



# Absolute cardiovascular disease risk: assessment and management in primary health care

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## Overview

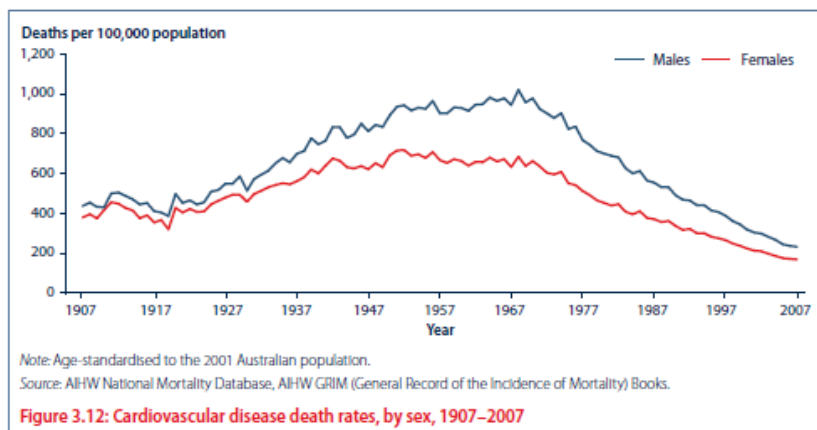
1. Absolute cardiovascular disease (CVD) risk assessment
2. Absolute CVD risk management
3. The current situation
4. Barriers and enablers
5. Key element for implementation of routine absolute CVD assessment and management
6. CHD presentation on practicalities

# Process

- Presentations
- Break for small group work – barriers and enablers
- Parking area

Top 10 causes of total burden (DALY) in Australia, 2011

| People                            | DALY    | % of total |
|-----------------------------------|---------|------------|
| Coronary heart disease            | 346,651 | 7.7        |
| Other musculoskeletal             | 183,947 | 4.1        |
| Back pain & problems              | 163,788 | 3.6        |
| COPD                              | 160,346 | 3.6        |
| Lung cancer                       | 154,890 | 3.4        |
| Dementia                          | 151,308 | 3.4        |
| Anxiety disorders                 | 140,971 | 3.1        |
| Stroke                            | 136,771 | 3.0        |
| Depressive disorders              | 127,659 | 2.8        |
| Suicide & self-inflicted injuries | 113,470 | 2.5        |



- Highly preventable
- Variation: High risk groups

AIHW 2011. Cardiovascular disease: Australian facts 2011.

## What is absolute CVD risk?

The probability of a CVD event occurring in a given time period  
e.g. 15% risk of a CVD event in next 5 years

\*CVD event - heart attack, stroke, heart failure, CVD death

- Assessed on the basis of the combined effect of multiple risk factors
- More accurate assessment than the use of individual risk factors
- Better management – targeting of pharmacotherapy

# How is absolute CVD risk assessed?

## CVD absolute risk assessment algorithms



### National Vascular Disease Prevention Alliance (NVDPA) Algorithm

Assesses risk of CVD event in next 5 years in those without known history of CVD.

Target groups:

- Adults aged 45-74
- Aboriginal and Torres Strait Islander peoples 35-74

### Already known to be at increased risk?

Adults with any of the following conditions do not require absolute CVD risk assessment using the Framingham Risk Equation (FRE) because they are already known to be at clinically determined high risk of CVD: **(EBR Grade D)**

- Diabetes and age >60 years
- Diabetes with microalbuminuria (>20 mcg/min or urinary albumin:creatinine ratio >2.5 mg/mmol for males, >3.5 mg/mmol for females)
- Moderate or severe CKD (persistent proteinuria or estimated glomerular filtration rate (eGFR) <45 mL/min/1.73 m<sup>2</sup>)
- A previous diagnosis of familial hypercholesterolaemia
- Systolic blood pressure ≥180 mmHg or diastolic blood pressure ≥110 mmHg
- Serum total cholesterol >7.5 mmol/L

