Chronic disease and risk factor multiplicity: who should be targeted?

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Organisations involved

- SA Department of Human Services
  Population Research & Outcome Studies Unit
  (formerly the Centre for Population Studies in Epidemiology)

- The Queen Elizabeth Hospital

- Lyell McEwin Health Service

- The University of Adelaide

- University of South Australia
Prevalence

Health problems

◆ diabetes
◆ asthma
◆ chronic obstructive pulmonary disease (bronchitis and emphysema)

Risk factors

◆ smoking
◆ high alcohol intake
◆ family history of diabetes, stroke, heart disease
◆ insufficient physical inactivity
◆ overweight/obesity - using body mass index (BMI)
◆ high central adiposity - using waist and hip measurements
◆ high blood pressure
◆ high total blood cholesterol
Chronic disease continuum

Improved health status / Deteriorating health status

- Not at risk
- At risk
- Previously undiagnosed
- Diagnosed without comorbidity
- Diagnosed with comorbidity
- Death

Prevention
Delay / Early Detection
Prevention / Delay / Early Detection / Care
Approaches to chronic disease

- Chronic disease - 70% of the total burden of illness in Aust… predicted to increase to 80% by 2020

- NPHP recommended move away from “silo” or “coat hook” approach … towards a cluster approach that:
  - closes advantage gap between populations
  - makes better use of the health $ - similarities between strategies that tackle unhealthy behaviours across the lifecourse
  - by recognising the cumulative effect of social and biological influences throughout life
Methods & results - overall

- Random recruitment – using CATI (Computer Assisted Telephone Interview)
- Self-administered questionnaire
- Attendance at clinic
- n=2523, participation rate of 69.1%
## Risk factor cut-offs

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Cut-off Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High blood pressure</td>
<td>Systolic $\geq 140$ mmHg, diastolic $\geq 90$ mmHg</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>Fasting blood sample, $&gt;5.5$ mmol/L</td>
</tr>
<tr>
<td>Overweight/obesity</td>
<td>Body mass index (BMI) – overweight 25 to 30, obesity $&gt;30$</td>
</tr>
<tr>
<td>High central adiposity</td>
<td>Waist/hip ratio – men $&gt;1.0$, women $&gt;0.85$</td>
</tr>
<tr>
<td>Smoking</td>
<td>Current smoker</td>
</tr>
<tr>
<td>High alcohol intake</td>
<td>Intermediate to very high alcohol risk – men aver 5+ drinks/day, or occas excess, women aver 4+ drinks/day, or 9-12 drinks in any 1 day, or occas excess</td>
</tr>
<tr>
<td>Insufficient physical activity</td>
<td>$&lt;150$ minutes/week of walking, moderate or vigorous exercise</td>
</tr>
<tr>
<td>Family history of heart disease, diabetes, stroke</td>
<td>Condition present in first degree relative</td>
</tr>
</tbody>
</table>
Risk factor multiplicity

- **Diabetes**
  - No risk factors: 91.2%
  - 1 risk factor: 1.8%
  - 2+ risk factors: 7.0%

- **Asthma**
  - No risk factors: 80.5%
  - 1 risk factor: 2.8%
  - 2+ risk factors: 16.8%

- **COPD**
  - No risk factors: 81.2%
  - 1 risk factor: 5.3%
  - 2+ risk factors: 13.5%
Risk factor multiplicity

Risk factors

<table>
<thead>
<tr>
<th>Percentage (%)</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1 to 3</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>4 to 5</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>6 to 8</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

* p<0.05
WOMEN … across the lifecourse

- **Current smoker**: 60.7% (18-39 yrs), 30.8% (40-59 yrs), 8.5% (60+ yrs)
- **High alcohol risk**: 52.4% (18-39 yrs), 32.9% (40-59 yrs), 14.7% (60+ yrs)
- **Insuff Physical Activity**: 41.9% (18-39 yrs), 30.5% (40-59 yrs), 27.7% (60+ yrs)
- **Family history**: 40.6% (18-39 yrs), 33.1% (40-59 yrs), 26.3% (60+ yrs)
- **Overwt/obesity (BMI)**: 30.5% (18-39 yrs), 36.9% (40-59 yrs), 32.6% (60+ yrs)
- **High chol**: 25.2% (18-39 yrs), 39.7% (40-59 yrs), 35.1% (60+ yrs)
- **High central adiposity**: 18.5% (18-39 yrs), 38.9% (40-59 yrs), 42.6% (60+ yrs)
- **High blood pressure**: 11.8% (18-39 yrs), 29.4% (40-59 yrs), 58.9% (60+ yrs)
MEN … across the lifecourse

