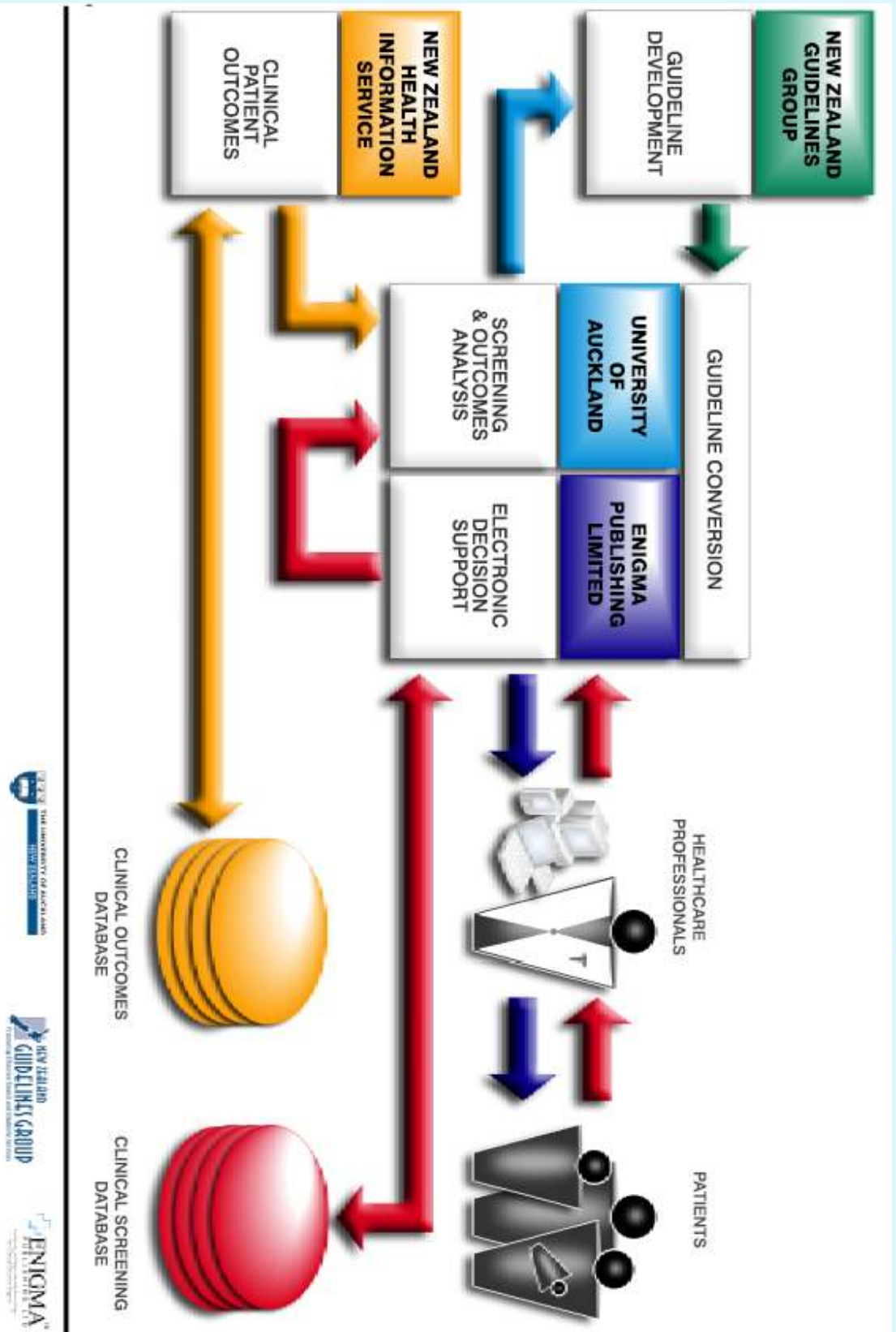
patient-specific CVD risk factor profiles

Link with encrypted NHI



PREDICT CVD-Diabetes

Overview



Guideline translation process

RECOMMENDATIONS: MANAGEMENT OF BLOOD PRESSURE

The higher the calculated cardiovascular risk, the more aggressive the management of modifiable risk factors, including blood pressure, should be.

C

People presenting with **stage 1 hypertension** should be given in association with other **cardiovascular** medication, such as **beta-blockers** and **calcium channel blockers**. This should be given in association with other **cardiovascular** medication, such as **beta-blockers** and **calcium channel blockers**.

A

People presenting after an **acute myocardial infarction** should be given in addition to other **cardiovascular** medication such as **beta-blockers** or **calcium channel blockers** concurrently with intensive lifestyle advice. It is **advisable** to **start treatment with beta-blockers** blood pressure lowering medication.

A

Everyone with blood pressure **greater than 170/100**

C

Guideline translation process

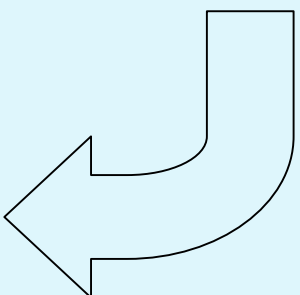
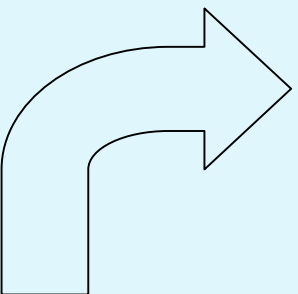
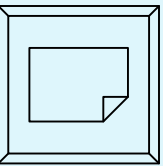
RECOMMENDATIONS: MANAGEMENT OF BLOOD PRESSURE

The higher the calculated cardiovascular risk, the more aggressive the management of modifiable risk factors, including blood pressure, should be.

People presenting **concurrently with** should be given in association with other **medication, such as**

People presenting other on **medication** should be given in addition to other **medication** or **medication** if indicated. Treatment should start **concurrently with intensive lifestyle advice**. It is **advisable** to **blood pressure lowering medication**.

Everyone with blood pressure **greater than**



	A	B	C	D
1	IHD (PVD and GLD na)	ACE (No, NT, Yes) ARB (No, NT, Yes) BB (No, NT, Yes)	other drugs (No/NT, Yes)	BP <130/80 BP>130/80
2	stroke (PVD and GLD na)	ACE (No, NT, Yes) ARB (No, NT, Yes)	other drugs (No/NT, Yes)	BP <130/80 BP>130/80
3	stroke and IHD (PVD and GLD na)	ACE (No, NT, Yes) ARB (No, NT, Yes)	other drugs (No/NT, Yes)	BP <130/80 BP>130/80
4	PVD only (GLD na)	ACE (No, NT, Yes) ARB (No, NT, Yes)	other drugs (No/NT, Yes)	BP <130/80 BP>130/80

PREDICT CVD-Diabetes

A brief tour



23rd October 2005

Melbourne

XIII Cochrane Colloquium

- ❑ Patient demographics
 - ⊕ Integrated into PMS
 - ⊕ Pre-population of demographic data held in record
- ❑ Clinical data
 - ⊕ Pre-population of lab results (if they exist in the record)
- ❑ Medication data
 - ⊕ Manually completed (but once entered stored in record)
- ❑ Additional data required for diabetics
 - ⊕ If diabetic, tool has ability to switch to UKPDS risk formula
 - ⊕ Additional information about retinal, neurological screens
 - ⊕ Additional lab and medication fields required

PREDICT CVD-Diabetes

Patient demographics



DEMOGRAPHICS

CVD RISK ASSESSMENT

CVD RISK MANAGEMENT

RISK ASSESSMENT INFO

SENTINEL FEEDBACK

Practitioners details

NZMC / NZNC number

Demographics (All to be prepopulated from PMS)

Firstname

Lastname

NHI

DHB Catchment

Quintile of deprivation

Meshblock geocode

Date of birth dd/mm/yyyy

Age Years

Gender

Ethnic Group (1 or more self-identified ethnic group may be chosen)

Ethnic Group 2

Ethnic Group 3

PREDICT CVD-Diabetes

CVD risk assessment: clinical data

23rd October 2005

Melbourne

XIII Cochrane Colloquium

NOTE: It is inappropriate to do CVD risk assessment in pregnancy.