- Aboriginal and Torres Strait Islander adults aged over 74 **(CBR)**

YES

NO

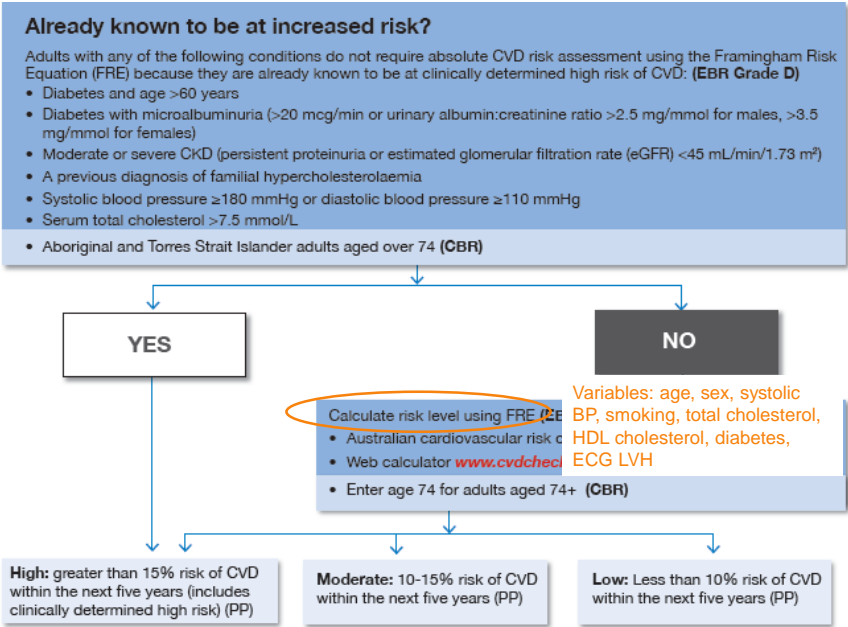
Calculate risk level using FRE **(EBR Grade B)**:

- Australian cardiovascular risk charts
- Web calculator [www.cvdcheck.org.au](http://www.cvdcheck.org.au)
- Enter age 74 for adults aged 74+ **(CBR)**

**High:** greater than 15% risk of CVD within the next five years (includes clinically determined high risk) (PP)

**Moderate:** 10-15% risk of CVD within the next five years (PP)

**Low:** Less than 10% risk of CVD within the next five years (PP)



## Australian absolute cardiovascular disease risk calculator

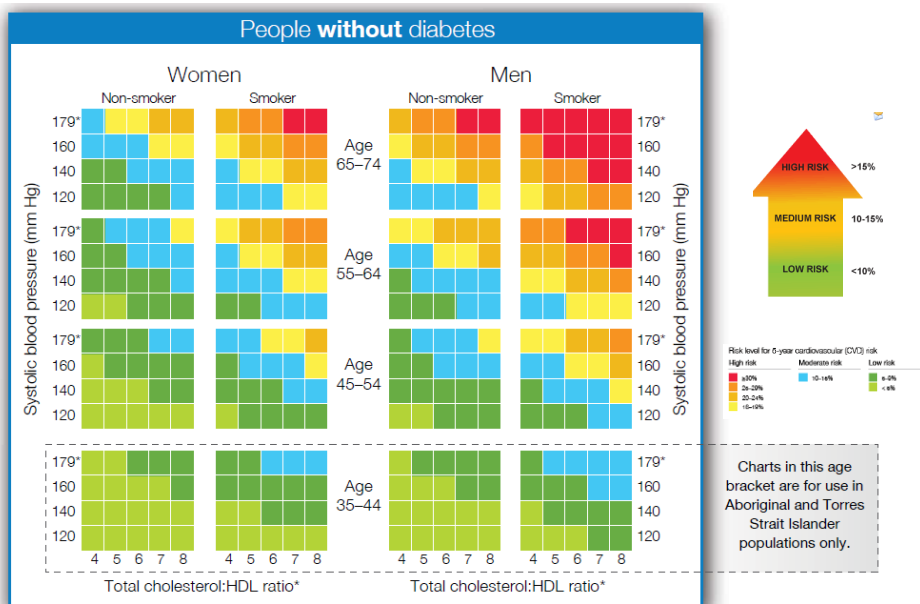
Enter patient information below:

|                         |  |                              |
|-------------------------|--|------------------------------|
| Sex                     | <input type="radio"/> Male   | <input type="radio"/> Female |
| Age                     | <input type="text"/> years   |                              |
| Systolic blood pressure | <input type="text"/> mmHg  |                              |
| Smoking status          | <input type="radio"/> Yes <input type="radio"/> No                               |                              |
| Total cholesterol       | <input type="text"/> mmol/L  |                              |
| HDL cholesterol         | <input type="text"/> mmol/L  |                              |
| Diabetes                | <input type="radio"/> Yes <input type="radio"/> No                               |                              |
| ECG LVH                 | <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown |                              |

