Translating research into practice

Australasian Epidemiological Association (AEA) Annual Scientific Meeting

University of Sydney
New South Wales, Australia
29 September – 1 October 2010
Welcome to Sydney

Welcome to Sydney for the Annual Conference of the Australasian Epidemiological Association.

This year’s Conference, themed “Translating Research into Practice,” highlights the increasing need to close the gap between knowledge and practice—between what we know and what we do—to ensure continuing improvements in disease prevention, the quality of health care, and evidence-based health policies in the Australasian Region. As always, the development and improvement of data collection, study design and analyses are fundamental to the generation of quality research outcomes. This is what we are all about!

Your attendance and active participation in the meeting will help enhance epidemiological research in the Region. This year’s meeting will provide you with an opportunity to stretch your boundaries, attend sessions both within and outside of your own areas of expertise, and learn about exciting new concepts, analytical approaches, tools, and techniques that you will be able to apply to your own research. I am also hopeful that the meeting will leave you energised about the high caliber of research being undertaken and encourage you to develop new and build on existing research networks and collaborations.

I am delighted to welcome Professor Sholom Wacholder as the international speaker at this year’s Conference. Most of you will be familiar with Sholom’s classic series on case control study design published in the 90s. Sholom has since gone on to establish an international reputation for unraveling and simplifying complex methodological issues in the field of epidemiology. I also welcome our other plenary speakers: Professor Adrian Bauman who will speak on research translation and population dissemination in public health, Dr Jeremy McAnulty and Dr Bruce Christie who present on the challenges of investigating emerging infectious diseases and translating animal disease epidemiology into economic growth and better health, and Professor Robyn Norton who will give a thought-provoking Ian Prior Oration honoring one of our founders of epidemiology in this Region.

Aside from our exceptional plenary speakers, other highlights for the meeting will include the Wednesday pre-conference workshop, the “Speaking to the media” breakfast, as well as the Early Career Workshop and the “Presidential Debate” on the final day of the conference. We are also confident that the dedicated timeslots allocated to afternoon poster discussion will generate a more intimate feel to the meeting and allow for thoughtful interactions among attendees.

I would particularly like to thank the members of the Conference Organising Committee for their hard work and dedication over the last 18 months, as well as those who assisted in planning the Scientific Program and the abstract review process. I am also grateful to our sponsors and for the support from Dr Maree Overall and her professional conference staff at ASN Events.

To those of you visiting Sydney please enjoy our beautiful harbour city. I encourage you to stay on after the conference and experience some of the delights of the metropolitan and surrounding areas.

Dr Lesley Ashton, Conference Convenor

On behalf of the Organising Committee

Conference Organising Committee
Claire Vajdic (Treasurer)
Elizabeth Comino
Efty Stavrou
Siranda Torvaldsen
Camille Raynes-Greenow
Monica Robotin
James Harrison
Navneet Dhand
Thaís Miles
GENERAL INFORMATION

**Conference Venue**
Sydney Law School Building
University of Sydney
Eastern Avenue, Camperdown Campus
New South Wales, Australia

**Conference Organisers**
ASN Events Pty Ltd
PO Box 200
Balmarring VIC 3926 Australia
Email: mo@asnevents.net.au
Web: www.asnevents.net.au
Telephone: +61 3 9329 6600
Fax: +61 3 9329 1777

**Catering**
All catering will be provided in the foyer area outside the Main Conference Room. Pre-booked conference dinner tickets will be issued at registration.

If you have requested a special diet, please ask at the Registration Desk for more information. At the Conference Dinner, please advise a member of the waiting staff as soon as you are seated that you have a special diet request.

**Name badges**
Name badges will be issued when registering at the conference. For security purposes the conference name badge must be worn at all times during the conference and social functions.

**Messages**
A message board will be located near the Registration Desk.

**Smoking**
The conference and all functions are non-smoking.

**Dress**
Dress throughout the conference is neat casual. Dress for each function is indicated in the social program.

**Photocopying**
There are no photocopying facilities at the conference venue, so please ensure you have a sufficient number of handouts.

**Presenters’ information**
The Conference Room is equipped with PowerPoint. Presenters should meet with the audio visual technician in the speaker preparation room before their session or during one of the catering breaks. Please load your presentation as early as possible – at least two hours prior to your presentation. Please check with the Registration Desk staff if you require further assistance.

**Poster sessions**
These will take place during the afternoon on Thursday and Friday from 3:00pm – 4:00pm, where delegates will have the chance to view posters situated amongst the trade area.

**Parking**
Parking is available in the multi-level car park next to the Law School Buildings. Enter via Barff Road, off City Road; or via University Avenue, off Parramatta Road. There are plenty of spaces.

Parking anywhere on the University Campus including the parking station is PAY/DISPLAY. The daytime charge is $24.00 per car and $6.00 per car after 3.00pm Monday to Friday. Visitor cars must be parked in numbered spaces (not University owned or loading zone bays) and the voucher from the ticket machine is to be displayed on the dashboard. Ticket machines are found near the main parking areas on campus and please note they only take $1 and $2 coins.

**Breakfast session venues**
“Perinatal and Paediatric Epidemiology”, 7:00am, Thursday 30th September
Maps will be available from the registration desk.

Breakfast Session “Early Career Breakfast”, 7:30am, Friday 1st October
Venue: The Grandstand Sports Bar & Function Centre, University of Sydney.
Maps will be available from the registration desk.

**Insurance**
Registration fees do not include personal travel or health insurance of any kind. The Organising Committee and ASN Events do not take any responsibility for any delegate failing to take adequate insurance cover.

**Disclaimer**
Whilst we have endeavoured to ensure all information on the conference website and printed material is accurate, all details are subject to change without notice.

In the event of industrial disruptions or service provided failures, neither the members of the Organising Committee nor ASN Events accept any responsibility for losses incurred.
Registration Information

**Registration desk**
The desk will be located in the Foyer on Level 1 during the conference and will be open at the following times:

**Wednesday 29th September** 8:00am – 6:00pm
**Thursday 30th September** 7:30am – 6:00pm
**Friday 1st October** 8:00am – 5:30pm

**Registration entitlements**

- Full and student registration
- All conference sessions
- Welcome Function
- Lunch and morning/afternoon tea on Thursday and Friday
- Satchel and program

**Day registration**

- Conferences sessions on day of attendance
- Lunch and morning/afternoon tea on day of attendance
- Satchel and program

---

**Floor plan of University of Sydney**

*Sydney Law School Building*
### Wednesday 29 September

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 – 1700</td>
<td>Workshop: Unravelling the causes of complex diseases</td>
<td>Room 104</td>
</tr>
<tr>
<td>1700 – 1800</td>
<td>AEA Council Meeting</td>
<td>Room 104</td>
</tr>
<tr>
<td>1700 – 2000</td>
<td>Welcome Function</td>
<td>Foyer</td>
</tr>
</tbody>
</table>

### Thursday 30 September

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700 – 0800</td>
<td>Breakfast session: Perinatal and Paediatric Epidemiology</td>
<td>New Law School Glass Foyer, University of Sydney</td>
</tr>
<tr>
<td>0830 – 0900</td>
<td>Conference welcome and opening</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>0900 – 1030</td>
<td>Plenary session 1: Translating Evidence into Practice</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1030 – 1100</td>
<td>Morning Tea</td>
<td>Foyer</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Environmental Health</td>
<td>Room 100</td>
</tr>
<tr>
<td></td>
<td>Cancer</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td></td>
<td>Health Service Research</td>
<td>Room 102</td>
</tr>
<tr>
<td></td>
<td>Perinatal &amp; Paediatric Epidemiology</td>
<td>Room 104</td>
</tr>
<tr>
<td></td>
<td>Nutrition &amp; Physical Activity</td>
<td>Room 106</td>
</tr>
<tr>
<td>1230 – 1330</td>
<td>Lunch</td>
<td>Foyer</td>
</tr>
<tr>
<td>1245 – 1315</td>
<td>Welcome to new members</td>
<td>Room 100</td>
</tr>
<tr>
<td>1330 – 1500</td>
<td>Respiratory Health</td>
<td>Room 100</td>
</tr>
<tr>
<td></td>
<td>Data Linkage I</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td></td>
<td>Social Epidemiology I</td>
<td>Room 102</td>
</tr>
<tr>
<td></td>
<td>Methods</td>
<td>Room 104</td>
</tr>
<tr>
<td></td>
<td>Cancer and Cancer Registries</td>
<td>Room 106</td>
</tr>
<tr>
<td>1500 – 1600</td>
<td>Afternoon Tea &amp; Poster Session 1</td>
<td>Foyer</td>
</tr>
<tr>
<td>1600 – 1700</td>
<td>Plenary session 2: Ian Prior Oration</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1700 – 1800</td>
<td>Annual General Meeting</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1900 – 2300</td>
<td>Conference Dinner (including Presentation of Life Member Awards)</td>
<td>Ottoman Cuisine Restaurant, Walsh Bay</td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>0730 – 0830</td>
<td>Breakfast session: Early Career Breakfast</td>
<td>Grandstand Bar, University of Sydney</td>
</tr>
<tr>
<td>0900 – 1030</td>
<td>Plenary Session 3: Outbreaks, surveillance and action: The role of epidemiologists</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1030 – 1100</td>
<td>Morning Tea</td>
<td>Foyer</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Epidemiological Methods</td>
<td>Room 100</td>
</tr>
<tr>
<td></td>
<td>Data Linkage II</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td></td>
<td>Cardiovascular</td>
<td>Room 102</td>
</tr>
<tr>
<td></td>
<td>Communicable and Infectious Diseases</td>
<td>Room 104</td>
</tr>
<tr>
<td></td>
<td>Occupational Health, Safety &amp; Injuries</td>
<td>Room 106</td>
</tr>
<tr>
<td>1230 – 1300</td>
<td>Lunch</td>
<td>Foyer</td>
</tr>
<tr>
<td>1300 – 1400</td>
<td>Early Career Workshop</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1400 – 1500</td>
<td>Indigenous Health</td>
<td>Room 100</td>
</tr>
<tr>
<td></td>
<td>Screening, Measurement and Error</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td></td>
<td>Social Epidemiology II</td>
<td>Room 102</td>
</tr>
<tr>
<td></td>
<td>Mental Health</td>
<td>Room 104</td>
</tr>
<tr>
<td></td>
<td>Obesity</td>
<td>Room 106</td>
</tr>
<tr>
<td>1500 – 1530</td>
<td>Afternoon Tea &amp; Poster Session 2</td>
<td>Foyer</td>
</tr>
<tr>
<td>1600 – 1700</td>
<td>Plenary Session 4: Debate “Translating research into practice: Epidemiologists should leave it to the policy makers”</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1700</td>
<td>Final remarks and prize giving</td>
<td>Main Theatre Room 101</td>
</tr>
<tr>
<td>1730</td>
<td>Close of conference</td>
<td>Main Theatre Room 101</td>
</tr>
</tbody>
</table>
SOCIAL PROGRAM

**Wednesday 29 September**

**Welcome Function**
Venue: Foyer  
Time: 5:00pm – 8:00pm  
Cost: Inclusive for full registrants  
Dress: Smart casual

**Thursday 30 September**

**Breakfast Session – Perinatal and Paediatric Epidemiology**
Venue: New Law School Glass Foyer, Level 2, New Law Building, University of Sydney  
Time: 7:00am – 8:30am  
Cost: $45.00  
Dress: Smart Casual

**Conference Dinner**
Venue: Ottoman Cuisine Restaurant, Walsh Bay  
Time: 7:00pm – 11:00pm  
Cost: $120  
Dress: Smart casual

**Friday 1 October**

**Breakfast Session – Early Career Breakfast**
Venue: The Grandstand Sports Bar & Function Centre, University of Sydney  
Time: 7:30am – 8:30am  
Cost: $25.00  
Dress: Smart casual
# CONFERENCE PROGRAM

## Wednesday, 29 September 2010

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
<th>LOCATION</th>
<th>PRESENTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800 – 1800</td>
<td>Registration</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 – 1015</td>
<td>Workshop welcome</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1015 – 1230</td>
<td>Workshop Session One</td>
<td>Room 104</td>
<td>Chair: John Kaldor</td>
<td></td>
</tr>
<tr>
<td>1015</td>
<td>From GWAS to aetiology and translation</td>
<td></td>
<td>Sholom Wacholder</td>
<td>25</td>
</tr>
<tr>
<td>1100</td>
<td>Heritability and genes in GWAS research</td>
<td></td>
<td>Neil Pearce</td>
<td>25</td>
</tr>
<tr>
<td>1145</td>
<td>The value of population-based family designs</td>
<td></td>
<td>John Hopper</td>
<td>25</td>
</tr>
<tr>
<td>1230 – 1315</td>
<td>Lunch</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1315 – 1515</td>
<td>Workshop Session Two</td>
<td>Room 104</td>
<td>Chair: John Kaldor</td>
<td></td>
</tr>
<tr>
<td>1315</td>
<td>Ethical Considerations for Population Studies</td>
<td></td>
<td>Nikolajs Zeps</td>
<td>26</td>
</tr>
<tr>
<td>1400</td>
<td>Models for Large Scale Bio-Repositories: Opportunities and Challenges</td>
<td>Room 104</td>
<td>Kerrie McDonald</td>
<td>26</td>
</tr>
<tr>
<td>1430</td>
<td>Concord Health and Ageing in Men Project (CHAMP)</td>
<td>Room 104</td>
<td>Robert Cumming</td>
<td>26</td>
</tr>
<tr>
<td>1515 – 1545</td>
<td>Afternoon tea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1545 – 1700</td>
<td>Workshop Session Three</td>
<td>Room 104</td>
<td>Chair: John Kaldor</td>
<td></td>
</tr>
<tr>
<td>1545</td>
<td>Epidemiology in the whole genome age: what do we do now?</td>
<td>Room 104</td>
<td>Sholom Wacholder</td>
<td>27</td>
</tr>
<tr>
<td>1630</td>
<td>Discussion led by Chair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>Workshop close</td>
<td>Room 104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700 – 2000</td>
<td>Welcome Function</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700 – 1800</td>
<td>AEA Council Meeting</td>
<td>Room 104</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Thursday, 30 September 2010

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
<th>LOCATION</th>
<th>PRESENTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700 – 0800</td>
<td>Breakfast Session: Perinatal and Paediatric Epidemiology</td>
<td>New Law School Glass Foyer, University of Sydney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0730 – 1800</td>
<td>Registration</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0830 – 0900</td>
<td>Conference welcome and opening</td>
<td>Main Theatre Room 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900 – 1030</td>
<td>Plenary session 1: Translating Evidence into Practice</td>
<td>Main Theatre Room 101</td>
<td>Chair: Lesley Ashton</td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>Translation of molecular epidemiology findings into prevention and clinical practice: the example of HPV</td>
<td>Main Theatre Room 101</td>
<td>Sholom Wacholder</td>
<td>23</td>
</tr>
<tr>
<td>0945</td>
<td>Research translation and population dissemination in public health</td>
<td>Room 100</td>
<td>Adrian Bauman</td>
<td>23</td>
</tr>
<tr>
<td>1030 – 1100</td>
<td>Morning Tea</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 1: Environmental Health</td>
<td>Room 100</td>
<td>Chair: Anne-Louise Ponsonby</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Latitude is positively associated with the prevalence of multiple sclerosis: A definitive demonstration of the latitudinal gradient hypothesis using meta-analysis</td>
<td>Room 100</td>
<td>Steve Simpson, Jr.</td>
<td>29</td>
</tr>
<tr>
<td>1115</td>
<td>The short-term effects of low indoor temperatures on asthmatic children’s lung function</td>
<td>Room 100</td>
<td>Nevil Pierce</td>
<td>29</td>
</tr>
<tr>
<td>1130</td>
<td>Vitamin D in Brisbane office workers</td>
<td></td>
<td>Rachel Neale</td>
<td>30</td>
</tr>
<tr>
<td>1145</td>
<td>Winter hospitalisation excess varies by ethnicity and socioeconomic status</td>
<td>Room 100</td>
<td>Lucy Telfar Barnard</td>
<td>30</td>
</tr>
<tr>
<td>1200</td>
<td>Birth weight and its association with a mother’s place of residence</td>
<td>Room 100</td>
<td>Nectarios Rose</td>
<td>31</td>
</tr>
<tr>
<td>1215</td>
<td>Emergency department presentations for cardiovascular conditions associated with an increase in daily temperature in Melbourne</td>
<td>Room 100</td>
<td>Martine Dennekamp</td>
<td>31</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 2: Cancer</td>
<td>Main Theatre Room 101</td>
<td>Chair: Dallas English</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Quantifying supportive care needs: Clinical audit of non-admitted patient occasions-of-service</td>
<td>Main Theatre Room 101</td>
<td>James Harrison</td>
<td>32</td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>------</td>
</tr>
<tr>
<td>1115</td>
<td>Dietary patterns and the risk of breast cancer: Results from the Melbourne Collaborative Cohort Study</td>
<td>Room 102</td>
<td>Gianluca Severi</td>
<td>32</td>
</tr>
<tr>
<td>1130</td>
<td>Lifetime moderate and vigorous recreational physical activity and the risk of subsite-specific colorectal cancer</td>
<td>Room 102</td>
<td>Terry Boyle</td>
<td>33</td>
</tr>
<tr>
<td>1145</td>
<td>Does comorbidity explain the ethnic inequalities in cervical cancer survival in New Zealand?</td>
<td>Room 102</td>
<td>Naomi Brewer</td>
<td>33</td>
</tr>
<tr>
<td>1200</td>
<td>SLC19A1 Polymorphism: A potential prognostic marker for patients with MYCN Amplified Childhood Neuroblastoma</td>
<td>Room 102</td>
<td>Diana Lau</td>
<td>34</td>
</tr>
<tr>
<td>1215</td>
<td>Late mortality among survivors of childhood cancer</td>
<td>Room 102</td>
<td>Carmen Wilson</td>
<td>34</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 3: Health Service Research</td>
<td>Room 102</td>
<td>Chair: Jane Young</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Trends in survival and life expectancy by ethnicity, income and smoking: 1980s to 2000s</td>
<td>Room 102</td>
<td>Kristie Carter</td>
<td>35</td>
</tr>
<tr>
<td>1115</td>
<td>History behind the IVF egg: associations between women’s comprehensive histories and number of eggs collected or fertilised normally</td>
<td>Room 102</td>
<td>Danielle Herbert</td>
<td>35</td>
</tr>
<tr>
<td>1130</td>
<td>Assessing the uptake of clinical trial evidence: Trends in use of continuous positive airway pressure (CPAP) for infants</td>
<td>Room 102</td>
<td>Tim Badgery-Parker</td>
<td>36</td>
</tr>
<tr>
<td>1145</td>
<td>Vitamin D status of elderly Australian women attending General Medical Practices in Australia</td>
<td>Room 102</td>
<td>Penelope Robinson</td>
<td>36</td>
</tr>
<tr>
<td>1200</td>
<td>Working with mortality data from the Pacific Islands</td>
<td>Room 102</td>
<td>Karen Carter</td>
<td>37</td>
</tr>
<tr>
<td>1215</td>
<td>Undiagnosed diabetes in the AusDiab: investigating the determinants of diagnosis</td>
<td>Room 102</td>
<td>Elizabeth Comino</td>
<td>37</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 4: Perinatal &amp; Paediatric Epidemiology</td>
<td>Room 104</td>
<td>Chair: Christine Roberts</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Exposure to diagnostic radiological procedures and the risk of childhood acute lymphoblastic leukaemia</td>
<td>Room 104</td>
<td>Helen Bailey</td>
<td>38</td>
</tr>
<tr>
<td>1115</td>
<td>Does population data over-estimate recurrence risks? A validation study of postpartum haemorrhage reporting in consecutive pregnancies</td>
<td>Room 104</td>
<td>Jane Ford</td>
<td>38</td>
</tr>
<tr>
<td>1130</td>
<td>Complications of the placenta and uterus in pregnancy following a previous caesarean section in Queensland</td>
<td>Room 104</td>
<td>Rachael-Anne Wills</td>
<td>39</td>
</tr>
<tr>
<td>1145</td>
<td>Maternal perception of fetal movements: pilot data from The Sydney Stillbirth Study</td>
<td>Room 104</td>
<td>Adrienne Gordon</td>
<td>39</td>
</tr>
<tr>
<td>1200</td>
<td>Prevalence of and pregnancy outcomes associated with maternal underweight and obesity in Queensland</td>
<td>Room 104</td>
<td>Melanie Watson</td>
<td>40</td>
</tr>
<tr>
<td>1215</td>
<td>Does preimplantation genetic diagnosis cause childhood problems? : A pilot study</td>
<td>Room 104</td>
<td>Sharon Lewis</td>
<td>40</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 5: Nutrition &amp; Physical Activity</td>
<td>Room 106</td>
<td>Chair: Sarah McNaughton</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Does the area of parkland in your neighbourhood influence your walking levels?</td>
<td>Room 106</td>
<td>Tania King</td>
<td>41</td>
</tr>
<tr>
<td>1115</td>
<td>Examining the association between measures of total sedentary behaviour, objectively-assessed physical activity and obesity among young Australian adults</td>
<td>Room 106</td>
<td>Verity Cleland</td>
<td>41</td>
</tr>
<tr>
<td>1130</td>
<td>Skipping breakfast: longitudinal associations with cardio-metabolic risk factor in the Childhood Determinants of Adult Health (CDAH) study</td>
<td>Room 106</td>
<td>Kylie Smith</td>
<td>42</td>
</tr>
<tr>
<td>1145</td>
<td>Strategies to address iodine deficiency in Australia require ongoing monitoring and surveillance</td>
<td>Room 106</td>
<td>Karen Charlton</td>
<td>42</td>
</tr>
<tr>
<td>1200</td>
<td>Dietary glycaemic load, glycaemic index, carbohydrates and risk of ovarian cancer</td>
<td>Room 106</td>
<td>Christina Nagle</td>
<td>43</td>
</tr>
<tr>
<td>1215</td>
<td>Influence of peers on breastfeeding discontinuation among new parents: The Melbourne InFANT Program</td>
<td>Room 106</td>
<td>Kylie Hesketh</td>
<td>43</td>
</tr>
<tr>
<td>1230 –1330</td>
<td>Lunch</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1245 –1315</td>
<td>Welcome to new members</td>
<td>Room 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1330 – 1500</td>
<td>Concurrent session 6: Respiratory Health</td>
<td>Room 100</td>
<td>Chair: Neil Pearce</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Epidemics of Emergency Department presentations for asthma in NSW inland communities</td>
<td>Room 100</td>
<td>Tim Hayden</td>
<td>44</td>
</tr>
<tr>
<td>1345</td>
<td>Associations between onset of influenza, including pandemic (H1N1) 2009, and onset of invasive pneumococcal disease in subsequent weeks - a retrospective cohort study in Queensland, Australia</td>
<td>Room 100</td>
<td>Anne Baldwin</td>
<td>44</td>
</tr>
<tr>
<td>1400</td>
<td>The association of C-reactive protein with lung function in young adults</td>
<td>Room 100</td>
<td>Beverley Currie</td>
<td>45</td>
</tr>
<tr>
<td>1415</td>
<td>Surveillance of febrile convulsions in young children in Sydney, NSW using emergency department and ambulance despatch data</td>
<td>Room 100</td>
<td>Ben Polkinghorne</td>
<td>45</td>
</tr>
<tr>
<td>1430</td>
<td>Atopy and asthma in children: a latent class analysis</td>
<td>Room 100</td>
<td>Frances Garden</td>
<td>46</td>
</tr>
<tr>
<td>1445</td>
<td>Wood dust and formaldehyde exposure and its determinants in the joinery and furniture manufacturing industry in New Zealand</td>
<td>Room 100</td>
<td>Kerry Cheung</td>
<td>46</td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------</td>
<td>-------------------------------</td>
<td>--------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1330 – 1500</td>
<td>Concurrent session 7: Data Linkage I</td>
<td>Main Theatre Room 101</td>
<td>Chair: Lee Taylor</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>The incidence of amniotic fluid embolism in Australia: a record linkage study</td>
<td>Christine Roberts</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>1345</td>
<td>Investigating the relationship between gestational age, birthweight and childhood sleep apnoea, using longitudinally linked data</td>
<td>Camille Raynes-Greenow</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Informing hospital role delineation: Elective delivery of pregnant women before the due date</td>
<td>Michael Falster</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>1415</td>
<td>Predictors of correct recording country of birth in routine data collections among overseas born Australians</td>
<td>Danielle Tran</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>Using data linkage to estimate the total incidence of end-stage kidney disease</td>
<td>Lynelle Moon</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>1445</td>
<td>Incidence of severe adverse neonatal outcomes: use of a composite indicator in population data</td>
<td>Samantha Lain</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>1330 – 1500</td>
<td>Concurrent session 8: Social Epidemiology I</td>
<td>Room 102</td>
<td>Chair: Patricia Priest</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>What do Australians think about privacy and participation in epidemiological research?</td>
<td>Helen Kelsall</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>1345</td>
<td>Gender differences in occupational exposure patterns</td>
<td>Amanda Eng</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Prenatal stress and risk of behavioural morbidity from age two to 14 years: The influence of the number, type and timing of stressful life events</td>
<td>Monique Robinson</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>1415</td>
<td>Dental caries in Australian school children: 30 years of surveillance</td>
<td>Gloria Mejia</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>Suicide in Australian pesticide-exposed workers: a nested case-control study</td>
<td>Ewan MacFarlane</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>1445</td>
<td>How does active transport contribute to adolescents' physical activity over time?</td>
<td>Alison Carver</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>1330 – 1500</td>
<td>Concurrent session 9: Methods</td>
<td>Room 104</td>
<td>Chair: Judy Simpson</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Multiple imputation: the importance of model assumptions with increasing amounts of missing data</td>
<td>Katherine Lee</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>1345</td>
<td>Application of multiple imputation for correction of misclassification of smoking status in the association between smoking and lung cancer: a Bayesian approach</td>
<td>Marine Corbin</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>The role of post-stratification weighting in seroprevalence surveys based on non-probability sampling</td>
<td>George Doukas</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>1415</td>
<td>Evaluating the forecast accuracy of functional data analysis approach for modelling and predicting injury incidence rates: An application to falls</td>
<td>Shahid Ullah</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>Statistical modeling of count data with excess zeros: an application to falls data</td>
<td>Asad Khan</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>1445</td>
<td>The value of sibling controls compared with population controls in association studies of lifestyle-related risk factors: an example from the Breast Cancer Family Registry</td>
<td>John Hopper</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>1330 – 1500</td>
<td>Concurrent session 10: Cancer and Cancer Registries</td>
<td>Room 106</td>
<td>Chair: Alison Venn</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Patterns of drug treatment for colorectal cancer (CRC) in New South Wales</td>
<td>Efty Stavrou</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>1345</td>
<td>A population-based cohort study to estimate incidence and prognosis of metastatic breast cancer (MBC) in NSW</td>
<td>Sarah Lord</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>The accuracy of claims data for determining spread of disease at diagnosis for non-small cell lung cancer</td>
<td>Bridie Thompson</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>1415</td>
<td>Risk of second cancer after lymphohematopoietic neoplasm</td>
<td>Lin Fritschi</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>Alcohol and tobacco use predict survival in patients with esophageal squamous cell carcinoma</td>
<td>Christina Nagle</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>1445</td>
<td>Validation of a death proxy in adult cancer patients</td>
<td>Nicole Mealing</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>1500 – 1600</td>
<td>Afternoon Tea &amp; Poster Session 1 (Poster Number)</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>2nd to 4th digit ratio, adult circulating hormones, and prostate cancer risk (201)</td>
<td>David Muller</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>1345</td>
<td>Familial melanoma: A meta-analysis and estimates of attributable Fraction (202)</td>
<td>Catherine Olsen</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Effect of obesity on survival of women with breast cancer: systematic review and meta-analysis (203)</td>
<td>Melinda Protani</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>1415</td>
<td>Alcohol consumption and risk of glioma (204)</td>
<td>Gianluca Severi</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>What women want and when they want it in cervical screening: Testing preferences, decision-making styles and information needs (205)</td>
<td>Mhandio Dieng</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Coffee consumption and endometrial cancer risk (206)</td>
<td></td>
<td>Kavitha Krishnan</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Variations in Toll-like receptor genes modify the risk of infection in children treated for acute lymphoblastic leukaemia (207)</td>
<td></td>
<td>Lesley Ashton</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>The impact of smoking on cancer mortality in New South Wales (208)</td>
<td></td>
<td>Nicola Creighton</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Seasonality of pregnancy hypertension (209)</td>
<td></td>
<td>Charles Algert</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Number of children and changes in metabolic health over 9-years in men and women: the DESIR study (211)</td>
<td></td>
<td>Michael Skilton</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>How does self-reported history of stroke compare to hospitalisation data in a population-based survey in New Zealand? (212)</td>
<td></td>
<td>Kristie Carter</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Effectiveness of using SMS texts, emails and online questionnaires to maximize response rates: the Childhood Determinants of Adult Health (CDAH) Study (213)</td>
<td></td>
<td>Marita Dalton</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Can BMI predictor equations be generalised to other populations? (214)</td>
<td></td>
<td>Thaïs Miles</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Primary prevention of cardiovascular disease in a rural region of India and strategies to address the unmet need (215)</td>
<td></td>
<td>Anna Wood</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>The contribution of the Masters of Applied Epidemiology Program in applying research into public health policy and practice (218)</td>
<td></td>
<td>Michelle McPherson</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Contributions of the Masters of Applied Epidemiology Program to the H1N1 pandemic response in Australia &amp; the region (219)</td>
<td></td>
<td>Paul Kelly</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Workforce impact of 20 years of the Masters of Applied Epidemiology training program in Australia (220)</td>
<td></td>
<td>Paul Kelly</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Differential health impacts of three influenza pandemics for an indigenous people: Māori in New Zealand (221)</td>
<td></td>
<td>Lucy Telfar Barnard</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Pooled analysis of benzene petroleum workers (222)</td>
<td></td>
<td>Deborah Glass</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Ensuring comparability of benzene exposure estimates across three nested case-control studies in the petroleum industry in support of a pooled epidemiological analysis (223)</td>
<td></td>
<td>Deborah Glass</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Changes in job security in Australia, 2000-2008 (224)</td>
<td></td>
<td>Lauren Krmjaczi</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Which occupational risk factors should be included in the global burden of disease study? (225)</td>
<td></td>
<td>Tim Driscoll</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>The incidence and implications of acute kidney injury in hospitalised patients with traumatic brain injury (226)</td>
<td></td>
<td>Elizabeth Moore</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Design of a randomised controlled community trial to reduce falls in the home (227)</td>
<td></td>
<td>Michael Keall</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Work and sociodemographic determinants of musculoskeletal disorders of the neck and upper limb among hospital based nurses in Australia (228)</td>
<td></td>
<td>Victor Hoe</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Are high levels of workplace sedentary time associated with exposure to an adverse psychosocial work environment? (229)</td>
<td></td>
<td>Tessa Keegel</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Mortality and cancer incidence in male workers occupationally exposed to lead (230)</td>
<td></td>
<td>Stella Gwini</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Improved injury management at an Australian aluminium smelter (231)</td>
<td></td>
<td>Maya Guest</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Risk factors for late pregnancy stillbirth: Pilot data from the Sydney Stillbirth Study (232)</td>
<td></td>
<td>Adrienne Gordon</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Risk models for predicting obstetric trauma (233)</td>
<td></td>
<td>Peter Baghurst</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>AQUA: Asking questions about alcohol in pregnancy (234)</td>
<td></td>
<td>Evi Muggli</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Developing a composite measure for reproductive history and using it to estimate risks of subsequent very preterm birth (235)</td>
<td></td>
<td>Lyn Watson</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>The effect of birthweight toward early neonatal survival in Indonesia (236)</td>
<td></td>
<td>Rini Mutahar</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Customised versus population-based growth charts as a screening tool for detecting small for gestational age infants in low-risk pregnant women - a Cochrane Review (237)</td>
<td></td>
<td>Angela Carberry</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Chronic health effects of diesel exhausts – a preliminary investigation (238)</td>
<td></td>
<td>Le Jian</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Mortality risk factors in an outbreak of pandemic influenza on a New Zealand troop ship in 1918 (239)</td>
<td></td>
<td>Jennifer Summers</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Descriptive study of pandemic influenza amongst the New Zealand Expeditionary Forces, 1918 to 1919 (240)</td>
<td></td>
<td>Jennifer Summers</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Recent trends in hospitalisations for asthma among children and adults in Australia, 2003-2007 (241)</td>
<td></td>
<td>Stephanie Cooper</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>The implications of using different methods to measure ethnicity in a cohort study (242)</td>
<td></td>
<td>Shirley Simmonds</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>A high HIV incidence subgroup suitable for prevention trials can be identified in low HIV incidence settings such as Australia (244)</td>
<td></td>
<td>I. Mary Poynten</td>
<td>77</td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>--------------------</td>
<td>------</td>
</tr>
<tr>
<td>1600 – 1700</td>
<td>Plenary Session 2: Ian Prior Oration</td>
<td>Main Theatre Room 101</td>
<td>Chair: Claire Vajdic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Translating evidence into practice: Lofty ambition or practical necessity?</td>
<td></td>
<td>Robyn Norton</td>
<td>23</td>
</tr>
<tr>
<td>1700 – 1800</td>
<td>Annual General Meeting</td>
<td>Main Theatre Room 101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900 – 2300</td>
<td>Conference Dinner</td>
<td>Ottoman Cuisine Restaurant, Walsh Bay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk of invasive breast cancer in women diagnosed with ductal carcinoma in situ (245)</td>
<td>Chris Sturrock</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agreement on identification of consolidation on chest radiograph across three specialist physicians (246)</td>
<td>Gabrielle Williams</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All-cause mortality during the first winter wave of pandemic (H1N1) 2009 virus, New South Wales, Australia (247)</td>
<td>David Muscatello</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-reported childhood and adult medical history and risk of non-Hodgkin lymphoma - can retrospective case-control study data be trusted? (248)</td>
<td>Claire Vajdic</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The use of area under the curve for longitudinal quality of life data in the presence of missing data (249)</td>
<td>Melanie Bell</td>
<td>79</td>
<td></td>
</tr>
</tbody>
</table>
# PROGRAM: Friday 1 October 2010