**Current smoker**
- 18-39 yrs: 61.0%
- 40-59 yrs: 31.0%
- 60+ yrs: 8.0%

**High alcohol risk**
- 18-39 yrs: 57.2%
- 40-59 yrs: 29.6%
- 60+ yrs: 13.2%

**Family history**
- 18-39 yrs: 46.0%
- 40-59 yrs: 33.7%
- 60+ yrs: 20.2%

**Insuff Physical Activity**
- 18-39 yrs: 44.2%
- 40-59 yrs: 35.2%
- 60+ yrs: 20.7%

**Overwt/obesity (BMI)**
- 18-39 yrs: 38.3%
- 40-59 yrs: 37.1%
- 60+ yrs: 24.6%

**High chol**
- 18-39 yrs: 36.3%
- 40-59 yrs: 41.9%
- 60+ yrs: 21.8%

**High blood pressure**
- 18-39 yrs: 20.9%
- 40-59 yrs: 40.4%
- 60+ yrs: 38.7%

**High central adiposity**
- 18-39 yrs: 16.2%
- 40-59 yrs: 50.0%
- 60+ yrs: 33.8%
Those participants with a more disadvantaged socio-economic position... across the lifecourse

**Women**
- Living alone: 55.1% 18-39 yrs, 16.8% 40-59 yrs, 28.2% 60+ yrs
- Secon school only: 34.2% 18-39 yrs, 31.3% 40-59 yrs, 34.4% 60+ yrs
- Not in workforce: 29.9% 18-39 yrs, 25.0% 40-59 yrs, 45.1% 60+ yrs
- Not born in Aust: 29.3% 18-39 yrs, 38.2% 40-59 yrs, 32.5% 60+ yrs
- Income <= $30,000: 27.0% 18-39 yrs, 25.0% 40-59 yrs, 48.0% 60+ yrs
- On a pension: 20.4% 18-39 yrs, 21.4% 40-59 yrs, 58.2% 60+ yrs

**Men**
- Living alone: 69.0% 18-39 yrs, 20.1% 40-59 yrs, 10.9% 60+ yrs
- Secon school only: 52.1% 18-39 yrs, 27.2% 40-59 yrs, 20.7% 60+ yrs
- Not in workforce: 32.2% 18-39 yrs, 17.2% 40-59 yrs, 50.6% 60+ yrs
- Not born in Aust: 22.4% 18-39 yrs, 41.1% 40-59 yrs, 36.5% 60+ yrs
- Income <= $30,000: 24% 18-39 yrs, 22.6% 40-59 yrs, 53.4% 60+ yrs
- On a pension: 22.6% 18-39 yrs, 17.9% 40-59 yrs, 59.3% 60+ yrs
Chronic disease by lifecourse stage

**Women**

- **COPD**
  - 18-39 yrs: 50.0%
  - 40-59 yrs: 28.4%
  - 60+ yrs: 21.6%

- **Asthma**
  - 18-39 yrs: 49.8%
  - 40-59 yrs: 24.9%
  - 60+ yrs: 25.4%

- **Diabetes**
  - 18-39 yrs: 7.8%
  - 40-59 yrs: 29.4%
  - 60+ yrs: 62.7%

- **Imp Fasting Gluc**
  - 18-39 yrs: 3.4%
  - 40-59 yrs: 37.9%
  - 60+ yrs: 58.7%

**Men**

- **COPD**
  - 18-39 yrs: 45.5%
  - 40-59 yrs: 30.5%
  - 60+ yrs: 24.0%

- **Asthma**
  - 18-39 yrs: 40.5%
  - 40-59 yrs: 29.4%
  - 60+ yrs: 30.1%

- **Diabetes**
  - 18-39 yrs: 7.7%
  - 40-59 yrs: 32.7%
  - 60+ yrs: 59.5%

- **Imp Fasting Gluc**
  - 18-39 yrs: 20.4%
  - 40-59 yrs: 47.9%
  - 60+ yrs: 31.7%
Top 3 for women and men looking at each lifecourse stage

Young years (18-39)

- Smoking – both sexes
- High alcohol intake – both sexes
- Insufficient physical activity – women
- Family history of heart disease/diabetes/stroke – men

Living alone – both sexes, secondary school highest educ level – both but men much higher proportion, not in workforce – both sexes
Top 3 for women and men looking at each lifecourse stage

Middle years (40-59)

- High cholesterol – both sexes
- High central adiposity – both sexes
- Overweight/obesity - women
- High blood pressure – men

Not born in Aust, secondary school highest educ level, household income <= $30,000
Top 3 for women and men looking at each lifecourse stage

Older years (60+)

- High blood pressure – both sexes
- High central adiposity – both sexes
- High cholesterol - women
- Overweight/obesity – men

On a DSS pension – both sexes, household income <= $30,000 – both sexes, not in workforce – both sexes
Take home message

“Genes load the gun. Lifestyle pulls the trigger.”

Dr Elliot Joslin
Contact details

- North West Adelaide Health Study website
  http://www.nwadelaidehealthstudy.org

- Population Research & Outcome Studies Unit
  (SA Department of Human Services)