An initiative of the National Vascular Disease Prevention Alliance  
10/34 - Web version 1/2012/2015



<http://www.cvdcheck.org.au/>



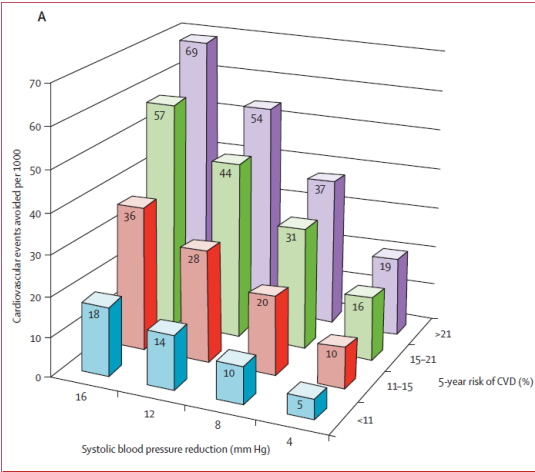
## Preventing CVD: absolute risk & pharmacotherapy

The potential of treatments, incl. blood-pressure and lipid-lowering medications, to reduce CVD events is more closely related to an individual's **absolute CVD risk** than to isolated individual risk factors.

Treatment according to absolute CVD risk optimises benefits, harms and costs.



Absolute risk of major vascular events: BP lowering

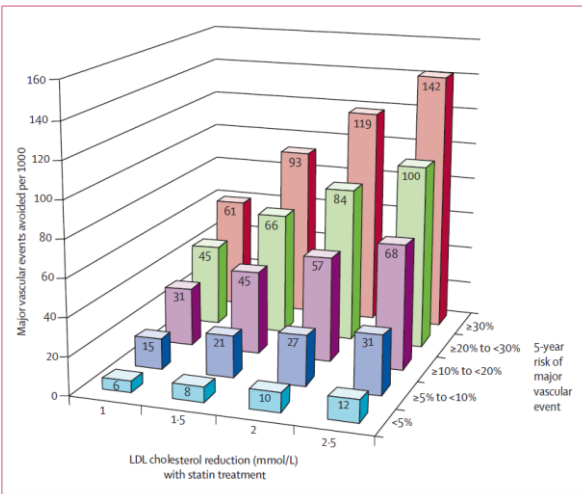


Consistent reduction in relative risk of CVD events: ~17% lower, per 5mmHg reduction in systolic BP

Greater absolute benefit in those at high risk

Ref: The Blood Pressure Lowering Treatment Trialists' Collaboration. Lancet 2014; 384: 591-98

Absolute risk of major vascular events: statins



22% reduction in major CVD events, per 1mmol/L reduction in LDL cholesterol

Greater absolute benefit in those at high risk.

Ref: Cholesterol Treatment Trialists' (CTT) Collaboration. Lancet 2012; 380: 581-90

| CVD risk   | Lifestyle   | Pharmacotherapy   | Monitoring  |
|--|---|---|---|
| <b>HIGH RISK</b><br><br>Clinically determined or calculated using FRE as >15% absolute risk of CVD events over 5 years | <p>Frequent and sustained specific advice and support regarding diet and physical activity.</p> <p>Appropriate advice, support and pharmacotherapy for smoking cessation.</p> <p>Advice given simultaneously with BP and lipid lowering drug treatment.</p> | <p>Treat simultaneously with lipid lowering and BP lowering unless contraindicated or clinically inappropriate.</p> <p>Aspirin not routinely recommended.</p> <p>Consider withdrawal of therapy for people who make profound lifestyle changes.</p> | <p>Review response 6-12 weekly until sufficient improvement or maximum tolerated dose achieved.</p> <p>Adjust medication as required.</p> <p>Review of absolute risk according to clinical context.</p> |