Clinical History

Family History of CVD	Yes <input checked="" type="radio"/> - <input type="radio"/> No	?
Angina/MI	Yes <input type="radio"/> - <input checked="" type="radio"/> No	?
PTCA/CABG	Yes <input type="radio"/> - <input checked="" type="radio"/> No	?
Ischaemic Stroke or TIA	Yes <input type="radio"/> - <input checked="" type="radio"/> No	?
PVD	Yes <input type="radio"/> - <input checked="" type="radio"/> No	?
Diabetes	<input type="text" value="None"/>	?
ECG confirmed Atrial Fibrillation	Yes <input type="radio"/> - <input checked="" type="radio"/> No	?
Diagnosed Genetic Lipid Disorder	<input type="text" value="None"/>	?
Diagnosed metabolic syndrome	Yes <input checked="" type="radio"/> - <input type="radio"/> No	?
Smoking History	<input type="text" value="Yes - up to 10 / day"/>	?

Examination

Today's BP, Systolic (Sitting)	<input type="text" value="150"/> / <input type="text" value="90"/> mmHg	?
Previous BP, Systolic (Sitting)	<input type="text" value="150"/> / <input type="text" value="90"/> mmHg	?
TC/HDL ratio	<input type="text" value="5.7"/> - Date: <input type="text" value="26/10/2004"/> dd/mm/yyyy	?
Total Cholesterol	<input type="text" value="5.7"/> mmol/L - Date: <input type="text" value="26/10/2004"/> dd/mm/yyyy	?
This data is the patient's real clinical information	Yes <input checked="" type="radio"/> - <input type="radio"/> No	?

SUBMIT RISK ASSESSMENT

'WHAT IF' / DEMONSTRATION STYLE RISK ASSESSMENT

PREDICT CVD-Diabetes

Captures detailed epidemiological data



23rd October 2005

Melbourne

XIII Cochrane Colloquium

Clinical History

Family History of CVD Yes: - No ?

Angina/MI Yes: - No ?

PTCA/CABG Yes: - No ?

Ischaemic Stroke or TIA Yes: - No ?

PVD Yes: - No ?

Diabetes: ?

ECG confirmed Atrial Fibrillation Yes: - No ?

Diagnosed Genetic Lipid Disorder: ?

Diagnosed metabolic syndrome Yes: - No ?

Smoking History: ?

Examination

Today's BP (Sitting): ?

Previous BP (Sitting): / mmHg ?

TC/HDL ratio: - Date: dd/mm/yyyy ?

Total Cholesterol: mmol/L - Date: dd/mm/yyyy ?

This data is the patient's real clinical information Yes: - No ?

?

?

PREDICT CVD-Diabetes

CVD risk assessment: Diabetics

23rd October 2005

Melbourne

XIII Cochrane Colloquium


Family history of CVD Yes - No

Angina/MI Yes - No


PTCA/CABG Yes - No

Ischaemic Stroke or TIA Yes - No


PVD Yes - No

Diabetes 

ECG confirmed Atrial Fibrillation Yes - No

Diagnosed Genetic Lipid Disorder 

Diagnosed metabolic syndrome Yes - No

Smoking History 

Examination

Today's BP (Sitting) / mmHg


Previous BP (Sitting) / mmHg

TC/HDL ratio - Date: dd/mm/yyyy

Total Cholesterol mmol/L - Date: dd/mm/yyyy

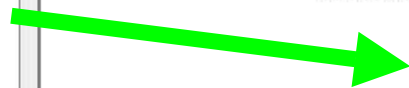
For diabetic patient

Diabetes; year of diagnosis

Renal disease 

HbA1c % - Date: dd/mm/yyyy

This data is the patient's real clinical information Yes - No



PREDICT CVD-Diabetes

CVD risk assessment

NOTE: It is inappropriate to do CVD risk assessment in pregnancy.

Clinical History

Family History of CVD Yes - No ?

Angina/MI Yes - No ?

PTCA/CABG Yes - No ?

Ischaemic Stroke or TIA Yes - No ?

PVD Yes - No ?

Diabetes None - ?

ECG confirmed Atrial Fibrillation Yes - No ?

Diagnosed Genetic Lipid Disorder None - ?

Diagnosed metabolic syndrome Yes - No ?

Smoking History Yes - up to 10 / day - No ?

Examination

Today's BP (Sitting) 150 / 90 mmHg ?

Previous BP (Sitting) 150 / 90 mmHg ?

TC/HDL ratio 5.7 - Date: 26/10/2004 dd/mm/yyyy ?

Total Cholesterol 5.7 mmol/L - Date: 26/10/2004 dd/mm/yyyy ?

This data is the patient's real clinical information Yes - No ?

SUBMIT RISK ASSESSMENT

WHAT IF / DEMONSTRATION STYLE RISK ASSESSMENT



PREDICT CVD-Diabetes

CVD risk assessment

Estimated risk of having a CVD event in the next 5 years:

18%

Estimated risk level: 5-year CV risk (fatal and non-fatal)	Estimated Benefits: NNT for 5 years to prevent one event (CVD events prevented per 100 people treated for 5 years)		
	1 intervention (25% risk reduction)	2 interventions (45% risk reduction)	3 interventions (55% risk reduction)
18%	22 (4.5 per 100)	12 (8.1 per 100)	10 (9.9 per 100)

Based on the conservative estimate that each intervention: aspirin, blood pressure treatment (lowering systolic blood pressure by 10 mm Hg) or lipid modification (lowering LDL-C by 20%) reduces CV risk by about 25% over 5 years.

CVD risk has been moved up one risk category (5%), as cardiovascular risk may be underestimated in the Framingham risk equation; based on:

- family history of premature coronary heart disease or ischaemic stroke in a first-degree male relative before the age of 55 years or a first-degree female relative before the age of 65 years
- Maori or Pacific ethnicity or people from the Indian subcontinent
- metabolic syndrome

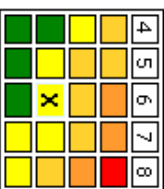
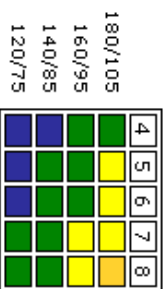
Cardiovascular Disease: Baseline Risk and Treatment Benefit

NO DIABETES
(With a 5% upward risk adjustment applied)

Nonsmoker

Smoker

Ratio of Total Cholesterol:HDL



PREDICT CVD-Diabetes

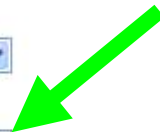
Doctor, what if I quit smoking?

23rd October 2005

Melbourne

XIII Cochrane Colloquium

Clinical History		
Family History of CVD Yes: <input checked="" type="radio"/> - <input type="radio"/> No	?	
Angina/MI Yes: <input type="radio"/> - <input checked="" type="radio"/> No	?	
PTCA/CABG Yes: <input type="radio"/> - <input checked="" type="radio"/> No	?	
Ischaemic Stroke or TIA Yes: <input type="radio"/> - <input checked="" type="radio"/> No	?	
PVD Yes: <input type="radio"/> - <input checked="" type="radio"/> No	?	
Diabetes: <input type="text" value="None"/>	?	
ECG confirmed Atrial Fibrillation Yes: <input type="radio"/> - <input checked="" type="radio"/> No	?	
Diagnosed Genetic Lipid Disorder: <input type="text" value="None"/>	?	
Diagnosed metabolic syndrome Yes: <input checked="" type="radio"/> - <input type="radio"/> No	?	
Smoking History: <input type="text" value="No - quit over 12 months ago"/>	?	
Examination		
Today's BP (Sitting): <input type="text" value="150"/> / <input type="text" value="90"/> mmHg	?	
Previous BP (Sitting): <input type="text" value="150"/> / <input type="text" value="90"/> mmHg	?	
TC/HDL ratio: <input type="text" value="5.7"/> - Date: <input type="text" value="26/10/2004"/> dd/mm/yyyy	?	
Total Cholesterol: <input type="text" value="5.7"/> mmol/L - Date: <input type="text" value="26/10/2004"/> dd/mm/yyyy	?	
This data is the patient's real clinical information Yes: <input type="radio"/> - <input checked="" type="radio"/> No	?	
<input type="text" value="'WHAT IF' / DEMONSTRATION STYLE RISK ASSESSMENT"/>		?



PREDICT CVD-Diabetes

Doctor, what if I quit smoking?