**Friday 1 October**

<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
<th>LOCATION</th>
<th>PRESENTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0730 – 0830</td>
<td>Breakfast Session: Early Career Breakfast</td>
<td>Grandstand Bar, University of Sydney</td>
<td>Chair: James Harrison</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speaking to the media</td>
<td></td>
<td>Mark Ragg</td>
<td></td>
</tr>
<tr>
<td>0800 – 1730</td>
<td>Registration</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900 – 1030</td>
<td>Plenary Session 3: Outbreaks, surveillance and action: The role of epidemiologists</td>
<td>Main Theatre Room 101</td>
<td>Chair: Elizabeth Comino</td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>Translating animal disease epidemiology into economic growth and better health</td>
<td></td>
<td>Bruce Christie</td>
<td>24</td>
</tr>
<tr>
<td>0945</td>
<td>Translating research into practice: the challenges of investigating emerging infectious diseases</td>
<td></td>
<td>Jeremy McAnulty</td>
<td>24</td>
</tr>
<tr>
<td>1030 – 1100</td>
<td>Morning Tea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 11: Epidemiological Methods</td>
<td>Room 100</td>
<td>Chair: Timothy Dobbins</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Is the reported association between birth order and risk of non-Hodgkin lymphoma due to selection bias?</td>
<td></td>
<td>Andrew Grulich</td>
<td>80</td>
</tr>
<tr>
<td>1115</td>
<td>Changes over time in the Healthy Soldier effect</td>
<td></td>
<td>Michael Waller</td>
<td>80</td>
</tr>
<tr>
<td>1130</td>
<td>A population case control study to identify predictors of cerebral palsy: Will it translate to an earlier diagnosis for families?</td>
<td></td>
<td>Sarah McIntyre</td>
<td>81</td>
</tr>
<tr>
<td>1145</td>
<td>Geographic access to alcohol outlets and serious violent crime in New Zealand</td>
<td></td>
<td>Peter Day</td>
<td>81</td>
</tr>
<tr>
<td>1200</td>
<td>Influence of high-dose estrogen exposure in adolescence on mammographic density in adulthood</td>
<td></td>
<td>Helen Jordan</td>
<td>82</td>
</tr>
<tr>
<td>1215</td>
<td>The temporal association between the incidence of emergency department visits for acute alcohol problems and assaults attended by police in NSW, 2003-2008</td>
<td></td>
<td>Joseph Descallar</td>
<td>82</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 12: Data Linkage II</td>
<td>Main Theatre Room 101</td>
<td>Chair: Natasha Nassar</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>30-day hospital mortality measures: Should all deaths be included?</td>
<td></td>
<td>Leah Shepherd</td>
<td>83</td>
</tr>
<tr>
<td>1115</td>
<td>Pharmacovigilance in pregnancy: a case study of citalopram exposure during pregnancy – maternal characteristics, birth outcomes and early hospital admissions for 1157 children</td>
<td>Lyn Colvin</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>1130</td>
<td>Assessing data quality by record linkage: Using longitudinal data to validate cross-sectional reporting of previous caesarean birth</td>
<td>Jian Chen</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>1145</td>
<td>Validation of morbidity, smoking and obesity codes in NSW administrative health dataset</td>
<td>Sanja Lujic</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>Validation of self-reported cancer and predictors of false reports in Australian women</td>
<td>Efty Stavrou</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>1215</td>
<td>Recent trends in hospital morbidity and mortality associated with penetrating injuries in Queensland</td>
<td>Stuart Howell</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 13: Cardiovascular</td>
<td>Room 102</td>
<td>Chair: Monica Robotin</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Intergenerational educational mobility and its association with healthy lifestyle behaviours in a cohort of young Australian adults</td>
<td>Alison Venn</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>1115</td>
<td>An Australian risk model for determining 30-day mortality following aortic valve replacement</td>
<td>Thathya Ariyaratne</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>1130</td>
<td>Use of linked hospital data to assess the impact of the introduction of tissue plasminogen activator (tPA) therapy on stroke outcomes in NSW</td>
<td>Andrea Schaffer</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>1145</td>
<td>Developing evidence to support the National Male Health Policy: the case for a longitudinal study of Australian men</td>
<td>Veronica Collins</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>Combining evidence with personal preferences in a web-based decision support tool for preventive health choices</td>
<td>Siranda Torvaldsen</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>1215</td>
<td>Inequity in the use of health care for coronary heart disease in Australia, 1996–2005</td>
<td>Lynelle Moon</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 14: Communicable and Infectious Diseases</td>
<td>Room 104</td>
<td>Chair: Sarah Thackway</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>The prevalence and incidence of genital Chlamydia trachomatis and Mycoplasma genitalium in a cohort of young Australian women</td>
<td>Jennifer Walker</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>1115</td>
<td>Population attributable fractions of infant and maternal risk factors for respiratory infections in children: A population-based record linkage study</td>
<td>Hannah Moore</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>1130</td>
<td>Rapid population surveillance using a continuous population health survey to assess the epidemiology of pandemic (H1N1) 2009 virus, New South Wales, Australia</td>
<td>David Muscatello</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>1145</td>
<td>Infant anthropometry, early life infection and subsequent risk of type 1 diabetes mellitus: a prospective birth cohort study</td>
<td>Angela Pezic</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>Linked hospitalisations for people diagnosed with hepatitis C in NSW: methodological issues and the added burden of HIV and hepatitis B co-infection</td>
<td>Janaki Amin</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>1215</td>
<td>Social network analysis combining contact-tracing and spatial data to investigate a rapidly spreading epidemic</td>
<td>Simon Firestone</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------</td>
<td>--------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1100 – 1230</td>
<td>Concurrent session 15: Occupational Health, Safety &amp; Injuries</td>
<td>Room 106</td>
<td>Chair: Tim Driscoll</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>Development of the prediction of falls in rehabilitation settings tool (Predict_FIRST): a prospective cohort study</td>
<td></td>
<td>Cathie Sherrington</td>
<td>92</td>
</tr>
<tr>
<td>1115</td>
<td>Estimation of the social costs of home injury: a comparison with estimates for road injury</td>
<td></td>
<td>Michael Keall</td>
<td>92</td>
</tr>
<tr>
<td>1130</td>
<td>Estimating the economic benefits of eliminating job strain as a risk factor for depression</td>
<td></td>
<td>Anthony LaMontagne</td>
<td>93</td>
</tr>
<tr>
<td>1145</td>
<td>Vehicle child restraint usage for Pacific children aged 6 weeks to 4 years: Findings from the Pacific Islands Families Study</td>
<td></td>
<td>Philip Schluter</td>
<td>93</td>
</tr>
<tr>
<td>1200</td>
<td>Does health status matter for the risk of injury? Results from a longitudinal survey</td>
<td></td>
<td>Ruth Cunningham</td>
<td>94</td>
</tr>
<tr>
<td>1215</td>
<td>Prognostic significance of time to mild traumatic brain injury in a cohort of nonprofessional rugby players</td>
<td></td>
<td>Ling Li</td>
<td>94</td>
</tr>
<tr>
<td>1230 – 1300</td>
<td>Lunch</td>
<td>Foyer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300 – 1400</td>
<td>Early Career Workshop</td>
<td>Main Theatre Room 101</td>
<td>Chair: Siranda Torvaldsen</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Assessment of older cancer patients’ needs</td>
<td></td>
<td>Mikaela Jorgensen, Discussant: Lin Fritsch</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Examining longitudinal changes in population physical activity and risk of all-cause mortality</td>
<td></td>
<td>Amina Khambala, Discussant: Jennifer Powers</td>
<td>28</td>
</tr>
<tr>
<td>1400 – 1500</td>
<td>Concurrent session 16: Indigenous Health</td>
<td>Room 100</td>
<td>Chair: Sandra Eades</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Variation in outcomes for Aboriginal and non-Aboriginal people after admission for acute myocardial infarction: Where can interventions have the most impact?</td>
<td></td>
<td>Deborah Randal</td>
<td>95</td>
</tr>
<tr>
<td>1415</td>
<td>Estimating cancer incidence in Indigenous Australians</td>
<td></td>
<td>Xiaohua Zhang</td>
<td>95</td>
</tr>
<tr>
<td>1430</td>
<td>Injury related hospitalisations in the Aboriginal population of New South Wales: key findings</td>
<td></td>
<td>Scott Walter</td>
<td>96</td>
</tr>
<tr>
<td>1445</td>
<td>Timeliness of Aboriginal infant immunisations in south west Sydney</td>
<td></td>
<td>Vana Webster</td>
<td>96</td>
</tr>
<tr>
<td>1400 – 1500</td>
<td>Concurrent session 17: Screening, Measurement and Error</td>
<td>Room 101</td>
<td>Chair: David Muscatello</td>
<td>96</td>
</tr>
<tr>
<td>1400</td>
<td>Screening for influenza at the border - is it worthwhile?</td>
<td></td>
<td>Patricia Priest</td>
<td>97</td>
</tr>
<tr>
<td>1415</td>
<td>A new method of prenatal alcohol classification accounting for dose, pattern, and timing of exposure: Improving our ability to examine fetal effects from low to moderate exposure</td>
<td></td>
<td>Colleen O’Leary</td>
<td>97</td>
</tr>
<tr>
<td>1430</td>
<td>Estimating bias generated by loss of blinding in randomised controlled trials with binary outcomes</td>
<td></td>
<td>Erin Mathieu</td>
<td>98</td>
</tr>
<tr>
<td>1445</td>
<td>Overcoming the barriers experienced in conducting a medication trial in adults with aggressive challenging behaviour and intellectual disabilities</td>
<td></td>
<td>Shamshad Karatela</td>
<td>98</td>
</tr>
<tr>
<td>1400 – 1500</td>
<td>Concurrent session 18: Social Epidemiology II</td>
<td>Room 102</td>
<td>Chair: John Lynch</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Sunbed use during adolescence and early adulthood is associated with increased risk of early-onset melanoma</td>
<td></td>
<td>Anne Cust</td>
<td>99</td>
</tr>
<tr>
<td>1415</td>
<td>Is there an association between melanoma thickness, clinical skin examination and socioeconomic status? Results from a large population-based case-control study</td>
<td></td>
<td>Philippa Youl</td>
<td>100</td>
</tr>
<tr>
<td>1430</td>
<td>Characterisation of Australian horse owners with low levels of biosecurity compliance following the 2007 outbreak of equine influenza</td>
<td></td>
<td>Kathrin Schemann</td>
<td>100</td>
</tr>
<tr>
<td>1445</td>
<td>The management of heart conditions in older rural and urban Australian women</td>
<td></td>
<td>Susan Jordan</td>
<td>101</td>
</tr>
<tr>
<td>1400 – 1500</td>
<td>Concurrent session 19: Mental Health</td>
<td>Room 104</td>
<td>Chair: Thais Miles</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Co-morbid psychological distress increases health-related productivity decrements in working Australians</td>
<td></td>
<td>Libby Holden</td>
<td>101</td>
</tr>
<tr>
<td>1415</td>
<td>Should employees with depression be encouraged to &quot;work through it&quot;? Epidemiologic evidence to improve health and work outcomes</td>
<td></td>
<td>Kristy Sanderson</td>
<td>102</td>
</tr>
<tr>
<td>1430</td>
<td>Does maternal severe mental illness increase the risk of Sudden Infant Death Syndrome?</td>
<td></td>
<td>Maxine Croft</td>
<td>102</td>
</tr>
<tr>
<td>1445</td>
<td>Life as a mother two years after birth: longer term outcomes of PRISM, a community randomised trial to improve maternal physical and mental health after childbirth</td>
<td></td>
<td>Rhonda Small</td>
<td>103</td>
</tr>
<tr>
<td>1400 – 1500</td>
<td>Concurrent session 20: Obesity</td>
<td>Room 106</td>
<td>Chair: Eify Stavrou</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>Maternal pre-pregnancy body weight and risk for affective disorders in offspring: A prospective pregnancy cohort followed to adulthood</td>
<td></td>
<td>Monique Robinson</td>
<td>103</td>
</tr>
<tr>
<td>1415</td>
<td>Obesity and the risk of hospitalisation</td>
<td></td>
<td>Rosemary Korda</td>
<td>104</td>
</tr>
<tr>
<td>1430</td>
<td>A cluster-randomised controlled trial of an early childhood obesity prevention program: Promising outcomes from The Melbourne InFANT Program</td>
<td></td>
<td>Kylie Hesketh</td>
<td>104</td>
</tr>
<tr>
<td>1445</td>
<td>Weight gain and risk of colon cancer</td>
<td></td>
<td>Julie Basset</td>
<td>105</td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>1500 – 1600</td>
<td>Afternoon Tea and Poster Session 2 – (Poster Number)</td>
<td>Foyer</td>
<td>Ashley Kable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Return to Work Coordinators – contributions to the occupational rehabilitation process for injured nurses (250)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nationwide trends in the uptake of laparoscopic resection for colorectal cancer, 2000/01 to 2008/09 (251)</td>
<td></td>
<td>Bridie Thompson</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessing the impact of smoking cessation services: a geographical analysis of Quit Group data (252)</td>
<td></td>
<td>Edward Griffin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMBASE, CENTRAL, PubMed and PEDro are the most comprehensive databases indexing randomised controlled trials of physiotherapy interventions (254)</td>
<td></td>
<td>Zoe Michaleff</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capture-recapture analysis of all-cause mortality in Bohol, Philippines (255)</td>
<td></td>
<td>Karen Carter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessment of the health impact of heatwaves in Brisbane, Australia (256)</td>
<td></td>
<td>Shilu Tong</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prevalence of gastro-oesophageal reflux in Australia and the associated factors (257)</td>
<td></td>
<td>Nirmala Pandeya</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Merkel Cell carcinoma in Western Australia (258)</td>
<td></td>
<td>Jennifer Girschik</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health of Pacific children: Environmental and nutritional determinants (259)</td>
<td></td>
<td>Shamshad Karatela</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excess winter hospitalisation higher in “character” homes (260)</td>
<td></td>
<td>Lucy Telfar Barnard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motor vehicle emissions and fetal growth – issues in exposure assessment (261)</td>
<td></td>
<td>Gavin Pereira</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Governance approval for multi-site, non-interventional research: What can HoMER learn from the NSW experience? (262)</td>
<td></td>
<td>Claire Vajdic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The impact of the Australian Government Child Health Check Initiative on avoidable hospitalisations among Northern Territory Indigenous children (263)</td>
<td></td>
<td>Sabine Pircher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethnic gradient in mortality amongst the New Zealand military personnel in World War One (264)</td>
<td></td>
<td>Jennifer Summers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Māori and non-Māori disparities in oral cancer (265)</td>
<td></td>
<td>Shirley Simmonds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incidence in acute pancreatitis in the Northern Territory (267)</td>
<td></td>
<td>Shu Qin Li</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do adverse climate conditions affect women’s self-rated health? (268)</td>
<td></td>
<td>Jennifer Powers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D deficiency in Tasmania – Translating evidence into practice (269)</td>
<td></td>
<td>Ingrid van der Mei</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diet quality and all-cause mortality in adults aged &gt;65 years (270)</td>
<td></td>
<td>Sarah McNaughton</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Systematic review of first trimester vitamin D normative levels and outcomes of pregnancy (271)</td>
<td></td>
<td>Natasha Nassar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factors associated with healthy eating and avoiding food-insecurity in low-income households: an international comparison between the UK and Australia (272)</td>
<td></td>
<td>Lukar Thornton</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The role of parents in pediatric overweight and obesity management: a systematic review of clinical practice recommendations (273)</td>
<td></td>
<td>Vanessa Shrewsbury</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variation in diabetes prevalence and risk factors by country of birth: A population based study (274)</td>
<td></td>
<td>Moretza Shamshirgaran</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The effect of diabetes on cardiovascular disease is not modified by body mass index: data from 160,085 individuals in the Asia-Pacific region (275)</td>
<td></td>
<td>Yoshitaka Murakami</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joint effects of blood pressure and body mass index on cardiovascular disease in the Asia-Pacific region (276)</td>
<td></td>
<td>Rumi Tsukinoki</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A life course investigation of the influence of precarious employment on older first-time motherhood (277)</td>
<td></td>
<td>Emily Steele</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pandemic influenza (A/H1N1/09) in Sydney: Trusted sources of information and public perceptions of the outbreak management (278)</td>
<td></td>
<td>Melanie Taylor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mental health status among Chinese adolescents: Only children compared to children with siblings (279)</td>
<td></td>
<td>Jiandong Sun</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sleep disturbance in patients with low back pain (280)</td>
<td></td>
<td>Saad Alsaadi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cardiometabolic, respiratory and psychological health in a regional South Australian city: Population benchmarking and social distribution (281)</td>
<td></td>
<td>Matthew Haren</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender differences in self-reported health among New Zealand adults (282)</td>
<td></td>
<td>Santosh Jatrana</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depression in women with toddlers and risk of subsequent emotional and behavioural problems in the children (2803)</td>
<td></td>
<td>Lynne Giles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic disease in Australia’s younger generation, promoting a healthier future (284)</td>
<td></td>
<td>Rhiannon Pilkington</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How do changes in income affect the health of the poor and the chronically ill? (285)</td>
<td></td>
<td>Fiona Gunasekara</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factors associated with academic stress in adolescent students in Shandong, China (286)</td>
<td></td>
<td>Xiang-Yu Hou</td>
<td></td>
</tr>
<tr>
<td>TIME</td>
<td>SESSION</td>
<td>LOCATION</td>
<td>PRESENTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>----------------------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Predictors of change in blood pressure after participation in a pedometer-based workplace program (287)</td>
<td></td>
<td>Rosanne Freak-Poli</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Comparison of complete-case and multiple imputation analysis in the investigation of the prognostic significance of parental reports of &quot;asthma&quot; and &quot;wheeze&quot; in kindergarten children (289)</td>
<td></td>
<td>Anne-Marie Waters</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>Blind to the grind?: A randomised controlled trial to assess whether coffee drinkers can tell the difference between caffeinated and decaffeinated coffee (290)</td>
<td></td>
<td>Erin Mathieu</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>Age-specific smoking-related individual risk and population attributable fraction for periodontal disease in the Australian adult population (291)</td>
<td></td>
<td>Loc Do</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>A review of reporting missing data in cohort studies with repeated assessment of exposure measures (292)</td>
<td></td>
<td>Emily Karahalios</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>Time trends in the incidence and prevalence of asthma in Australian children: a cohort and age-period analysis (293)</td>
<td></td>
<td>Rosario Ampon</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Measuring the placebo effect in unblinded randomised community trials (294)</td>
<td></td>
<td>Nevil Pierse</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Low survey response rates and the effect on estimates of drinking in a general population sample (295)</td>
<td></td>
<td>Jessica Meiklejohn</td>
<td>126</td>
</tr>
<tr>
<td>1600 – 1700</td>
<td>Plenary Session 4: Presidential Debate “Translating research into practice: Epidemiologists should leave it to the policy makers”</td>
<td>Main Theatre Room 101</td>
<td>Chair: Camille Raynes-Greenow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Team for the Affirmative</td>
<td></td>
<td>Team for the Negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stephen Leeder</td>
<td>Bob Douglas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alison Venn</td>
<td>Jane Halliday</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leigh Blizzard</td>
<td>John Kaldor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjudicator: Hon MP Mark Butler</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700 – 1730</td>
<td>Final remarks and prize giving</td>
<td>Main Theatre Room 101</td>
<td>Chairs: Lesley Ashton &amp; Leigh Blizzard</td>
<td></td>
</tr>
<tr>
<td>1730</td>
<td>Close of Conference</td>
<td>Main Theatre Room 101</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONFERENCE SPONSORS

New South Wales Department of Health

The New South Wales (NSW) Department of Health works to provide the people of NSW with the best possible health care. NSW Health supports the Minister for Health and two assistant ministers to perform their executive and statutory functions. This includes promoting, protecting, developing, maintaining and improving the health and well being of the people of NSW, while considering the needs of the State and the finances and resources available. NSW Health has statewide responsibility to monitor the performance of the NSW public health system. Our vision is for everyone in NSW Health to work together to achieve “Healthy People - now and in the future.”

For more information, visit www.health.nsw.gov.au

Onsite Rental Group Pty Ltd

The Onsite Rental Group (Onsite) is an established national rental company providing an extensive range of specialist rental products and services across multiple industries and geographies. Onsite’s solutions include portable buildings, power generation, access equipment and event solutions. Onsite’s growth onto the national stage provides greater choice for national customers, while the company’s people offer an unrivalled level of technical expertise and support to deliver cost savings to customers.

For more information, visit www.onsite.com.au

Victorian Cytology Service Inc

The Victorian Cytology Services Inc (VCS) plays a leading role in the reduction of the impact of cervical pre cancer, cancer, and Chlamydia infection in Australians through the provision of laboratory and registry services, program evaluation, education and research. VCS has a core laboratory service reporting the Pap smears of approximately half the women in Victoria. VCS Inc auspices the Victorian Cervical Cytology Register (VCCR), a Pap smear reminder service that contains the results of almost all the Pap smears performed in Victoria and the National Human Papillomavirus Vaccination Program Register (NHVPR) which monitors and evaluates the HPV vaccination program established by the Department of Health and Ageing.
The Centre for MEGA Epidemiology

The Centre for MEGA Epidemiology has a well-deserved international reputation for excellence in research. The Centre’s aim is to develop, promote and consolidate epidemiologic research and teaching. The Centre hosts several large cohort studies of individuals and families that are providing important information about prevention of cancer, asthma, allergy, respiratory disease and more recently hereditary haemochromatosis. The Centre also houses the Australian Twin Registry and has strong links with the Genetic Epidemiology Laboratory in the Department of Pathology. Most of the Centre’s research is supported by competitive grants from the US National Institutes of Health, the NHMRC and other nationally competitive grant schemes such as the National Breast Cancer Foundation.

The Centre for Health Record Linkage

The Centre for Health Record Linkage (CHEReL), hosted by the Cancer Institute NSW, was established in 2006 through the collaboration of supporting organisations, to create and sustain a record linkage infrastructure for the health and human services sector, and provide access to these resources to bona fide researchers and health planners and policy makers.

DNA Genotek

DNA Genotek is focused on improving nucleic acid sample collection. The company’s Oragene® product line offers researchers a non-invasive, all-in-one system for the collection, stabilisation, transportation and purification of high quality DNA or RNA from saliva. Oragene’s reliability and ease-of-use have resulted in rapid worldwide adoption by top-tier health institutions.
Keynote speakers

Professor Adrian Bauman

Adrian Bauman is the Sesquicentenary Professor of Public Health in the School of Public Health, University of Sydney, Australia. He is an epidemiologist, and public health physician in Australia, and is Director of around 25 researchers in his Prevention Research Centre. He has research interests in physical activity and health, physical activity epidemiology, and interventions to promote healthy lifestyles. He has published 300 peer-reviewed scientific papers, more than 100 book chapters and monographs, and since 2000, has attracted around $15 million in research grants.

Professor Sholom Wacholder

Dr Wacholder received a PhD in biomathematics from the University of Washington in 1982. Dr Wacholder is a Fellow of the American Statistical Association and an elected member of American Epidemiological Society. He is a statistical collaborator on genome-wide association studies of several cancers; on a trial of a vaccine to prevent infection with human papillomavirus (HPV); on projects investigating the natural history of HPV infection and cervical neoplasia; and studies of occupational exposure to benzene and to diesel. He has major methodological publications in the areas of control selection for case-control studies; kin-cohort analysis, which he invented for the Washington Ashkenazi Study; population stratification in association studies of the effects of genetic variants; and a formal method for incorporating external information in tests of hypothesis. He is editor emeritus of Epidemiology, senior editor for statistical methods and models at Cancer Epidemiology Biomarkers and Prevention, statistical editor at Journal of the National Cancer Institute and associate editor at the American Journal of Epidemiology.