|   |  |  |  |
|---|--|--|--|
| <b>MODERATE RISK</b><br><br>Calculated using FRE as 10-15% absolute risk of CVD events over 5 years | <p>Appropriate, specific advice and support regarding diet and physical activity.</p> <p>Appropriate advice, support and pharmacotherapy for smoking cessation.</p> <p>Lifestyle advice given in preference to drug therapy.</p> | <p>Not routinely recommended.</p> <p>Consider BP lowering and/or lipid lowering in addition to lifestyle advice if 3-6 months of lifestyle intervention does not reduce risk or:</p> <ul style="list-style-type: none"><li>• BP persistently <math>\geq 160/100</math> mmHg</li><li>• Family history of premature CVD</li><li>• Specific population where the FRE underestimates risk e.g. A&amp;TSI peoples, South Asian, Maori and Pacific Islander, Middle Eastern.</li></ul> <p>Consider withdrawal of therapy for people who make profound lifestyle changes.</p> | <p>Review response 6-12 weekly until sufficient improvement or maximum tolerated dose achieved.</p> <p>Adjust medication as required.</p> <p>Review absolute risk every 6–12 months.</p> |
|---|--|--|--|



|  |   |   |   |
|--|---|---|---|
| <b>LOW RISK</b><br><br>Calculated using FRE as <10% absolute risk of CVD events over 5 years | Brief, general lifestyle advice regarding diet and physical activity.<br><br>Appropriate advice, support and pharmacotherapy for smoking cessation. | Not routinely recommended.<br><br>Consider BP lowering therapy in addition to specific lifestyle advice if BP persistently $\geq 160/100$ mmHg.<br><br>Consider withdrawal of therapy for people who make profound lifestyle changes. | Review response 6-12 weekly until sufficient improvement or maximum tolerated dose achieved.<br><br>Adjust medication as required.<br><br>Review absolute risk every 2 years.<br><br>Blood test results within 5 years can be used. |
|--|---|---|---|

| Targets  |  |   |
|--|--|---|
| BP:<br>≤140/90 mmHg in general or people with CKD;<br>≤130/80 mmHg in all people with diabetes;<br>≤130/80 mmHg if micro or macro albuminuria (UACR > 2.5 mg/mmol in men and >3.5 mg/mmol in women). | Lipids:<br>TC <4.0 mmol/L;<br>HDL-C ≥1.0 mmol/L;<br>LDL-C <2.0 mmol/L;<br>Non HDL-C <2.5 mmol/L; TG <2.0 mmol/L. | Lifestyle:<br>Smoking cessation (if smoker); consume diet rich in vegetables and fruit, low in salt and saturated and trans fats; at least 30 mins physical activity on most or preferably every day of the week; limit alcohol intake. |

## Study: Absolute risk of cardiovascular disease events and blood pressure- and lipid-lowering therapy in Australia<sup>1</sup>

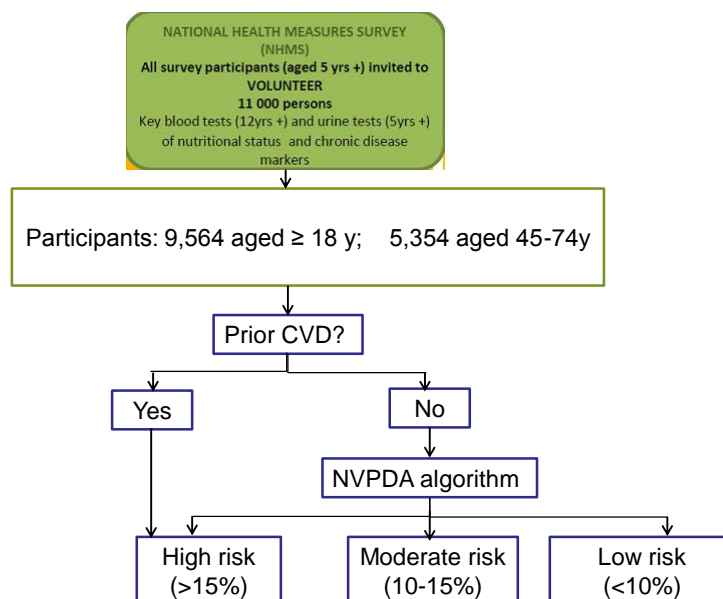
### Aims

To quantify, in the Australian population:

