Addressing the burden of chronic vascular diseases among Indigenous Australians

Prof. Alan Cass
Director Renal Division
The George Institute
acass@george.org.au

Director Poche Indigenous Health Centre
University of Sydney
Standardised Death Rates (per 100,000) Australia and other developed countries

© The George Institute
Trends in directly standardised mortality for Indigenous people and for all Australia

© The George Institute

National Strategic Framework for Aboriginal and Torres Strait Islander Health 2003-2013
Potentially avoidable deaths by Aboriginality and sex, persons aged under 75 years, NSW 1998 to 2004

Rate per 100,000 population

Premature deaths: Aboriginal

Avoidable deaths: Aboriginal

Premature deaths: Non-Aboriginal

Avoidable deaths: Non-Aboriginal

Centre for Epidemiology and Research, NSW Department of Health

© The George Institute
Burden of heart disease, diabetes and kidney disease

- Compared with non-Indigenous Australians, Aboriginal and Torres Strait Islander people have:
  - 14 times higher mortality diabetes
  - 8 times higher mortality chronic kidney disease
  - 5 times higher mortality heart disease

AIHW Chronic Disease and Associated Risk Factors 2006

© The George Institute
## Chronic disease burden

**Table 5.14: Average years of life lost because of chronic diseases, Indigenous and other Australians, 2001 to 2003**

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenous Australians</td>
<td>Other Australians</td>
<td>Indigenous Australians</td>
<td>Other Australians</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>21.2</td>
<td>12.1</td>
<td>18.6</td>
<td>8.6</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>15.0</td>
<td>10.0</td>
<td>13.7</td>
<td>8.8</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>19.0</td>
<td>14.2</td>
<td>24.0</td>
<td>16.9</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>16.3</td>
<td>14.7</td>
<td>20.6</td>
<td>15.2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>22.9</td>
<td>19.7</td>
<td>14.2</td>
<td>11.2</td>
</tr>
<tr>
<td>COPD</td>
<td>15.0</td>
<td>10.0</td>
<td>18.9</td>
<td>12.0</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>26.7</td>
<td>9.8</td>
<td>25.3</td>
<td>9.2</td>
</tr>
</tbody>
</table>

**Notes**

1. Years of life lost = the expected years of life remaining at age of death for males and females in the general Australian population.
2. Data are limited to Western Australia, South Australia, Northern Territory and Queensland.

*Source*: AIHW National Mortality Database.
Burden hospitalisation 2004-5

5.5M hospitalisations

1 in 4 hospitalisations

Excludes admission for dialysis

© The George Institute

AIHW cat. no. CVD37 2007
<table>
<thead>
<tr>
<th>Primary Diagnosis</th>
<th>Admissions</th>
<th>Rate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endocrine (mostly diabetes)</td>
<td>6,325</td>
<td>4X</td>
</tr>
<tr>
<td>Circulatory</td>
<td>9,818</td>
<td>2X</td>
</tr>
<tr>
<td>Injury/ poisoning/ external</td>
<td>25,258</td>
<td>2X</td>
</tr>
<tr>
<td>Dialysis</td>
<td>128,684</td>
<td>16X</td>
</tr>
</tbody>
</table>

Burden of Disease: Indigenous Australians Hospitalisation

© The George Institute
Chronic vascular/metabolic diseases
Indigenous Australians

CHD

Diabetes

CKD
## Health expenditure

Estimated expenditures on health services for Australian Indigenous people, 1995–96 to 2004–05

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% population Indigenous</td>
<td>2.0</td>
<td>2.2</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>% health expenditure Indigenous</td>
<td>2.2</td>
<td>2.6</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Indigenous/non-Indigenous expenditure ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State &amp; territory governments</td>
<td>2.23</td>
<td>2.40</td>
<td>2.41</td>
<td>2.31</td>
</tr>
<tr>
<td>Federal government</td>
<td>n.a.</td>
<td>0.84</td>
<td>0.86</td>
<td>0.93</td>
</tr>
<tr>
<td>Total</td>
<td>1.08</td>
<td>1.22</td>
<td>1.18</td>
<td>1.17</td>
</tr>
</tbody>
</table>

