Hearts and Minds: Developing a research program in Central Australia

Alex Brown
South Australian Health and Medical Research Institute
Baker IDI Heart and Diabetes Institute, Central Australia

Contributors to the Gap

B/w 1996-2000
NCD - 77% Gap in LE
Grp I - 15-16%
CVD – 33%
GUT – 9%
DM – 9%
Chronic Resp - 9%
Injury – 8%

Zhao and Dempsey, MJA 2006

Age Specific Mortality Differentials, 35-54 years by Cause 2001-2005

Indigenous v Non-Indigenous Mortality rate ratio

All Cardiovascular ASDR 1986-2010 by Ethnicity and Sex

Building better systems of care for Indigenous Australians with Chronic Disease
Professor Alex Brown

Thursday 19 July 2012

Secular Trends in Chronic Disease - Australia
Scenario 1: Current trends observed over period 1998 to present will continue

Figure 1: Chronic disease mortality rates (Indigenous and Non-Indigenous), 1998-2010


Page 5: Baker IDI

Explaining Indigenous CVD Differentials

- Elevated Prevalence of Conventional RF’s
- Elevated Prevalence of Novel RF’s
- Co-morbidity
- Social Determinants
- Psychosocial Determinants
- Barriers to Access
- Health Care Resource Issues
- Differential Treatment

Page 7: Baker IDI

BAKER IDI CENTRAL AUSTRALIA

“What drives Cardiovascular Differentials borne by Indigenous Australians?”

Burden
Psychosocial Determinants
Social Determinants of Chronic Disease among Indigenous Peoples

Systems
Quality of Care
Evidence/Treatment Gaps

Risk/RF’s
Co-morbidity (DM/CVD/CKD)

Making the Job Easier

“What must be done to reduce unacceptable disparity and suffering?”

Comprehensive, holistic, systematic approaches to Vascular Disease Control

“What are the national and international implications?”

FOUNDATION PHASE

1. CASPA Study – Quality and outcomes of Care following an ACS
2. Predicting Risk – 10 year cohort
3. MHM Study
4. REDUCING BARRIERS TO CHRONIC DISEASE CARE
   Vascular Risk Audit / KQS/ POLYPILL (NHMRC PROJECT 2010-2014)
5. HEART OF THE HEART – CV correlates in Central Australia
6. CONCORDANCE – ACS REGISTRY
7. PERCEPTIONS OF CARE IN CRITICALLY ILL / ICU Outcomes
8. GECHO STUDY (n=5000)
Building better systems of care for Indigenous Australians with Chronic Disease
Professor Alex Brown
Thursday 19 July 2012

Presentation at the Australian Government Department of Health and Ageing

Age Adjusted Survival and MACE-Free Survival – ACS [Males]

HR = 3.8 [2.15 - 6.58]; p < 0.001
HR = 2.1 [1.40 - 3.02]; p < 0.001

Rates of Cardiac Procedures During Index ACS NT ACS Cohort 2001-2002

Discharge Therapies – ACS ASH

Burden and Risk Aboriginal Women HOTH Study, Central Australia
Stress, depression and heart disease in Aboriginal Men. The Men, Hearts and Minds Study.

Depression – from an Indigenous Lens

“All of my friends I grew up with are dead…and I am only 53. I survived because I knew how to live like a white man. I behaved myself, hid my identity, paid my rent in advance… I never denied my culture or my relatives, I just saw them in dark places.”

“Depression is continual in Aboriginal peoples lives. It’s the struggle from birth to death, the struggle for ever and a day...just getting recognition that you are a human being.....it really is the shadow that follows you. Its forever there.”

C. Co-morbid Depression and CD

? Identify individuals at elevated risk of depression and its potential synergy with CD
? Contribution of depression to CD in Indigenous Australians
? Identification and management of Depression within primary care

SELECTED STRESSORS – URBAN ABORIGINAL MEN

Associated with the Pathophysiological mechanisms / correlates of CAD
Highly prevalent in patients with overt CAD
Associated with worse prognosis in pts with CAD
### Clinical and social correlates of prevalent CVD