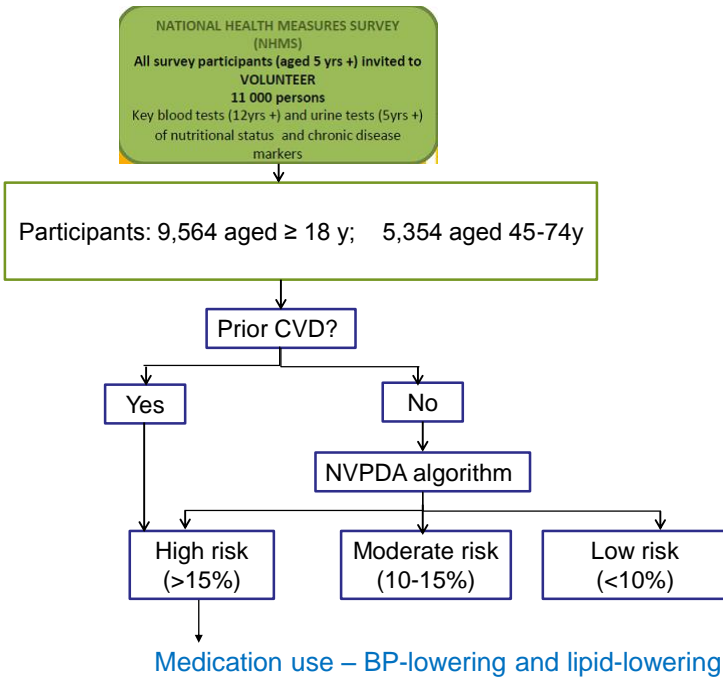
- absolute CVD risk
- treatment with BP- and lipid-lowering medications

Ref: Banks E, Crouch SR, Korda RJ, et al. Med J Aust 2016;204(8):320

### Methods

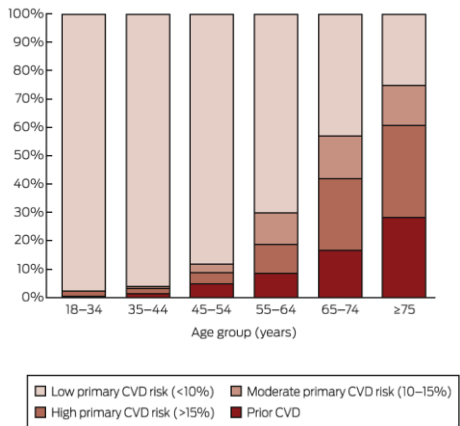


Methods



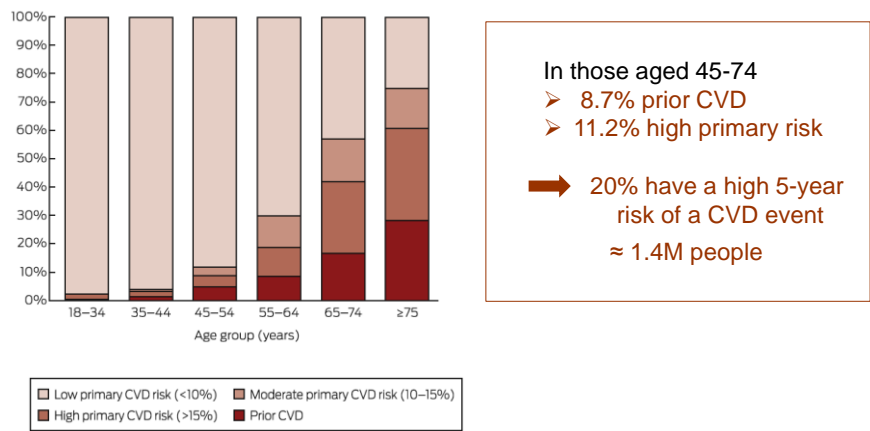
Results: Absolute CVD risk

Estimated distribution of prior CVD and absolute 5-year risk of primary CVD event by age group: Australian adult population



