Absolute cardiovascular disease risk: assessment, management and implementation

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Overview: Three sessions


2. Barriers and enablers. Systems to increase uptake that have been trialled

3. Embedding systems and optimising therapy
Process

- Presentations
- Small group discussions with ANU academics and CHN practice support team
- Case presentations

(There is some homework)

- Interactive. Ask questions. Parking area
Overview: Tonight

1. Absolute CVD risk assessment and management
2. Current knowledge and attitudes among participants
3. The current situation in Australia
4. Practicalities in assessment and recall
Challenges with education in primary health care

Constant new evidence

Competing priorities for time

Importance of comprehensive primary health care
Research principles

• Expertise lies within each clinic
• No ‘one size fits all’
• Talking between clinics will help breed new ideas
• Need to hear from coal-face to create systems that work

Completely voluntary and opt-in
# Top 10 causes of total burden (DALY) in Australia, 2011

<table>
<thead>
<tr>
<th>People</th>
<th>DALY</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary heart disease</td>
<td>346,651</td>
<td>7.7</td>
</tr>
<tr>
<td>Other musculoskeletal</td>
<td>183,947</td>
<td>4.1</td>
</tr>
<tr>
<td>Back pain &amp; problems</td>
<td>163,788</td>
<td>3.6</td>
</tr>
<tr>
<td>COPD</td>
<td>160,346</td>
<td>3.6</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>154,890</td>
<td>3.4</td>
</tr>
<tr>
<td>Dementia</td>
<td>151,308</td>
<td>3.4</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>140,971</td>
<td>3.1</td>
</tr>
<tr>
<td>Stroke</td>
<td>136,771</td>
<td>3.0</td>
</tr>
<tr>
<td>Depressive disorders</td>
<td>127,659</td>
<td>2.8</td>
</tr>
<tr>
<td>Suicide &amp; self-inflicted injuries</td>
<td>113,470</td>
<td>2.5</td>
</tr>
</tbody>
</table>
- Highly preventable
- Variation: High risk groups
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 m²)
- 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)**
**Highest risk**

Those with previous cardiovascular disease

“Best predictor of a heart attack is a previous heart attack”
Variables: age, sex, systolic BP, smoking, total cholesterol, HDL cholesterol, diabetes, ECG LVH

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 m²)
- 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

Calculate risk level using FRE (EBR)

- Australian cardiovascular risk calculator
- Web calculator www.cvdcheck.org
- 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)

NO
Australian absolute cardiovascular disease risk calculator

Enter patient information below:

Sex: Male
Age: 66 years
Systolic blood pressure: 120 mmHg
Smoking status: Yes
Total cholesterol: 6 mmol/L
HDL cholesterol: 1.5 mmol/L
Diabetes: Yes
ECG LVH: Yes

Your heart and stroke risk score is 19%.
This means you are at high risk of getting cardiovascular disease in the next 5 years.

Click here if you would like to have a look at the information on this website that explains what your risk scores mean.

The next step is to talk to your doctor about what steps you can take to lower your chance of getting cardiovascular disease.

Please note: the absolute risk calculator score is only a guide to your heart and stroke risk score. Print out this page and take it to your doctor for further information on your personal risk.

View guidelines and resources

An initiative of the National Vascular Disease Prevention Alliance

15.05 - Friday 15/1/2013

http://www.cvdcheck.org.au/
**Result 2**

Your heart and stroke risk score is **10%**

This means you are at moderate (medium) risk of getting cardiovascular disease in the next 5 years.

**Click here** if you would like to have a look at the information on this website that explains what your risk score means.

The next step is to talk to your doctor about what steps you can take to lower your chance of getting cardiovascular disease.

**Please note:** the absolute risk calculator score is only a guide to your heart and stroke risk score. Print out this page and take it to your doctor for further information on your personal risk.

**View guidelines and resources**

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**Result 1**

Your heart and stroke risk score is **19%**

This means you are at high risk of getting cardiovascular disease in the next 5 years.

**Click here** if you would like to have a look at the information on this website that explains what your risk score means.

The next step is to talk to your doctor about what steps you can take to lower your chance of getting cardiovascular disease.

**Please note:** the absolute risk calculator score is only a guide to your heart and stroke risk score. Print out this page and take it to your doctor for further information on your personal risk.

**View guidelines and resources**
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

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.