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>OR</th>
<th>95%CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDD§</td>
<td>9.46</td>
<td>1.8–50.6</td>
<td>0.009</td>
</tr>
<tr>
<td>HT (≥140/90)</td>
<td>2.88</td>
<td>1.1–7.8</td>
<td>0.038</td>
</tr>
<tr>
<td>Age</td>
<td>1.05</td>
<td>1.01–1.1</td>
<td>0.017</td>
</tr>
<tr>
<td>hsCRP</td>
<td>0.8</td>
<td>0.6–1.01</td>
<td>0.09</td>
</tr>
<tr>
<td>HDL-C</td>
<td>0.16</td>
<td>0.2–1.5</td>
<td>0.112</td>
</tr>
<tr>
<td>Education ≥16YRS</td>
<td>1.6</td>
<td>0.5–4.9</td>
<td>0.406</td>
</tr>
<tr>
<td>INCOME (&gt;$5000 v &lt;$1000)</td>
<td>0.58</td>
<td>0.1–2.5</td>
<td>0.462</td>
</tr>
<tr>
<td>BMI</td>
<td>0.97</td>
<td>0.9–1.1</td>
<td>0.527</td>
</tr>
<tr>
<td>TOTAL CHOLESTEROL</td>
<td>1.16</td>
<td>0.7–1.8</td>
<td>0.529</td>
</tr>
<tr>
<td>DIABETES</td>
<td>1.52</td>
<td>0.4–6.1</td>
<td>0.554</td>
</tr>
<tr>
<td>CURRENT SMOKER</td>
<td>0.69</td>
<td>0.2–2.2</td>
<td>0.692</td>
</tr>
<tr>
<td>EMPLOYMENT (Y/N)</td>
<td>0.87</td>
<td>0.3–2.9</td>
<td>0.825</td>
</tr>
<tr>
<td>SEP INDEX‡</td>
<td>1.62</td>
<td>0.3–9.0</td>
<td>0.938</td>
</tr>
</tbody>
</table>

*PHQ-9 scoring for DSM-IV Criteria for Major Depressive Disorder
*SEP index is a combined score across income, employment and years of education

### Independent Correlates of Obesity in Aboriginal Men in CA

<table>
<thead>
<tr>
<th>OBESITY (BMI&gt;30)</th>
<th>OR (95%CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMOTE ADDRESS</td>
<td>2.0 (0.9–5.5)</td>
<td>0.062</td>
</tr>
<tr>
<td>INCOME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$5000</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>$5000–$999</td>
<td>0.78 (0.4–1.7)</td>
<td>0.572</td>
</tr>
<tr>
<td>$1000+</td>
<td>3.2 (1.3–9.8)</td>
<td>0.043</td>
</tr>
<tr>
<td>EMPLOYED‡</td>
<td>1.28 (1.3–1.5)</td>
<td>0.623</td>
</tr>
<tr>
<td>CURRENT SMOKER</td>
<td>0.24 (0.1–0.6)</td>
<td>0.001</td>
</tr>
<tr>
<td>HYPERTENSION†</td>
<td>3.34 (1.2–10.1)</td>
<td>0.004</td>
</tr>
<tr>
<td>TC &gt;5.5mmol/L</td>
<td>1.3 (0.9–1.9)</td>
<td>0.133</td>
</tr>
<tr>
<td>LDL HDL &lt;1.2</td>
<td>0.50 (0.8–3.2)</td>
<td>0.461</td>
</tr>
<tr>
<td>hsCRP (mg/L)</td>
<td>&lt;1.0</td>
<td></td>
</tr>
<tr>
<td>≥3.0</td>
<td>4.00 (1.1–13.3)</td>
<td>0.023</td>
</tr>
<tr>
<td>DEPRESSION SCORE (PHQ-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–4</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>5–9</td>
<td>3.47 (1.3–10.1)</td>
<td>0.022</td>
</tr>
<tr>
<td>10–14</td>
<td>11.3 (2.1–59.7)</td>
<td>0.004</td>
</tr>
<tr>
<td>≥15+</td>
<td>21.3 (1.3–334)</td>
<td>0.030</td>
</tr>
<tr>
<td>LOW MASTERY</td>
<td>1.27 (1.1–1.5)</td>
<td>0.002</td>
</tr>
<tr>
<td>STRESS SCORE</td>
<td>≥1.5</td>
<td></td>
</tr>
</tbody>
</table>