23rd October 2005

Melbourne

XIII Cochrane Colloquium

This response was generated: 28-Sep-2005 16:46 hrs

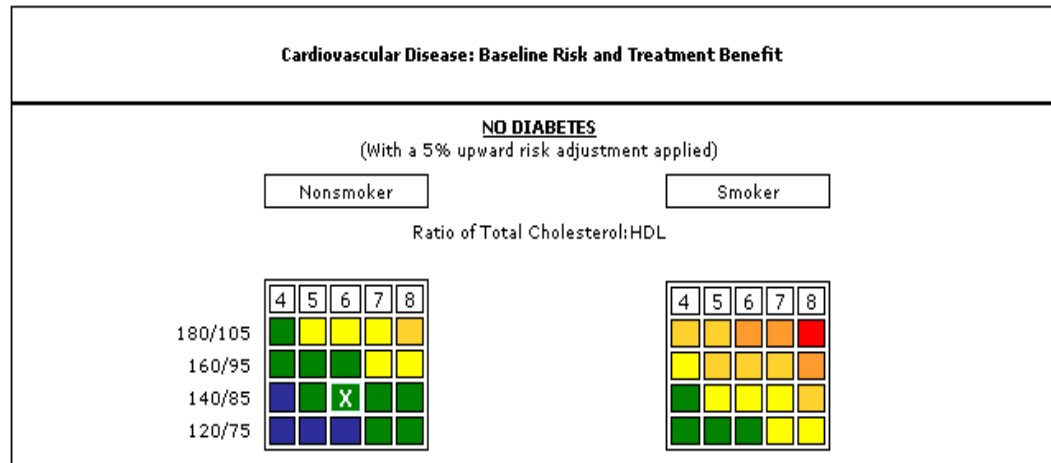
Estimated risk of having a CVD event in the next 5 years: **12%**

Estimated risk level: 5-year CV risk (fatal and non-fatal)	Estimated Benefits: NNT for 5 years to prevent one event (CVD events prevented per 100 people treated for 5 years)		
	1 intervention (25% risk reduction)	2 interventions (45% risk reduction)	3 interventions (55% risk reduction)
12%	33 (3.0 per 100)	19 (5.4 per 100)	15 (6.6 per 100)

Based on the conservative estimate that each intervention: aspirin, blood pressure treatment (lowering systolic blood pressure by 10 mm Hg) or lipid modification (lowering LDL-C by 20%) reduces CV risk by about 25% over 5 years.

CVD risk has been moved up one risk category (5%), as cardiovascular risk may be underestimated in the Framingham risk equation; based on:

- family history of premature coronary heart disease or ischaemic stroke in a first-degree male relative before the age of 55 years or a first-degree female relative before the age of 65 years
- Maori or Pacific ethnicity or people from the Indian subcontinent
- metabolic syndrome



PREDICT CVD-Diabetes

CVD risk management: clinical data

DEMOGRAPHICS CVD RISK ASSESSMENT **CVD RISK MANAGEMENT** DIABETES MANAGEMENT

RISK ASSESSMENT INFO SENTINEL FEEDBACK

Note the BMI calculator on this page calculates the BMI value automatically from height and weight. All underlined items are required.

Examination

Height	<input type="text" value="180"/>	cm	<input data-bbox="1587 708 1612 732" type="button" value="?"/>
Weight	<input type="text" value="95"/>	kg - Date: <input type="text" value="24/08/2005"/>	<input data-bbox="1587 751 1612 776" type="button" value="?"/>
BMI (Auto-calculated)	<input type="text" value="29.3"/>	kg/m ²	<input data-bbox="1587 795 1612 820" type="button" value="?"/>
Waist circumference	<input type="text" value="98"/>	cm	<input data-bbox="1587 839 1612 863" type="button" value="?"/>

CVD medications

Aspirin	<input type="text" value="No"/>	<input data-bbox="1587 958 1612 982" type="button" value="?"/>
Clopidogrel	<input type="text" value="No"/>	<input data-bbox="1587 1002 1612 1026" type="button" value="?"/>
Warfarin	<input type="text" value="No"/>	<input data-bbox="1587 1045 1612 1070" type="button" value="?"/>
ACE Inhibitor	<input type="text" value="No"/>	<input data-bbox="1587 1089 1612 1114" type="button" value="?"/>
Angiotensin II Receptor Blocker	<input type="text" value="No"/>	<input data-bbox="1587 1133 1612 1157" type="button" value="?"/>
Beta Blocker	<input type="text" value="No"/>	<input data-bbox="1587 1177 1612 1201" type="button" value="?"/>
Thiazide	<input type="text" value="No"/>	<input data-bbox="1587 1221 1612 1245" type="button" value="?"/>
Calcium Antagonist	<input type="text" value="No"/>	<input data-bbox="1587 1265 1612 1289" type="button" value="?"/>
Other drug therapy for Hypertension	<input type="text" value="No"/>	<input data-bbox="1587 1308 1612 1333" type="button" value="?"/>
Statin	<input type="text" value="No"/>	<input data-bbox="1587 1352 1612 1377" type="button" value="?"/>
Fibrate	<input type="text" value="Yes"/>	<input data-bbox="1587 1396 1612 1421" type="button" value="?"/>
Other Lipid lowering drugs	<input type="text" value="No"/>	<input data-bbox="1587 1440 1612 1464" type="button" value="?"/>

PREDICT CVD-Diabetes

CVD risk management: clinical data

23rd October 2005

Melbourne

XIII Cochrane Colloquium

CVD medications

Aspirin	<input type="text" value="No"/>	<input type="button" value="?"/>
Clopidogrel	<input type="text" value="No"/>	<input type="button" value="?"/>
Warfarin	<input type="text" value="No"/>	<input type="button" value="?"/>
ACE Inhibitor	<input type="text" value="No"/>	<input type="button" value="?"/>
Angiotensin II Receptor Blocker	<input type="text" value="No"/>	<input type="button" value="?"/>
Beta Blocker	<input type="text" value="No"/>	<input type="button" value="?"/>
Thiazide	<input type="text" value="No"/>	<input type="button" value="?"/>
Calcium Antagonist	<input type="text" value="No"/>	<input type="button" value="?"/>
Other drug therapy for Hypertension	<input type="text" value="No"/>	<input type="button" value="?"/>
Statin	<input type="text" value="No"/>	<input type="button" value="?"/>
Fibrate	<input type="text" value="Yes"/>	<input type="button" value="?"/>
Other Lipid lowering drugs	<input type="text" value="No"/>	<input type="button" value="?"/>

Investigation

LDL Cholesterol (fasting)	<input type="text" value="2.3"/>	mmol/L - Date:	<input type="text" value="24/08/2005"/>	<input type="text" value="dd/mm/yyyy"/>	<input type="button" value="?"/>
Triglyceride (fasting)	<input type="text" value="2"/>	mmol/L - Date:	<input type="text" value="24/08/2005"/>	<input type="text" value="dd/mm/yyyy"/>	<input type="button" value="?"/>
HDL Cholesterol	<input type="text" value="1"/>	mmol/L - Date:	<input type="text" value="24/08/2005"/>	<input type="text" value="dd/mm/yyyy"/>	<input type="button" value="?"/>

Lifestyle management

Physically active?	Yes	<input type="radio"/>	-	<input checked="" type="radio"/>	No	<input type="button" value="?"/>
Green Prescription given	Yes	<input type="radio"/>	-	<input checked="" type="radio"/>	No	<input type="button" value="?"/>
Date of last dietary assessment	<input type="text" value="24/08/2005"/>	<input type="text" value="dd/mm/yyyy"/>	<input type="button" value="?"/>			
Date referral for dietary advice	<input type="text"/>	<input type="text" value="dd/mm/yyyy"/>	<input type="button" value="?"/>			

PREDICT CVD-Diabetes

Diabetes management: clinical data

23rd October 2005

Melbourne


XIII Cochrane Colloquium


DEMOGRAPHICS | CVD RISK ASSESSMENT | CVD RISK MANAGEMENT | **DIABETES MANAGEMENT**


RISK ASSESSMENT INFO | SENTINEL FEEDBACK



All underlined items are required.



Diabetes glycaemic control


HbA1c % - Date: dd/mm/yyyy 


Diet therapy only 


Metformin 


Sulphonylurea  


Glitazone  

Acarbose 


Insulin 


Date of last dietary assessment dd/mm/yyyy 


Date referral for dietary advice dd/mm/yyyy 

Date referral for diabetic education dd/mm/yyyy 



Renal

ACR mg/mmol - Date: dd/mm/yyyy 

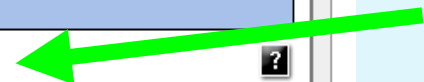
Serum creatinine mmol/l - Date: dd/mm/yyyy 

Estimated GFR ml/min 

Diabetic Feet

Foot assessment today?  