Dr Jeremy McAnulty

Jeremy McAnulty has been the Director of the Communicable Diseases Branch at the New South Wales Health Department in Sydney since 1996. He completed a Master of Public Health at the University of Sydney, in 1990 he joined the NSW Health Department’s Public Health training scheme, and from 1991 to 1993 trained with the United States Centers for Disease Control and Prevention’s Epidemic Intelligence Service. Jeremy has worked with the Oregon Health Division in HIV epidemiology, and served as Director of the Southern Sydney Public Health Unit until 1996.

Since 1996, Jeremy’s responsibilities have included the control of communicable diseases that pose a threat to public health in New South Wales. Areas of responsibility include communicable disease surveillance and control, tuberculosis control, coordination of local public health unit activities and training of public health professionals. He has recently been appointed acting Director of the Centre for Health Protection at NSW Health and is Chair of the Communicable Diseases Network of Australia.

Jeremy has led investigations and developed control strategies for a range of communicable disease threats including Severe Acute Respiratory Syndrome, psittacosis, influenza, shigellosis, cryptosporidiosis and hepatitis A in New South Wales. He played leading roles in the planning for, surveillance and investigation of health risks associated with the Sydney Olympics, Cryptosporidium-contaminated drinking water in Sydney, World Youth Day 2008, and the response to pandemic (H1N1) influenza.
Professor Robyn Norton

Robyn Norton is Principal Director of The George Institute for Global Health, a not-for-profit medical research institute with offices in Sydney, Beijing, Hyderabad and Oxford. The Institute undertakes large-scale clinical, population health and health systems research, working across four major themes: chronic and critical conditions; injury, frailty and disability; health care innovation and disadvantaged populations. Robyn also holds the positions of Professor of Public Health and Associate Dean (Global Health) within the Sydney Medical School at the University of Sydney. In addition, she holds the positions of Honorary Professor at Peking University Health Science Center in Beijing, China and Honorary Consultant Epidemiologist at the Royal Prince Alfred Hospital in Sydney. Robyn is also Chair Emeritus of the Road Traffic Injuries Research Network, an initiative aimed at increasing research and research capacity to address the current and growing burden of road traffic injuries in low and middle-income countries.

Dr Mark Ragg

Mark Ragg trained as a medical practitioner, but has worked as a professional writer and editor for 20 years. He has been a reporter and health editor at The Australian, a contributor to The Bulletin and a senior writer and editorial writer at the Sydney Morning Herald. He has written 14 books on health matters, including the NHMRC’s How to present the evidence for consumers: preparation of consumer publications (1999) and How to put the evidence into practice: implementation and dissemination strategies (2000). His novel The Dickinson Papers was published by Random House in August 2006. He also teaches writing skills here and in Asia.

Mark is adjunct senior lecturer in the School of Public Health at the University of Sydney and is a principal of the health and communications consultancy RaggAhmed.

Mr Bruce Christie

Bruce M. Christie is Chief Veterinary Officer (CVO) and Principal Director Biosecurity with the Department of Industry and Investment Primary Industries, New South Wales, (NSW) Australia.

Bruce has over 30 years of experience working as a veterinarian dealing with animal health and production issues affecting food production animals. His earlier work concentrated on the diagnosis and treatment of diseases in cattle, pigs, goats and poultry. He then specialised in cattle medicine and nutrition while maintaining an interest in the diseases of other food production animals. He has been involved with the development of disease diagnostic and monitoring programs and vaccination programs for diseases such as Newcastle Disease, Brucellosis, Anthrax, Haemorrhagic Septicaemia and Classical Swine Fever. He has coordinated the development of advisory and extension programs aimed at controlling diseases and increasing animal production in Australia, Indonesia and East Timor. He has also been involved with the design and implementation of cattle and chicken livestock distribution programs in Indonesia and East Timor and he has extensive experience in managing research and survey work in difficult conditions. He has designed and presented training courses for veterinarians, para-veterinarians and animal production staff.

He has successfully managed projects and staff as Team Leader on the AusAID Eastern Islands Veterinary Services Project (EIVSP II), as Institute Supervisor at the Elizabeth Macarthur Agricultural Institute, NSW Department of Primary Industries’ principal animal and plant health diagnostic and research facility, and as Program Manager Quality Assurance and NSW Chief Veterinary Officer. He presently leads the Biosecurity Branch within the NSW Department of Industry and Investment in the position of Principal Director Biosecurity and is responsible for animal and plant biosecurity strategy and policy development and implementation within NSW, Australia.
DEBATE KEYNOTE SPEAKERS

“Translating research into practice: Epidemiologists should leave it to the policy makers”

Team for the Affirmative
Professor Stephen Leeder
University of Sydney, NSW
Professor Alison Venn
Menzies Research Institute, TAS
Associate Professor Leigh Blizzard
Menzies Research Institute, TAS

Team for the Negative
Professor Robert Douglas
Former Director of the National Centre for Epidemiology and Population Health, Australian National University. Founding AEA President 1987
Associate Professor Jane Halliday
Murdoch Childrens Research Institute, VIC
Professor John Kaldor
University of New South Wales, NSW
PLENARY 1
Translating Evidence into Practice

Thursday 0900 – 1030
Main Theatre Room 101
Chair: Leslie Ashton

Translation of molecular epidemiology findings into prevention and clinical practice: the example of HPV

S Wacholder
George Institute for Global Health, National Cancer Institute, Bethesda, MD, Australia

Twenty years of research has changed our impression of human papillomavirus (HPV) from a candidate risk factor for cervical cancer to a necessary cause of the third leading cause of cancer death in women in the world. Prevention programs based on Pap smears are effective, where feasible, even though they were designed without an understanding of the role of HPV. Now, vaccination of girls against HPV infection and screening their mothers for presence of HPV infection are two new ways to reduce the incidence and mortality from cervical cancer substantially. The most appropriate combination of screening and vaccination for different birth cohorts, at different places and times will vary substantially. This presentation will discuss HPV as an example of the opportunities and challenges of translating epidemiologic findings into effective prevention programs in poorer and richer countries.

Research translation and population dissemination in public health

A Bauman
School of Public Health, Sydney University, Sydney University, NSW, Australia

There is much interest among public decision makers in translating evidence-based research findings into population-level programs. The principles underpinning “evidence into practice” come from clinical research, where randomised trials, replication trials, and then meta analyses can lead to clinical guidelines and established “care pathways”. In public health, the principles are more complex, the methods of dissemination and translation more diffuse, and even definitions not clearly articulated. This talk will illustrate the methodological challenge in applying a research dissemination framework to prevention research. The talk will identify [i] the research designs needed for understanding dissemination research, [ii] flaws in the evidence generation process, especially around volunteer bias in prevention trials, and [iii] gaps in the policy adoption of prevention-related evidence. Examples will be drawn from diabetes prevention programs, environment-changing interventions and individual-behaviour change interventions in primary care are used to illustrate these principles.

PLENARY 2
Ian Prior Oration

Thursday 1600 – 1700
Main Theatre Room 101
Chair: Claire Vajdic

Translating evidence into practice: lofty ambition or practical necessity?

R Norton
George Institute for Global Health, University of Sydney, Sydney, NSW, Australia

There is much to be admired in Ian Prior’s approach to life, most notably his commitment to making a difference and ensuring that evidence would be translated into practice. Ian’s active engagement in a range of disciplines – including public health, the arts, music and the environment – as well as across a range of population groups – was no doubt part of the key to his success in bridging the evidence-practice gap. Today, in an era of health care reform, driven in large part by burgeoning health care costs and limited budgets, as well as increasing expectations and ageing populations, the need for evidence to drive practice has arguably become a practical necessity. However, often those who make decisions about health care appear to be more interested in making fast decisions that appear impactful rather than taking a considered view of the evidence. While opportunities exist to evaluate the impact of planned reforms, and thereby contribute to a strong evidence base, without active engagement between researchers and policymakers, these opportunities will be lost. However, moving outside “the box” of research into the practical realities of decision-making is not an easy task for many researchers: we have not been trained to engage with policy makers and we are not easily rewarded for such engagement. Nevertheless, for most of us committed to making a difference, if we want to move beyond lofty ambitions of translating evidence into practice we need to understand and embark on the steps that will make this a reality. Ian Prior’s very public approach to raising the profile of issues about which he was engaged provides a model that we might well wish to emulate.
Translating animal disease epidemiology into economic growth and better health

B Christie, RJ Arthur, BJ Moloney
Industry & Investment NSW, Orange, NSW, Australia

Australian animal health authorities have used epidemiology to successfully control and eradicate animal diseases leading to better production, better market access and better animal and public health. The role of the epidemiologist in these programs has been pivotal.

The successful eradication of bovine tuberculosis and brucellosis, the elimination of highly pathogenic avian influenza from a number of poultry flocks and the eradication of equine influenza have all led to better disease management, lower costs and better social outcomes. These programs were built on foundations of effective surveillance and monitoring. Australia has a range of active, passive, general and targeted surveillance programs which take data and transform it into intelligence from which the programs are developed.

An excellent example of sentinel surveillance is the National Arbovirus Monitoring Program which has allowed trade in dairy cattle to China and significant economic development of the dairy industry. Impacts from the v-CJD outbreaks in Europe have fundamentally changed the way we trade in livestock products. The National Transmissible Spongiform Encephalopathy Surveillance Program is a targeted surveillance program that facilitates all our livestock product trade to the EU.

Passive surveillance underpins policies for the management of anthrax, Australian Bat Lyssavirus incidents, swine influenza in pig herds, low pathogenic avian influenza in poultry flocks and many other diseases. Four apparently new diseases have emerged in New South Wales in the last 15 years. The difficulties of defining what constitutes a "case" were highlighted in three of these (porcine myocarditis, Hendra virus, porcine circovirus associated disease) while the eradication of Menangle virus from a piggery was quickly achieved using basic epidemiology principles.

Animal disease epidemiologists become extremely valuable property in disease eradication control centres such as in the equine influenza (EI) eradication campaign. The epidemiologists were required to document how fast the disease would spread, what constituted a positive case, the potential role of humans in transmission, what impacts vaccination would have and what movement controls were necessary to prevent spread. The lessons that were learned on EI undoubtedly have implications for control of human flu.

No longer can we rely on governments to invest substantial resources in animal disease surveillance. A major challenge facing animal disease epidemiologists at the moment is deciding what resources need to be applied to treat risks of failure of early detection of emerging and foreign diseases. The role of epidemiologists can thus only become more important in managing Australia’s animal health system.

Translating research into practice: the challenges of investigating emerging infectious diseases

J McAnulty
Communicable Diseases Branch, NSW Health, North Sydney, NSW, Australia

New infectious diseases of humans have emerged regularly over the last few decades, the majority of which have originated from infections in animals. These new infections have been identified in part because of improved diagnostic technologies, and because of changes in the way humans interact with animals. These interactions include the movement of people into animal habitats, new methods of animal husbandry, new mechanisms for food production, and even the adoption of exotic pets, and have been linked to the emergence of Ebola virus infection, E coli O157 infection, variant Creutzfeldt-Jacob disease, avian influenza, swine influenza, severe acute respiratory syndrome, Nipah virus, Monkeypox and pandemic (H1N1)2009 influenza. Recent local emergences have included Hendra virus, Menangle virus and Australian Bat Lyssavirus.

Combat of these emerging infections depends on the development of sensitive surveillance systems, effective communication between animal and human health agencies, the investigation of outbreaks to determine causes and risk factors, close collaboration between human and veterinarian epidemiologists, and clear control protocols.

Detection of emerging infections involves gathering intelligence through informal and formal international sources, including internet bulletin boards, the scientific literature and news reports, as well as routine animal and human health surveillance systems. Where a potential threat to human health is identified, a careful but rapid initial risk assessment and clear communication strategy is essential, followed by the gathering and analysis of detailed additional data on persons exposed to the risk, both to help
minimise the current risk, and to inform future prevention measures.

While some emerging disease can be rapidly contained through these measures, others such as SARS and pandemic (H1N1) 2009 may not. A range of surveillance systems may be required to monitor the progress and burden of these conditions. Where containment remains the aim -- as in SARS -- then it is important to identify every case to facilitate appropriate control measures. However where containment can no longer be achieved -- as in pandemic (H1N1) 2009 influenza -- then sentinel surveillance methods (e.g., patients presenting to selected emergency Departments or general practitioners, or biological samples submitted to selected laboratories) can provide adequate data to inform decision making.

From GWAS to aetiology and translation

S Wacholder
George Institute for Global Health, National Cancer Institute, Bethesda, MD, United States

Genome wide association studies have produced an unprecedented number of discoveries of unsuspected associations with dozens of diseases in a very short time. Even though the effects of each variant are generally small individually, cumulatively they may confer about as much risk as have many years of more traditional epidemiologic research. This presentation will explore the ability of various intermediate endpoints to measure progress from GWAS to date and explore potential mid-course corrections that might hasten the etiologic and translational benefits of the research.

Heritability and genes in GWAS research

N Pearce¹, P Vineis²
1 Centre for Public Health Research, Massey University, Wellington, New Zealand
2 School of Public Health, Imperial College, London, United Kingdom

Much of the literature on Genome Wide Association Studies (GWAS) is based on the premise that an important proportion of common diseases is heritable, and that this proportion is likely to be due to genetic variants detectable with extensive scans of DNA. Heritability is estimated from family studies, including twin studies, in which the occurrence of disease is compared between members of particular families (brothers, sisters, parents and offspring). Since there is a wide gap between the population variation in disease explained by the results of GWAS (usually less than 10% for common diseases) and estimates of heritability (often more than 50%) the question arises as to how to explain these differences. We believe, however, that the premise itself needs to be challenged because it is based on two sources of misunderstanding: (i) confusion between variation and causation; and (ii) confusion between heritability and genetic determination. As we show with a number of examples, variation is not causation, and heritability is not genetic determination. Therefore heritability studies do not provide valid estimates of the proportion of disease cases that are attributable to genetic factors. Such estimates in turn cannot be used to estimate the proportion of cases that are due to environmental factors.

The value of population-based family designs

J Hopper
Centre for MEGA Epidemiology, University of Melbourne, Carlton, VIC, Australia

Genetic Epidemiology has been defined as “a science that deals with the aetiology, distribution and control of disease in relatives, and with inherited causes of disease in populations”. In this context, ‘inherited’ is meant to include non-genetic inheritance. There are three key aspects: (i) understanding, (ii) discovery, and (iii) characterisation. The first involves establishing that there are familial associations, and assessing whether these are consistent with a genetic aetiology. Genes are not measured directly, but rather inferred using informative designs such as twin and family studies. The preferred data is from population-based samples. The second involves trying to establish the location of the putative genes, traditionally by measuring not necessarily functional markers for members of multiple-case or extreme phenotype families that need not be sampled on a population-basis. Opportunistically sampled sets of related people can be appropriate for what is essentially hypothesis-generating research. The third involves trying to determine the actual genetic variants and making inference about the strength of association with the phenotypes of interest. For this hypothesis-testing research, population-based families provide estimates that are unbiased and interpretable, provided correct adjustment for sampling (e.g. through affected probands) is made. For non-systematically sampled families, adjustment for sampling almost invariably involves strong conditioning (e.g. on family phenotypes) with resultant little information per family on risk. It is also possible to conduct discovery (ii) in tandem with
characterisation (iii) using population-based samples, as has been demonstrated with recent genome-wide association studies (GWAS). Unfortunately, the distinction between generation and testing of hypotheses has been obfuscated by misuse of Bonferroni’s formula for testing a single hypothesis and the highly conservative and poorly defined concept of “genome-wide significance”. Furthermore, given the declining participation of “control” participants in research, with consequent potential for unintentionally selected samples, sibling or other family-based designs based on already sampled cases might provide less-biased estimates of genetic and environmental risk factors and at much cheaper cost (i.e. be more efficient in terms of cost) than setting up separate recruitment procedures to sample controls. I will illustrate these points using data from large Australian population-based case-control-family cancer studies and other resources.

Ethical considerations for population studies

N Zeps1,2,3
1 St John of God Pathology, Subiaco, WA, Australia
2 Department of Radiation Oncology, Sir Charles Gairdner Hospital, Nedlands, WA, Australia
3 School of Surgery and School of Pathology and Laboratory Medicine, University of Western Australia, Crawley, WA, Australia

The ethical issues arising from population studies, particularly those involving genetic analyses, have been the focus of international attention and in some instances, much controversy. In Australia guidance is provided by the National Statement on Ethical Conduct in Human Research (2007), as well as through guidelines provided by the National Health and Medical Research Council in relation to the Privacy Act (1988). However, there is a generally poor understanding of these documents by both researchers and Human Research Ethics Committees (HRECs). This leads to unnecessary time delays and significant wastage of valuable resources. Moreover, there are often over zealous restrictions being placed on low risk projects as well as a lack of appropriate safeguards where there is real risk. This presentation will, using active examples of current population based research, examine how appropriate ethical governance may be achieved within the existing framework to serve everyone’s best interests.

Models for large scale bio-repositories: opportunities and challenges

K McDonald
Prince of Wales Clinical School, University of NSW, Kensington, NSW, Australia

Bio-repositories are a critical engine for basic, clinical and translational research for all cancers. The availability of preserved tumour samples is critical to the genomics revolution in regard to how we diagnose and treat cancer. Five years ago, the NCI announced their plans to enlist dozens of bio-repositories in the US to provide large tumour numbers and use high-throughput DNA sequencing and computational biology to come up with new methods of detecting and treating cancers. Unfortunately sub-standard tissue and data collection provided a significant road block to the Cancer Genome Atlas effort. Australia, given its size and the biospecimen networks already formed, has a unique opportunity to establish high quality standard operating procedures and collect comprehensive clinical data on all specimens collected. This will promote basic, translational and clinical research as well as social gain in terms of improved cancer care and economic development.

Concord health and ageing in men project (CHAMP)

RG Cumming
School of Public Health, University of Sydney, University of Sydney, NSW, Australia

Despite the fact that men who reach the age of 65 still have much lower life expectancy than women of that age, very little research has been done on the health of older men. CHAMP was designed to fill this gap and is one of the world’s most comprehensive studies of the health of older men. Like most cohort studies, CHAMP will investigate numerous research questions. The most fundamental question is: what are the factors that influence successful ageing in men? CHAMP is addressing the complex issue of ageing from sociological, behavioural and biological perspectives, including the use of cell culture laboratory experiments. CHAMP is a population-based longitudinal study designed to provide a wide range of new information about the health of older men. A total of 3705 men were recruited into CHAMP between January 2005 and May 2007. Two year follow-up examinations have been completed, with 1367 men being seen. Five year follow-ups are about to commence. Men were invited to participate in CHAMP if they were aged 70 years or older and lived in the community in one of three Local Government Areas near Concord Hospital: Burwood, Canada Bay and Strathfield. The study involves questionnaires and a wide range of tests. Prior to attending the study clinic, subjects complete a detailed questionnaire. They then spend two to three hours at the study clinic, where a series of tests is done, including dual energy x-ray densitometry (DEXA); neuropsychological testing for dementia; tests of muscle strength, balance and gait; spirometry; and tests of urinary function. Blood tests include assays for reproductive hormones, vitamin D, PTH, and markers of bone turnover. DNA extraction has been completed.
Epidemiology in the whole genome age: what do we do now?

S Wacholder
Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD, United States

The practice of epidemiology, broadly defined, is changing exponentially. Cohorts are maturing. Investigators are forming consortia. Molecular epidemiology, of which genetic epidemiology is an important part, use multiple biomarkers of exposure and of the disease process to measured from a single collected biospecimen. Genome-wide association studies rely on agnostic approaches rather than the hypothesis-driven paradigm. Epidemiologic studies can inform comparative effectiveness research and treatment evaluation. Some of the results have been spectacular. Consider two of my research areas. We have shown that a few oncogenic types of HPV cause virtually all cervical cancer. After just a few years of GWAS, the population attributable risk for breast cancer is 15% for carriers of one variant in one newly identified gene, FGFR2, and 37% for carrying 6 or more rare variants in 10 genes. Design and analytic methods have not kept pace with the changes in practice; the new scientific, public health and clinical questions raised by the new findings; or the opportunities to integrate new technologies. Further, some standard epidemiologic ideas, including ones I have propounded, need changes, or at least updates. Yet, I believe that deep understanding of fundamental epidemiologic principles of exposure and disease assessment and proper framing of research questions remains the cornerstone of further progress as epidemiologic research broadens its scope and impact on human health.

Assessment of older cancer patients’ needs

ML Jorgensen
Surgical Outcomes Research Centre (SOuRCe), Camperdown, NSW, Australia

Background
Population ageing is predicted to cause large increases in the number of cancer cases. However issues in the assessment of older patients are relatively under-researched and poorly understood. Older patients have been reported to have less unmet supportive care needs than younger patients, yet age-related factors such as comorbidity and poor social support are associated with high levels of unmet need. In a previous project, it was hypothesised that older patients were more likely to have their needs “met” because of pre-established health supports. Instead, older patients more frequently indicated that they had “no need”. An intervention project is currently being designed which will involve a self-administered screening tool of functional status for older patients. Patient-reported outcomes such as supportive care needs will also be measured. Discussion of the following questions at the student workshop would inform planning for this project and highlight issues in research involving older patients.

Issues for Discussion
(1) Self-report questionnaires may underestimate the health needs of older patients. This measurement bias could affect research conclusions and treatment decisions. Yet it can be argued that needs only exist as they are perceived by the patient.

Questions
How can measurement bias in self-report questionnaires be identified and addressed? How valid is patient perception as a measure of “true” need?
(2) Older patients may be more likely to underreport their needs. But is this an age effect or a cohort effect? For example, older patients may become accustomed to everyday aches and pains and so tend to minimize their health needs (age effect). Alternatively, older patients may underreport their needs because they have a more stoic attitude towards illness as a result of growing up in harder times (cohort effect).

**Question**
What are some strategies for differentiating age and cohort effects, particularly where longitudinal research is not possible (e.g. postgraduate research)?

---

**Examining longitudinal changes in population physical activity and risk of all-cause mortality**

A Khambalia  
School of Public Health, University of Sydney, Camperdown, NSW, Australia

**Background**
Over the past several decades, numerous large cohort studies have attempted to quantify the protective effect of physical activity on cardiovascular and all-cause mortality. Results from two recent reviews have concluded that physical activity is associated with a marked decrease in cardiovascular and all-cause mortality in men and in women after adjusting for other relevant risk factors. However, results from these cohort studies often only had available one measurement of physical activity at a single point in time. The objective of our research question is to examine the longitudinal association between physical activity measured at two time points and risk of mortality. Analyses will use the AusDiab cohort dataset which measured physical activity using an identical questionnaire in 1999-2000 and in 2004-2005. Data from the AusDiab surveys have been linked to all-cause mortality data as recently as mid 2008, providing sufficient follow up period to examine outcome effects.

**Issues for Discussion**
As is common in most studies, we have encountered the issue of missing observations. It is hoped that the student/early career workshop will explore the following epidemiological and statistical questions on how to best handle missing data using the expertise and experience of panel members and the audience.

1. How does one investigate whether missing data is likely to introduce bias in the results?
2. Are there circumstances when analysis of complete cases does not lead to bias?
3. How does one know or test for the type of missing data in a study (i.e. missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR))?
4. If a large amount of data is missing, what are the various options for handling missing data and what are the advantages and disadvantages of these available solutions?
Latitude is positively associated with the prevalence of multiple sclerosis: a definitive demonstration of the latitudinal gradient hypothesis using meta-analysis

SL Simpson, Jr, L Blizzard, P Otahal, IA Van Der Mei, BV Taylor
Menzies Research Institute, University of Tasmania, Hobart, TAS, Australia

Background
Multiple sclerosis (MS) distribution has a striking latitudinal gradient, increasing latitude correlating with increased prevalence. Studies in conflict with the gradient have suggested it may not exist.

Aim
Evaluation of MS prevalence and latitude using meta-analysis.

Methods
MS prevalence studies were searched and age/sex-standardized prevalences calculated. The association between time-corrected log-transformed prevalence and latitude was evaluated by random-effects meta-regression, weighted by the inverse of study variances. A quadratic component was included for the global gradient at latitudes > 51.4°.

Results
280 studies and 534 prevalence points (219 age-standardized) were included. Prevalence increased linearly at 0.05/100,000 per degree-latitude, declining 0.005/100,000 per degree-latitude-squared after latitude 51.4°. The gradient was stronger in British-descent relative to non-British European regions (p<0.001); there was no gradient among non-Europeans. The strongest gradients were in the UK (0.12/100,000; p<0.001), North America (0.09/100,000; p<0.001) and Australasia (0.09/100,000; p<0.001). A significant inverse gradient was found within Scandinavia, however this disappeared on standardization. An inverse gradient in Italy persisted on standardization.

Conclusions
This is the largest ever meta-analysis of MS prevalence, finding a significant positive gradient which persisted on standardization and adjustment. The gradient was stronger within-region than globally, arguing against migration as a cause, but rather in favour of an environmental UV/vitamin D-based gradient. This does not discount a genetic role: European-descent regions had stronger gradients than non-European, and British-descent had stronger gradients than non-British, in keeping with known higher frequencies of high-risk genotypes in these populations. Dietary vitamin D consumption with increasing latitude in Scandinavia may explain the absence of a latitudinal gradient. Variable distribution of HLA-DR alleles in Scandinavia may explain the inverse MS gradient there.

The short-term effects of low indoor temperatures on asthmatic children’s lung function

N Pierse¹, M Keall¹, R Arnold², P Howden-Chapman³, J Crane³
¹ Public Health, University of Otago, Wellington, Wellington, New Zealand
² School of Mathematics, Statistics, and Operations Research, Victoria University, Wellington, New Zealand
³ Medicine, University of Otago, Wellington, Wellington, New Zealand

Background
Whilst many epidemiological studies have shown that low outdoor temperatures lead to increased mortality and hospitalisation (especially for respiratory or cardiovascular disease), very few studies have looked at the association between indoor temperatures and health. This is despite the fact that people have much greater exposure to the indoor environment. The scarcity of studies on the association between indoor temperature and health is mainly due to the difficulty in measuring indoor temperatures and health outcomes regularly over an extended time period.

Aim
To examine the relationship between indoor temperature and lung function. Our specific research questions are: 1) In which room of the home is temperature most strongly associated with lung function? 2) Over what lag/period does indoor air temperature affect lung function? 3) Is it the severity, the duration or the average exposure that best describes the affect of indoor temperature on lung function?
Methods
The Heating Housing and Health Study is an RCT which investigated the effect of installing heaters in asthmatic children’s homes, has detailed measurements of lung function (daily) and indoor temperature (hourly). In our modelling we use data from only the control sample from this study (who did not have heaters installed).

Results
Lung function and indoor temperature were measured for 6716 (child-days) for 162 children. For all four measures of lung function (PEFR morning, PEFR evening, FEV1 morning and FEV1 evening) the strongest association was found with the severity of exposure to bedroom temperatures over the previous week.

Conclusions
Indoor temperatures have a small but significant association with asthmatic children’s short-term lung function. This association is greatest for temperatures under 11°C in the child’s bedroom over the previous week.

Vitamin D in Brisbane office workers

RE Neale1, LH Vu1, JC Van Der Pols1, MG Kimlin1, DC Whiteman1
1 Queensland Institute of Medical Research, Brisbane, QLD, Australia
2 Queensland University of Technology, Brisbane, QLD, Australia

Background
Vitamin D is necessary to maintain healthy bones, and may play a role in prevention of other chronic diseases such as cardiovascular disease and cancer. The main source of vitamin D is exposure to solar ultraviolet radiation, but diet and intake of supplementary vitamin D can make a contribution. In order to develop public health recommendations regarding sun exposure and supplementation, information is needed about the current vitamin D status of the Australian community.

Methods
We therefore measured serum vitamin D (25(OH)D) levels in a group of Brisbane-based office workers employed by Suncorp.

Results
At the end of summer the mean 25(OH)D of 129 participants was approximately 74 nmol/L, and 14% of participants had insufficient vitamin D levels (using the current cut-off for insufficiency of 50 nmol/L). At the end of winter the mean 25(OH)D of 175 participants was 54 nmol/L and 51% of people were vitamin D insufficient. Had we used a cut-off of 75 nmol/L, which is now thought to reflect an optimal level for human health, 54% of people would have been classified as insufficient at the end of summer and 87% at the end of winter.