<table>
<thead>
<tr>
<th>CVD risk</th>
<th>Lifestyle</th>
<th>Pharmacotherapy</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIGH RISK</strong></td>
<td>Frequent and sustained specific advice and support regarding diet and physical activity.</td>
<td>Treat simultaneously with lipid lowering and BP lowering unless contraindicated or clinically inappropriate.</td>
<td>Review response 6-12 weekly until sufficient improvement or maximum tolerated dose achieved.</td>
</tr>
<tr>
<td>Clinically determined or calculated using FRE as &gt;15% absolute risk of CVD events over 5 years</td>
<td>Appropriate advice, support and pharmacotherapy for smoking cessation.</td>
<td>Aspirin not routinely recommended.</td>
<td>Adjust medication as required.</td>
</tr>
<tr>
<td></td>
<td>Advice given simultaneously with BP and lipid lowering drug treatment.</td>
<td>Consider withdrawal of therapy for people who make profound lifestyle changes.</td>
<td>Review of absolute risk according to clinical context.</td>
</tr>
</tbody>
</table>
Why no aspirin?

Antithrombotic Trialists’ (ATT) Collaboration
6 trials > 90,000 individuals. Average follow-up 6.5 years
All cause mortality: no effect
CV events: Decrease, mainly non-fatal MI in men

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent CV event</td>
<td>4 per 1,000</td>
<td>3 per 1,000</td>
</tr>
<tr>
<td>Major GI bleed</td>
<td>3 per 1,000</td>
<td>2.5 per 1,000</td>
</tr>
</tbody>
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| MODERATE RISK | Appropriate, specific advice and support regarding diet and physical activity. | Not routinely recommended. Consider BP lowering and/or lipid lowering in addition to lifestyle advice if 3-6 months of lifestyle intervention does not reduce risk or:  
  - BP persistently ≥160/100 mmHg  
  - Family history of premature CVD  
  - Specific population where the FRE underestimates risk e.g. A&TSI peoples, South Asian, Maori and Pacific Islander, Middle Eastern.  
  Consider withdrawal of therapy for people who make profound lifestyle changes. | Review response 6-12 weekly until sufficient improvement or maximum tolerated dose achieved.  
Adjust medication as required.  
Review absolute risk every 6-12 months. |

Calculated using FRE as 10-15% absolute risk of CVD events over 5 years.
When does the calculator underestimate risk?

- Specific populations
  - Aboriginal and Torres Strait Islander, Maori, South Asian, Pacific Islander, Middle Eastern
- Specific diagnoses
  - Diabetes
  - Depression
  - Atrial fibrillation
- People from low socio-economic backgrounds
- Family history of CVD before 55
The importance of lifestyle interventions

- RCT of smoking cessation intervention
- 21.7% vs 5.4% quit
- Significant reduction in all-cause mortality among treatment group

The importance of lifestyle interventions

**Exercise**

“Effect sizes for specific activities range from 30% to 40% relative risk reductions for CVD and 19% to 33% risk reductions for all-cause mortality.”

**Diet**

“The risk of CHD decreased by 4% for each additional portion of vegetables and fruit intake per day.”

“adherence to a Mediterranean diet is associated with a significant improvement in health status “ (9% relative risk reduction in overall and CVD specific mortality)
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<th>Pharmacotherapy</th>
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</thead>
<tbody>
<tr>
<td>LOW RISK</td>
<td>Brief, general lifestyle advice regarding diet and physical activity. Appropriate advice, support and pharmacotherapy for smoking cessation.</td>
<td>Not routinely recommended. Consider BP lowering therapy in addition to specific lifestyle advice if BP persistently ≥160/100 mmHg. Consider withdrawal of therapy for people who make profound lifestyle changes.</td>
<td>Review response 6-12 weekly until sufficient improvement or maximum tolerated dose achieved. Adjust medication as required. Review absolute risk every 2 years. Blood test results within 5 years can be used.</td>
</tr>
</tbody>
</table>

- **CVD risk**
  - Calculated using FRE as <10% absolute risk of CVD events over 5 years.
**Targets**

**BP:**
- ≤140/90 mmHg in general or people with CKD;
- ≤130/80 mmHg in all people with diabetes;
- ≤130/80 mmHg if micro or macro albuminuria (UACR > 2.5 mg/mmol in men and >3.5 mg/mmol in women).

**Lipids:**
- TC <4.0 mmol/L;
- HDL-C ≥1.0 mmol/L;
- LDL-C <2.0 mmol/L;
- Non-HDL-C <2.5 mmol/L; TG <2.0 mmol/L.

**Lifestyle:**
- 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.
Acknowledgements

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Contact

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