Diabetic Eyes



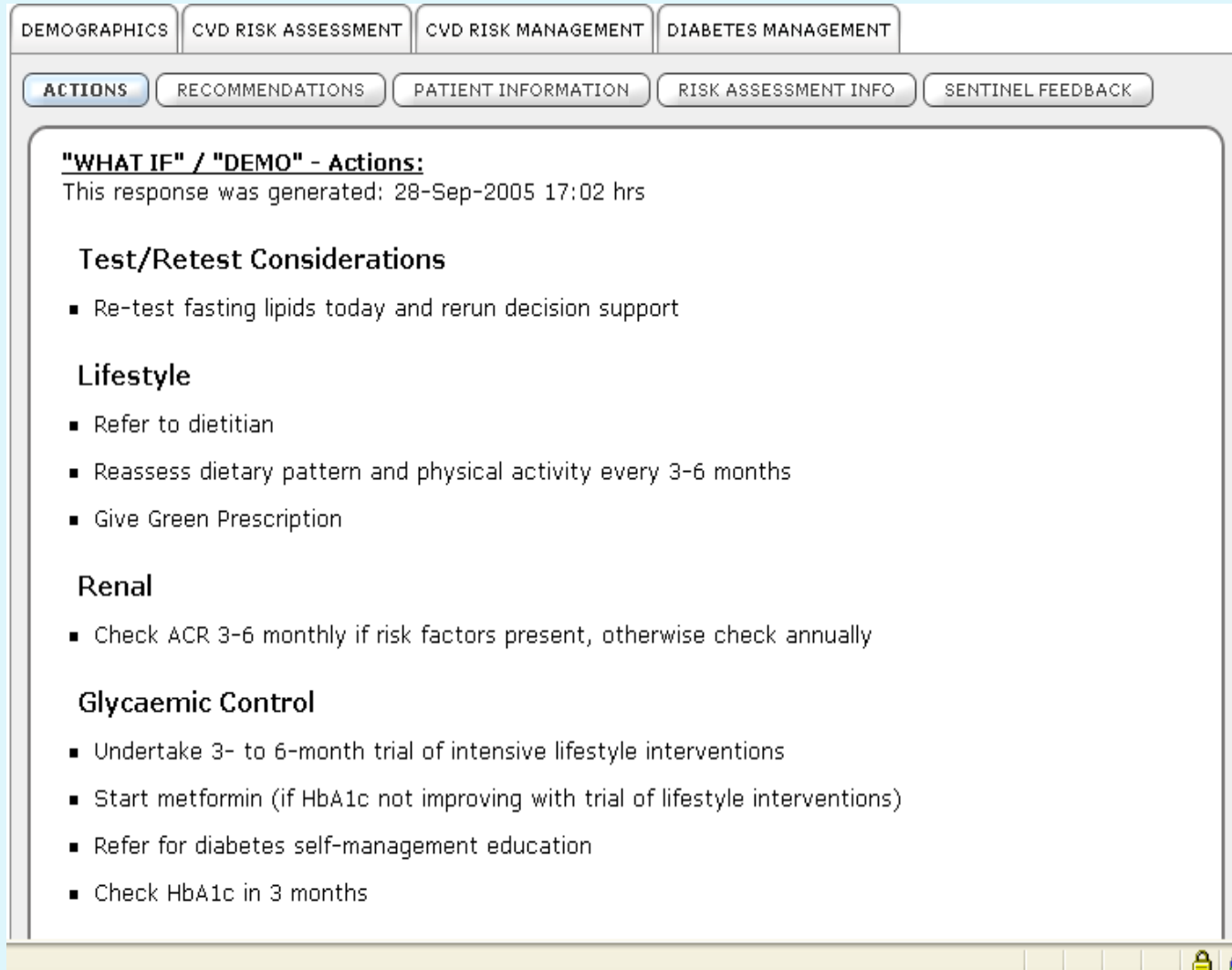
PREDICT CVD-Diabetes

Feedback: Actions (OrderSets)

23rd October 2005

Melbourne

XIII Cochrane Colloquium



DEMOGRAPHICS CVD RISK ASSESSMENT CVD RISK MANAGEMENT DIABETES MANAGEMENT

ACTIONS RECOMMENDATIONS PATIENT INFORMATION RISK ASSESSMENT INFO SENTINEL FEEDBACK

"WHAT IF" / "DEMO" - Actions:
This response was generated: 28-Sep-2005 17:02 hrs

Test/Retest Considerations

- Re-test fasting lipids today and rerun decision support

Lifestyle

- Refer to dietitian
- Reassess dietary pattern and physical activity every 3-6 months
- Give Green Prescription

Renal

- Check ACR 3-6 monthly if risk factors present, otherwise check annually

Glycaemic Control

- Undertake 3- to 6-month trial of intensive lifestyle interventions
- Start metformin (if HbA1c not improving with trial of lifestyle interventions)
- Refer for diabetes self-management education
- Check HbA1c in 3 months

PREDICT CVD-Diabetes

Feedback: Recommendations

DEMOGRAPHICS
CVD RISK ASSESSMENT
CVD RISK MANAGEMENT
DIABETES MANAGEMENT

ACTIONS
RECOMMENDATIONS
PATIENT INFORMATION
RISK ASSESSMENT INFO
SENTINEL FEEDBACK

"WHAT IF" / "DEMO" - Recommendations:
This response was generated: 28-Sep-2005 17:02 hrs

CVD Risk

- Patient has diabetes with an estimated 5-year CVD risk of 17%. CVD risk category: High. [\[NZGG CVD Estimating CVD risk\]](#)
- Patient has one or more of the criteria not included in the Framingham equation which may confer additional risk (see Risk Assessment Info tab). The patient has been moved up one risk category (+5%). [\[NZGG CVD Estimating CVD risk\]](#)
- Aim to lower CVD risk to <15% via lifestyle advice and simultaneous reduction of several risk factors.

Renal

- ACR is 1.5mg/mmol. Check ACR 3-6 monthly if have following risk factors: Maori, Pacific, Asian, microalbuminuria, elevated BP or lipids, smoking or poorly controlled blood glucose. Otherwise check at least annually. Seek specialist opinion if note a rapid increase in ACR (eg, doubling over 1 year noted from at least 3 samples). [\[NZGG Diabetes\] Identifying and managing diabetic renal disease\]](#)

Lifestyle

- Referral for intensive dietary advice, ideally by a dietitian or suitably trained health professional, is recommended. Continue to monitor, assist and advise patient every 3-

PREDICT CVD-Diabetes

Feedback: Individualised patient printout



23rd October 2005

Melbourne

XIII Cochrane Colloquium

DEMOGRAPHICS CVD RISK ASSESSMENT CVD RISK MANAGEMENT DIABETES MANAGEMENT

ACTIONS RECOMMENDATIONS **PATIENT INFORMATION** RISK ASSESSMENT INFO SENTINEL FEEDBACK

"WHAT IF" / "DEMO" - Patient Information:
This response was generated: 28-Sep-2005 17:02 hrs

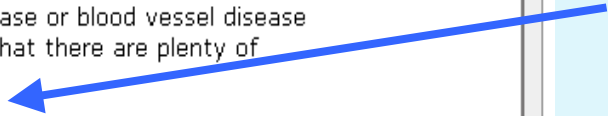
Patient Name:

CVD Risk

- You have diabetes and a high risk of developing heart disease or blood vessel disease or having a stroke in the next 5 years. The good news is that there are plenty of things that you can do to reduce this risk.
[\[NHF booklet- reducing the risk of heart attack and stroke \(www.nhf.org.nz\)\]](#)
- As you have a family history of early heart disease or stroke, you may need to receive more intensive advice and treatment.