Conclusions
The strongest predictors of serum 25(OH)D in summer were sex and time outdoors out of peak UV times, while higher vitamin D intake was associated with higher winter serum 25(OH)D levels and a reduced decrease from summer to winter.

Winter hospitalisation excess varies by ethnicity and socioeconomic status

LF Telfar Barnard, M Baker, S Hales, P Howden-Chapman
Public Health, University of Otago, Wellington South, New Zealand

Background
The phenomenon of excess winter mortality (EWM) has been well documented, but the effect of socioeconomic status in EWM remains unclear. Few studies have examined seasonal differences in hospitalisation rates, particularly for all-cause hospitalisations; or differences in winter excess by ethnicity.

Aim
To describe New Zealand excess winter hospitalisation (EWH), and examine any differences in levels of excess by age group, sex, ethnicity, rurality, and socioeconomic status.

Methods
We performed a retrospective population cohort study for the period 1 February 2000 - 31 January 2006. All New Zealand residents with a national health number were included in the study. We included only acute overnight public hospitalisations, filtered to exclude non-relevant health events. Person days were counted as cases if a hospitalisation occurred, and non-cases if no hospitalisation occurred; and categorised as exposed between 1 June - 30 September (winter), and non-exposed between 1 October - 31 May (non-winter). We used a chi-square test to establish the excess winter hospitalisation index (EWHI), and Poisson regression to test for differences in EWHI by demographic variables, controlling for other variables and winter interaction terms.

Results
Hospitalisations were 6% higher in winter than in non-winter, a difference of about 7000 hospitalisations per year. EWH varied by all demographic variables. The EWHI was higher in females than in males; highest in children aged 0-4 years and in the elderly; higher in Māori and Pacific peoples than in European & Other; higher in urban than rural areas; and higher in the most deprived tertile than in the least deprived tertile. There was also a gradient of increasing EWH with increasing deprivation.

Conclusion
Social, ethnic, and geographic inequalities in EWH suggest that at least some of this disease burden is preventable. Further research would be useful to identify modifiable risk factors and potential interventions.
Birth weight and its association with a mother's place of residence

N Rose¹, L Taylor¹, H Moore¹, B Jalaludin²
¹ Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
² School of Public Health and Community Medicine, University of NSW, Sydney, NSW, Australia

Background
Proxies such as distance to major road and traffic intensity can be used to study the association between traffic related air pollution and health outcomes. Such proxies allow local variation of air pollution to be taken into account.

Aim
To study the association between weighted road densities, a recently validated proxy for traffic related air pollution based on road classification, and low birth weight outcomes.

Methods.
Records from the Midwives Data Collection (MDC) between 2006 and 2008, a registry for all births in NSW, were geocoded and weighted road density for a number of buffer distances was assigned to each record using Geographic Information Systems (GIS). A logistic regression model was used to study the association between small for gestational age and weighted road density, adjusted for covariates such as age, hypertension, SEIFA score for disadvantage, parity and smoking history.

Results
After adjusting for confounders, a positive association was found between low for gestational age babies and weighted road density at a radius of 150 metres. For a subject living within a 150 metre radius circle, the odds ratio of having a baby that is small for gestational age is 1.20 (95% CI 1.01 to 1.44) for every 100 metres of major road or freeway added.

Conclusion
This study suggests an association between a mother's place of residence and the likelihood of having a small for gestational age baby. It is unclear however, whether this association is causal, and if so, whether air pollution, noise, or other factors associated with living in areas with a high density of roads is responsible.

Emergency department presentations for cardiovascular conditions associated with an increase in daily temperature in Melbourne

M Dennekamp¹, B Erbas², MR Sim¹, MJ Abramson¹, A Tonkin¹
¹ Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia
² School of Public Health, La Trobe University, Melbourne, VIC, Australia

Background
Cardiovascular disease is a major public health problem globally. It is often subclinical and asymptomatic in its early stages. One of the suggested triggers is temperature, a trigger likely to become more important due to climate change.

Aims
To investigate the relationship between temperature and cardiovascular-related presentations at emergency departments in Melbourne.

Methods
During our 1 year study period (01/07/2006 until 30/06/2007) we collected data on emergency presentations for cardiovascular causes, daily average temperature, relative humidity and air pollution concentrations (PM10, NO2, and O3). To investigate the relationship between temperature and presentations at emergency departments, case-crossover methods were used. This design controls for confounding by day of week and monthly trends.

Results
There were 19,809 emergency presentations for all cardiovascular causes reported during the study period. 4,714 presentations were for ischaemic heart disease, which included 1,892 presentations for acute myocardial infarction (AMI) and 2,435 for angina. After adjusting for relative humidity, an increase of 1°C was significantly associated with an increased risk of an emergency presentation for all cardiovascular causes of 0.95% (0.33, 1.59%). Of the atherothrombotic presentations, ischaemic heart disease causes were highly significant with an increased risk of 2.88% (1.57, 4.20%) for a 1°C increase is daily temperature, but there were no associations with cerebrovascular causes. Further analysis showed significant associations with an increased risk of 3.30% (1.25, 5.40%) for AMI and 2.98% (1.15, 4.84%) for angina per 1°C increase in temperature.

Air pollution concentrations and replacing average daily temperature with maximum hourly temperature per day did not change the results.

Conclusions
An increase in average daily temperature is associated with an increased risk of emergency department presentations for all cardiovascular causes, and in particular ischaemic heart disease.
Quantifying supportive care needs: clinical audit of non-admitted patient occasions-of-service

**JD Harrison**, **JM Young**, **S Auld**, **MJ Solomon**, **PN Butow**, **L Masya**

1 Surgical Outcomes Research Centre, Sydney South West Area Health Service & Schoo, Sydney, NSW, Australia
2 Department of Colorectal Surgery, Royal Prince Alfred Hospital, Sydney, NSW, Australia
3 Discipline of Surgery, University of Sydney, Sydney, NSW, Australia
4 Centre for Medical Psychology & Evidence Based Decision Making, University of Sy, Sydney, NSW, Australia

**Background**
Surgery is the mainstay of treatment for colorectal cancer. Cancer patients are at risk of having unmet supportive care needs following discharge from hospital. The trend towards shorter length of hospital stay may exacerbate this problem as there is less time for patient education and discharge planning. Nurse specialists are often the first point of contact for patients who are experiencing unmet need after discharge from hospital. Therefore, a clinical audit of a cancer nurse specialists’ records was conducted to quantify patients’ supportive care needs and to investigate predictors of patients expressing these needs.

**Methods**
Nursing records for consecutive patients discharged from a quaternary referral colorectal cancer surgical unit in Sydney were reviewed. All non-admitted patient occasions of service (NAPOOS) were identified. Methods of, and reasons for, contact were recorded. Associations between patients’ personal and clinical characteristics and the number and type of NAPOOS were investigated using logistic regression modelling.

**Results**
Of 521 eligible patients, 219 (42%) received 988 post-operative NAPOOS. Most NAPOOS were recorded within the first 2 weeks following discharge but some occurred up to 6 months. Overall, 1369 specific needs were identified during these NAPOOS. Ongoing support, reassurance and monitoring were required for 186 patients (85%). Physical needs relating to wound care and bowel function were prevalent for 15-20%; information needs for 20% and assistance organising follow-up appointments for 36% of the sample. Older patients (>65 years) were significantly less likely to record a NAPOOS whilst people with rectal cancer were significantly more likely to report multiple NAPOOS and physical needs.

**Conclusions**
This study highlights a range of unmet needs facing patients when they return home after surgery. These data can be used to plan health service interventions to improve patient well-being.

Dietary patterns and the risk of breast cancer: results from the Melbourne Collaborative Cohort Study


1 Cancer Epidemiology Centre, Cancer Council Victoria, Melbourne, VIC, Australia
2 Centre for Molecular, Environmental, Genetic and Analytical Epidemiology, University of Melbourne, Melbourne, VIC, Australia
3 Department of Medicine, University of Melbourne, St Vincent’s Hospital, Melbourne, VIC, Australia
4 The Alfred Hospital, Melbourne, VIC, Australia
5 Dept of Epidemiology and Preventive Medicine., Monash University, Melbourne, VIC, Australia

**Background**
Epidemiological evidence is emerging that a prudent/healthy dietary pattern characterized by vegetables, fruit, fish and white meat might be associated with a reduced risk of breast cancer. Breast cancer is a heterogeneous disease and risk factors might differ in their association with breast cancer by tumour subtype characterized by receptor status. The literature about the association between diet and breast cancer by tumour receptor status is still sparse.

**Aim**
To study the effect of dietary patterns on breast cancer risk overall and by tumour characteristics including tumour grade and oestrogen (ER) and progesterone receptor (PR) status using data from the Melbourne Collaborative Cohort Study (MCCS).

**Methods**
We applied the principal factor analysis to 124 foods and beverages to identify dietary patterns and estimated their association with breast cancer risk using Cox regression models.

**Results**
828 invasive breast cancers were diagnosed during an average of 14 years of follow-up of 21,510 women participants. We identified four dietary factors: the first characterized by high consumption of vegetables; the second by high consumption of fruit and salad; the third by high consumption of dairy...
products; the fourth by high consumption of meat. Only the factor characterized by high consumption of fruit and salad was associated with a reduced risk of invasive breast cancer, with stronger associations observed for tumours not expressing hormone receptors and tumours with higher grade.

Conclusions
Our study provides additional support for the hypothesis that a dietary pattern rich in fruit and salads protects against invasive breast cancer and that the effect might be stronger for ER and PR negative tumours.

Lifetime moderate and vigorous recreational physical activity and the risk of subsite-specific colorectal cancer

T Boyle1,2, J Heyworth1, F Bull1, L Fritschi2

1 School of Population Health, The University of Western Australia, Nedlands, WA, Australia
2 Western Australian Institute for Medical Research, The University of Western Australia, Nedlands, WA, Australia

Background
Despite the convincing evidence that physical activity reduces colon cancer risk there are several questions that remain unanswered about the association, such as the intensity and timing of physical activity required, and whether physical activity has a different effect on the risk of cancers of the distal colon, proximal colon and rectum. We conducted a case-control study to investigate these issues.

Method
A total of 918 cases and 1021 controls participated in a case-control study of colorectal cancer in Western Australia in 2005-07. Data were collected on demographic and lifestyle-related colorectal cancer risk factors, including recreational physical activity performed over the adult lifetime. The estimated effect of recreational physical activity on the risk of cancers of the distal colon, proximal colon and rectum was analysed using multinomial logistic regression.

Results
Compared with those who consistently did no vigorous physical activity over their lifetime, participants who consistently did 18 or more MET-hours per week of vigorous physical activity over their lifetime reduced their risk of distal colon cancer by 75% (AOR=0.25, 95% CI=0.09-0.68), their risk of rectal cancer by 52% (AOR=0.48, 95% CI=0.23-1.00) and their risk of proximal colon cancer by 47% (AOR=0.24-1.16). Distal colon and rectal cancer risk decreased as the level of lifetime vigorous activity increased (P-value for distal colon cancer trend <0.01, P-value for rectal cancer trend=0.05). Moderate activity alone was not significantly associated with the risk of colorectal cancer, regardless of anatomic subsite.

Conclusions
These results suggest that the vigorous, rather than moderate, physical activity is required to reduce colon cancer risk. The findings also suggest that the risk of rectal cancer may be reduced by performing a high level of vigorous physical activity over the lifetime.

Does comorbidity explain the ethnic inequalities in cervical cancer survival in New Zealand?

N Brewer1, B Borman1, D Sarfati2, M Jeffreys2, ST Fleming4, S Cheng1, N Pearce1

1 Centre for Public Health Research, Massey University, Wellington, New Zealand
2 Department of Public Health, University of Otago, Wellington, New Zealand
3 Department of Social Medicine, University of Bristol, Bristol, United Kingdom
4 College of Public Health, University of Kentucky, Lexington, United States

Background
There are large ethnic differences in cervical cancer survival in New Zealand that are only partly explained by stage at diagnosis. We investigated the association of comorbidity with cervical cancer survival, and whether comorbidity accounted for the previously observed ethnic differences in survival.

Methods
The study involved 1,594 cervical cancer cases registered during 1994-2005. Comorbidity was measured using hospital events data and was classified using the Charlson Comorbidity Index (CCI) and the Elixhauser instrument. Effects on survival of individual comorbid conditions were also assessed. Cox regression was used to estimate adjusted cervical cancer mortality hazard ratios (HRs).

Results
Comorbidity during the year before diagnosis was associated with cervical cancer-specific survival: those with a CCI score of ≥3, or an Elixhauser count of ≥3 (compared with a score of zero) had HRs of 3.22 (95% CI 1.73-5.99) and 2.17 (1.32-3.56) respectively. The HRs per unit of CCI (score) and Elixhauser (count) were 1.28 (1.14-1.44) and 1.25 (1.11-1.40) respectively. Complicated diabetes (HR 10.46, 95% CI 3.01-36.37), renal failure (4.27, 2.08-8.76), fluid and electrolyte disorders (4.03, 2.01-8.08) and obesity (3.52, 1.55-7.98) also had elevated HRs. However, adjustment for the CCI or the Elixhauser instrument made no difference to the mortality HRs for Māori and Asian women (compared to ‘Other’ women), and made only a trivial difference to that for Pacific women. In contrast, concurrent adjustment for 12 individual comorbid conditions reduced the Māori HR from 1.56 (1.19-2.05) to 1.44 (1.09-1.89), i.e. a reduction in the excess risk of 21%; and reduced the Pacific HR from 1.95 (1.21-3.13) to 1.62 (0.98-2.68), i.e. a reduction in the excess risk of 35%.
Conclusions
Comorbidity is associated with cervical cancer-specific survival in New Zealand, but accounts for only a moderate proportion of the ethnic differences in survival.

SLC19A1 polymorphism: a potential prognostic marker for patients with MYCN amplified childhood neuroblastoma

DT Lau1, J Murray1, M Norris1, GM Marshall1, M Haber1, LI Ashton1
1 Children’s Cancer Institute Australia for Medical Research, Lowy Cancer Research, Randwick, Sydney, NSW, Australia
2 Sydney Children’s Hospital, Centre for Children’s Cancer and Blood Disorders, Randwick, NSW, Australia

Background
Folate is essential for cellular function, division and differentiation during periods of rapid tissue growth such as that observed in tumours. Gene polymorphisms in the folate pathway have been shown to influence folate uptake and metabolism.

Aim
The aim of this study was to characterise the relationship between folate gene variants and the clinical outcome of neuroblastoma, the most common solid tumour diagnosed in children.

Methods
Gene variants in the folate pathway were examined in cohort of 174 children with neuroblastoma. Genotype frequencies were compared between patients who relapsed or died ≤5 years from diagnosis and patients who remained event free. Rates of event free survival (EFS) were examined between subgroups using a Cox proportional hazards model. The relationship between genotype, mRNA expression levels and clinical characteristics was further examined in a subset of 43 patients. In vitro assays were also used to investigate the link between the folate gene SLC19A1 and the MYCN oncogene.

Results
Children with SLC19A1 80AA genotype were less likely to relapse or die compared to those without after adjusting for MYCN status, stage and age (P<0.024). This relationship was most striking in MYCN amplified patients where cumulative 5 year EFS was ≤9% in SLC19A1 80G carriers compared to 50% in non-carriers. Quantitative mRNA analysis showed that patients with MYCN amplification had higher SLC19A1 mRNA levels compared to patients with non-MYCN amplification (83% vs 39%, P=0.016). SLC19A1 expression was 7-fold higher in cells expressing the MYCN oncogene than those without, and was highly correlated (P=0.0003).

Conclusions
The SLC19A1 80A allele conferred superior survival in MYCN amplified patients, which suggests that the SLC19A1 80G>A polymorphism plays an important role in modifying folate transport in neuroblastoma cells regulated by MYCN oncogene. Targeting SLC19A1 mediated folate uptake may provide a new therapeutic approach to treat children with neuroblastoma.

Late mortality among survivors of childhood cancer

CL Wilson1, RJ Cohn2, L Dalla-Pozza3, F Alvaro4, J Hopper5, R Lindley5, M Southey6, LJ Ashton1
1 Molecular Epidemiology, Children’s Cancer Institute Australia, Sydney, NSW, Australia
2 Centre for Children’s Cancer and Blood Disorders, Sydney Children’s Hospital, Sydney, NSW, Australia
3 Oncology Unit, Children’s Hospital at Westmead, Sydney, NSW, Australia
4 Children’s Cancer and Haematology Service, John Hunter Children’s Hospital, Newcastle, NSW, Australia
5 Centre for Molecular, Environmental, Genetic and Analytic Epidemiology, University of Melbourne, Melbourne, VIC, Australia
6 Department of Medicine, University of Sydney, Sydney, NSW, Australia
7 Department of Pathology, University of Melbourne, Melbourne, VIC, Australia

Background
In Australia, up to 80% of individuals diagnosed with acute lymphoblastic leukaemia (ALL) during childhood will survive for >5 years after their initial diagnosis. However, survivors of ALL are often at risk for the development of late sequelae and mortality as a consequence of anti-cancer therapies received during childhood.

Aim
The aim of this project was to establish rates of mortality among survivors of ALL previously diagnosed in NSW and compare them to rates observed in the general population.

Methods
Records for 993 individuals treated for childhood ALL between 1970 and 2001 were identified from clinical records held by paediatric hospitals in NSW. Deaths among study participants were identified through data linkage with the National Death Index allowing calculation of standardised mortality ratios (SMRs). A Cox proportional hazards model was used to quantify the influence of patient characteristics on risk of death.

Results
Recurrence of primary cancer (69.8%) and development of a second cancer (9.4%) were the leading causes of death among the 53 individuals who died during the follow-up period. Overall, risk of death was 8.92- fold higher in survivors of ALL relative to the NSW population (95% CI=6.58-11.50). Relative mortality was higher in females (SMR=14.11, 95% CI=8.72-21.54) than males (SMR=7.05, 95% CI=4.82-9.95) and higher in survivors diagnosed
between 10-14 years of age (SMR=11.79, 95% CI=5.64-21.64). Multivariate analysis showed an increased risk of death in survivors diagnosed between 10-14 years of age (HR=2.40, 95% CI=1.16–4.95, p=0.018) compared to survivors aged<5 years at diagnosis, while sex and treatment era were not significantly associated with outcome.

Conclusions
Our findings show that survivors of childhood ALL are at increased risk of early death compared to the general population. Identification of those at highest risk of early mortality will assist in the long-term surveillance and clinical management of these cancer survivors as they grow into adulthood.

Abstracts
CONCURRENT SESSION 3
Health Service Research

Thursday 1100 – 1230
Room 102
Chair: Jane Young

Trends in survival and life expectancy by ethnicity, income and smoking: 1980s to 2000s
K Carter, T Blakely, M Soeberg
Dept Public Health, University of Otago, Wellington, Wellington, New Zealand

Background
Survival and life expectancy are commonly used metrics to describe population health.

Aim
There are two objectives: 1. to provide an explanation of methods and data used to develop New Zealand life tables by ethnic, income and smoking groups; and 2. to compare cumulative survival and life expectancy trends in these subpopulations.

Methods
We generated sex-specific life tables for seven subpopulations: ethnicity (Māori and non-Māori); income tertiles; smoking (never and current); and two-way combinations (ethnicity by income; ethnicity by smoking; smoking by income). This was repeated for five census-mortality cohorts (1981-84, 1986-89, 1991-94, 1996-99, and 2001-04).

The method used to create the life tables brings together three pieces of information: 1) the official Statistics New Zealand life tables by year and sex; 2) the proportionate distribution of the total population by subpopulation; and 3) estimates of the differences in subpopulation mortality rates.

Results
Survival and life expectancy improved in all subpopulations across the five census cohorts. Improvements were greater in non-Māori compared to Māori and high income compared to low income subpopulations. This led to widening of the gap in life expectancy between 1981 and 2001 between Māori and non-Māori (males), which increased from 5.4 years to 9.0. The gap between low and high income also increased from 4.4 to 6.5 (males). The gap in life expectancy between current and never smokers in 1996 was 7.6 in males and 6.7 in females. However, the size of this gap varied by ethnicity. The gap in life expectancy between Māori and non-Māori was greater among never smokers than among current smokers.

Conclusions
Life tables provide an alternative understanding of health and life in New Zealand over the past 20 years. Ethnic and income gaps in life expectancy have widened, and surprising results were found for smoking by ethnicity.

History behind the IVF egg: associations between women’s comprehensive histories and number of eggs collected or fertilised normally
DL Herbert¹, JC Lucke², AJ Dobson¹

¹ School of Population Health, University of Queensland, Herston, Brisbane, QLD, Australia
² Centre for Clinical Research, University of Queensland, Herston, Brisbane, QLD, Australia

Background
Epidemiological studies of in vitro fertilisation (IVF) cycles, including predictors of eggs collected (EC) and normally fertilised, have been limited by two characteristics: little information on the woman’s background (including socio-demographic factors, medical and reproductive histories) and statistical methods that fail to account for women who use repeated IVF treatment.

Aim
To examine the associations between women’s comprehensive histories and the number of EC or proportion fertilised normally.

Methods
This study involved a cross-sectional survey of infertile women from a multi-centre clinical sample. Participants were aged 27-46 years (n=141) and included women who responded to the survey of their comprehensive histories from July 2008 to September 2009. Almost all participants provided consent to access their summary treatment details from the respective clinical database. The mean number of EC was modelled using Poisson regression. The proportion
of eggs with normal fertilisation (fertilised eggs/total EC) was modelled using logistic regression.

**Results**
Participants aged 35+ years had reproductive histories of miscarriage only (16.9%), termination only (9.9%) or birth+termination (5.6%) that were 2-, 3- and 4-fold higher, respectively, than those aged <35 years. More years of oral contraceptive use were associated with a lower mean EC (6+ years, 8.2 EC). Among participants with heterosexual partners (n=122) who completed a total of 313 IVF cycles, those with polycystic ovary syndrome (PCOS) had a higher mean EC (11.5) than those without the condition (8.3 EC). Participants in trade or service occupations had lower proportions of eggs fertilised normally than participants in other occupations.

**Conclusions**
Increasing women's age and prolonged used of oral contraceptives were associated with lower EC from IVF cycles; PCOS was associated with higher EC. Occupational exposures may have a detrimental effect on normal fertilisation rates.

---

**Assessing the uptake of clinical trial evidence: trends in use of continuous positive airway pressure (CPAP) for infants**

T Badgery-Parker1,2, N Nassar1, C Algert2, J Bowen3, C Roberts2

1 Centre for Epidemiology and Research, NSW Health, Sydney, NSW, Australia
2 Clinical and Population Perinatal Health Research, Kolling Institute of Medical Research, University of Sydney, Sydney, NSW, Australia
3 Department of Neonatology, Royal North Shore Hospital, Sydney, NSW, Australia

**Background**
Between 2002 and 2006 a randomised controlled trial of CPAP for infants was conducted in 6 large non-tertiary hospitals in Australia. The trial found treatment failure or transfer to a tertiary centre was lower for infants receiving CPAP than for those receiving headbox oxygen.

**Aim**
To examine trends in use of CPAP for infants in NSW during and after the CPAP trial.

**Methods**
Records from the Midwives Data Collection for infants of at least 24 weeks gestation born in hospital in New South Wales during 2001-2007 were linked with records from the Admitted Patients Data Collection. Rates of use of CPAP and characteristics of infants in the period from birth until discharge from the hospital system were examined. Hospitals were classified as tertiary, CPAP-trial (hospitals in the CPAP trial) and other. Years were classified as pre-trial (2001-2002), trial (2003-2006) and post-trial (2007).

**Results**
CPAP use increased steadily in tertiary centres throughout the study period, while use of mechanical ventilation remained unchanged and use of headbox oxygen declined. In non-tertiary hospitals, CPAP use remained steady during the trial period, then increased substantially in 2007. It doubled from 38 infants in 2006 to 71 in 2007 in CPAP-trial hospitals, and increased 3-fold from 17 in 2006 to 61 in 2007 in other (non-tertiary) hospitals. The number of non-tertiary non-CPAP-trial hospitals providing CPAP to infants doubled from 9 in 2006 to 22 in 2007.

Overall, CPAP use in 2007 was 70% higher than before the trial, and 40% higher than during the trial. The largest increases were among infants born at term, and those with low Apgar scores.

**Conclusions**
There has been a rapid uptake in use of CPAP in NSW after a randomised controlled trial showed benefits of CPAP use in selected infants at large non-tertiary centres.

---

**Vitamin D status of elderly Australian women attending general medical practices in Australia**

PJ Robinson1, RJ Bell1, L Piterman2, A Weekes3, C Kirby2, A Lanzafame3, SR Davis1

1 Women’s Health Program, Department of Medicine, Monash University, Melbourne, VIC, Australia
2 School of Primary Health Care, Monash University, Nottinghill, VIC, Australia
3 Servier Laboratories, Hawthorn, VIC, Australia

**Background**
Low Vitamin D levels are associated with low bone mineral density, and increased fracture risk, adverse effects on skeletal muscle and a range of other morbidities. Institutionalised elderly are at risk of Vitamin D deficiency. However less is known of the Vitamin D status of elderly women living in the community.

**Aim**
To document Vitamin D levels in Australian women aged ≥70 years living in the community across Australia and to explore relationships between Vitamin D levels and fracture risk.

**Methods:**
Design: A community based cross-sectional study (PROSPECT study). Patients: 267 general practitioners (GPs) recruited 2466 women aged ≥70 years who had no previous diagnosis of osteoporosis. Main Outcome Measures: Serum Vitamin D, Bone mineral density by dual-energy X-ray absorptiometry (DEXA) and presence of a vertebral fracture on thoracolumbar X-ray. Patient characteristics, including height and weight, were provided by each GP.
Results
After excluding women whose age and use of Vitamin D supplements were unknown, 2368 (mean age 76.7, range 70 - 98 years) were included. Of these, 313 (13.2%) women reported as taking Vitamin D supplements. Of the remainder (n = 2055), Vitamin D levels were available for 907 women. Of the latter, 12.2% and 43% had Vitamin D deficiency with levels below 25nmol/L or between 25-50nmol/L respectively. Only 11.8% had a Vitamin D level ≥ 75 nmol/L. Vitamin D levels in women were higher in Queensland than in Victoria/NSW (p = 0.001) and inversely associated with BMI (p = 0.005). The trend for lower Vitamin D levels in women with osteoporosis at the femoral neck was not significant (p = 0.093).

Conclusions
Vitamin D deficiency is highly prevalent in elderly women living in the community, yet use of supplements is very low (13%). As expected, Vitamin D was inversely associated with latitude.

Working with mortality data from the Pacific Islands

KL Carter1, R Taylor1,2
1 School of Population Health, University of Queensland, Herston, QLD, Australia
2 School of Public Health and Community Medicine, University of New South Wales, Sydney, NSW, Australia

Background
Mortality data is critical for health service planning. Mortality levels track overall progress, while cause of death tabulations provide detailed required to direct health resources effectively. In this paper system and procedural issues related to death reporting through health services and civil registration in selected Pacific Island countries, and the subsequent impact on data tabulations are presented.

Methods
A system review was conducted for health and civil death reporting in seven Pacific Island countries using a standard framework. De-identified data on deaths by year, age group, gender and cause of death was obtained from each source as aggregate or unit record data. Measures of mortality were calculated and further studies implemented in several countries. These included death certificate reviews, medical record reviews, and capture-recapture analysis.

Results
Both system design and procedural practices were found to adversely affect data quality across the region. Key system issues identified included the inappropriate selection of data sources used in official statistics (with the most complete data sets often not used), stillbirths being included in the death registers, and “competing” data collection systems. Common procedural practices were the use of “immediate cause of death” or “primary diagnosis” in place of “underlying cause of death”, moving “contributory” causes of death on the death certificate into the primary sequence at data entry, and poor or incorrect recording of age at death.

Conclusions
The reviews highlighted significant implications for calculation of infant and child mortality from current data, and significant bias in current cause of death tabulations particularly as they relate to chronic diseases. Greater attention to supporting local system improvements and staff capacity is required, while external researchers must be expected to become better acquainted with the systems from which their data is drawn in order to improve the information available to health planners.

Undiagnosed diabetes in the AusDiab: investigating the determinants of diagnosis

EJ Comino, MF Harris, U Jayasinghe
Centre for Primary Health Care and Equity, University of New South Wales, Sydney, NSW, Australia

Background
The publication of the AusDiab survey results created consternation about the high prevalence of diabetes and of undiagnosed diabetes among Australians.

Aim
This analysis explores the predictors of diagnosis of diabetes in a large population based survey of diabetes.

Methods
A secondary analysis of AusDiab data was undertaken. On the basis of a glucose tolerance test to establish participants’ diabetes status, participants’ status was classified as known diabetes (KDM), new diabetes (NDM), impaired fasting glucose (IFG), impaired glucose tolerance (IGT) and normal. Measured diabetes comprised both KDM and NDM. Participant characteristics were organised into five sets of explanatory factors: demographic characteristics, individual and household socioeconomic status, area based measures, behavioural risk factors, and health status. Analysis used descriptive statistics and multi-level logistic regression.