### Independent Predictors of Smoking Status in Indigenous Men in Central Australia

<table>
<thead>
<tr>
<th>OR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income &lt;$800/fn</td>
<td>4.80</td>
<td>2.13–10.72</td>
</tr>
<tr>
<td>Alcohol Never/Rare</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Alcohol Occasional</td>
<td>3.81</td>
<td>1.56–9.29</td>
</tr>
<tr>
<td>Alcohol Frequent</td>
<td>3.35</td>
<td>1.04–10.15</td>
</tr>
<tr>
<td>Age &lt;25yrs</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Age 25–44</td>
<td>0.79</td>
<td>.31–2.01</td>
</tr>
<tr>
<td>Age 45+</td>
<td>0.30</td>
<td>.10–0.91</td>
</tr>
<tr>
<td>High Social Support</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Mid Social Support</td>
<td>1.35</td>
<td>.64–2.86</td>
</tr>
<tr>
<td>Low Social Support</td>
<td>4.71</td>
<td>1.04–21.38</td>
</tr>
<tr>
<td>Depression (PHQ-9 ≥10)</td>
<td>8.53</td>
<td>1.61–45.21</td>
</tr>
</tbody>
</table>

### Heavy Alcohol Consumption in the MHM Cohort (n=186)

<table>
<thead>
<tr>
<th>ANGER</th>
<th>FAMILY TREATED BADLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

- 71.4%
Kanyini Vascular Collaboration

The Kanyini Vascular Collaboration

Defining the gap in Primary Care

5. Prescribing of major cardiovascular medication groups by absolute cardiovascular disease (CVD) risk category

- Low (<10%)
- Medium (10%-14%)
- High (>15%)
- Established CVD

Proportion prescribed

<table>
<thead>
<tr>
<th>Medication group</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP + Diuretic</td>
<td></td>
</tr>
<tr>
<td>BP + Antiplast</td>
<td></td>
</tr>
<tr>
<td>BP + Diuretic +</td>
<td></td>
</tr>
</tbody>
</table>

BP=Blood pressure. *Five-year cardiovascular disease risk was estimated using the 2004 National Heart Foundation of Australia adjustments to the 1991 Anderson Framingham equation.

Peiris et al MJA 2009

KQS Research Questions

What do we want to understand?

- What frames decisions to seek care
- What defines ‘properly’—and whose definition?
- Need / Care needs
- Experiences of care
-Aboriginal people’s experiences of care
-Principals barriers and enablers to care
-Communication, patient, unmet needs
-Continuity of care

So the one doctor’s saying [one] thing, another one’s saying another thing, you know. And I’m in the middle of them, see, and I’m just popping them tablets.

Aboriginal community participant

Uncertainty...
Building better systems of care for Indigenous Australians with Chronic Disease
Professor Alex Brown

Thursday 19 July 2012

Presentation at the Australian Government Department of Health and Ageing

Making sense of illness: ‘in two minds’...

[People need to overcome the challenge of not] understanding of their disease - they feel well but the tests that we do tell us otherwise, so what they’re feeling and what we’re seeing are two different things and so giving them that understanding, although they might feel well on the outside, on the inside their body is a little bit sick.

Health practitioner

Aboriginal community participant

System fatigue

I reckon in my 5 years - and I haven’t properly counted them up - but once I counted it up towards the beginning of last year and I reckon by the time I left I must have had to work with at least 60 different RANs.

Health practitioner, remote.

Chronic Disease – the game changer

ACUTE CARE
- SICKNESS
- ‘BAD LUCK’
- REACTIVE
- LABEL THE DISEASE
- SCALPEL/THERAPY
- QUICK OR THE DEAD
- ‘CURE’
- DOCTORS
- INDIVIDUAL SKILL
- THROUGH PUT
- BEDS/STAFF

CHRONIC CARE
- WELLNESS
- ‘BAD PEOPLE’
- PROACTIVE
- LABEL THE PERSON
- FEAR AND RISK
- LIFE LONG
- ‘CONTROL’
- TEAMS
- FUNCTIONING SYSTEMS
- MITIGATION
- HUMAN CAPITAL/RELATIONS
What is going to work?

**Approaches**
- TEAMS
- PT CENTRED CARE
- Multidisciplinary CARE
- NURSE LED Models
- FAMILY
- INTEGRATION ACROSS SECTORS
- OUTREACH

**Processes/enablers**
- Communication
- Financing
- Governance
- Workforce
- Health Information
- Equity
- Empowerment
- Integrated IT platforms
- EDS

THE INTERVENTION PHASE

1. NCU – RHD (DOHA)
2. PERIDONTAL DISEASE AND CV RISK INTERVENTION
3. FAMILY BASED POST ACS TRIAL (NHMRC 2011-15)
4. TELEMEDICINE TRIAL (NHMRC PARTNERSHIP)
5. RUFFUS (NATURAL HISTORY OF EARLY RHD)
6. APHCR CENTRE OF EXCELLENCE 2011-2014
7. Diabetes in Pregnancy Cohort (NHMRC Partnership)
8. RHD Secondary Prevention Trial (NHMRC Project)