Lifestyle

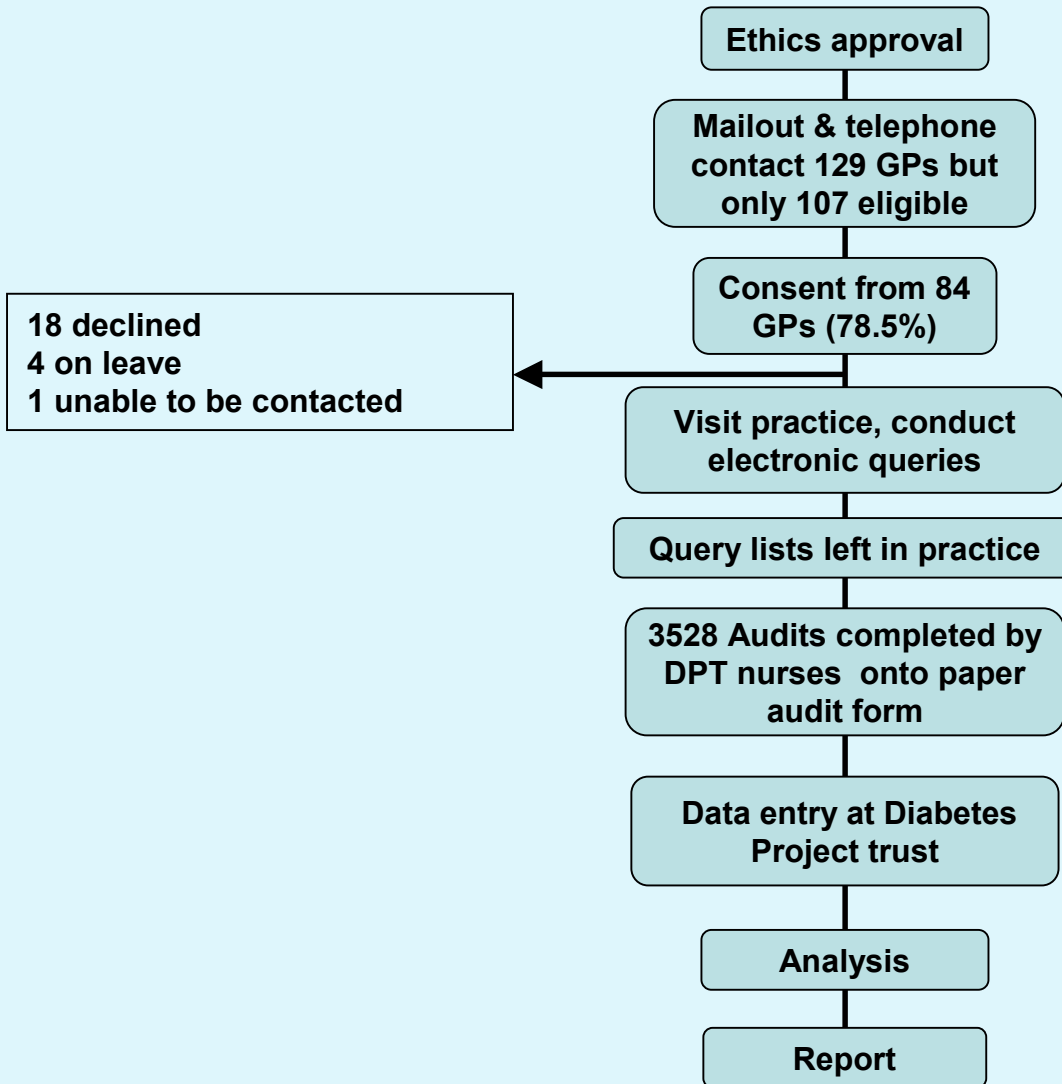
- Regular physical activity and a diet that protects your heart will improve your general health, control your diabetes, help lower your blood pressure, and improve your cholesterol and triglycerides (blood fats) and other factors. Your doctor may refer you for special dietary advice so that you can get advice tailored just for you.
[\[Diabetes NZ- Fit for life \(www.diabetes.org.nz\)\]](#)
[\[Diabetes NZ- Basic guide to food \(www.diabetes.org.nz\)\]](#)
[\[Tackling your risk factors-Eating and Nutrition \(www.nhf.org.nz\)\]](#)
- Get more active. The long term aim is 30 minutes of physical activity on most days of the week (or 3 lots of 10 minutes a day). Set a goal and go for it!
[\[Diabetes NZ- Fit for life \(www.diabetes.org.nz\)\]](#)
[\[Walking / Stretching / Physical activity for people with medical conditions \(www.PushPlay.org.nz\)\]](#)
[\[Tackling your risk factors-physical activity \(www.nhf.org.nz\)\]](#)
- Your weight is above the recommended healthy weight. Ask your doctor or practice nurse about a weight loss programme. When you are ready, aim to lose about 10% of



23rd October 2005

Melbourne

XIII Cochrane Colloquium



Characteristics of audited populations before and after introduction of Prompt



23rd October 2005

Melbourne

XIII Cochrane Colloquium

	Pre-Prompt (n=1677)	Post-Prompt (n=1851)
Maori	473 (28%)	480 (26%)
Non-Maori	1204 (72%)	1371(74%)

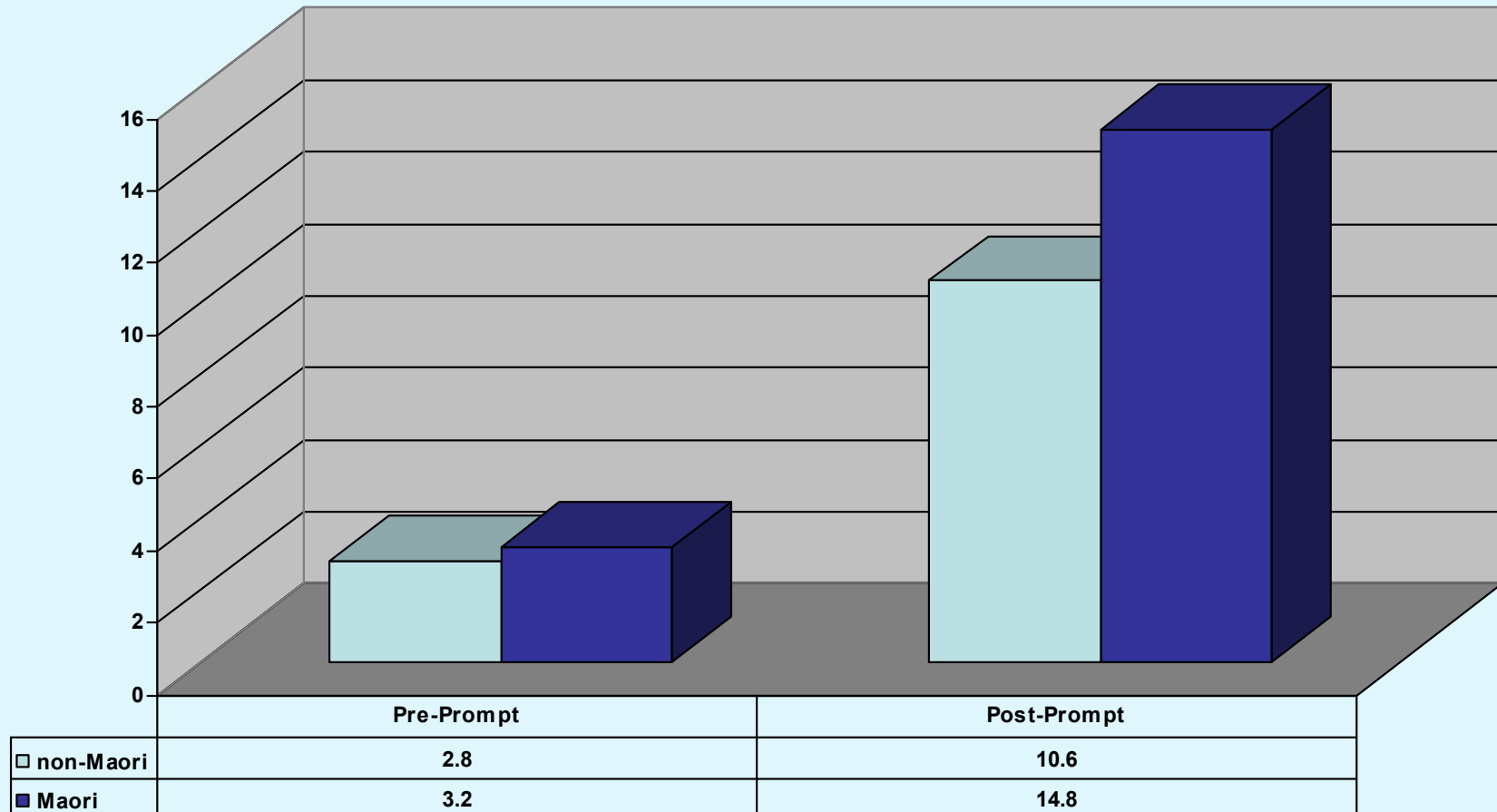
No differences between Pre-Prompt and Post-Prompt groups in terms of age, gender, ethnicity, HUHC, CSC

Risk Assessment by GPs before and after introduction of Prompt

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Adj OR non-Maori 4.73; 3.14-7.10