Results
The prevalence of measured diabetes was 8.4%, and 4.2% of participants were diagnosed as a result of testing. The prevalences of NDM, KDM, and measured diabetes were negatively associated with predictors including socioeconomic status. Among participants with measured diabetes who were diagnosed as a result of testing (NDM/ measured diabetes), these associations were not observed or were reversed. Among most advantaged participants there was a tendency to lower rates of previous diagnosis suggesting a reversed social gradient. Participants with cardiovascular risk factors were more likely to have diabetes and were more likely to be previously diagnosed.
Conclusions
This study indicates that diabetes is unequally distributed among Australians and is more prevalent among disadvantaged and vulnerable populations. However, although about half of participants with measured diabetes were classed as NDM, significant risk factors such as socioeconomic disadvantage were not associated with a reduced probability of a previous diagnosis. A number of possible explanations can be proposed.

Abstracts
CONCURRENT SESSION 4
Perinatal & Pediatric Epidemiology

Thursday 1100 – 1230
Room 104
Chair: Christine Roberts

Exposure to diagnostic radiological procedures and the risk of childhood acute lymphoblastic leukaemia

HD Bailey1, E Milne1, N De Klerk1, L Fritschi2, J Attia3,6, L Lockwood4, BK Armstrong5
1 Centre for Child Health Research, University of Western Australia, Telethon Institute for Child Health Research, Perth, WA, Australia
2 University of Western Australia, Western Australian Institute for Medical Research, Perth, WA, Australia
3 Centre for Clinical Epidemiology and Biostatistics, University of Newcastle, New, Newcastle, NSW, Australia
4 Royal Children’s Hospital, Brisbane, QLD, Australia
5 University of Sydney, Sydney School of Public Health, Sydney, NSW, Australia
6 Dept of Medicine, John Hunter Hospital and Hunter Medical Research Institute, New Lambton, NSW, Australia

Background
Diagnostic irradiation of the mother during pregnancy increases the risk of childhood acute lymphoblastic leukemia (ALL). There is inconsistent evidence on associations between ALL and other parental or childhood diagnostic irradiation.

Aim
The aim of this analysis was to investigate whether diagnostic x-rays of the mother before birth, of the father before conception or of the child increased the risk of childhood ALL.

Methods
Data from 389 cases and 876 frequency-matched controls were analysed using unconditional logistic regression, adjusting for study matching factors and potential confounders. A meta-analysis of our findings in relation to paternal x-rays before conception with the published findings of previous studies was also conducted.

Results
There was no evidence of an increased risk with maternal abdominal x-rays before the birth of the index child or with the child having any x-rays more than six months before the censoring date. The OR for any paternal abdominal x-ray before conception was 1.17 (95% CI 0.88, 1.55), and 1.47 (95% 0.98, 2.21) for more than one x-ray. The OR for any paternal intravenous pyelogram (IVP) before conception was 3.55 (95% 1.59, 7.98). The pooled OR for this study with previous studies of any paternal abdominal x-rays before conception was 1.17 (95% CI 0.92, 1.48).

Conclusions
There was some evidence of an increased risk of ALL in the offspring if the father had more than one abdominal x-ray before conception or had ever had an IVP. We plan to repeat these analyses using pooled data to improve precision.

Does population data over-estimate recurrence risks? A validation study of postpartum haemorrhage reporting in consecutive pregnancies

JB Ford, CL Roberts
Clinical and Population Perinatal Health, Kolling Institute of Medical Research, University of Sydney, St Leonards, NSW, Australia

Background
Research using routinely collected data indicates postpartum haemorrhage (excessive bleeding post-childbirth) first occurs in 5% of births and is likely to recur in 15% of subsequent births. It is unknown whether this represents a true recurrence rate or reflects increased reporting when the outcome has occurred before. There are no validation studies, to our knowledge, that have attempted to validate reporting of recurrent events.

Aim
To determine whether population health data over-estimate recurrence rates of postpartum haemorrhage (PPH).

Methods
Data were from a validation study of PPH recording that involved women having first and second consecutive births between 2002 and 2006 in a selected NSW Health area, with a PPH identified in either birth record. Birth records were linked Midwives Data Collection and Admitted Patient data for birth admissions. Rates per 100 births are reported with 95% confidence intervals. Occurrence rates are likely to be higher in this study due to sampling, however recurrence rates will approximate population rates.
Perinatal & pediatric epidemiology

Results
Among the 257 women with two births recorded, birth data indicate an 18.7% (13.2-25.7) recurrence rate whereas abstracted data from medical records indicate a true recurrence rate of 28.7% (21.9-36.6). Occurrence rates were similarly reported in population health data and medical records in both first (59.6% vs 56.7%) and second births (52.5% vs 49.4%).

Conclusions
Population health data underestimate the recurrence of postpartum haemorrhage. While population health data are known to underestimate postpartum haemorrhage in any birth by 30-40% in the wider population, our results indicate that recurrent postpartum haemorrhage is underestimated by 50%. This study suggests recurrence risks reported from population data are not inflated by an increased likelihood to report.

Complications of the placenta and uterus in pregnancy following a previous caesarean section in Queensland

R Wills, S MacLeod, TC Johnston
Health Statistics Centre, Queensland Health, Brisbane, QLD, Australia

Background
Increasing rates of caesarean section have contributed to increased interest in, and awareness of, adverse maternal outcomes associated with caesarean delivery, including placenta accreta and placenta praevia. These conditions can result in severe haemorrhage (potentially leading to caesarean hysterectomy) and pose significant risks for maternal morbidity and mortality.

Aim
To describe the incidence of placenta praevia, placenta accreta, placental abruption and uterine rupture in Queensland and to assess the risk of these conditions following a previous caesarean section (CS).

Methods
Data were obtained from the Queensland Perinatal Data Collection for all parous, Queensland resident mothers who gave birth from July 2000 to December 2008 (January 2003 to December 2008 for placenta accreta). Logistic regression models were used to estimate the risk of the outcomes by caesarean history, adjusted for maternal factors including medical conditions and other pregnancy complications.

Results
Of the 194,231 mothers studied, 26.4% had previously had a CS. Placenta praevia was the most common outcome (9.7 per 1000 mothers) followed by placental abruption (6.3 per 1000), placenta accreta (0.9 per 1000) and uterine rupture (0.3 per 1000). Forty-four percent of mothers with placenta accreta also had placenta praevia, and of these mothers 82.2% had a previous caesarean section. The rates of all four conditions were higher among mothers who had a previous CS than those who had not [Adj RR (95% CI): placenta praevia 1.2 (1.1-1.3); placenta accreta 5.3 (3.8-7.3); placental abruption 1.5 (1.4-1.7); uterine rupture (unadjusted) 12.2 (7.2-20.6)].

Conclusions
Overall, CS in a previous pregnancy was found to be associated with an increased risk of placenta praevia, placenta accreta, placental abruption and uterine rupture in a subsequent pregnancy. Counselling should be given to women considering elective caesarean about the risks for subsequent pregnancies. Doctors and obstetricians should also consider these risks when determining the need for caesarean delivery.

Maternal perception of foetal movements: pilot data from the Sydney Stillbirth Study

A Gordon1,2, CH Raynes-Greenow1, D Bond1,3, J Morris4, R Jones2, H Jeffery1,2
1 Sydney School of Public Health, University of Sydney, University of Sydney, NSW, Australia
2 RPA Newborn Care, RPA Women’s and Babies, Royal Prince Alfred Hospital, NSW, Australia
3 Department of Obstetrics, The Royal Prince Alfred Hospital, NSW, Australia
4 Perinatal Research Group, Kolling Institute of Medical Research, The University of Sydney, NSW, Australia

Background
Decreased foetal movements (DFM) is a common cause for maternal concern, and up to 15% of women contact their health care provider due to DFM in the third trimester. There are no universally agreed definitions; however existing guidelines recommend that a distinct reduction of foetal movement should be reported.

Aim
To examine the differences in maternal perception of foetal movements between late pregnancy stillbirths and controls.

Method
The Sydney Stillbirth Study is a population-based matched case control study of pregnant women ≥ 32 weeks gestation booked into tertiary maternity hospitals in metropolitan Sydney. Quantitative and qualitative data on maternal perception of foetal movement are collected from cases and controls during face-to-face interviews. We use 7 standardised questions regarding foetal movement which are then transcribed and independently coded. Contingency tables were used for the quantitative data and qualitative data was thematically analysed.

Results
Data is completed on 49 cases and 91 controls. Cases were significantly more likely to report a decrease in the
perception of foetal movement as pregnancy progressed (OR 4.9 95% CI 1.9–11.9). Controls were more likely to report an increase (OR 1.7 95% CI 1.3–2.4). There were no differences between cases and controls in detection of first movements (mean 17 weeks), formal “kick” counting (10%), or advice received from their health provider (38%). 59% of women were not given any specific information regarding foetal movements.

Conclusion
Identification of compromised babies using description of foetal movements needs to be explored. Advice from health professionals regarding foetal movements is not routinely given.

Source of Funding
The Sydney Stillbirth Study is supported by the Stillbirth Foundation Australia

Prevalence of and pregnancy outcomes associated with maternal underweight and obesity in Queensland

M Watson1, S Howell1, L Callaway1, 2, S MacLeod1, T Johnston1, S Cornes1
1 Health Statistics Centre, Queensland Health, Brisbane, QLD, Australia
2 School of Medicine, The University of Queensland, Brisbane, QLD, Australia
3 Royal Brisbane and Women’s Hospital, Brisbane, QLD, Australia

Background
It is well established in the literature that maternal overweight and obesity increase the risk of pregnancy complications and adverse birth outcomes. Relatively less attention has been given to the effects of maternal underweight. From July 2007, the Queensland Perinatal Data Collection (QPDC) introduced the collection of maternal height and weight at the time of conception. These data can be used to determine the associations between body mass index (BMI) and pregnancy outcomes.

Aim
This research aims to determine the prevalence of maternal underweight and obesity (at the time of conception) in the Queensland obstetric population, and to estimate the effects of these on adverse pregnancy and neonatal outcomes.

Methods
Data for the 2008 calendar year from the Queensland Perinatal Data Collection were analysed. Mothers were included in the study if they had a singleton pregnancy, were a Queensland resident and had non-missing BMI. Separate multiple logistic regression models were fitted for each outcome variable, with normal BMI (18.5–<25 kg/m2) as the reference group. Models were adjusted for maternal age, parity, socio-economic status, Indigenous status, smoking status and mother’s accommodation status (public or private).

Results
Increasing BMI was associated with increased rates of gestational diabetes, pre-existing diabetes, chronic hypertension, hypertensive disorders of pregnancy and caesarean delivery. Maternal underweight was associated with adverse neonatal outcomes: low birth weight, prematurity, hypoglycaemia, and admission to intensive or special care nursery.

Conclusions
Maternal underweight and obesity are risk factors for adverse pregnancy and neonatal outcomes. Maternal underweight is associated with adverse outcomes for the baby, rather than the mother. These results have implications for preventative messages and antenatal and postnatal care.

Does preimplantation genetic diagnosis cause childhood problems? A pilot study

S Lewis1, C Cox2, D Amor3, J Halliday1, 2
1 Public Health Genetics, Murdoch Childrens Research Institute, Parkville, VIC, Australia
2 Department of Paediatrics, University of Melbourne, Melbourne, VIC, Australia
3 Genetic Health Services Victoria, Melbourne, VIC, Australia

Background
There is growing interest in technologies that may facilitate ‘selection’ of healthy babies. Preimplantation Genetic Diagnosis (PGD) is a very early form of prenatal diagnosis, where embryos created in vitro are analysed for specific genetic defects so that only those free of the defects are transferred into the womb. However, there is no follow-up of children born after conception using PGD beyond two years of age.

Aim
To examine the health, wellbeing and development of school-aged children conceived following PGD.

Methods
A retrospective cohort was undertaken. Children conceived after in-vitro fertilisation (IVF) with PGD (exposed cohort) and children conceived after IVF without PGD (unexposed cohort) at two IVF clinics in Melbourne, born between 1999 and 2003, were recruited. Mothers of the children completed a questionnaire asking child-specific questions regarding health and wellbeing, mental health, development, educational achievement as well as family-specific questions regarding family functioning and parent-child attachment.

Results
A response rate of 55% (n=59) and 65% (n=38) was achieved in the exposed and unexposed cohorts respectively. There were no differences between the cohorts with regards to most child and birth outcomes or maternal variables. However, compared to the unexposed cohort, children in the exposed cohort were more likely to have been delivered
by a caesarean section ($\chi^2 = 7.15, p<0.01$) and to have required specialist care after delivery ($\chi^2 = 9.32, p<0.01$). With regards to the psychological scales, while no significant differences between the exposed and unexposed cohorts were found, there were differences as compared with the normative population data. Children in the exposed cohort appeared to have more positive outcomes in many of the measures.

Conclusions
Data suggest that PGD does not causes adverse outcomes in children. However due to the low response rate and small sample, a larger study is needed to explore the issues fully.

Abstracts
CONCURRENT SESSION 5
Nutrition & Physical Activity

Thursday 1100 – 1230
Room 106
Chair: Sarah McNaughton

Does the area of parkland in your neighbourhood influence your walking levels?

TL King, LE Thornton, RJ Bentley, AM Kavanagh

1 Centre for Women’s Health, Gender and Society, University of Melbourne, Carlton, VIC, Australia
2 Centre for Physical Activity and Nutrition Research School Exercise and Nutrition, Deakin University, Burwood, VIC, Australia

Background
The relationship between parks and physical activity levels has been explored previously. Despite this, no Australian studies that we are aware of have investigated the association between amount of accessible park space at an individual level (for each person) and walking levels, within different buffer distances.

Methods
Residents (n=2349) of 50 areas across Melbourne Australia completed a survey about physical activity. Respondents provided an estimate of the frequency with which they walked for 10 minutes or more in their local neighbourhood. Geographic information systems were used to create Euclidean buffers around each respondent’s home at three distances: 400m, 800m, and 1200m. The percentage of total area of parkland in each person’s household buffer was calculated (for each buffer). Additionally, percentage of total area of park space greater than a football oval sized park in each person’s buffer showed little or no association with frequency of walking.

Results
The percentage of total parkland in each person’s set of household buffers (of distance 400m, 800m, 1200m) showed little relationship with frequency of walking in the neighbourhood. Furthermore, the percentage of parkland at least as big as a football oval sized park in each person’s buffer showed little or no association with frequency of walking.

Conclusions
Using this exciting and unique measure of parkland, we found that amount of park space in a person’s neighbourhood had little or no effect on their frequency of walking. These results do not devalue the importance of parks in a neighbourhood, but highlight the need for further research, particularly into more qualitative factors such as quality of parkland, facilities available, and number of trees.

Examining the association between measures of total sedentary behaviour, objectively-assessed physical activity and obesity among young Australian adults

VJ Cleland, MD Schmidt, J Salmon, T Dwyer, A Venn

1 Menzies Research Institute, Hobart, TAS, Australia
2 Department of Kinesiology, University of Georgia, Athens, Georgia, United States
3 Murdoch Children’s Research Institute, Melbourne, VIC, Australia
4 Centre for Physical Activity and Nutrition Research, Deakin University, Burwood, VIC, Australia

Background
Sedentary behaviour (SB) and physical activity (PA) appear to be independently associated with obesity; however, studies examining the combined associations of SB and PA with obesity have relied on primarily self-reported leisure-time measures. This study aimed to investigate associations of measures of total SB and objectively-measured PA with obesity.

Methods
Data from 1665 Australian adults (26-36 years) collected during 2004-6 included daily steps (pedometers), self-reported physical activity (long International Physical Activity Questionnaire), sitting time, height, weight, and waist circumference. SB and PA measures were each categorised as ‘low’ or ‘high’ based on the median, then two variables were created to indicate different combinations of SB and PA (sitting/steps and sitting/self-reported activity), consisting of four categories: low SB/high PA, high SB/high PA, low SB/low PA, high SB/low PA.
**Results**

High sitting combined with low physical activity was associated with 76-170% increased odds of obesity. Associations were stronger and more consistent when daily steps were used to indicate physical activity than when self-reported measures were used for men (odds ratio [OR] 2.70, 95% confidence interval [CI] 1.36-5.35 and OR 1.96, 95% CI 1.01-3.80, respectively) and women (OR 2.56, 95% CI 1.53-4.30 and OR 1.98, 95% CI 1.19-3.28, respectively). Among men, odds of obesity were higher when daily steps were low, irrespective of level of sitting (low sitting/low steps OR 2.29, 95% CI 1.20-4.39; high sitting/low steps OR 2.28, 95% CI 1.23-4.25).

**Conclusions**

The findings support previous research that has observed increased odds of obesity for high leisure time SB and low physical activity, but unlike earlier work the effects of high levels of sitting appeared negated by higher daily steps among men and sex differences were not as apparent. The use of objective measures of PA and measures of total SB have provided greater insights into sex-specific associations with obesity.

**Skipping breakfast: longitudinal associations with cardio-metabolic risk factor in the Childhood Determinants of Adult Health (CDAH) study**

**KJ Smith**, **SL Gall**, **SA McNaughton**, **L Blizzard**, **T Dwyer**, **AJ Venn**

1. Menzies Research Institute, University of Tasmania, Hobart, TAS, Australia
2. Centre for Physical Activity & Nutrition Research, School of Exercise & Nutrition, Deakin University, Burwood, VIC, Australia
3. Murdoch Childrens Research Institute, Royal Children’s Hospital, Parkville, VIC, Australia

**Background**

Skipping breakfast has been associated with poorer diet quality and being overweight or obese. The long term effect of skipping breakfast on cardio-metabolic risk factors has not been examined.

**Aim**

To examine longitudinal associations of breakfast skipping in childhood and adulthood with cardio-metabolic risk factors in adulthood.

**Methods**

In 1985 a national sample of 9-15 year old Australian children reported whether or not they usually ate breakfast before school. During follow-up in 2004-2006 1,730 participants (26-36 years old) completed a meal frequency chart for the previous day. Skipping breakfast was defined as not eating between 6 and 9am. Participants were classified into four groups: skipped breakfast in both adulthood and childhood (n=178), neither childhood nor adulthood (n=1,083). Diet quality was assessed using a 127-item food frequency questionnaire. Waist circumference was measured. Blood samples were taken after a 12-hour fast. Differences in mean waist circumference, insulin, glucose and lipid concentrations were calculated by linear regression.

**Results**

After adjusting for age, sex, socio-economic status, smoking and sedentary behaviour, participants who skipped breakfast in both childhood and adulthood had larger waist circumference (4.65cm, 95% CI: 1.75-7.56) and higher fasting insulin (2.01mU/L, 95% CI: 0.74-3.29), total cholesterol (0.41mmol/L, 95% CI: 0.13-0.68) and LDL cholesterol (0.40mmol/L, 95% CI: 0.16-0.65) compared with those who ate breakfast at both time points. Additional adjustments for diet quality and waist circumference attenuated the associations with cardio-metabolic variables but the differences remained significant. There were no significant differences between those who reported skipping breakfast only in childhood or adulthood and those who ate breakfast at both time points.

**Conclusion**

Skipping breakfast in both childhood and adulthood was associated with cardio-metabolic risk factors in young adults. This was not explained by socio-demographic factors, smoking, sedentary behaviours, diet quality or abdominal obesity.

**Strategies to address iodine deficiency in Australia require ongoing monitoring and surveillance**

**KE Charlton, H Yeatman**

School of Health Sciences, University of Wollongong, Wollongong, NSW, Australia

**Background**

A mandatory iodisation programme of salt used in bread was introduced in Australia and New Zealand in late 2009 to address the population level mild iodine deficiency in these two countries. An NHMRC (2010) public statement also recommends iodine supplementation in pregnant and lactating women.

**Methods**

Two cross sectional studies have been undertaken in the Illawarra region in pregnant (n = 139) and non-pregnant (n = 75) women to (1) assess iodine status by urinary iodine concentration (UIC) measurements and (2) investigate knowledge and practices related to iodine nutrition and fortification using a self-administered questionnaire. Focus groups were conducted in a further 20 non-pregnant women to investigate issues related to iodine fortification.

**Results**

Mild to moderate iodine deficiency was confirmed in both non-pregnant (median [IQR] UIC = 56.0 (43 - 69)) and...
pregnant women (87.5 (62 – 123.5)). A higher UIC was found in pregnant women who reported taking iodine-containing supplements compared to those that did not, but supplemented women still had a median UIC below optimal levels (<150 µg/L). Less than half of non-pregnant women and only 27 % of pregnant women were able to identify adverse pregnancy outcomes as a consequence of low iodine status. Women generally had little knowledge about the role and sources of iodine in the diet and were unaware that iodine deficiency was a public health issue in Australia. Qualitative data identified unexpected gaps in consumer knowledge about iodine and perceptions related to fortification.

Conclusions
It is evident that a very low level of public awareness exists in Australia regarding the role of iodine in the prevention of iodine deficiency disorders. Our data support the need for a national approach to address iodine intake in Australia, which includes an accompanying consumer education campaign and on-going monitoring strategies.

Dietary glycaemic load, glycaemic index, carbohydrates and risk of ovarian cancer

C Nagle¹, F Kolahdooz², TI Ibiebele¹, CM Olsen¹, P Lahmann¹, AC Green³, PM Webb¹

¹ Queensland Institute of Medical Research, Herston, Australia
² Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

Background
Diets with high carbohydrate intake, glycaemic index (GI) and glycaemic load (GL) have been hypothesised to increase the risk of ovarian cancer by raising insulin levels, and dietary fibre has been hypothesised to reduce risk by lowering circulating oestrogens, but these associations have not been studied extensively.

Aim
The aim of this study was to investigate the association between dietary GI, GL, carbohydrates and ovarian cancer risk in a large population-based Australian case-control study. As the insulin response to dietary carbohydrate is substantially greater among overweight women than leaner women we also conducted stratified analyses by body mass index (BMI).

Methods
A self-administered questionnaire was used to collect data on demographic, socioeconomic and lifestyle factors and a food frequency questionnaire was used to collect dietary information from 1,366 women with epithelial ovarian cancer and 1,414 population controls. We calculated odds ratios (ORs) and 95% confidence intervals (CIs) using unconditional multivariable logistic regression, adjusting for confounders.

Results
GL was positively associated with ovarian cancer. The adjusted OR for the highest versus the lowest quartile of intake was 1.27, 95% CI 1.02-1.59 (p_trend = 0.02). Fibre intake was inversely associated with risk. The OR comparing women in the highest fibre intake group with those in the lowest was 0.78 (95% CI 0.62-0.98, p_trend = 0.1). We found no association between GI, total carbohydrates, sugar or starch intake and ovarian cancer. Analyses stratified by BMI showed that the risk estimates for most indices of carbohydrate intake appeared stronger among heavier than leaner women (BMI ≥25), but the interaction term was only significant for sugar (p = 0.01).

Conclusions
Our results suggest that diets with a high GL may increase the risk of ovarian cancer while a high intake of fibre may provide modest protection, particularly among heavier women.

Influence of peers on breastfeeding discontinuation among new parents: the Melbourne InFANT program

AJ Cameron, K Hesketh, K Ball, D Crawford, KJ Campbell

Centre for Physical Activity and Nutrition Research, Deakin University, Burwood, VIC, Australia

Background
Breastfeeding is strongly associated with socioeconomic position (SEP) and may be influenced by whether members of the peer group breastfeed.

Aim
We aimed to investigate whether the proportion of breastfeeding mothers in first-time parent groups influences the likelihood of ceasing breastfeeding and whether this is independent of SEP.

Methods
Data are from 501 mothers (from 62 first-time parent groups initiated approximately 6 weeks post-birth) who provided data at the baseline and mid-intervention assessments of the Melbourne Infant Feeding, Activity and Nutrition Trial (Melbourne InFANT Program). Parent groups were divided into those where <25% had ceased breastfeeding by six weeks (“low cessation”) and those where >25% had ceased by six weeks (“high cessation”).

Results
Excluding those who had already ceased by six weeks, the proportion who ceased between the time of parent group initiation (six weeks) and six months was higher among “high cessation” than “low cessation” groups (37.4% vs. 21.7%, p=0.001). After adjustment for maternal age, body mass index, employment, education and area-level SEP, membership of a group where a high proportion had ceased breastfeeding by six weeks was strongly related to cessation of breastfeeding before six months (odds ratio 2.1, 95% CI 1.3 to 3.3).
Respiratory health

Conclusions
Attendance at parent groups where peers are breastfeeding babies of a similar age may be an important influence on the continuation of breastfeeding to six months. First-time parent groups, or other similar groups, may be an important setting in which to promote the continuation of breastfeeding.

Abstracts

CONCURRENT SESSION 6
Respiratory Health

Thursday 1330 – 1500
Room 100
Chair: Neil Pearce

Epidemics of emergency department presentations for asthma in NSW inland communities.

T Hayden, D Muscatello
Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia

Background
Over 2 million people suffer from Asthma in Australia. Dramatic daily increases in Emergency Department (ED) visits for asthma have been recorded in inland NSW. These have been linked to ryegrass pollen and thunderstorms.

Aim
The aims of this study were to characterise the frequency and geographic extent of epidemic asthma in inland NSW, and assess the characteristics of patients presenting on epidemic days during the rye grass pollination season (October-November) and other days.

Methods
Over 13 years of daily counts of ED visits diagnosed with asthma at 9 inland NSW base hospitals were assembled. Dates of counts in the top 0.1 percentile for each ED were classified as high count days.

Results
53% of high count days were in October and November, even though these months represent only 17% of days in the year. 79% of patients were aged over 14 on high count days in these months compared with 50% on high days at other times of the year and 54% on other days.

Conclusions
Epidemic asthma, probably due to thunderstorms and ryegrass pollination, is more frequent than previously recognised. Annual planning and promotion of asthma care could limit morbidity, particularly in adults, and burden on the health system and rural communities.

Associations between onset of influenza, including pandemic (H1N1) 2009, and onset of invasive pneumococcal disease in subsequent weeks - a retrospective cohort study in Queensland, Australia

AM Baldwin¹, A Sleigh², C Bain¹
1 School of Population Health, University of Queensland, Brisbane, QLD, Australia
2 National Centre for Epidemiology and Population Health, Australian National University, Canberra, ACT, Australia

Background
Streptococcus pneumoniae is frequently carried asymptomatically in the human nasopharynx, with isolation or detection of the organism from a normally sterile site constituting invasive pneumococcal disease (IPD). A recent episode of influenza is considered to increase the likelihood of pneumococcal infection, but not necessarily IPD. In Australian IPD enhanced surveillance, influenza does not appear to be considered a risk factor. Studies investigating the relationships between influenza and IPD using population-level data have important limitations.

Risk of IPD, or a particular serotype IPD, may also vary by type, subtype or strain of influenza. If so, variation in pneumococcal vaccination strategies may be warranted when an influenza pandemic is imminent or occurring.

Aim
This study aimed to determine the relationships between recent influenza, including pandemic (H1N1) 2009, and IPD since 2004 in Queensland residents.

Methods
A retrospective cohort study design was developed, and ethics approval gained. Follow-up was for one, two, three and four weeks. De-identified data, including a unique person identifier, with onset dates recorded from 2004 to mid-2009 were obtained from Queensland’s notifiable conditions register. Incidence rate ratios (IRRs) were calculated.

Results
A small number of patients were recorded with an IPD onset classified as within follow-up; all were within one week. For the 2004-2008 period, the IRR for all influenza and IPD (one week follow-up) was 459.8 (95% CI: 209.9–874.9). No cases with IPD onset within the four weeks following pandemic influenza onset were recorded.

Conclusion
The IRRs were large and statistically significant but based on small numbers of patients. Notification data will not usually capture all incident cases, and recorded onset dates may not represent disease onset. Strong associations were apparent between influenza and IPD. Case review is warranted to establish temporality.
The association of C-reactive protein with lung function in young adults

B Curry¹, L Blizzard¹, H Walters¹, T Dwyer², A Venn¹

¹ Menzies Research Institute, University of Tasmania, Hobart, TAS, Australia
² Murdoch Children’s Research Institute, Royal Children’s Hospital, Melbourne, VIC, Australia

Background
C-reactive protein (CRP) has been shown to be positively associated with obesity. In young adults it has also been shown to be associated with lower lung function independent of smoking status, asthma and BMI. However, as BMI does not distinguish between the opposing effects of fat mass and lean mass on lung function, it is possible that the association of CRP with lung function may still be confounded by adiposity.

Aim
To investigate the effect of adiposity on the associations between CRP and the lung function of healthy young adults.