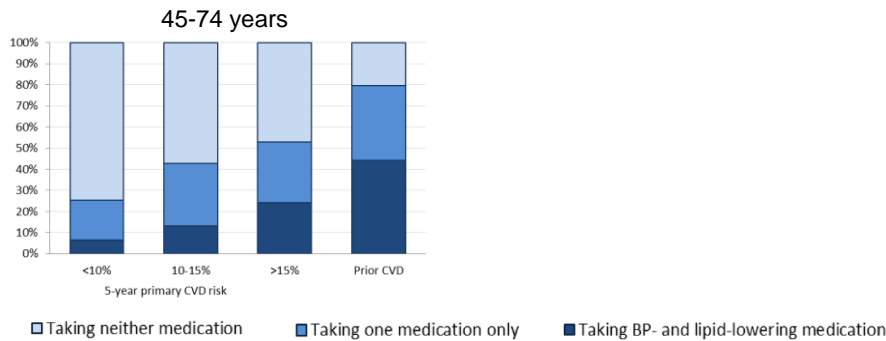
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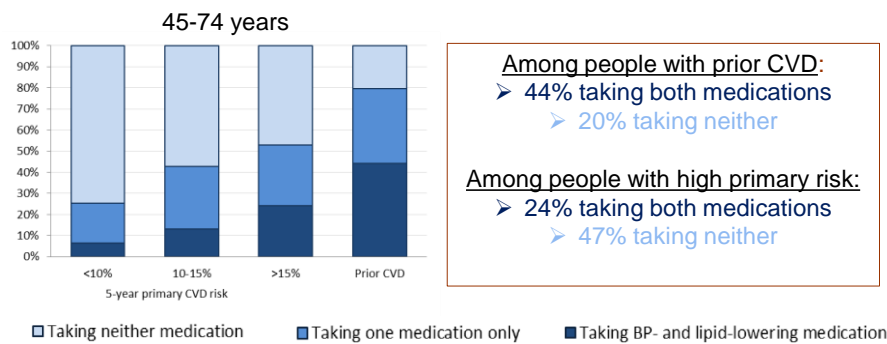
Results: Treatment

Estimated distribution of blood pressure (BP)- and/or lipid-lowering medications, by absolute CVD risk



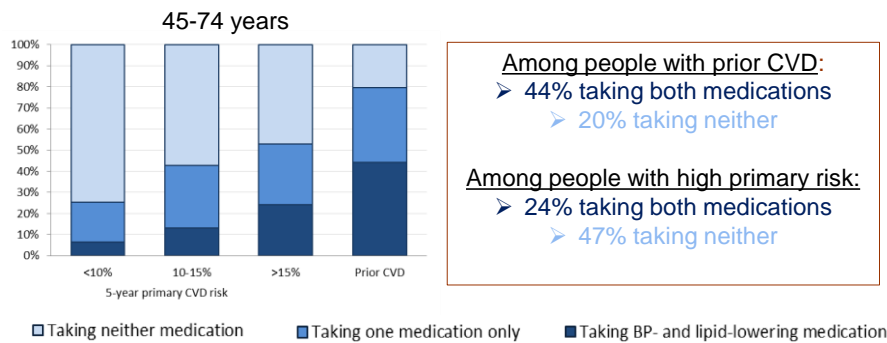
Results: Treatment

Estimated distribution of blood pressure (BP)- and/or lipid-lowering medications, by absolute CVD risk