© The George Institute  

Source: AIHW 2008
Indigenous ESKD incidence 1993-1998

Incidence (per million)
- 0 to 99
- 100 to 299
- 300 to 469
- 470 to 769
- 770 to 1300

MJA 2001, 175: 24 - 27

© The George Institute
Disadvantage and Indigenous ESKD incidence

(circle size proportional to regional population)

Rank from 1 = least to 36 = most disadvantaged region
SIR = 1 for total Australian resident population

Rank of socioeconomic disadvantage

Ethnicity & Disease 2002; 12 (3): 373-8

© The George Institute
Rural Patient View
Vascular Diseases - Modifiable risk factors

Lower risk group:
- Tobacco
- Obesity
- Low F&V intake

Higher risk group:
- ‘Hypertension’
- Diabetes
- CKD
- Social emotional well-being
- ‘High cholesterol’

CVD
Too many guidelines?

© The George Institute
Chronic/Cardiovascular Disease Guidelines

> Multiple, Complex, Conflicting
> Involve estimation of absolute cardiovascular risk but not well linked to management advice
> Poor consensus on how to stratify and manage CVD risk for Aboriginal people
New Zealand

Risk level men

5 year CVD risk (non-fatal and fatal)

Very High
Moderate
High
Mild
<2.5%
2.5-5%
10-15%
15-20%
>20%

© The George Institute
The Kanyini Vascular Collaboration
www.kvc.org.au
Kanyini Vascular Collaboration

Kanyini: “to have, to hold and to care”

Kanyini is an important term used by a number of language groups in central Australia, including Pitjantjatjara, Ngaanyatjarra, and Pintubi/Luritja.

Kanyini describes the principle and primacy of caring for others - an obligation to nurture, protect and care for other people, family, country and the law.
Inala Indigenous Health Service, Brisbane

Chief Investigators

John Brady, Ricky Mentha
Indigenous Research Fellows
Susan Thomas, GP
Ngaanyatjarra Health Service

Inala Indigenous Health Service, Brisbane

© The George Institute

Muriel Brandy, Darryl Wright
Tharawal Aboriginal Corporation, Sydney
Kanyini audit sites

Total n=1165

© The George Institute
## Summary- Recorded conditions

<table>
<thead>
<tr>
<th>Risk factor recorded (n=1165)</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>1051</td>
<td>90.2%</td>
</tr>
<tr>
<td>Blood glucose</td>
<td>919</td>
<td>78.9%</td>
</tr>
<tr>
<td>Smoking status</td>
<td>832</td>
<td>71.4%</td>
</tr>
<tr>
<td>Lipids</td>
<td>686</td>
<td>58.9%</td>
</tr>
<tr>
<td>eGFR</td>
<td>669</td>
<td>57.4%</td>
</tr>
<tr>
<td>BMI</td>
<td>649</td>
<td>55.7%</td>
</tr>
<tr>
<td>ACR</td>
<td>338</td>
<td>29.0%</td>
</tr>
<tr>
<td>ACR and eGFR for at risk CKD (n=851)</td>
<td>271</td>
<td>31.8%</td>
</tr>
</tbody>
</table>

Age>50yrs, BP>140/90, DM, Current smoker, BMI>=30
Cardiovascular risk profile

NZ adjusted Cardiovascular risk > 30 year olds
(Data available n=491)

© The George Institute
CVD Drug Management

- Statin
- Anti-platelet
- ACE/ARB
- B-Blocker*

(*CCB/Thiazide for high risk primary prevention)

© The George Institute
The polypill

V1: Simvastatin 40mg, Aspirin 75mg, Lisinopril 5mg, Atenolol 50mg

V2: Simvastatin 40mg, Aspirin 75mg, Lisinopril 5mg, HCT 12.5mg

© The George Institute
Kanyini Polypill

- Statin, low-dose aspirin, 2 BP lowering agents
- Comparator usual care
- High risk primary & established CVD
- Primary outcomes
  - Self-reported adherence
  - BP and Lipid lowering
- Sample size n=600
- Average follow-up 18 months

© The George Institute
The ideal risk management tool

> Easy to enter data
  • Integrated with practice software
  • Self populates required fields

> Easy to interpret results
  • Can be used at point of care
  • Generates individualised advice
  • Plain language summary and advice for client
  • Updated as evidence changes