Methods
Data were collected from a population-based sample of 787 males and 771 non pregnant females (aged 26 to 36 years). The associations of log CRP (mg/l) with adult Forced Vital Capacity (FVC) and Forced Expiratory Volume (FEV1) were investigated using multivariable modelling. The effect of adiposity on the associations of CRP with FEV1 and FVC were evaluated by first adjusting for BMI and then additionally for lean body mass in order to isolate the effect of the adiposity component of BMI.

Results
After adjustment for age, height, asthma, smoking, alcohol consumption and family history of CVD, and oral contraceptive use in women, negative associations of CRP with FEV1 and FVC were observed for men and women: FEV1 (β = -0.074, 95% CI -0.106,-0.043) and (β = -0.021, 95% CI -0.044,0.001); FVC (β = -0.088, 95% CI -0.126,-0.050) and (β= -0.046, 95% CI -0.074,-0.019) respectively. Although strengthened after adjustment for BMI, these associations were reduced after additional adjustment for lean mass: FEV1 (β = -0.061, 95% CI -0.094,-0.029) and (β = -0.011, 95% CI -0.037,0.014); FVC (β = -0.073, 95% CI -0.113,-0.033) and (β = -0.034, 95% CI -0.065,-0.004) for men and women respectively.

Conclusions
CRP levels in healthy young adults are inversely associated with FEV1 and FVC independent of adiposity.

Surveillance of febrile convulsions in young children in Sydney, NSW using emergency department and ambulance despatch data

BG Polkinghorne¹,², DJ Muscatello¹, CR MacIntyre³, GL Lawrence³, PM Middleton⁴

¹ Population Health, New South Wales Health Department, North Sydney, NSW, Australia
² School of Public Health and Community Medicine, University of New South Wales, Sydney, NSW, Australia
³ National Centre for Immunisation Research, Westmead, NSW, Australia
⁴ Ambulance Research Institute, Ambulance Service of New South Wales, Rozelle, NSW, Australia

Background
Recently intense focus has been brought to bear on febrile convulsions in Australian children particularly in relation to influenza vaccination. Febrile convulsions are relatively common in infants and can lead to severe outcomes including hospital admission in up to 25% of cases. Influenza and less frequently respiratory syncytial virus (RSV) have been associated with febrile convulsions in children.

Aim
We aimed to examine the impact of seasonal RSV and influenza epidemics, including pandemic (H1N1) 2009 influenza, on the incidence of convulsions or seizures in children using two readily available administrative data sources; NSW Emergency Department (ED) patient management and ambulance despatch databases.

Methods
For children aged 0 to 4 and 5 to 9 years presenting to public hospitals in the Sydney region, we prepared a weekly population rate time series of ED presentations assigned a provisional diagnosis of convulsions and urgent ambulance despatches for fitting or convulsions over the period January 2007 to April 2010.

Results
At the seasonal influenza peaks of 2007 and 2009, rates of presentations of 0-4 year old children to Sydney EDs diagnosed with convulsions or seizures rose from baseline rates of 1 per 10,000 per week to 4 per 10,000 and 3 per 10,000 respectively. RSV did not appear to affect convulsions rates when comparing ED bronchiolitis presentations, which are strongly associated with RSV circulation, with ED influenza-like-illness presentations. The highest peak in ED bronchiolitis presentations for 0-4 year olds was 2008, which had the lowest peak for ED convulsions presentations.

Conclusions
Convulsions associated with influenza vaccination of children need to be considered in light of the background rates of convulsions in children which are 1 per 10,000 in the Sydney area each week and up to 300% higher during influenza seasons.
Atopy and asthma in children: a latent class analysis

F Garden1,2, JM Simpson1, C Almqvist3, E Tovey2, GB Marks2
1 Sydney School of Public Health, University of Sydney, Sydney, NSW, Australia
2 Woolcock Institute of Medical Research, Sydney, NSW, Australia
3 Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden

Background
It is well known that the atopic sensitisation, defined as a positive skin prick test (SPT) to common inhalant or ingested allergens, is a strong risk factor for asthma. What is not well known is the relationship between asthma and different phenotypes of atopy, as defined by the pattern of positive SPT results over time and to different allergens.

Aim
To describe the pattern of SPT results over time and to different allergens, and to assess how well these atopy phenotypes predict asthma in children.

Methods
The study population was a birth cohort at high risk for asthma who had skin prick tests to inhalant (dust mite, cockroach, cat, alternaria, rye grass, grass mix) and ingested (peanuts, salmon, milk, egg, tuna) allergens performed at 1.5, 3, 5, and 8 years of age. We used latent class analysis, with class sizes 2 to 7, to define atopy phenotypes. Their relationship to current asthma status at 8 years was assessed using logistic regression.

Results
We were able to classify all children (n=616) into 2 to 7 different phenotypes of atopy depending on the class size of the model. In all models, the latent class analysis identified a phenotype we could describe as “non-atopic” and identified other phenotypes we could describe as “single” and combinations of “multiple” allergies. There was a significant relationship between the atopy phenotypes and asthma at 8 years. Within each model, compared to the “non-atopic” group, the phenotype most similar to the “multiple allergy” gave the largest odds ratio.

Conclusions
Latent class analysis allowed us to summarise and create phenotypes of atopy. These phenotypes are more comprehensive than defining a subject as atopic or not and allow us to understand better the relationship between atopy and asthma.

Wood dust and formaldehyde exposure and its determinants in the joinery and furniture manufacturing industry in New Zealand

K Cheung, D McLean, KC Wong, J Douwes
Centre for Public Health Research, Massey University, Wellington, New Zealand

Background
Wood dust and formaldehyde are both recognised as human carcinogens, and many studies have shown strong associations with non-malignant respiratory disease and sinonasal cancer.

Aim
To describe inhalable wood dust exposure in New Zealand joineries and furniture makers, identify specific determinants of exposure and possible interventions. To measure respirable wood dust exposure and formaldehyde exposure levels.

Methods
Full-shift personal inhalable dust samples (n=266) were collected in 22 joineries and 8 furniture makers. Information on the type of wood used, time spent on different tasks, and use of extraction ventilation were recorded. Task and process variables were analysed using mixed models to assess variance components and identify significant exposure determinants. Full-shift personal respirable dust samples (n=81) and short term 15-minute samples were collected for formaldehyde exposure (n=274).

Results
Mean (geometric mean (GM)) exposure in furniture makers was 1.22 mg/m3, with a geometric standard deviation (GSD) of 2.84, with higher exposure in joineries (GM 2.48 mg/m3, GSD 2.57). A regression model explained 42% of the exposure variability in furniture makers versus 7% in joineries. The within-worker and between-worker variance in furniture makers were 0.79 and 0.18 respectively, and in joineries 0.72 and 0.38. In furniture makers, sanding increased exposure by 2.49 mg/m3 (95% CI 1.49-4.21), and cleaning in joineries increased exposure by 1.46 mg/m3 (1.00-2.14). Respirable dust levels were higher in joineries (GM 0.27 mg/m3, GSD 2.85) than furniture makers (GM 0.12 mg/m3, GSD 5.13). Formaldehyde levels were similar in joineries (GM 0.014 ppm, GSD 2.43) and furniture makers (GM 0.012 ppm, GSD 2.45).

Conclusions
Dust levels were relatively high, in contrast to formaldehyde levels which were low. Very little of the total dust exposure variability was explained in joineries, so more detailed exposure information is needed, possibly through real-time video monitoring to identify peak exposures, to direct future interventions.
The incidence of amniotic fluid embolism in Australia: a record linkage study

CL Roberts1,2, CS Algert1, M Knight3, JM Morris1,2
1 Kolling Institute of Medical Research, University of Sydney, St Leonards, NSW, Australia
2 Department of Obstetrics and Gynaecology, Royal North Shore Hospital, St Leonards, NSW, Australia
3 National Perinatal Epidemiology Unit, University of Oxford, Oxford, United Kingdom

Background
Amniotic fluid embolism (AFE) is a rare, often fatal, condition of pregnancy and childbirth characterised by sudden cardiovascular collapse, altered mental state and coagulopathy. The pathogenesis is poorly understood and the diagnosis is one of exclusion. A recent systematic review of AFE incidence identified a lack of population-based studies and an absence of incidence data outside North America or Europe.

Aim
To determine the incidence of AFE in Australia using linked population health data.

Methods
Data were obtained from linked birth, hospital and death data for all 518,715 deliveries, in New South Wales 2001-2006. AFE diagnoses were identified from ICD10-coded fields in the hospital and/or death records with additional case definition criteria imposed. AFE incidence rate, fatality rate and the relative risks (RR) for maternal and pregnancy factors were determined.

Results
AFE diagnoses were recorded in 36 hospital records for 28 women with an additional 2 cases identified from death records. Five diagnoses were not confirmed following maternal transfer to a tertiary obstetric hospital and six did not fulfil the case definition, leaving 19 cases for an AFE incidence of 3.7 per 100,000 deliveries (95% CI 2.2-5.3), maternal fatality rate 37% (95% CI 16-62) and perinatal mortality rate 37% (95% CI 16-62).

Conclusions
The AFE incidence rate was closer to that reported for active surveillance (2.0/100,000) than the higher rates obtained from hospital data alone (7.7/100,000). This study demonstrates the utility of linked population data for assessing the incidence of rare conditions such as AFE.

Investigating the relationship between gestational age, birthweight and childhood sleep apnoea, using longitudinally linked data

CH Raynes-Greenow1, RM Hadfield2, P Cistulli3, J Bowen4, CL Roberts2
1 Sydney School of Public Health, University of Sydney, University of Sydney, Australia
2 Perinatal Research Group, Kolling Institute of Medical Research, University of Sydney, NSW, Australia
3 Sydney Medical School, University of Sydney, NSW, Australia
4 Department of Neonatology, Royal North Shore Hospital, NSW, Australia

Background
There is an increasing interest in the role of obstructive sleep apnoea and subsequent health outcomes, and recently this has been investigated in young age groups.

Aim
To investigate the relationship between perinatal risk factors and sleep apnoea in childhood using population health longitudinally linked data from NSW.

Methods
All live births recorded in NSW between 2000 and 2004 were extracted from the Midwives data collection, and followed up to the age of 6 years for all NSW hospitalisations recorded in the Australian Patient Data Collection. Exclusions included those births identified with major congenital anomalies, any births with birth weight outliers, and any deaths in the first year of life. Birth weights were adjusted for sex and gestational age using national centile charts. Sleep apnoea was identified using the ICD-10 code G47.3 and the procedure codes for polysomnography and adenotonsillectomy.

Results
We identified 4145 (1.0%) children with sleep apnoea diagnosed >1 year old, mean follow-up was 5.03 years. Mean age at first diagnosis was 3.6 years, 86% had adenotonsillectomy and 36% had polysomnography. After adjusting for gestational age, year of birth, baby’s sex, maternal age, smoking during pregnancy, mode of delivery, number of previous pregnancies, we found an increased risk for children to be diagnosed with sleep apnoea if they were born at < 32 weeks [OR 2.50; 95% CI 2.0, 3.2], or those born to mothers with any pregnancy hypertension [OR 1.19; 95% CI 1.1, 1.3], or those born by caesarean section [OR 1.19; 95% CI 1.1, 1.3]. There was no significant association.
Data linkage 1

between birthweight, adjusted for gestational age, and sleep apnoea.

Conclusion
These results suggest that some perinatal factors are related to an increase in the risk of childhood sleep apnoea. Obstructive sleep apnoea in adults has been related to hypertension, coronary artery disease, diabetes and depression.

Informing hospital role delineation: elective delivery of pregnant women before the due date

MO Falster1,2, C Roberts1, J Ford1, J Morris1, M Nicholl3
1 Clinical and Population Perinatal Health Research, Kolling Institute of Medical Research, University of Sydney, St Leonards, NSW, Australia
2 Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
3 Department of Obstetrics, Gynaecology and Neonatology, Northern Clinical School, University of Sydney, NSW, Australia

Background
Elective delivery (inductions and pre-labour caesareans) of pregnant women is increasing. However, there is limited evidence to inform the level of maternal and neonatal care necessary to support this clinical activity, particularly leading up to 39 weeks gestation.

Aim
This study sought to quantify patterns of, and outcomes following, pre-labour caesareans and inductions of labour between 33-38 weeks gestation in NSW.

Methods
Data were obtained from the linked birth and hospitalisation data for all births in NSW 2001-2007. All singleton livebirths born in a NSW hospital were included. Rates of inductions and pre-labour caesareans were analysed as a proportion of all births within each gestational age. Hospitals were grouped according to volume, locality (urban/regional), and level of neonatal care. Adverse outcomes occurring from elective delivery were assessed from birth to first discharge from the hospital system, using composite indicators of maternal and neonatal morbidity.

Results
From 2001-2007, there were 30,076 inductions and 42,341 pre-labour caesareans for liveborn singleton deliveries 33 to 38 weeks gestation. This comprised 5.1% and 7.2% of all births in this period respectively. The total proportion of all infants born by these elective deliveries significantly increased from 10.8% in 2001, to 13.8% in 2007. While the relative proportion of inductions and pre-labour caesareans differed by gestational age, elective deliveries accounted for 35-40% of all births in the early gestational ages (33-36 weeks), and increased to 42% of births at 37, and 53% of births at 38 weeks. The distribution of elective deliveries, and the proportion suffering adverse outcomes, varied across gestational ages and between hospital obstetric levels.

Conclusions
The differential pattern of elective delivery and subsequent outcomes, across gestational ages and hospital obstetric levels will assist in better understanding and evaluating maternity hospital role delineation in NSW.

Predictors of correct recording country of birth in routine data collections among overseas born Australians

D Tran, L Jorm, H Bambrick, M Johnson, S Lujic
College of Health and Science - School of Medicine, University of Western Sydney, Penrith South DC, NSW, Australia

Background
Australia has a high proportion of population born overseas. As administrative health data are increasingly being used for research purposes, it is essential to understand the validity of country of birth (COB) recording in routine data collections to correctly interpret analyses of research using these data.

Aim
To investigate the relationships between socioeconomic, demographic factors, hospital admission characteristics and the recording of COB in hospital morbidity data.

Methods
This study validated COB recording in hospital morbidity data using self-reported COB from the 45 and Up Study (gold standard). The questionnaire data (n=103,042 participants) were linked to the NSW Admitted Patient Data Collection (APDC) (n=196,464 records 2004/05-2007/08). Participants reported being born in Australia or did not report COB in the questionnaire were excluded. Logistic regression analysis was performed for 13,026 persons, and for each person one random APDC record was selected.

Results
77.4% of overseas-born persons had the correct COB recorded in their APDC record. Factors strongly associated with correct recording of COB were: region of birth, age at immigration, length of residence, education attainment, annual household income, and type of hospital. Correct recording of COB was lowest among people born in European countries. The proportion of correct recording increased significantly with older age at immigration but decreased significantly with longer duration of residence, higher income, and higher levels of education. People who were working, or who lived in regional or remote areas were marginally less likely to have correct COB
recorded. Compared to principal referral hospitals, the correct recording in major, district, community or other health facilities was significantly lower. Language spoken at home, planned admission, and type of diagnosis were not associated with correct recording of COB.

Conclusions
These findings have implications for research studies that rely on the COB variable in routinely collected data.

Using data linkage to estimate the total incidence of end-stage kidney disease

C Ryan, L Moon, F Green
CDK Unit, AIHW, Canberra, ACT, Australia

Background
To date, incidence data for ESKD in Australia has been available only for those people who commence kidney replacement therapy (KRT) — treated cases. It is of interest to develop an incidence measure that also includes those who do not commence treatment—untreated cases. As survival is likely to be short for these people, mortality data can be used to estimate the incidence of untreated ESKD.

Aim
To estimate the total incidence of end-stage kidney disease (ESKD) in Australia including treated and untreated cases.

Methods
The Australian and New Zealand Dialysis and Transplant Registry (ANZDATA) records were probabilistically linked to the National Death Index to identify individuals with ESKD who died but were not on ANZDATA. ESKD incidence was defined as a person registered on ANZDATA or a person who died from renal failure as an underlying cause of death or end-stage renal failure as an associated cause of death in the reference period.

Results
Data linkage was able to identify a substantial group of people with untreated ESKD. For roughly every incident case of ESKD treated with KRT, there was another ‘untreated’ case, totalling 4,687 in 2006. Between 2003 and 2006 there was a significant increase in the number of treated and ‘untreated’ cases of 26% and 19% respectively. The ‘untreated’ cases were mostly in the older age groups with half aged over 85 years. Females had a higher proportion of incident cases being ‘untreated’ than males (55% compared to 42%). After controlling for age, a significant gap remained, although this was narrowed (49% compared with 46%).

Conclusions
The method used here provides a first estimate of the total incidence of ESKD in the Australian population. This major advance in incidence estimates for ESKD provides valuable data that will be further analysed in the future.

Incidence of severe adverse neonatal outcomes: use of a composite indicator in population data

S Lain¹, C Algert¹, N Nassar¹, J Bower², C Roberts¹
1 Perinatal Research, Kolling Institute, St Leonards, NSW, Australia
2 Department of Neonatology, Royal North Shore Hospital, St Leonards, NSW, Australia

Background
With decreasing rates of neonatal mortality, neonatal morbidity has been suggested as a more relevant outcome for obstetric and neonatal research. However the use of individual morbidities as outcome measures requires large sample sizes.

Aim
We aimed to develop a composite indicator to identify infants with severe adverse outcomes using population health datasets (PHDS).

Methods
A comprehensive list of diagnosis and procedure codes that may indicate serious long term neonatal morbidity were compiled based on literature review, validation studies and expert consultation. Data obtained from linked birth and hospital data for 516,617 liveborn infants of at least 24 weeks gestation, in New South Wales 2001-2006 were assessed and the composite indicator was refined. Face validity of the indicator was examined by calculating the relative risks (and 95% CI) of readmission to hospital or death in the first year of life of those infants identified by the composite indicator.

Results
Overall 4.5% of all infants had one or more conditions included in the composite neonatal outcome indicator; 33.0% of preterm infants and 2.4% of term infants. Respiratory distress syndrome and mechanical ventilation were the most common components of the composite indicator. Infants identified by the composite indicator were 17 times more likely to die in the first year of life, or almost twice as likely to be readmitted to hospital in the first year of life, than those infants not identified by the composite outcome indicator.

Conclusion
This composite indicator can be utilised by any user of PHDS to identify infants with a severe adverse neonatal outcome. This is an accessible tool that can be used to monitor trends, assess obstetric and neonatal interventions and compare quality of perinatal care.
What do Australians think about privacy and participation in epidemiological research?

H Kelsall1, B Loff1, C Slegers1, D Zion1, N Brown2, D Glass1, L Fritschi3
1 Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia
2 Poche Centre for Indigenous Health, The University of Sydney, Sydney, NSW, Australia
3 Western Australian Institute for Medical Research, University of Western Australia, Perth, WA, Australia

**Background**
Little is known about the Australian public’s views on privacy in relation to epidemiological research.

**Aim**
Our aim is to establish the views of the general population, specific population subgroups, and stakeholders about the relationship between protecting privacy and conducting epidemiological research; and to identify factors that affect willingness to participate in epidemiological studies.

**Methods**
In Phase 1, we conducted qualitative interviews with stakeholders including medical lawyers, epidemiologists, health researchers, members of Ethics Committees and privacy interest groups (n=16), and people of diverse ethnic backgrounds (n=5). We also conducted general population and Aboriginal and Torres Strait Islander community focus groups which were semi-structured and included two reality-based vignettes. Sampling and subsequent interviewing continued until no new information emerged. The transcripts were analysed using qualitative methods, including grounded theory. In Phase 2, a sample from the electoral roll (n=3000) and existing cohort (n=1000) and case control (n=200) study participants will be invited to complete a telephone questionnaire.

**Results**
Initial analysis suggests that members of the public are particularly motivated to participate in epidemiological research if they, a family member or friend has been affected by an illness or disability being researched and/or perceive investigation of the illness will be of significant public benefit. Other motivators are that the research is conducted by a trusted public institution such as a university, hospital or government agency, and is preferably publicly funded. Proliferation of telemarketing and market researcher telephone calls to private homes has resulted in public confusion about what constitutes ‘research’. Additional findings relevant to privacy and participation will be presented based on further analysis.

**Conclusions**
These interviews are informative and will be used to develop the survey questionnaire. The resulting findings will provide an evidence base to inform the development of law, ethical guidelines and research practice.

---

Gender differences in occupational exposure patterns

AJ Eng, AM Mannetje, J Douwes, L Ellison-Loschmann, D McLean, N Pearce
Centre for Public Health Research, Massey University, Wellington, New Zealand

**Aim**
The aims of this study were to i) investigate whether there are gender differences in occupational exposure patterns; and ii) investigate to what extent these differences can be explained by occupational distribution.

**Methods**
Men and women aged 20-64 years were randomly selected from the Electoral Roll and invited to take part in a telephone interview, which collected information on self-reported occupational exposure to specific dusts and chemicals, physical factors, and organisational factors. We used logistic regression to calculate prevalence odds ratios (POR) and 95% confidence intervals (95% CI), comparing males (n=1431) with females (n=1572), adjusting for age and deprivation. To assess the effect of occupation, we matched males and females on current occupation (5-digit code) (n=1208) and conducted conditional logistic regression adjusting for age.

**Results**
Overall, males were more likely to report exposure to workplace substances, loud noise, using tools that vibrate, working irregular hours and night shifts. Females were more likely to report repetitive tasks and working with fast speed. Confounding by occupation appeared to account for 69-87% of the increased risk for males of exposure to workplace substances. However, elevated risks for men remained for exposure to oils and solvents (OR=1.6; 95% CI 1.2-2.3) and smoke/fume/gas (OR=1.5; 95% CI 1.1-2.1). The risks of using tools that vibrate, working irregular hours, and night shift also remained elevated. There was an increased risk of working at high speed, awkward or tiring positions, and repetitive tasks for females even after accounting for occupation.
Conclusions
While differences in occupational distribution accounted for a large part of the observed differences in exposure patterns between males and females, there nevertheless appears to be an unequal distribution of certain occupational risk factors for women and men with the same job title. As a result, the burden of occupational disease may be different for men and women working in the same occupation.

Prenatal stress and risk of behavioural morbidity from age two to 14 years: the influence of the number, type and timing of stressful life events

M Robinson1,2, E Mattes3, WH Oddy4, CE Pennell4, A Van Eeckelen1, NJ McLean6, P Jacoby3, J Li5, NH De Klerk6, SR Zubrick1, FJ Stanley1, JP Newnham1

1 Telethon Institute for Child Health Research, The University of Western Australia, West Perth, WA, Australia
2 School of Psychology, The University of Western Australia, Crawley, WA, Australia
3 School of Women’s and Infants’ Health, The University of Western Australia, Subiaco, WA, Australia
4 Centre for Developmental Health, Curtin University of Technology, Bentley, WA, Australia

Background
The maternal experience of stressful events during pregnancy has been associated with a number of adverse consequences for behavioural development in offspring, but the measurement and interpretation of prenatal stress varies among reported studies. Further, little was understood about whether and how the number; type; and timing of stress events might influence subsequent child behavioural development between two- and 14-years of age.

Method
The Raine Study recruited 2900 pregnancies and recorded life stress events experienced by 18 and 34 weeks gestation along with numerous sociodemographic data. The mother’s exposure to life stress events was further documented when the children were followed-up in conjunction with behavioural assessments at ages two, five, eight, ten and 14 years using the Child Behaviour Checklist (CBCL). Logistic regression models with generalized estimating equations were used to assess the relationships between the maternal experience of life stress events and child behaviour between age 2- and 14-years.

Results
The maternal experience of multiple stressful events during pregnancy was associated with subsequent behavioural problems for offspring. Both independent (e.g. death of a relative, job loss) and dependent stress events (e.g. financial problems, marital problems), were significantly associated with a greater incidence of mental health morbidity between age two- and 14-years. Exposure to stressful events in the first 18 weeks of pregnancy showed similar associations with subsequent total and externalizing morbidity to events reported at 34 weeks gestation. These results were independent of postnatal stress exposure.

Conclusions
The maternal exposure to life stress events during pregnancy has long-lasting consequences for mental health of offspring during childhood and adolescence, independent of later stress exposure. Improved support for women with chronic stress exposure during pregnancy may improve the mental health of their offspring in later life.

Dental caries in Australian school children: 30 years of surveillance

GC Mejia, A Spencer, KF Roberts-Thomson, DS Brennan
Australian Research Centre for Population Oral Health (ARCPOH), University of Adelaide, Adelaide, SA, Australia

Background
Dental caries is the most common childhood disease; it affects the primary and permanent dentitions. At the individual level, caries in the primary dentition is a predictor of caries in the permanent dentition. At the population level, the relationship between primary and permanent caries experience has not been studied. The aim of this study was to examine trends in both the primary and permanent dentition and their relationship among synthetic birth cohorts.

Methods
Caries data were obtained from routine examinations of 6 and 12 year old children in the School Dental Services of each state and territory from 1977 to 2007. Caries experience was measured as decayed, missing due to caries, and filled teeth.

Results
Substantial declines in primary and permanent dental caries experience were observed between 1977 and the mid 1990s; since then, dental caries in the primary dentition has begun to increase. Prior to the mid 1980s, the prevalence of dental caries was greater in the permanent dentition than in the primary dentition with the opposite pattern observed afterwards. Birth cohorts showed greater caries experience at age 6 (primary teeth) than at age 12 (permanent teeth). Regarding the transition from primary to permanent dentition within a cohort, the difference in caries experience (slope) steadily increased among earlier cohorts but among later cohorts it has started to level off. The difference in dental caries experience at age 6 and 12 between birth cohorts in a given year also appeared to have decreased until the mid 1990s and since then has increased.

Conclusion
The decline in children’s caries experience until the mid 1990s was a significant dental public health achievement; however, the recent increase in caries experience merits sustained support for children’s oral health programmes and continuation of national monitoring strategies such as the Child Dental Health Survey.
Suicide in Australian pesticide-exposed workers: a nested case-control study

E MacFarlane, P Simpson, G Benke, M Sim
MonCOEH, DEPM, Monash University, Melbourne, VIC, Australia

Background
Epidemiological research has observed that workers with exposure to anticholinesterase pesticides, and particularly those with a history of acute over-exposure, may be at increased risk of depression. However, there is little published research about suicide risk in relation to pesticide exposure.

Aim
The present study aimed to investigate risk of suicide in relation to metrics of pesticide exposure and type of work.

Methods
A nested case-control study was performed within a retrospective cohort study of pesticide exposed workers from a variety of industries. 90 male suicide deaths and 270 male controls were matched by age-bands, state of residence and live status. Cholinesterase inhibition was determined using subject-specific biomonitoring records collected at the time of exposure.

Results
A non-significant two-fold increased odds of suicide was associated with blood-test confirmed cholinesterase inhibition (OR 1.90 95% CI=0.73-4.93). No associations were found in relation to type of work or self-reported exposure to any pesticide types except for herbicides/fungicides, for which an unexpected negative association was observed in the univariate analysis. This was not significant in the multivariate model and was possibly due to chance. Suicide mortality was not associated with occupational group or with routine use of particular pesticide products.

Conclusion
The data suggest a possible association between suicide mortality and a history of cholinesterase inhibition. Although this finding was based on small numbers, previous research has found increased depression in workers with a history of cholinesterase inhibition. Our findings suggest that cholinesterase inhibition may be a possible contributing factor to the farmer suicide problem that warrants further research.

How does active transport contribute to adolescents’ physical activity over time?

A Carver, K Hesketh, D Crawford
Centre for Physical Activity & Nutrition Research, Deakin University, Burwood, Australia

Background
Few longitudinal studies have examined associations between active transport (e.g. walking/cycling to school) and physical activity among adolescents.

Aims
To examine associations between active transport and non-school moderate-to-vigorous physical activity (MVPA), and how these behaviours track across adolescence.

Methods
This longitudinal study of young people aged 10–12 years (n=223) at baseline (T1), in Melbourne, gathered follow-up data at three (T2) and five years (T3). Walking/cycling to local destinations was survey-reported, while MVPA was recorded using accelerometers during these periods: before school; after school; evenings; total non-school hours on week days; weekend days. Linear regression analyses examined how active transport was associated with MVPA at each time-point. Tracking of these behaviours was examined over five years using General Estimating Equations.

Results
At T1 active transport was associated only with boys’ MVPA before school (B=0.40, p=0.011) and with their total non-school MVPA (B=0.93, p=0.027). At T2 active transport was associated with MVPA after school among boys (B=0.58, p=0.012) and among girls (B=0.58, p<0.001); and with total non-school MVPA among boys (B=0.87, p=0.005) and among girls (B=0.65, p<0.001). At T3 active transport was associated only with girls’ MVPA: before school (B=0.20, p<0.001), after school (B=0.28, p=0.001), total non-school MVPA (B=0.46, p=0.001) and on weekends (B=0.60, p=0.033). Active transport did not track over five years but non-school MVPA did track significantly: before school (boys, βs=0.37, p=0.004; girls, βs=0.25, p<0.001), after school (boys, βs=0.67; p=0.007), during evenings (boys, βs=0.36, p<0.001; girls, βs=0.52, p<0.001), overall during non-school hours (boys, βs=0.64, p<0.001; girls, βs=0.56, p<0.001) and on weekends (boys, βs=0.56, p<0.001; girls, βs=0.44, p<0.001).