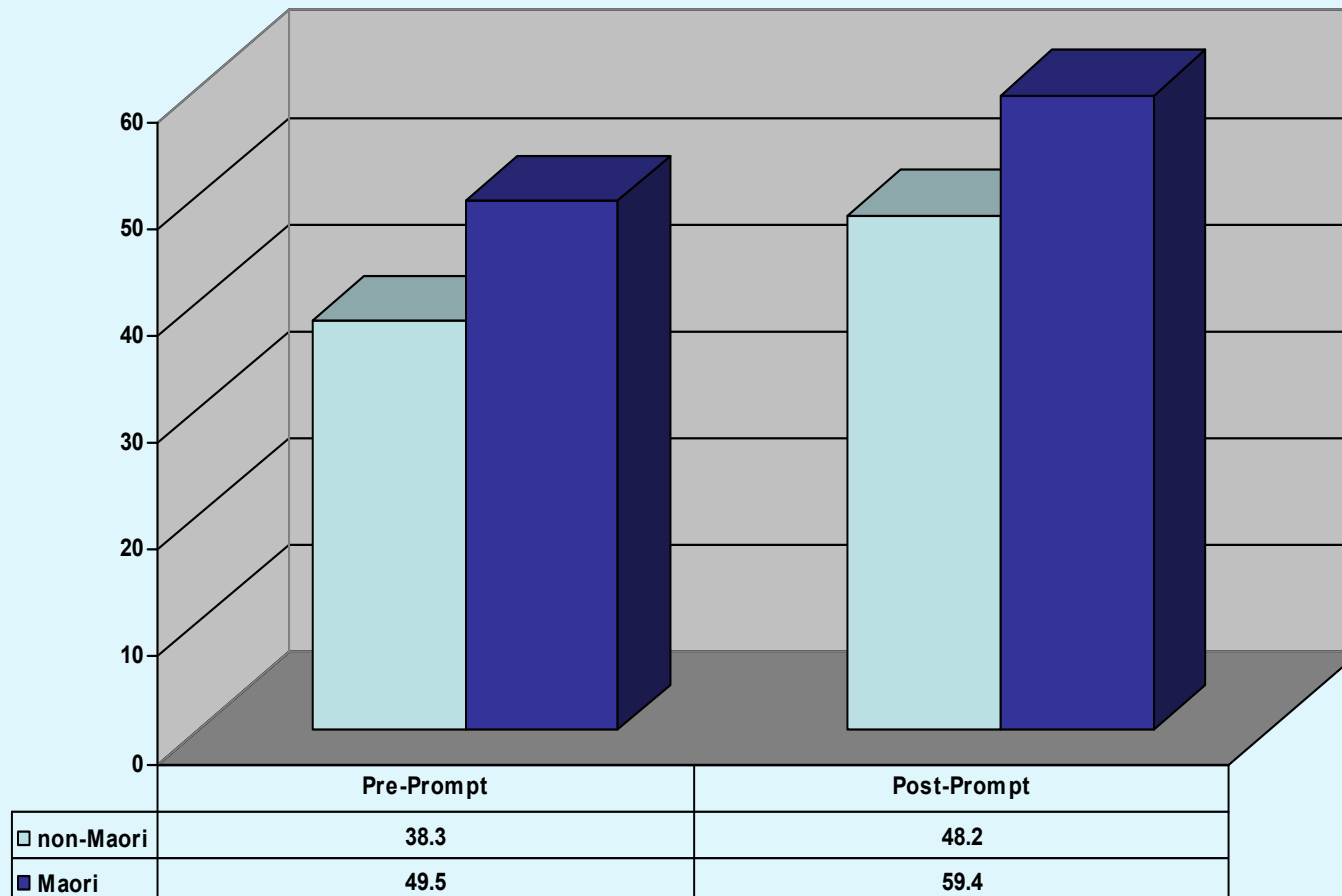
Adj OR Maori 5.44; 2.88-10.27

Documented Smoking Status

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Adj OR non-Maori 1.61; 1.36-1.92

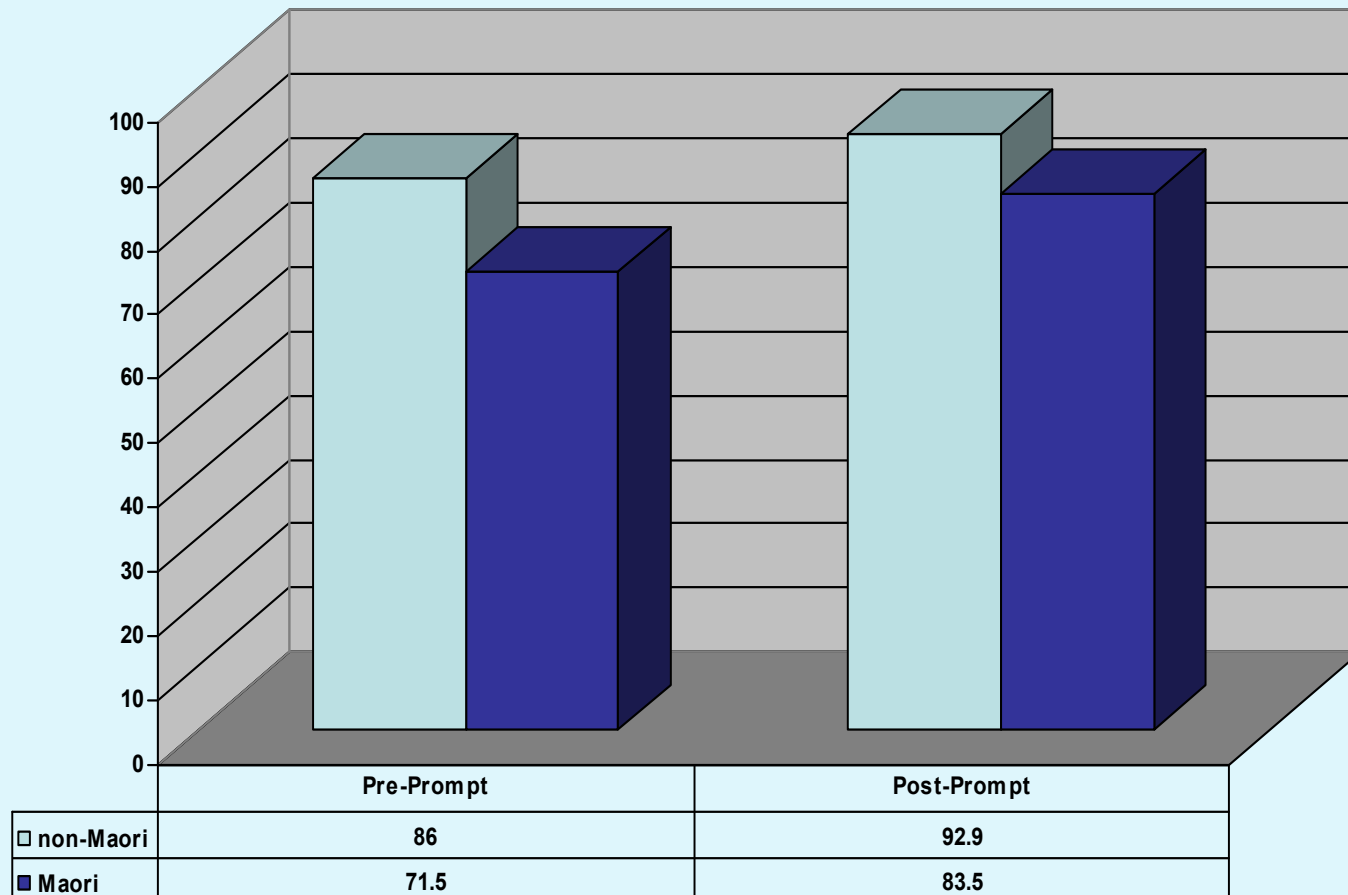
Adj OR Maori 1.39; 1.04-1.86

Documented Blood Pressure

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Adj OR non-Maori 2.44; 1.85-3.22