> Able to accommodate other Chronic Disease programs
  • Integrated with Medicare EPC items
  • Goal setting and Self-Management programs
  • Integrated with Hospital IT systems

© The George Institute
Electrical Decision Support Study

Risk assessment inputs:

Age: 54 years
Sex: Female
Left ventricular hypertrophy: No
Current (last 12 months) smoking: No

Total-Cholesterol: 5 mM
Triglycerides: 2.2 mM
HDL-Cholesterol: 0.8 mM
LDL-Cholesterol: 2.1 mM

Systolic BP: 140 mmHg
Diastolic BP: 80 mmHg
Creatinine: 88 μM
Proteinuria: Yes
Chronic kidney disease: No (eGFR < 60 mL/min or proteinuria)
Diabetes: Yes
Diabetes for more than 10y: No [Dx 2007]
HBA1c > 8% more than 1 year: Yes
History of cardiovascular disease (CVD): No
Genetic dyslipidaemia: No
Family history of CVD: Yes
Higher risk ethnicity: Yes
Body mass index: <N/A>

Lipid therapy: Yes
Blood pressure therapy: Yes
Antiplatelet therapy: Yes

Estimated 5-year risk:

20% (high)

Summary of CVD data assessment

UID: 3 Mrs Test AP 12/Apr/1954 (54)
Wednesday, 15 October 2008 10:31 PM

Consider the assessment, treatment and target levels of:

- Absolute risk assessment is recommended because age is ≥ 50, and elevated lipids, higher risk ethnicity, and diabetes are present.

- Diabetes monitoring is recommended.

- Lipids evaluation is recommended as age ≥ 45, diabetes, higher risk ethnicity, family history of cardiovascular disease, and proteinuria are present.

- BP monitoring is recommended as age is over 18 years.

- Information on body mass index is recommended for calculation of risk (currently assumed to be normal).

- Lipid modifying therapy is recommended as diabetes and elevated lipids is present.

- BP lowering therapy is recommended as multiple indications are present.

- Antiplatelet therapy is recommended as diabetes is present.

- Lipid modifying therapy is meeting target as LDL ≤ 2.5 mM.

- Blood pressure lowering therapy is not meeting target as proteinuria and diabetes are present and BP > 125/75 mmHg.

© The George Institute
At the end of 5 years we hope to…

> Expand the evidence base in Indigenous health services research through the conduct of high quality intervention studies

> Develop Indigenous workforce capacity in both formal and informal ways

> Support our health service partners in developing/expanding their own research capacity

> Demonstrate improvements in access to and quality use of cardiovascular medicines for Indigenous people

> Use research findings to advocate for policy reform

© The George Institute
Acknowledgements

> **Health Service Partners**
> - Armajun Aboriginal Health Service Inc, Inverell NSW
> - Biripi Aboriginal Corporation, Taree NSW
> - Central Australian Aboriginal Congress, Alice Springs NT
> - Inala Indigenous Health Service, Brisbane QLD
> - Maari Ma Health Aboriginal Corp, Broken Hill, NSW
> - Ngaanyatjarra Health Service, Warburton WA
> - Tharawal Aboriginal Corporation, Campbelltown NSW
> - Tobwabba Aboriginal Medical Service, Forster NSW
> - Urapuntja Health Service, Utopia NT
> - Western Sydney Aboriginal Medical Service, Mt Druitt NSW
> - Wuchopperen Health Service, Cairns QLD

> **Indigenous Research Fellows**
> John Brady, Jo Devries, Ricky Mentha

> **Chief Investigators**
> Alan Cass, Alex Brown, Anushka Patel, Noel Hayman, Sandra Eades, Stephen Jan, Vicki Wade, Tarun Weeramanthri, Ian Ring, Andrew Tonkin, Nikky Isbel, Greg Stewart

> **Research staff (The George Institute & Baker Heart Research Institute)**
> Maria Tchan, Michael Howard, Suzanne Ingram, Bernadette Rickards, Chris Lawrence, Della Yarnold, David Peiris, Patrick Groenstein, Ruth Webster, Emma Heeley

> **NHMRC, NSW Clinical Excellence Commission**

© The George Institute