Conclusions
Active transport contributes to non-school MVPA. In particular, it may be an important source of habitual physical activity for adolescent girls, among whom low and declining physical activity levels have been reported worldwide.
Abstracts

CONCURRENT SESSION 9

Methods

Thursday 1330 – 1500
Room 104
Chair: Judy Simpson

Multiple imputation: the importance of model assumptions with increasing amounts of missing data

KJ Lee1,2, JB Carlin1,2
1 Clinical Epidemiology and Biostatistics Unit, Murdoch Childrens Research Institute, Melbourne, VIC, Australia
2 Department of Paediatrics, University of Melbourne, Melbourne, VIC, Australia

Background

Multiple imputation (MI) is becoming increasingly popular for handling missing data with two reasonably mature techniques widely available: fully conditional specification (FCS) and multivariate normal imputation (MVNI). However, MI is often implemented without considering how much data are missing or the effects assumptions made in the imputation model, such as normality of continuous variables, can have in particular as the amount of missingness increases.

Aims

To explore the importance of the normality assumption as the amount of missing data increases when data are missing at random.

Methods

We created 1000 datasets of 1000 observations with 7 predictors and an outcome from a synthetic population, and induced various proportions of missingness in a single highly-skewed continuous predictor. Imputations were carried out in Stata using FCS (Royston’s “ice”) and MVNI (mi impute mvn), with a (simple) log-transformation, a shifted log-transformation producing zero skewness and prediction matching to adjust for non-normality. Resulting inferences for a set of regression parameters were compared to “true values” from the population and estimates from a complete case analysis.

Results

When 90% of data were observed all imputation models led to increased bias and under-coverage of confidence intervals for the variable with missing data compared to complete case analysis, with flow-on effects for other variables.

Conclusions

Although MI is fairly robust to non-normality when there are few missing data, when large amounts of data are missing naively carrying out MI without addressing potential non-normality can introduce bias not present in a complete case analysis.

Application of multiple imputation for correction of misclassification of smoking status in the association between smoking and lung cancer: a Bayesian approach

M Corbin1, M Maule2, N Pearce1
1 CPHR, Massey University, Wellington, New Zealand
2 Department of Biomedical Sciences and Human Oncology, University of Turin, Turin, Italy

Background

Missclassification of exposure is an important cause of bias in epidemiological studies. Bayesian methods can be used to ‘correct’ for exposure misclassification, by treating the ‘true’ exposure variable as completely missing. The missing values for the ‘true’ exposure variable can then be imputed, using multiple imputation, assuming a range of values of sensitivity and specificity of the measured exposure variable as a surrogate measure of the ‘true’ exposure variable.

Methods

In a New Zealand cancer registry-based case control study of lung cancer, we simulated the misclassification of smoking status. We performed multiple imputation to impute the ‘true’ smoking status and we then estimated the ‘corrected’ association between smoking and lung cancer. We used a range of values for each of the different parameters including the sensitivity (0.6, 0.9) and the specificity (0.6, 0.9), the size of the validation substudy (25%, 50%, 75%) and the number of imputations (10, 30, 50). For each combination of these parameters, 500 datasets were simulated.

Results

The bias and the Mean Squared Error (MSE) were much smaller after multiple imputation (bias [-3%,0.1%] and MSE [0.6%,10%]) than when using the misclassified smoking status (bias [-46%,-83%] and MSE [41%,311%]). For the following combinations of sensitivity and specificity ((0.9,0.6);(0.6,0.9);(0.6,0.6)), the multiple imputation method gave the smallest bias when the validation substudy was 25% of the original dataset and when 10 imputations were computed. With both sensitivity and specificity equal to 0.9, the minimum bias was obtained when the size of the validation substudy was 50% and the number of
Methods

Multiple imputation is a useful method for correction of exposure misclassification. It has benefits over classical ‘sensitivity analysis’ since it allows for control of variables in a standard multiple regression analysis.

Discussion

Multiple imputation is a useful method for correction of exposure misclassification. It has benefits over classical ‘sensitivity analysis’ since it allows for control of variables in a standard multiple regression analysis.

The role of post-stratification weighting in seroprevalence surveys based on non-probability sampling

G Doukas1, MA Cretikos1,3, GL Gilbert2, DJ Muscatello1
1 Center for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
2 Centre for Infectious Diseases and Microbiology, Institute of Clinical Pathology and Medical Research, Westmead Hospital and Univ, Westmead, NSW, Australia
3 School of Public Health, The University of Sydney, Camperdown, NSW, Australia

Background

Pandemic influenza A (H1N1) 2009 (pH1N1) virus was identified in Australia in 2009. In the context of an emerging pandemic, there is a need to rapidly obtain information about the prevalence of infection, however the proportion of the population infected with the virus cannot be determined from routine laboratory and epidemiological surveillance. Seroprevalence surveys can be helpful, but a timely probability sample of sera may not be available.

Aims

To examine the effect of post-stratification weighting on estimates of influenza seroprevalence.

Methods

A convenience sample of 474 serological specimens collected in 2007 and 2008 (pre-pandemic), and a quota sample of 1247 specimens collected in August and September 2009 (post-pandemic, but pre-vaccine) were obtained. The quota sample was stratified by age group and postcode. The sera were tested for antibodies against pH1N1 and four other seasonal influenza viruses using titration. Sample weights were calculated using raking with 5-year age group and geographic area (statistical subdivision) as weighting variables. Weighted and unweighted estimates of geometric mean titre volumes (GMT) and percentages testing positive (titres ≥40) were compared for various sub-groups.

Results

The weighted and unweighted prevalence estimates for pH1N1 differed by 6.8 percentage points in the pre-pandemic sample and 0.2 percentage points in the post-pandemic sample. The weighted and unweighted GMTs differed by 19.6% for the pre-pandemic and 0.6% for the post-pandemic sample. Differences were greater in some sub-groups.

Conclusions

Differences between weighted and unweighted estimates were greater for the pre-pandemic convenience sample compared to the post-pandemic quota sample, and greater for sub-groups compared to the overall sample. Convenience samples benefit from post-stratification weighting more than quota samples. While post-stratification weighting can improve the representativeness of seroprevalence survey results, it cannot replace probability sample selection. However, for urgent assessment under emergency conditions it can improve confidence in the resulting estimates.

Evaluating the forecast accuracy of functional data analysis approach for modelling and predicting injury incidence rates: an application to falls

S Ullah, CF Finch
School of Human Movement and Sport Sciences, University of Ballarat, Ballarat, VIC, Australia

Background

Time series prediction is an important research problem for many real life domains such as prediction of injury incidence rates. It is important that good statistical approaches are used to generate accurate and reliable information about predicted data to inform public health investment decisions. It is critical, therefore, that such predictions are derived using the best available statistical approach to minimize possible errors in the forecast.

Aims

The aim of this article is to introduce a new evaluation framework of forecast accuracy for modelling and predicting injury incidence rates.

Methods

Functional data analysis (FDA) approaches have been developed to improve long-term predictions. There have been many statistical measures to evaluate the forecast accuracy in the current statistical literature. However, we proposed a new approach called Forecast REsidual Sum of Squares (FRESS) to evaluate the forecast accuracy. Using the specific example of age-specific annual incidence of fall-related severe head injuries of older people in Finland, FRESS demonstrated that FDA is superior over the more commonly reported ordinary least square, Poisson and negative binomial modelling approaches in terms of prediction accuracy.

Results

Application of the FDA approach to this data shows that the FDA predictions have approximately 55.0%, 40.2% and 30% less prediction error than ordinary least squares, Poisson and negative binomial modelling approaches in terms of prediction accuracy.
Conclusions
In summary, FDA provides more accurate predictions of long-term incidence trends than commonly used methods. The production of FDA prediction intervals gives likely guidance as to the likely accuracy of these predictions.

Statistical modeling of count data with excess zeros: an application to falls data

A Khan¹, S Ullah⁴, J Nitz¹

¹ School of Health & Rehabilitation Sciences, The University of Queensland, Brisbane, QLD, Australia
² School of Human Movement and Sport Sciences, University of Ballarat, Ballarat, VIC, Australia

Background
The distributions of counts such as number of falls are often highly skewed toward the right with a preponderance of zeroes. This poses methodological challenges to model count data under the assumption of normality.

Aims
The aim of this article is to introduce an evaluation framework to determine the suitability of different count models in falls data analyses.

Methods
Six different count models [standard Poisson, negative binomial (NB), zero-inflated Poisson (ZIP), zero-inflated NB (ZINB), hurdle Poisson (HP) and hurdle NB (HNB)] were compared in order to provide a defensible guidance on how to appropriately model falls data. Empirical evaluation and comparison of the competing models were performed using model selection criteria and goodness of fit statistics. Data used were from a prospective cohort study of women aged 40-80 years over five years.

Results
Of the 465 women analysed in this study, 330 (about 71%) did not fall at all, while the remaining had one to 15 falls. The analyses identified a strong evidence of over-dispersion in falls data. Poisson model offered a poor fit, which was improved significantly with the NB model. Overall, NB-based models (NB, ZINB, HNB) were better performed and well fitted than the Poisson-based models (Poisson, ZIP and HP). Monte Carlo Exact tests demonstrated improved fit of NB-based models and lack of fit of Poisson-based models. Vuong tests showed that ZINB and HNB models were comparable and outperformed the NB model. Akaike information criterion strongly favoured ZINB over HNB and NB models. HNB and NB were found to be comparable with respect to model accuracy parameters.

Conclusions
Falls data consisting of a considerable number of zeroes can be appropriately represented by the NB-based models. The evaluation procedure presented in this article provides a protocol to appropriately model falls count data with excess zeroes.

The value of sibling controls compared with population controls in association studies of lifestyle-related risk factors: an example from the breast cancer family registry

RL Milne¹,², EM John⁴,⁵, JA Knight⁴,⁵, GS Dite⁶, MC Southey¹,², GG Giles²,⁴,¹, C Apicella¹, DW West⁴,⁵, IL Andrulis³,⁴,⁵, RL Milne¹, EM John⁴,⁵, JA Knight⁴,⁵, GS Dite⁶, MC Southey¹,², GG Giles²,⁴,¹, C Apicella¹, DW West⁴,⁵, IL Andrulis³,⁴,⁵, AS Whittemore⁷, JL Hopper⁸

¹ Genetic and Molecular Epidemiology Group, Spanish National Cancer Research Centre, Madrid, Spain
² Centre for Molecular, Environmental, Genetic and Analytic Epidemiology, University of Melbourne, Melbourne, VIC, Australia
³ Department of Pathology, University of Melbourne, Melbourne, VIC, Australia
⁴ Northern California Cancer Centre, Fremont, CA, United States
⁵ Division of Epidemiology, Department of Health Research and Policy, Stanford University School of Medicine, Stanford, CA, United States
⁶ Samuel Lunenfeld Research, Mount Sinai Hospital, Toronto, Ontario, Canada
⁷ Institute of Pathology and Laboratory Medicine, Mount Sinai Hospital, Toronto, Ontario, Canada
⁸ Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada
⁹ Department of Molecular Genetics, University of Toronto, Toronto, Ontario, Canada
10 Ontario Cancer Genetics Network, Cancer Care Ontario, Toronto, Ontario, Canada
11 Cancer Epidemiology Centre, The Cancer Council Victoria, Carlton, VIC, Australia

Background
A previous Australian population-based breast cancer case-control study found indirect evidence that control participation, although high, was not random. We hypothesised that unaffected sisters may provide a more appropriate comparison group than unrelated population controls.

Methods
Three population-based case-control-family studies of breast cancer in women of white European origin were carried out by the Australian, Ontario and Northern California sites of the Breast Cancer Family Registry. We compared risk factors between 3,643 cases, 2,444 of their unaffected sisters and 2,877 population controls, and conducted case-control analyses based on population or sister controls using unconditional multivariable logistic regression.

Results
Compared with sister controls, population controls were more highly educated, and had earlier age at menarche, fewer pregnancies, their first child at a later age, and their last child more recently. Established breast cancer associations not detected using population controls, but detected using sister controls, were decreasing risk with later...
age at menarche, increasing number of births, decreasing age at first birth and greater time since last birth.

Conclusions
Since population controls might be selected for some risk factors, sister controls could provide more valid risk estimates at less cost. Given declining study participation by population controls, this is highly relevant to epidemiologic research.

Abstracts
CONCURRENT SESSION 10
Cancer and Cancer Registries

Thursday 1330 – 1500
Room 106
Chair: Alison Venn

Patterns of drug treatment for colorectal cancer (CRC) in New South Wales

E Stavrou, N Mealing, T Dobbins, S Pearson
Adult Cancer Program, Prince of Wales Clinical School, UNSW, NSW, Australia

Background
CRC is the second most common cancer in Australia and higher incidence occurs with age. Due to the ageing population, CRC incidence is expected to increase. Surgical resection with or without adjuvant chemotherapy is the recommended treatment for early stage CRC, whereas chemotherapy is recommended for later stage and metastatic disease.

Aim
To examine the uptake and usage of chemotherapy by CRC patients in NSW.

Methods
This is the first Australian study to report CRC therapy treatment using population health data linkage. Dispensing data from Department of Veterans’ Affairs clients were linked to the NSW Central Cancer Registry to identify the treatment patterns of patients diagnosed with CRC since 1st July 2004.

Results
We identified 1,705 CRC patients, 15% of whom received at least one chemotherapy treatment following diagnosis. Nearly 21% of those diagnosed with regional disease (n=252) and 19% with distant disease (n=622) received treatment, compared with 9% each for localised (n=610) and unknown spread. Of those receiving treatment, nearly 40% of patients with regional disease and 60% with distant spread commenced treatment within three months of diagnosis. For those with regional or distant spread, over half of the first courses of treatments were intravenous chemotherapy (fluorouracil based) and over 40% were oral chemotherapy (capecitabine). The approximate duration of treatment for the majority of patients was six months.

Conclusion
This overview of treatment patterns for CRC using population data linkage showed a higher proportion of CRC patients diagnosed with regional or distant spread, rather than localised disease, received treatment. However, given the current guideline recommendations, the use of chemotherapy for later stage disease appears to be lower than expected. Further investigation regarding the predictors of chemotherapy use and its relationship to other treatment modalities is warranted.

A population-based cohort study to estimate incidence and prognosis of metastatic breast cancer (MBC) in NSW

SJ Lord1,2, N Houssami1, LM Marinovich1,2, N Wilcken1, S Crossing6, M Gattellari5, V Gebski1, D Roder3
1 NHMRC Clinical Trials Centre, The University of Sydney, Camperdown, NSW, Australia
2 Screening and Test Evaluation Program, The University of Sydney, Camperdown, NSW, Australia
3 Research and Information Science, The Cancer Council South Australia, Eastwood, NSW, Australia
4 NSW Breast Cancer Institute, Westmead, NSW, Australia
5 School of Public Health and Community Medicine, The University of New South Wales, Randwick, NSW, Australia
6 Cancer Voices, Greenwich, NSW, Australia

Background
Lack of information about risk of MBC and survival is a major unmet need for women with early breast cancer. Metastatic events are not routinely reported by cancer registers or clinical databases, and estimates from clinical trials may not apply to non-trial populations.

Aim
To report the methods of a population-based cohort study that uses health record linkage (HRL) to estimate the incidence and prognosis of MBC in women with an initial diagnosis of localised or regional breast cancer; and describe the baseline characteristics of the cohort.

Methods
We assembled a retrospective cohort of women aged ≥18 years with a diagnosis of localised/regional breast cancer in 2001-2002 from the NSW Central Cancer Register (CCR). We extracted baseline characteristics and dates of diagnosis and death from the CCR. We used HRL to identify MBC status and estimate date of first MBC event for each subject from the NSW Admitted Patient Data Collection (APDC), 2001-2007.
Results
The study cohort included 6893 women. Subject age and
tumour histology varied by extent of disease. Of 6255
subjects without other primary cancers, 544 (8.7%) were
identified as having MBC within 5-6 years, based on
a hospital episode-of-care ICD-10AM diagnosis code
for ‘Secondary and unspecified malignant neoplasms’,
excluding breast and axillary/upper limb lymph node
metastases. MBC rates for women with an initial
diagnosis of localised or regional disease were 162/4258 (3.8%) and
382/2635 (14.5%) respectively. Clinical adjudication of
APDC data will be undertaken to identify MBC status
for 638 subjects with other primary cancers. Time-to-first
MBC and relative survival will be estimated using these
data.

Conclusions
We describe the potential use of HRL to estimate MBC
risk and survival for women with early breast cancer.
Assessment of the accuracy of the APDC to identify the
occurrence and date of first MBC events will be essential to
validate these estimates.

The accuracy of claims data for
determining spread of disease at
diagnosis for non-small cell lung cancer

B Thompson4, M Watson1, R Bowman3, A Page4, K Fong3,
M Coory6
1 Patient Safety and Quality Improvement, Queensland
Health, Brisbane, Australia
2 Health Statistics Centre, Queensland Health, Brisbane,
QLD, Australia
3 Department of Thoracic Medicine, Queensland Health,
Brisbane, QLD, Australia
4 School of Population Health, University of Queensland,
Brisbane, QLD, Australia
5 Cancer Epidemiology Centre, Cancer Council Victoria,
Melbourne, QLD, Australia

Background
In oncology, inpatient claims data have been used for
reporting patterns of care and evaluating costs. However,
there are concerns about the accuracy of stage information.

Aim
This study evaluates the accuracy of ICD codes, as recorded
in inpatient claims data, to assign spread of disease at
diagnosis to patients with non-small cell lung cancer
(NSCLC).

Methods
Clinical or pathological stage was obtained from a large
clinical registry for cases of NSCLC in Queensland for the
period 2000-2009. TNM stage was mapped to spread
of disease at diagnosis (local, regional, distant) and was used as
the reference standard. Sensitivity, specificity and PPV were
calculated by cross-classifying these data against spread
disease at diagnosis for non-small cell lung cancer
Risk of second cancer after
lymphohematopoietic neoplasm

J Royle1, P Baade2,3, D Joske4, L Fritschi3
1 WA Institute for Medical Research, University of Western
Australia, Perth, WA, Australia
2 Viertel Centre for Research in Cancer Control, Cancer
Council Queensland, Brisbane, QLD, Australia
3 Queensland University of Technology, School of Public
Health, Brisbane, QLD, Australia
4 Sir Charles Gairdner Hospital, Perth, WA, Australia

Background
People who have been diagnosed with lymphohematopoietic
neoplasms (LHN) are known to have increased risks of
second cancer, particularly skin cancers. However, the
incidence of second cancers after LHNs has not been studied
extensively in Australia, the country with the highest rates
of skin cancer in the world.

Methods
The Australian Cancer Database was used to determine
the site-specific risk of second primary cancer in patients
diagnosed with a LHN between 1983 and 2005. Standardized incidence ratios (SIRs) were calculated using
population rates.

Results
Of the 2 184 cases included, 685 (31.4%) had local disease.
Inpatient claims data over-estimated the proportion of
cases with local disease (48.5%) and specificity was poor
for both pathological (61.7%; 95% CI 56.7, 66.5) and
clinical (58.3%; 95% CI 55.2, 61.2%) stage. That is, a
high proportion of patients in the claims data was wrongly
assigned as having local disease. Sensitivity was poor
for cases with regional and distant spread; that is, a high
proportion of cases weren’t identified in the claims data.
However, specificity (>90%) was good, indicating that of
those identified as having regional or distant spread in the
claims data, there were few false positives.

Conclusion
Large proportions of NSCLC cases with regional and
distant spread weren’t identified in the claims data.
However, few cases were falsely identified as having regional
and distant spread in the inpatient claims data. Coding
standards require documentation of specific site of spread.
If ICD codes allowed for coding of TNM stage or spread
to unknown sites, then identification of regional or distant
spread would be more complete, increasing the utility of
claims data.
Cancer and cancer registries

compared to the Australian population. Cancers sites which were increased included other LHNs, skin and lip cancers, and Kaposi’s sarcoma.

Conclusions
Our findings quantify the risk of second cancer after a diagnosis of LHN in Australia. These patients are at increased risk of cancer, particularly ultraviolet radiation- and immunosuppression-related cancers.

Alcohol and tobacco use predict survival in patients with oesophageal squamous cell carcinoma

CM Nagle, P Fahey, DC Whiteman
Genetics and Population Health, Queensland Institute of Medical Research, Herston, Australia

Background
Smoking and alcohol are the principal causal factors for oesophageal squamous cell carcinoma (ESCC), but little is known about the influence of these and other lifestyle factors on survival from this cancer.

Aim
To evaluate the association between key lifestyle factors for ESCC and survival among patients who originally participated in an Australian, population-based case-control study of oesophageal cancer.

Methods
We recruited a nationwide cohort of 294 patients diagnosed with ESCC between 2002-2005. At diagnosis, we collected detailed information from each participant about their demographic and lifestyle history using a self-administered questionnaire. Details of tumour stage and treatment were collected from medical records. We linked the cohort to the National Death Index to identify outcomes. Crude survival probabilities were estimated using the Kaplan-Meier technique and we calculated hazard ratios (HR) and 95% confidence intervals (CI) from Cox regression models, adjusted for tumour stage and treatment.

Results
Among the 294 patients, 229 (78%) patients were alive 1-year post diagnosis and 160 (54%) at 2-years. Cigarette smoking dose-dependently increased the risk of dying; hazard ratios (HR) reached 1.70 (95% CI 1.13-2.56) among those with 30+ pack years of smoking (p trend =0.02). Alcohol consumption also dose-dependently increased mortality risk; HR’s reached 2.41 (95% CI 1.48-3.93) for persons who drank ≥7 standard drinks/week (p trend <0.001). The combined effect of current/ex-smoking and drinking ≥7 standard drinks/week had a clear adverse effect on survival (HR 2.39, 95% CI 1.40-4.08). Obese patients also had worse outcomes (HR 1.89, 95% CI 1.11-3.21) than non-obese patients.

Conclusion
Smoking and alcohol consumption are associated with worse survival among patients with ESCC, in addition to their previously known role in causing this disease.

Validation of a death proxy in adult cancer patients

N Mealing1,2, T Dobbins1, P Srasuebkul1, E Stavrou1, S Pearson1
1 Adult Cancer Program, Prince of Wales Clinical School, Lowy Cancer Research Cent, University of New South Wales, Sydney, NSW, Australia
2 Population Health Indicators and Reporting Branch, Centre for Epidemiology and R, NSW Department of Health, Sydney, NSW, Australia

Background
Fact of death data for pharmaco-epidemiological research is not always available in Australia. In the absence of date of death, proxies can be constructed to estimate survival endpoints.

Aim
This study validates a death proxy in adult cancer patients using a unique dataset linking the Department of Veterans’ Affairs (DVA) client data (including fact of death) with cancer notifications (1994-2007) and dispensing records (July 2004-2009).

Method
We analysed data for 12,540 DVA clients with full entitlements who were alive at 1 July 2004 with breast, prostate, lung and colorectal cancer notifications. A 90-day proxy indicated death if the difference between the last dispensing record and the end of the study (30 June 2009) was greater than 90 days, and the date of last dispensing was used as the proxy date of death. We compared the sensitivities and specificities for 30-, 60-, 90- and 180-day proxies overall and by spread of disease.

Results
The overall sensitivity and specificity for the 30-day proxy was 99.1% (95% CI: 98.8-99.3) and 90.3% (95% CI: 89.6-91.0), respectively, and 92.7% (95% CI: 92.0-93.3) and 97.9% (95% CI: 97.5-98.2) for the 180-day proxy. The sensitivities and specificities remained high when compared by cancer and also by spread; with the best balance obtained using a 90-day proxy (Range: 83.9%-100%). Of those who died, the median difference between date of death and last dispensing record was 5 days (Q1=1, Q3=17).

Conclusion
A 90-day proxy is a robust substitute when date of death is not available. This is important for pharmaco-epidemiological research since Medicare Australia, the Pharmaceutical Benefits Scheme data custodians, have not collected fact of death data routinely until recently and there have been strict limitations on linking Medicare Australia data with other administrative data sets.
2nd to 4th digit ratio, adult circulating hormones, and prostate cancer risk

D Muller1, GG Giles1,2, J Bassett1, HA Morris1, JL Hopper2, DR English1,2, G Severi1,2

1 Cancer Epidemiology Centre, Cancer Council Victoria, Melbourne, VIC, Australia
2 Centre for Molecular, Environmental, Genetic, and Analytic Epidemiology, The University of Melbourne, Melbourne, VIC, Australia
3 Hanson Institute, Institute of Medical and Veterinary Science, Adelaide, SA, Australia

Background
The 2nd to 4th digit ratio (2D:4D) is related to perinatal hormone exposure, and is therefore a potential biomarker for studying possible associations between early hormone exposure and adult diseases such as prostate cancer.

Aim
The objective of this study was to examine whether (2D:4D) is associated with adult circulating levels of sex hormones and prostate cancer risk.

Methods
Circulating hormones were measured for a random sample of the Melbourne Collaborative Cohort Study, a prospective cohort study including 17,045 male and 24,469 women resident in Melbourne at baseline (1990-1994). Digit measurements were taken from photocopies of participants’ hands collected during a recent follow-up during the period 2003-2009. A total of 1,179 prostate cancer diagnoses among cohort members were identified via linkage to the Victorian Cancer Registry.

Results
For males, right 2D:4D was weakly inversely associated with circulating testosterone (predicted geometric mean testosterone was 15.86 and 15.03 nmol/L for the lowest and highest tertiles of male right 2D:4D respectively (P = 0.04). There were similar weak associations between male right 2D:4D and calculated free testosterone, and the ratio of testosterone to oestradiol, though none of these associations were statistically significant after adjustment for multiple comparisons. There was no evidence of heterogeneity across ethnic backgrounds (all P’s > 0.7). No associations were observed for male left 2D:4D, or for left or right 2D:4D for females.

There is no association between 2D:4D and prostate cancer risk (odds ratio from fully adjusted logistic regression of prostate cancer on standardised 2D:4D variable = 0.99; 95% CI = 0.91 to 1.07).

Conclusions
There were no associations between 2D:4D and adult levels of circulating sex hormones, and preliminary results indicate that 2D:4D is not associated with odds of prostate cancer. This suggests that perinatal hormone action does not influence the risk of prostate cancer in adulthood.

Familial melanoma: a meta-analysis and estimates of attributable fraction

CM Olsen, HJ Carroll, DC Whiteman
Cancer Control Laboratory, Queensland Institute of Medical Research, Herston, QLD, Australia

Background
Melanoma commonly clusters in families, and the recent identification of numerous genotypes predicting higher risks of melanoma has led to the widespread perception that this cancer is predominantly a genetic disease. We conducted a systematic review of the literature and meta-analysis to quantify the contribution of familial factors to melanoma, estimated by the population attributable fraction (PAF).

Methods
Eligible studies were those that permitted quantitative assessment of the association between histologically confirmed melanoma and family history of the disease; we identified 22 such studies using Medline, Embase, Conference Paper Index and ISI Science Citation Index, followed by manual review of retrieved references. We calculated summary RRs using weighted averages of the log RR, taking into account random effects, and used these to estimate the PAF.

Results
Overall, family history was associated with a significant 2-fold increased risk of melanoma (odds ratio, 2.06; 95% confidence interval, 1.72-2.45); however, there was significant heterogeneity (p = 0.01). The pooled risk estimate for population-based studies (n = 11) was 2.03 (1.70-2.43), and 2.51 (1.55-4.07) for clinic/hospital-based studies (n = 11), both with significant heterogeneity (p = 0.049 and p = 0.013, respectively). Two studies used record linkage to verify family history in relatives; the pooled risk estimate from these two studies was 2.52 (2.11-3.00) with no evidence of heterogeneity (p = 0.258). Estimates of PAF associated with a positive family history ranged from 0.7% for Northern Europe to 6.4% for Australia (4% for all regions combined).

Conclusions
Our findings suggest that only a small percentage of melanoma cases (always <7%) are attributable to familial risk; the majority of melanomas are presumably attributable to other factors.
Effect of obesity on survival of women with breast cancer: systematic review and meta-analysis

MM Protani1, JH Martin1,2, MD Coory4
1 School of Population Health, University of Queensland, Herston, QLD, Australia
2 Department of Medicine, Princess Alexandra Hospital, Woolloongabba, QLD, Australia
3 Diamantina Institute, The University of Queensland, Woolloongabba, QLD, Australia
4 Cancer Council Victoria, Melbourne, VIC, Australia

Background
Obesity is a risk factor for the development of new cases of breast cancer and also appears to affect survival in women who have already been diagnosed with breast cancer. Early studies of obesity and breast-cancer survival have been summarised in two meta-analyses, but the latest of these only included studies that recruited women diagnosed as recently as 1991. The primary aim of this study was to conduct a meta-analysis that included the more recent studies.