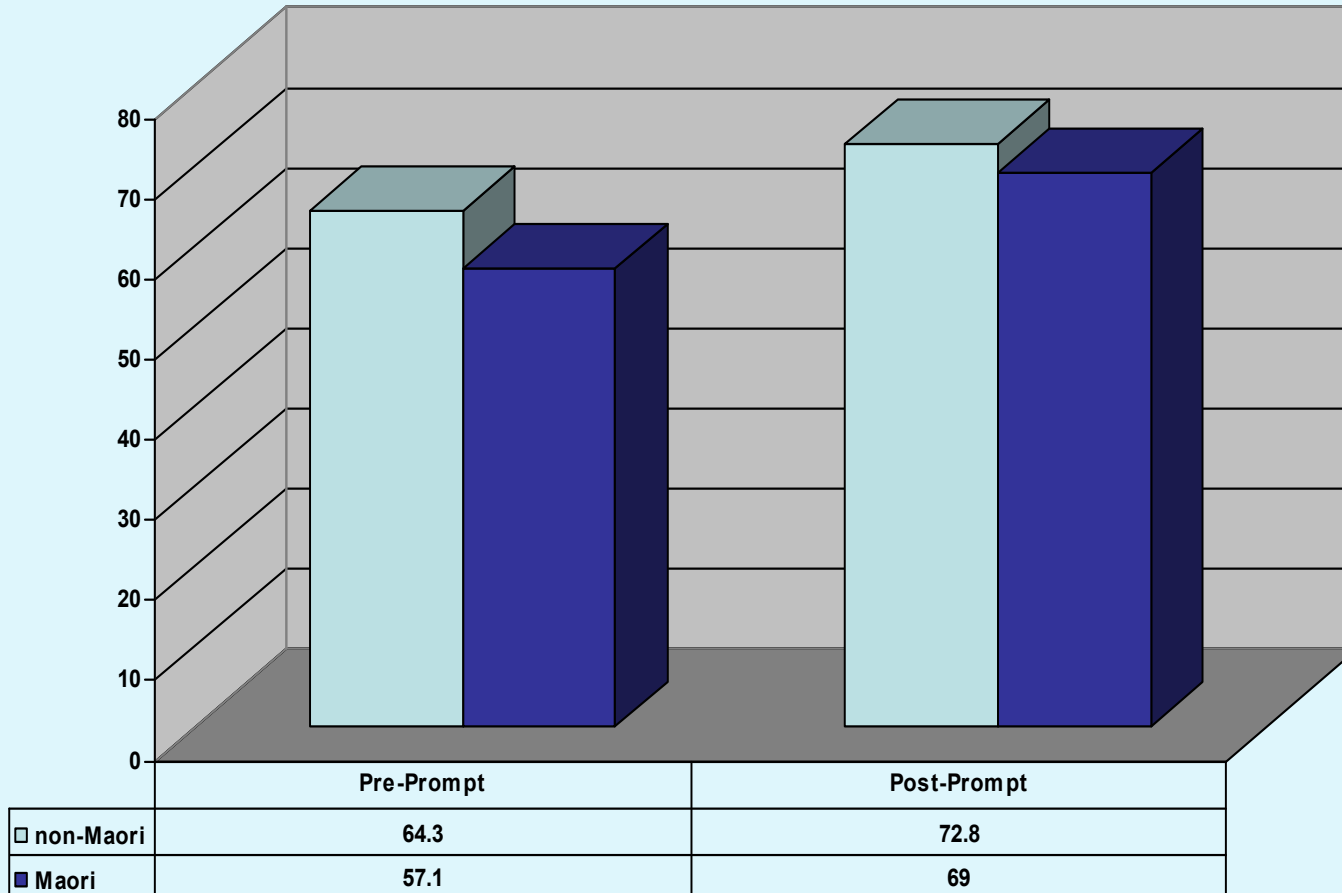
Adj OR Maori 2.08; 1.48-2.93

Documented Cholesterol (TC or TC/HDL)

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Adj OR non-Maori 1.52; 1.28-1.80

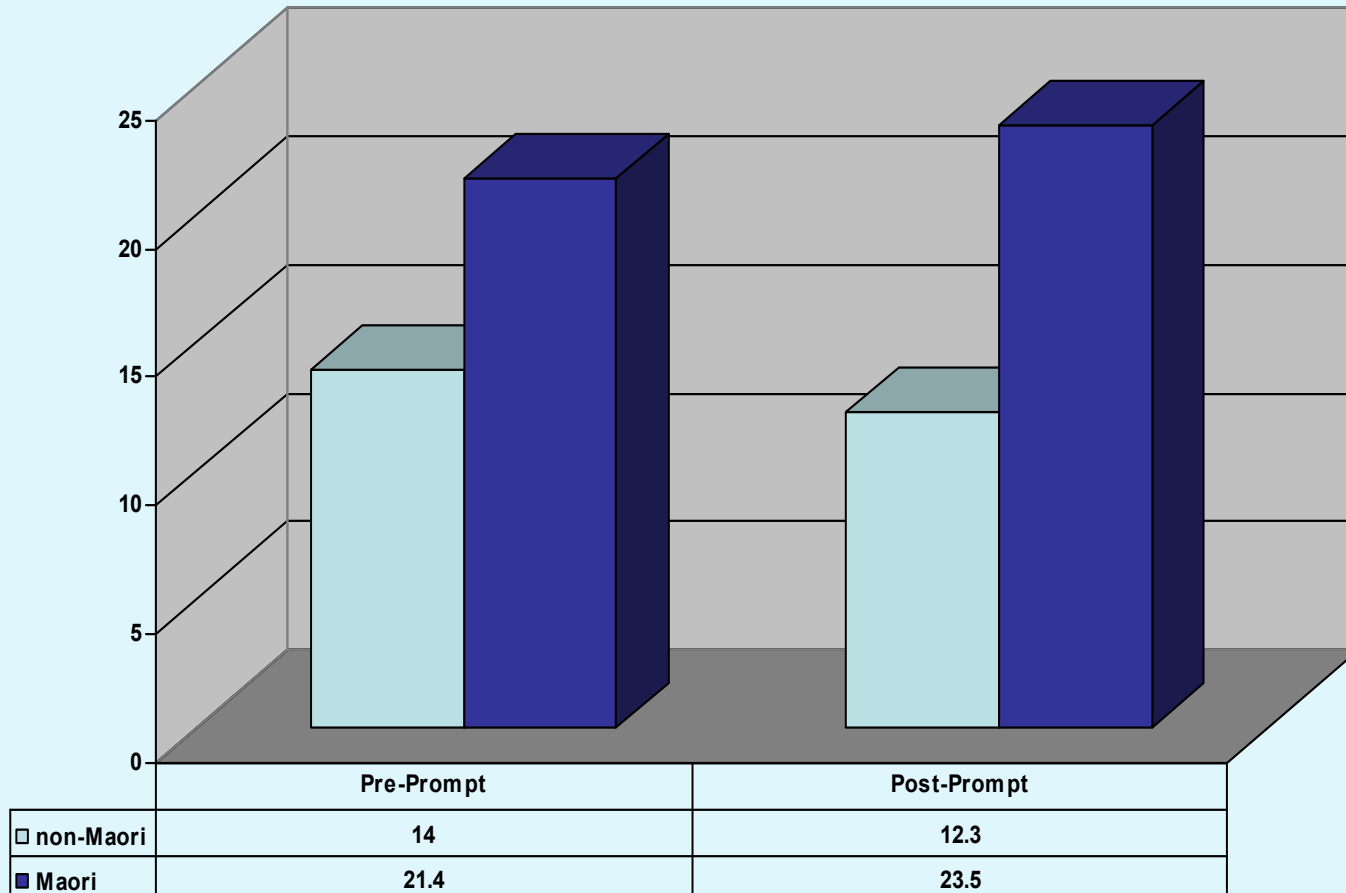
Adj OR Maori 1.59; 1.19-2.13

Documented diabetes status (Diabetes type, IGT, or none)

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Adj OR non-Maori 1.08; 0.86-1.34