Results: Treatment

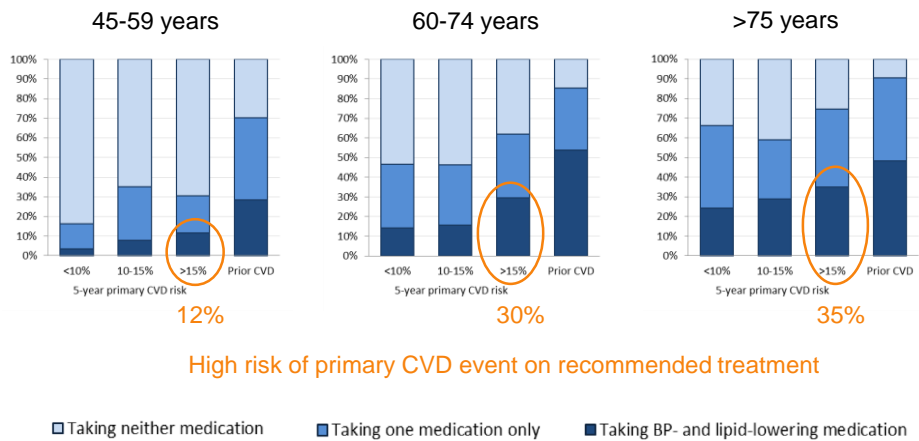
Estimated distribution of blood pressure (BP)- and/or lipid-lowering medications, by absolute CVD risk



~970,000 people - 13% of Australian population aged 45-74 – are at high risk and not receiving combination treatment

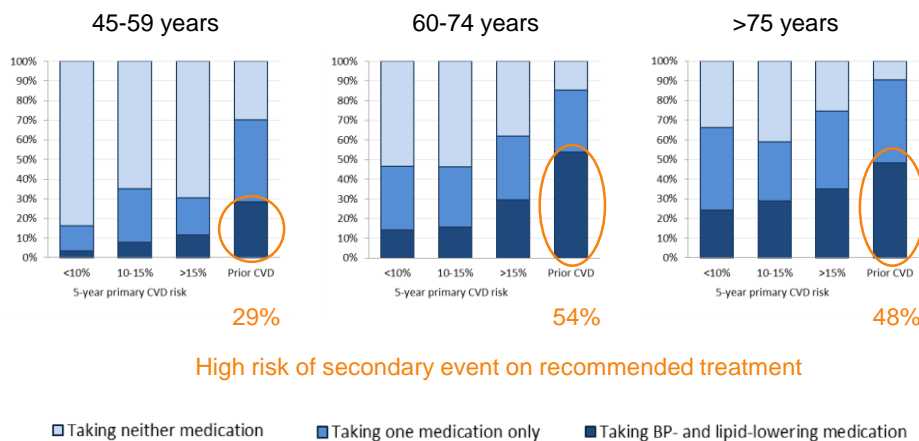
Results: Treatment

Estimated distribution of blood pressure (BP)- and/or lipid-lowering medications, by absolute CVD risk, separately by age group



Results: Treatment

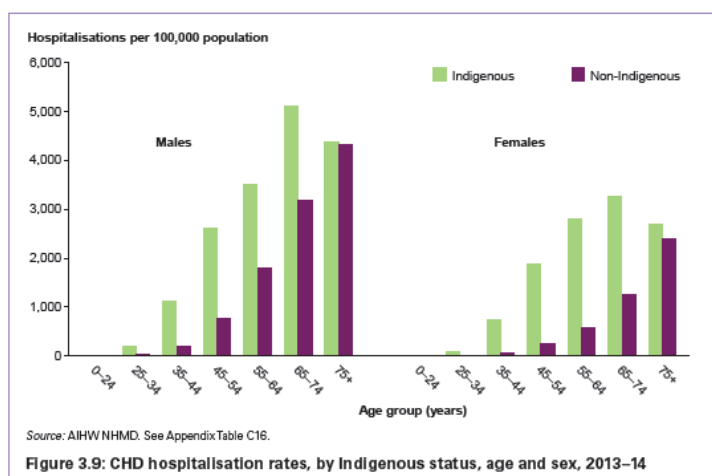
Estimated distribution of blood pressure (BP)- and/or lipid-lowering medications, by absolute CVD risk, separately by age group