Twekerte Marra Ka (NHMRC 2011-15)
- Learning about your heart
- Looking after your heart
- Keeping a healthy heart
- Engaging family

Presentation at the Australian Government Department of Health and Ageing
Programme of Research

KVC Chronic Care Model

Co-Morbid Depression and Chronic Disease

Evaluating and Informing ‘Closing the Gap’

Family-Based Prevention Pilot Trial

Multi-site Intervention Trials in Chronic Disease Management and Prevention

Epidemiology and the phases of translational research:

CLINICAL STUDIES, INTERVENTIONS AND PROCESSES

EPICACY AND EB GUIDELINES

BARRIERS AND ENABLERS TO EBM

NT Diabetes in pregnancy project

• To improve care for mothers with DIP
• To establish the true prevalence gestational versus Type 2 diabetes in pregnancy
• Establish a NT wide high risk diabetes register
• To develop an evidence base to influence policy to improve care and diagnosis of diabetes in pregnancy
• To follow through a group of infants through to adolescence to see if we can prevent or delay the development of Type 2 diabetes

Telehealth Facilitation of Diabetes and Cardiovascular Care in Australia

Cla: Sven Bursell, Alex Brown, Alicia Jenkins, Kevin Rowley, David O’Neal, Danny Liew Als: Anthony Keech, Tien Wong, Ecosse Lamoureux, Hugh Taylor, Kerin O’Dea, Mark Horton (IHS)

Retinal imaging intervention - patient education, care coordination and management - will improve clinical outcomes, adherence to eye care and clinical visits, and reduce hospitalizations.
Building better systems of care for Indigenous Australians with Chronic Disease
Professor Alex Brown

Provider Portal – Dashboard Screens

Patient Snapshot
Shows all key data in one highly formatted, condition specific panel

CSANZ 2011– Chronic Care

Focusing on PHC
- Workforce Needs
- Integrating Specialists
- Training/Capacity
- Engagement with sector

Models of Care
- Family Centred
- Screening and Mx
- QUM

Prevention
- Diagnostics
- Early ID
- Disadvantage

CSANZ 2011
REDUCING HOSPITAL DISPARITIES

ENHANCING CONTINUITY

ABORIGINAL WORKFORCE

TRAINING COMPETENCIES
[CARDIOLOGY, NURSING AND NP]

INFORMATION MANAGEMENT SYSTEMS
Procedure and Outcome Registry

CULTURAL COMPETENCE

ADVOCACY
**What Have we Learnt**

**MEDICAL VIEW**
- BAD BEHAVIOURS
- BAD CHOICES
- LAZY
- OBESITY

**INDIGENOUS VIEWS**
- DISPOSSESSION
- DISHARMONY / IMBALANCE
- POVERTY
- SOCIO-CULTURAL CHANGE
- ACCESS BLOCK – LAND & CULTURE
- 'TOXIC' EXTERNAL PRESSURES
- TRANSGENERATIONAL TRAUMA

---

**THE CHRONIC DISEASE AGENDA**

“What drives Cardiovascular Differentials borne by Indigenous Australians?”

**Burden**

“What must be done to reduce unacceptable disparity and suffering?”

START AT THE START
- MATERNAL ENVIRONMENT
- CHILDHOOD DISADVANTAGE
- ADOLESCENTS
- POVERTY

MAKE THE JOB EASIER
- ESSENTIAL ELEMENTS OF CARE
- ALTERNATE MODELS OF CARE
- CONDUITS TO THROUGH CARE
- DELIVER THE EVIDENCE

SMOKING PREVENTION
- BLOOD PRESSURE
- FAMILY INTERVENTIONS
- MANAGE CO- Morbidity
- BEYOND FEAR AND LOATHING
- CHOICE TO CHOOSE

---

**WHAT CAN WE DO?**

- DONT JUST STAND THERE DO SOMETHING – Be the best
- Services within context – alternate models necessary
- Cultural competence – multi-disciplinary workforce
- BEST OF THE BEST REQUIRED
- Family as the unit of intervention
- Negotiators of complex systems of care
- “Lifestyle is not always a matter of choice”
- Narrow the evidence-practice gap
- DONT GIVE UP – EITHER YOU OR YOUR PATIENTS
- DONT BE OBSESSED WITH WHAT YOU CAN’T CHANGE – BE DRIVEN BY WHAT YOU CAN!