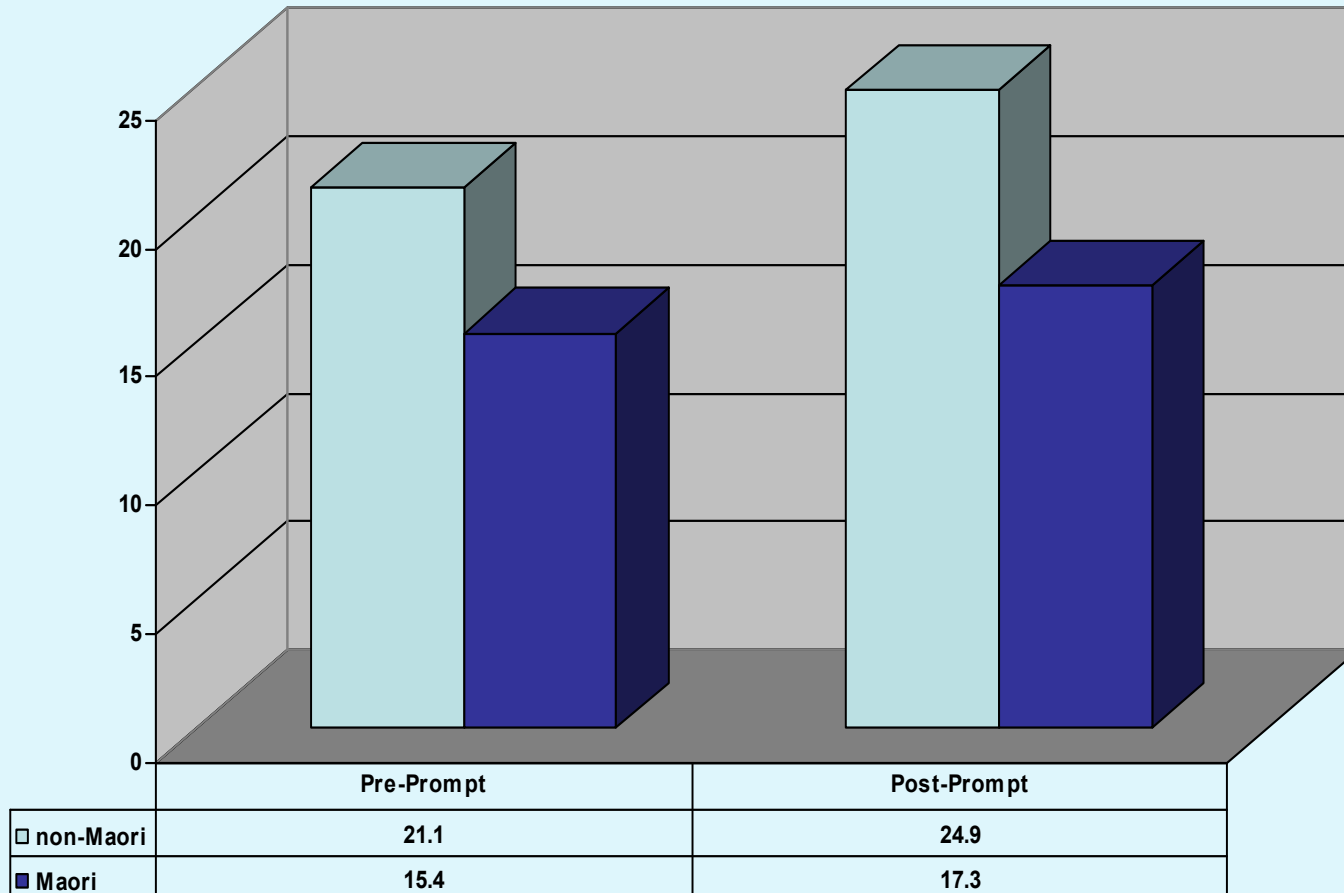
Adj OR Maori 1.05; 0.76-1.46

Documented Previous History CVD

23rd October 2005

Melbourne

XIII Cochrane Colloquium



Adj OR non-Maori 1.23; 1.02-1.49

Adj OR Maori 1.03; 0.71-1.51

Issues identified as central to implementing PREDICT (and other CCDS systems?)

23rd October 2005

Melbourne

XIII Cochrane Colloquium

- Define the clinical (and information need) clearly
- Ensure there is a shared vision
 - Funders, practitioners, IT team(s), communities
- Ensure the systems are in place
 - Human – champions, project manager, training, peer support, QA
 - Technical – platforms, connectivity, minimum datasets, QA, change control
- Localisation (where appropriate)
- Incentives (not always financial)
- Audit and feedback
- Sustainable infrastructure to support over the long-term

Further work planned



23rd October 2005

Melbourne

XIII Cochrane Colloquium

Getting more evidence into practice

- Add new CDSS modules
 - Stroke, AF, Cardiac rehabilitation

Generating more evidence

- Validation of data entered into the forms
 - Ethnicity, Risk factors
- Profile of risk factors
 - by ethnicity, by NZ deprivation score, by GeoCode
- Naturalistic study of the impact of PREDICT on outcomes
 - Effect of screening tool on adherence to best practice
 - Subsequent impact of adding CCDS management advice

Acknowledgements

CVD-Diabetes tool development



23rd October 2005

Melbourne

XIII Cochrane Colloquium

- ❑ Many GPs, PNs, and medical/nursing/pharmacy/specialists
- ❑ New Zealand Guidelines Group
- ❑ CVD and Diabetes guideline committees
- ❑ National Cardiovascular Advisory Group
- ❑ Maori Cardiovascular Group
- ❑ Ministry of Health Clinical Services Directorate
- ❑ National Heart Foundation
- ❑ Diabetes NZ
- ❑ PHOs –ProCare, HealthWest,
- ❑ CMDHB (CCM programme, MMH CCU and Whitiara)
- ❑ WDHB (Prompt Evaluation Study)
- ❑ University of Auckland
- ❑ Enigma Publishing Ltd
- ❑ HealthTech Ltd
- ❑ Health Research Council



Acknowledgements

PROMPT evaluation study

23rd October 2005

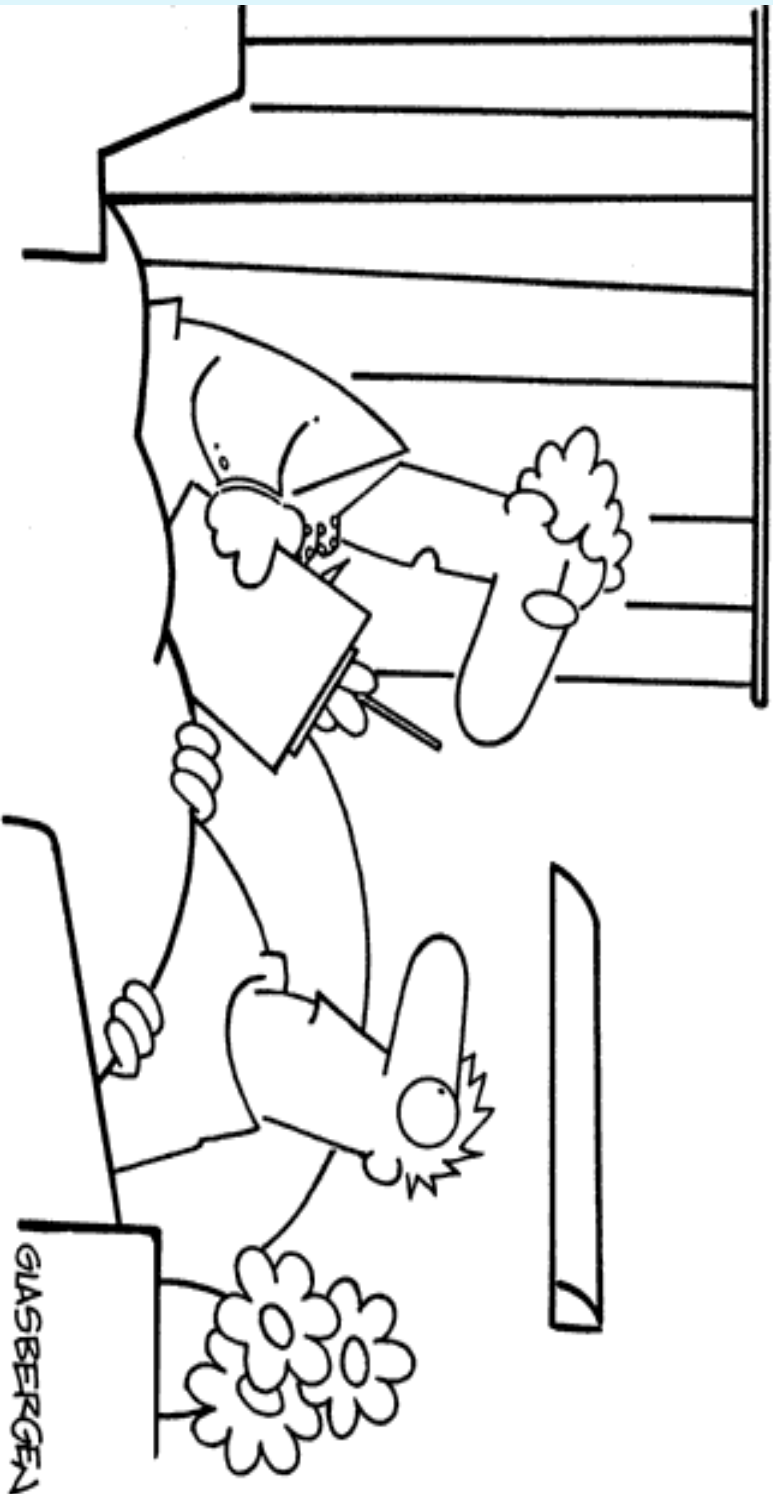
Melbourne

XIII Cochrane Colloquium

- ▣ ProCARE Health Ltd
 - ▣ Elaine Horn
 - ▣ Kate Moodabe
 - ▣ Keith Crump
 - ▣ Paul Roseman
- ▣ Waitemata DHB
 - ▣ Natasha Rafter
 - ▣ Robyn Whittaker
- ▣ University of Auckland
 - ▣ Sue Furness (Project manager)
 - ▣ Vanessa Selak
 - ▣ Alistair Stewart
 - ▣ Rod Jackson
 - ▣ Sue Wells

Thank you
for
your kind attention

Copyright 2002 by Randy Glasbergen. www.glasbergen.com



**“I think you need a heart transplant, my associate
thinks you need a bypass, and our computer
thinks you just need to be rebooted.”**