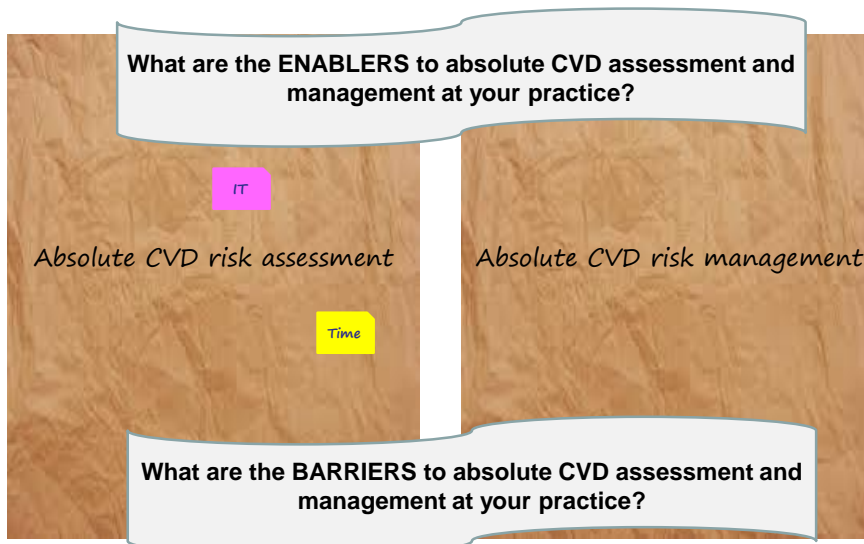


## Summary



- 20% of Australian population aged 45-74 – risk >15%
  - ~1.4M individuals
- Evidence of treatment variation according to risk
- Two-thirds not receiving recommended treatment
- 13% of Australian population aged 45-74 – risk >15% and not receiving combination treatment
  - ~970,000 individuals
- Tens of thousands of CVD events potentially preventable
- Potential cost-savings





## What we know about successful implementation

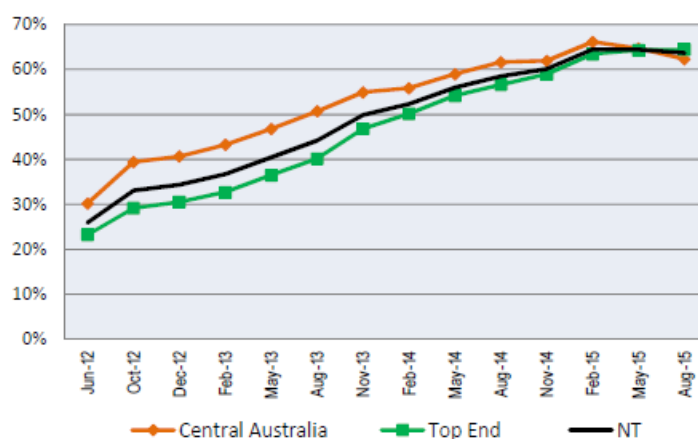
- Health providers endorsement of intervention (Liu, 2015)
- 'Local champions' at service level (Liu, 2015)
- Central IT system with comprehensive CQI and tight feedback loop (Burgess et al., 2015)
  - IT with minimal support doesn't work (Peiris et al., 2015)
- Health service commitment to identify and follow-up with patients at high risk (Burgess et al., 2015)
- Partnership with expertise and leadership at all levels



## Successful implementation of absolute CVD risk assessment and management (Burgess et al., 2015)

- Northern Territory primary health care services
- Partnership between NT Government, primary health care services, researchers
- Feedback and ongoing support for health service
  - Monthly functional 'Recall list'
  - Quarterly functional 'Traffic Light Report'
  - Six monthly 'Trend reports'
- Clients due chronic disease care identified by 'recall list' and contacted by health service

### Northern Territory: Proportion population with absolute CVD risk assessment





## Aspects of other programs achieving population coverage

### Cancer screening

- E.g. BreastScreen Australia; National Bowel Cancer Screening Program; National Cervical Cancer Screening Program
- Reminders/invitations to patients
- Free/low cost
- Support for health services and patients



## Opportunity to improve health outcomes

- Implementation of absolute CVD risk assessment and management guidelines important
- Evaluation can provide novel evidence to support implementation widely
- Opportunity for research, policy and practice partnerships



## Acknowledgements

- AHS and NATSIHMS study participants
- Aboriginal Reference Group on Cardiovascular Health
- Australian Bureau of Statistics
- Heart Foundation of Australia
- National Health and Medical Research Council of Australia

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