Methods
A systematic search of MEDLINE, EMBASE and CINAHL was conducted to identify original data evaluating the effects of obesity on survival in breast cancer patients. Adjusted hazard ratios from individual studies were pooled using a random effects model.

Results
The meta-analysis included 43 studies that enrolled women diagnosed with breast cancer between 1963 and 2005. Sample size ranged from 100 to 424168 (median 1192). The meta-analysis showed poorer survival among obese compared with non-obese women with breast cancer, which was similar for overall (HR=1.33; 95% CI: 1.21, 1.47) and breast-cancer specific survival (HR=1.33; 95% CI: 1.19, 1.50). There were larger differences by whether the woman was pre-menopausal (1.47) or post-menopausal (1.22) or whether the women were in a treatment (1.22) or observational cohort (1.36), but none of these differences were statistically significant.

Conclusions
Women with breast cancer, who are obese, have poorer survival than women with breast cancer, who are not obese. However, no study has elucidated the causal mechanism and there is currently no evidence that weight loss after diagnosis improves survival. Therefore, placing undue burden on women diagnosed with breast cancer, to lose weight is currently unwarranted. Further research should concentrate on assessing whether factors such as diabetes or type of chemotherapy regimen modify the obesity effect and on understanding the causal mechanism, in particular the role of relative under-dosing.

Alcohol consumption and risk of glioma

L Baglietto1,2, G Giles1,3, DR English1,2, A Karahalios1,2, JL Hopper1, G Severi1,2
1 Cancer Epidemiology Centre, Cancer Council Victoria, Melbourne, VIC, Australia
2 Centre for Molecular, Environmental, Genetic and Analytic Epidemiology, The University of Melbourne, Melbourne, VIC, Australia
3 Dept of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia

Background
Alcohol consumption is associated with several types of cancer. Despite the brain being highly susceptible to the action of alcohol and, therefore, potentially susceptible to its carcinogenic effects, it is not clear whether alcohol consumption is associated with risk of glioma.

Aim
To test whether alcohol intake is associated with risk of glioma.

Methods
We analysed data from 39,766 participants of the Melbourne Collaborative Cohort Study who were recruited in 1990-94 and followed to the end of December 2007 for an average of 14.1 years. During a structured face-to-face interview at baseline we elicited each participant’s history of alcoholic beverage consumption. We used Cox regression models with age as the time metric, adjusted for country of birth, sex, total energy intake and educational attainment to estimate hazard ratios (HR) and corresponding 95% confidence intervals (CI).

Results
A total of 79 gliomas, of which 62 were glioblastomas were diagnosed in the cohort during follow-up. The HR associated with each additional 10 grams per day of alcohol intake was 1.17 (95% CI, 1.04 – 1.32; p for linear trend = 0.01) for all gliomas. The corresponding HR for glioblastoma was 1.24 (95% CI, 1.10 – 1.41; p for linear trend = 0.001). The HR for people consuming 40 grams or more of alcohol daily relative to lifetime abstainers was 2.37 (95% CI, 1.12 – 5.02) for all glioma and 3.96 (95% CI, 1.63 – 9.60) for glioblastoma.

Conclusion
Alcohol consumption was associated with the risk of glioma in a monotonic dose-response relationship.
What women want and when they want it in cervical screening: testing preferences, decision-making styles and information needs

M Dieng¹, L Trevena¹, M Wadolowski², R Turner¹, K McCaffery¹

¹ School of Public Health, University of Sydney, Camperdown, NSW, Australia
² National Drug & Alcohol Research Centre, University of New South Wales, Randwick, NSW, Australia

Background
New testing technologies and human papillomavirus (HPV) vaccines have recently brought changes to cervical cancer screening. In 2006, the Australian government also changed the protocol for managing abnormal Pap smears and this has occurred in an environment of greater informed choice for consumers. Australian women's attitudes and preferences to these changes are largely unknown. Quantitative data on women's information needs and community attitudes to informed decision making are also limited.

Aim
This study measures Australian women's preferences for testing and management of abnormal screening results, preferred decision making styles and information needs for cervical cancer screening.

Methods
A randomly selected sample of 1,279 Australian women aged 18 to 70 years participated in a structured telephone questionnaire, exploring testing preferences, as well as information and decision making needs.

Results
Half the women (n=637) preferred having their Pap smears at least annually, and 85% wanted concurrent HPV testing. Most women would prefer to be involved in decision making for both routine Pap smears (87%) and follow-up for an abnormal result (89%). The majority of women wanted information on screening risks (70%) and benefits (77%), mainly before screening (81%-85%). However, 63% of women only wanted information about an abnormal result if they had an abnormal Pap test result.

Conclusion
Australian women want to be involved in decision making for cervical cancer screening, and want information on the risks and benefits of Pap testing prior to make an informed choice. This has important implications for the information Australian women currently receive from their GPs and from the cervical screening programme.

Coffee consumption and endometrial cancer risk

K Krishnan¹, L Baglietto¹,², DR English¹,², J Hopper², GG Giles¹,²,³, G Severi¹,²

¹ Cancer Epidemiology Centre, Cancer Council Victoria, Melbourne, VIC, Australia
² Centre for Molecular, Environmental, Genetic and Analytical epidemiology, University of Melbourne, Melbourne, VIC, Australia
³ Dept of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia

Background
It has been hypothesised that consumption of coffee, which contains antioxidants, might be associated with a reduced risk of cancer. A recent meta-analysis suggests that compared with non-drinkers, low to moderate coffee drinkers had a 20% reduced risk of endometrial cancer and heavy drinkers had a 36% reduced risk. However, only a few prospective cohort studies have tested this association.

Aim
To determine if coffee consumption is associated with a reduced risk of endometrial cancer using data from the Melbourne Collaborative Cohort Study (MCCS).

Methods
We fitted Cox regression models to the prospective data from the MCCS to estimate the hazard ratios (HRs) for the association between coffee consumption and endometrial cancer adjusted for country of birth, level of education, age at menarche, number of pregnancies, oral contraceptive use, HRT use, menopausal status, smoking, alcohol consumption, physical activity, BMI, vegetable, fruit, and red meat intake, total energy intake from diet and history of diabetes. Coffee consumption was categorized into weekly and daily categories in order to have a similar percentage of women in each category. Tests for linear trend were based on a pseudo-continuous variable under the assumption that all subjects within each category of coffee consumption had the same amount of intake, equal to the within-category median.

Results
During an average of 9.9 years of follow-up of 15,728 women, 147 invasive endometrial cancers were diagnosed from baseline (1990-1994) to 31 December 2008. Compared with women who drank <1 cup/week of coffee, the HRs (95% confidence interval) were 1.43 (0.87-2.35) for women who drank 1-6 cups/week, 0.88 (0.52-1.49) for 1 cup/day, 0.71(0.43-1.15) for 2-3 cups/day and 0.78 (0.44-1.41) for ³ 4 cups/day (test for trend, p=0.05).

Conclusion
The results from our large prospective cohort study are consistent with the hypothesis that coffee consumption is associated with a reduced risk of endometrial cancer.
Variations in toll-like receptor genes modify the risk of infection in children treated for acute lymphoblastic leukaemia

V Bhadri1, C Duncan1, GM Marshall1, LJ Ashton2

1 Centre for Children’s Cancer & Blood Disorders, Sydney Children’s Hospital, Randwick, NSW, Australia
2 Molecular Epidemiology Group, Children’s Cancer Institute Australia, Randwick, NSW, Australia

Background
Acute lymphoblastic leukaemia (ALL) is the most common cancer in children and accounts for around a third of all childhood malignancies diagnosed in Australia. Infections acquired during treatment cause substantial morbidity and, in severe cases, mortality in children with ALL. Previous studies have suggested that variation in the genes encoding receptors that bind to microbial agents such as the Toll-like receptor (TLR) family may modify a patient’s risk of infection.

Aim
The aim of the current study was to determine how genetic variation in specific TLR genes impact on the risk of infection during treatment for childhood ALL.

Methods
Bone marrow samples were obtained from 99 children diagnosed with ALL at Sydney Children’s Hospital between 1992 and 1997. Clinical data relevant to the prevalence and type of infections within the first 3 months of treatment were obtained from medical records. Measures of infection included: neutrophil counts, documented high fever (>38.5°C), as well as isolation of micro-organisms. Genomic DNA was genotyped in multiplex reactions using Sequenom Mass Array System with iPLEX chemistry. The prevalence of specific alleles and genotypes in selected subgroups was examined using the Fisher’s exact test and non-conditional logistic regression.

Results
Of the 98 patients examined, 74 patients had at least one documented indicator of infection within the first 3 months of treatment. Carriers of the TLR-9 C allelic variant (rs352140) were 65% less likely to display an infection within the first 3 months of treatment than non-carriers of the variant allele (OR=0.35, 95% CI= 0.12-0.87, p=0.012).

Conclusion
These results suggest that the variations in TLR genes may modify the risk of infection during treatment for childhood ALL. Screening for TLR9 gene variants may be a useful approach for identifying those at increased risk of infection prior to commencing cancer therapy.

The impact of smoking on cancer mortality in New South Wales

N Creighton, T Cotter, D Baker, W Hung, D Perez
Cancer Institute NSW, Eveleigh, NSW, Australia

Background
The cancer mortality rate in males and females in New South Wales has been decreasing since the late 1980s. The impact of tobacco smoking on cancer mortality was examined.

Methods
The number of smoking attributable cancer deaths was estimated using the ‘smoking impact ratio’ method.

Results
The reduction in smoking attributable cancer deaths was the largest contributor to the decline in male cancer mortality. The percentage of smoking attributable cancer deaths decreased from approximately 40% in the 1970s to approximately 27% in 2008. Nevertheless, lung cancer remained the largest cause of cancer mortality in males in 2008. There were 80% more lung cancer (n=1666) than colorectal (n=935) and prostate (n=930) cancer deaths. In contrast, the percentage of smoking attributable female cancer deaths increased from 5% in the 1970s to approximately 19% in 2008. Lung cancer has overtaken breast cancer as the largest cause of cancer mortality in females. In 2008, there were 10% more lung cancer deaths (n=998) than breast cancer deaths (n=904). The overall decrease in cancer mortality in females, despite an increase in smoking attributable cancer deaths, reflects other factors affecting cancer incidence, the success of population screening programs and advances in the diagnosis and treatment of cancers. Birth cohort analysis indicated that men born in the 1900s have experienced the highest rates of lung cancer mortality in New South Wales. Women born in the 1930s have so far experienced the highest lung cancer mortality. However, women born in the 1940s are only just reaching their 70s when the full impact of tobacco use will occur. Approximately two thirds of smoking attributable cancer deaths occur after 70 years of age. Quitting smoking even at 60 years of age can reduce lung cancer mortality.

Conclusions
Increasing smoking cessation in older smokers can reduce smoking attributable mortality in New South Wales.

Seasonality of pregnancy hypertension

C Algert, CL Roberts, JB Ford, JM Morris
Perinatal Research, Kolling Institute, University of Sydney, St Leonards, NSW, Australia

Background
Seasonal variation in preeclampsia has been examined in a number of studies, usually by month of delivery but also by month of conception. Seasonal variation in the broader category of pregnancy hypertension has been less studied.
Biological pathways that could explain seasonal variation in preeclampsia are not clear.

**Aim**
To determine whether there is monthly variation in population pregnancy hypertension rates, where “month” can be defined as month of conception or month of delivery.

**Methods**
Data from 424,732 singleton pregnancies delivered in New South Wales from 2001-2005 were linked to hospital admissions. A pregnancy was categorised with pregnancy hypertension if the mother had any admission which included a diagnosis of pregnancy hypertension (including gestational hypertension, preeclampsia and eclampsia).

**Results**
The monthly mean rates of pregnancy hypertension varied sinusoidally over a year. The maximum rate was 8.9% and the minimum rate was 7.3%. The yearly maximum and minimum values were similar whether by month of conception or month of delivery, but the time of occurrence was shifted. By month of conception, the lowest rate occurred for pregnancies conceived in May and the highest rate in October. By month of delivery, the lowest rates occurred in January/February and the highest rates in August/September.

**Conclusions**
Seasonal variation in pregnancy hypertension was clearly evident in this population-based study, but on its own this does not imply whether a particular gestational age exposure window is relevant. Environmental factors which could influence pregnancy hypertension rates (such as ambient temperature, sunlight/vitamin D, colds/flu infections, or other factors) need to be correlated with changes in pregnancy hypertension rates so as to define temporally plausible exposures.

---

**Number of children and changes in metabolic health over 9-years in men and women: the DESIR Study**

M Skilton¹, C Lange², S Vol³, B Balkau¹–², F Bonnet⁴

¹ Cardiology & Therapeutics, Baker IDI Heart and Diabetes Institute, Melbourne, VIC, Australia
² UMRS 1018, Université Paris-Sud 11, Villejuif, France (Metropolitan)
³ IRSA, La Riche, France (Metropolitan)
⁴ Service Endocrinologie, CHU Rennes - Université Rennes 1, Rennes, France (Metropolitan)

**Background**
Childbearing is associated with cardiovascular disease; however the exact mechanisms remain largely unexplained.

**Aim**
We sought to determine whether how many children a person has is associated with metabolic health over a 9-year period, including the incidence of raised fasting glucose, and changes in glucose, insulin, insulin resistance and β-cell function.

**Methods**
We determined the impact of ‘number of children’ on the 9-year change in indices of metabolic health in 1,798 women and 1,737 men from the DESIR study.

**Results**
Increasing number of children was associated with 9-year change in fasting glucose for both women and men (p trend = 0.02 & p trend = 0.03 respectively), which translated into an increase in incidence of raised fasting glucose of 30% per child for men (95% CI 15-47%), but not for women (3% [95% CI -8-15%]). There was a J-shaped association between the number of children and 9-year changes in fasting insulin and insulin resistance for women (p=0.01 & p=0.005 respectively), and some evidence for a reduction in β-cell function in parous women (-7.7 [SEM 4.2], p=0.07).

Men with children had marked increases in insulin (p=0.02), insulin resistance (p=0.02), and β-cell function (p=0.07), when compared to men without children.

**Conclusions**
Having children is associated with changes in insulin resistance, insulin secretion and fasting glucose in women and men. The distinct gender differences observed in these associations highlight potential influences of childbearing and child-rearing on metabolic health.

---

**How does self-reported history of stroke compare to hospitalisation data in a population-based survey in New Zealand?**

KN Carter¹, P Barber², C Shaw³

¹ Dept of Public Health, University of Otago, Wellington, Wellington, New Zealand
² Dept of Medicine, University of Auckland, Auckland, New Zealand
³ Cardiology and Therapeutics, Baker IDI Heart and Diabetes Institute, Melbourne, VIC, Australia

**Background**
There is mixed evidence concerning the validity of self-reported past history of stroke in population-based studies.

**Aim**
We aimed to examine the validity of self-reported stroke using electronic records of hospitalisation for stroke as the gold standard.

**Methods**
Self-reported history of stroke was taken from the longitudinal Survey of Families, Income and Employment (SoFIE) (N=18,950: 2004/05) and defined as a respondent answering yes to “Have you ever been told by a doctor that you have had a stroke?”. SoFIE respondents consented to link their data to the New Zealand Health Information Service (NZHIS) records of publically funded hospitalisations between 1990 and 2006. We calculated positive predictive value (PPV), sensitivity, and specificity of self-reported
stroke using hospitalisation for stroke since 1990 as the gold standard.

**Results**
Approximately 2% of the adult SoFIE population reported that they had previously been told by a doctor that they had a stroke. Only 1% had NZHIS evidence of hospitalisation for stroke since 1990. The sensitivity of self reported stroke was 73% and specificity was 98%. However the PPV, the proportion of people who reported having a stroke with NZHIS confirmation of hospitalisation for stroke, was low at 29%.

**Conclusions**
The use of self reported stroke will most likely overestimate the prevalence of stroke and a combination of methods are required to determine this in population based studies.

---

**Effectiveness of using SMS texts, emails and online questionnaires to maximize response rates: the Childhood Determinants of Adult Health (CDAH) study**

M Dalton, S Gall, S Pearson, K Sanderson, A Venn
Menzies Research Institute, Hobart, TAS, Australia

**Background**
The second follow-up of the CDAH study involves self-completed and interviewer-administered questionnaires, and a reminder protocol has been developed which uses various media in the hope of maximizing participant response.

**Aim**
To assess the effectiveness of emails, SMS texts, letters and telephone calls as reminders, and the popularity of an online questionnaire option.

**Methods**
Cohort members were invited to participate in the second follow-up 5-9 years after their last contact. Four weeks after the questionnaire was mailed, non-responders were sent an SMS text reminder, an email, or both. Those having neither mobile phone number or email address were sent a mailed reminder letter. After two weeks, non-responders were sent a mailed reminder letter, and two weeks later an email link to an on-line short questionnaire. After a further two weeks, interviewers contacted non-responders by phone and offered a short computer-assisted telephone interview (CATI) as an alternative to the full questionnaire.

**Results**
A total of 5,173 participants were eligible for participation. Questionnaires were mailed to 1,011 participants between September 2009 and February 2010, with 22% being returned within four weeks. 13% of the group receiving the email or SMS reminders returned questionnaires within 2 weeks. A further 53 responded after a reminder letter (8%), while 24% of those sent a link to the online questionnaire took up this option. Of those who had been through the whole reminder protocol, 13% went on to complete written questionnaires and 18% completed a short CATI. A total of 57% of those who had been mailed questionnaires required follow-up by telephone. Overall, 61% completed written, on-line or telephone questionnaires.

**Conclusions**
The use of electronic media is cheap and relatively time-efficient compared to mail and phone calls, but a high percentage of participants did not respond to these options and required contact by a telephone interviewer.

---

**Can BMI predictor equations be generalised to other populations?**

TA Miles¹, N Armstrong²
1 Public Health Unit, Northern Sydney Central Coast Health, Ourimbah, NSW, Australia
2 Medifitt Pty Ltd, Bay Village, NSW, Australia

**Aim**
To determine if Central Coast residents underestimate their BMIs, and to determine if specific correction equations were useful in predicting BMIs in the same sample.

**Methods**
Two Australian predictor equations were applied to Central Coast self-reported data and corrected means generated. BMI proportions for self-reported, measured and corrected data were compared.

**Results**
Central Coast residents tended to underestimate their BMIs. However both correction equations produced BMIs higher than measured data, resulting in a significant overestimation of overweight and obesity.

**Conclusions**
For Central Coast residents, BMI correction equations derived from Australian data from 11 years previously did not prove useful. It may be useful to use the equations on other Australian data closer to 1995. If these analyses produced predicted BMIs very close to the measured ones, this would suggest a need, and a usefulness, for similar equations produced at regular intervals. Policy-makers who base their decisions on self-reported BMI data will underestimate the extent of the burden of obesity. For our sample, applying correcting equations to self-reported data would have significantly overestimated the degree of overweight and obesity.
Primary prevention of cardiovascular disease in a rural region of India and strategies to address the unmet need

A Wood¹, A Patel¹-², B Neal¹-², CK Chow¹-²

1 Medicine, University of Sydney, Camperdown, NSW, Australia
2 Cardiovascular, The George Institute for International Health, Sydney, NSW, Australia

Background
Prevention of cardiovascular (CV) disease is necessary to reduce the rapidly increasing burden of CV disease in India.

Aim
The aim of this study is to quantify primary prevention strategies in a large region of rural India and to estimate the number of CV events that might be prevented by an intervention strategy targeting treatment to those at high risk.

Methods
Questionnaire data and blood samples from a random sample survey of 1040 individuals aged 30 years without CV disease from 20 villages in the East and West Godavari region of Andhra Pradesh was analysed. A locally recalibrated Framingham risk equation was used to stratify individuals by coronary heart disease (CHD) risk.

Results
Among 1040 participants 67% (95% CI 63% – 70%) were previously screened for blood pressure, 36% (33% – 40%) screened for diabetes and 6% (4% – 7%) screened for cholesterol. Awareness of risk factors was low with only 56% (95% CI 52% – 60%) and 47% (44% – 51%), respectively, having knowledge of benefits of smoking cessation and physical activity. Among high CHD risk (10 year CHD risk of >20%) individuals 30% (20% – 40%), reported taking BP-lowering medication, 10% (3% – 17%) antiplatelet medications and 3% (1% – 7%) cholesterol-lowering treatment. We estimated that a strategy that comprehensively treated all individuals at high CHD risk (8% of the population of adults > 30 years) with evidence based treatments could reduce the number of CV events in this population by as much as 29%.

Conclusions
Public awareness of CV risk factors, patient screening and treatment of those at high risk is seriously sub-optimal. Strategies that target those at high risk with evidence-based treatments could prevent many CV events and are likely to be affordable in India with the availability of low-cost generics.

The contribution of the Masters of Applied Epidemiology Program in applying research into public health policy and practice

ME McPherson, PM Kelly, K Lokuge, J Guthrie, S Cameron, H Vally
NCEPH, Australian National University, Canberra, ACT, Australia

Background
The Master of Applied Epidemiology (MAE) Program aims to enhance public health workforce capacity in Australia. Scholars conduct outbreak investigations, establish or evaluate surveillance systems, analyse public health datasets and conduct applied research projects during their two year enrolment. The projects are jointly supervised by academic staff at the Australian National University along with field supervisors within health departments and research institutes.

Aim
This study aims to document the achievements of MAE scholars since its inception in 1991 and provide evidence that the MAE program is a successful mechanism for translating research into public health practice.

Methods
MAE scholars produce a bound volume summarising their work within the program. We constructed an Access database of these bound volumes from 1991 to 2010, which recorded details of completed projects, official reports, published papers and conference presentations. We matched MAE projects and outputs with a timeline of major events in communicable disease control in Australia.

Results
Scholars in the MAE program have been involved in responding to most major communicable disease events in Australia and the region, including SARS, avian influenza, equine influenza and pandemic H1N1 influenza. They have joined or led more than 381 outbreak investigations – 5% international, 5% national, 30% at the state level and 60% locally. They have established 30 new surveillance systems and completed 140 surveillance system evaluations. More than 160 public health datasets have been analysed and 160 applied research projects conducted. The impact of this work includes changes to health policy, standardisation of methodology and improved understanding of communicable diseases.

Conclusions
The contribution of the MAE Program in the last 20 years has been substantial and is an excellent example of responding to emerging disease issues and translating evidence into practice.
Contributions of the Masters of Applied Epidemiology Program to the H1N1 pandemic response in Australia & the region

P Kelly¹, M McPherson¹, K Lokuge¹, J Guthrie¹,², S Cameron¹, H Vally¹
¹ National Centre for Epidemiology & Population Health, Australian National University, Canberra, ACT, Australia
² Australian Institute for Aboriginal & Torres Strait Islander Studies, Canberra, ACT, Australia

Background
The Master of Applied Epidemiology (MAE) is a training program with a “learning by doing” educational philosophy. Its main objective is to strengthen national and regional public health capacity to respond to emerging and current disease threats.

Aims
To describe the contribution the MAE program made to the H1N1 pandemic response in Australia and the Region.

Methods
We conducted an email survey of all MAE students and staff in February 2010 in order to document their contribution to the H1N1 pandemic response. A short questionnaire was used to collect information regarding the type of contribution and the number of hours that were spent. Data were collated and descriptive analysis was undertaken in MS Excel.

Results
Staff and students of the MAE program were seconded or reassigned to the pandemic response within days of the raised pandemic alert level in late April 2009. Between April and December 2009, the 18 students and 5 staff involved with the Program at that time contributed a total of 1,159 person-days (or 3.2 person-years) to the H1N1 pandemic response at local, state and national level as well as internationally in New Zealand and with the World Health Organization. This work included surveillance, data analysis and reporting, training and supervision, rapid assessment and longer term research projects. Research findings were disseminated via seminars, conference presentations, reports and peer reviewed journal articles. The costs for these contributions have almost entirely been borne by the MAE, at no extra cost to the Australian Government.

Conclusions
The MAE is able to provide surge capacity in public health at unprecedented levels with this evidenced by a contribution of more than three person-years being provided for the H1N1 pandemic response. This capacity would not exist otherwise, which highlights the importance of the Program to public health responsiveness in Australia.
Differential health impacts of three influenza pandemics for an indigenous people: Māori in New Zealand

N Wilson1, LF Telfar Barnard1, J Summers1, MG Baker1, GD Shanks2

1 Public Health, University of Otago, Wellington South, New Zealand
2 Australian Army Malaria Institute, Gallipoli Barracks, QLD, Australia

Background
There is some international evidence that indigenous peoples have suffered relatively more from influenza pandemics than other population groups.

Aims
We aimed to explore any such pattern for Māori (the indigenous people of New Zealand [NZ]) for three influenza pandemics over the past 100 years.

Methods
We searched the literature for relevant data and performed new analyses using three additional datasets.

Results
A large study of the 1918 pandemic identified that the Māori mortality rate (at 423 per 100,000 population) was seven times the European rate. In the NZ military in 1918 we estimated the mortality for Māori personnel (at 2501 per 100,000 and representing mainly young men), was more than double that of European personnel (relative risk (RR) = 2.27; 95% CI: 1.64-3.13). In the 1957 pandemic the Māori mortality rate (39.6 per 100,000) was 6.2 times the European rate (unpublished official report). The equivalent figure of 2.4 times was found in our new analysis of individual mortality data for 1957. In the 2009 pandemic, we examined national hospitalisation data (for all cases with H1N1 as a diagnosis, whether primary or secondary from April to December 2009). The cumulative age-standardised hospitalisation rate for Māori was 47.0 per 100,000, compared to 13.4 for the European population. The RR was 3.5 (95% CI=3.0-4.2). For ICU admissions there was a 1.8 fold excess for Māori.

Conclusions
There is some suggestion that the ethnic health inequalities associated with pandemic influenza may have declined in this country over the past 100 years. Nevertheless, the persistent Māori excess in hospitalisations for the 2009 pandemic highlights the need for better research (to clarify the risk factors) and a need for reducing known risk factors for influenza infection and adverse outcomes (ie. reducing poverty, crowding, smoking, obesity and the prevalence of chronic diseases).

Pooled analysis of benzene petroleum workers

DC Glass1, AR Schnatter2, L Rushton3, G Tang4

1 Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia
2 ExxonMobil Biomedical Sciences, Annandale, New Jersey, United States
3 Imperial College, London, United Kingdom
4 University of Pittsburgh, Pittsburgh, Ohio, United States

Background
There are relatively few quantitative studies on the effect of relatively low benzene concentrations on leukemia risk. Three such studies involved petroleum distribution workers in Australia, Canada and the United Kingdom.

Aim
To update and pool the studies in order to provide greater power and precision on potential risks for leukemia subtypes and related diagnoses.

Methods
Methods for exposure estimating and disease ascertainment were compared amongst the three studies by the principal investigators, and deemed to be similar enough for pooling. This was corroborated by an independent group. Before pooling, the studies were updated with cases that accrued since the studies were published. Quantitative workplace exposure estimates were also compared for similar work history entries across studies to ensure that any differences in these estimates were justified. To improve disease subtype classification, pathology records were obtained from hospitals, doctor’s offices and medical files. Two pathologists classified every case according to ICD/FAB as well as WHO classification schemes. Both exposure and disease classifications were graded by certainty, allowing sensitivity analyses that included only high quality information. Statistical analyses employed conditional logistic regression models with flexible penalized cubic regression spline components.

Results
Eighty-five additional leukemia cases were added as a result of the updates, bringing the total number of leukemia cases included to 225. The exposure assessment comparison resulted in changes to background exposure values. Review of source records by pathologists resulted in changes to the underlying disease subtypes for certain cases; pre-existing diseases such as myelodysplastic syndrome were often identified, while secondary polycythemia cases were identified and excluded. Further analyses of benzene exposure and disease subtypes will be presented.

Conclusion
This pooled study benefited from careful reconsideration of both benzene exposure estimates and disease classification procedures, improving the precision of risk estimates of benzene exposure on leukemia and other disease subtypes.
Ensuring comparability of benzene exposure estimates across three nested case-control studies in the petroleum industry in support of a pooled epidemiological analysis

DC Glass1, TW Armstrong2, ED Pearlman3, DK Verma4, AR Schnatter3, L Rushton5
1 Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia
2 TWA8HR Occupational Hygiene Consulting LLC, Branchburg, New Jersey, United States
3 ExxonMobil Biomedical Sciences, Annandale, New Jersey, United States
4 McMaster University, Hamilton, Ontario, Canada
5 Imperial College, London, United Kingdom

Background
Three case-control studies each nested within cohorts of petroleum workers from Canada, the UK and Australia, assessed exposure to benzene in relation to risk of haematopoietic cancers. The original studies were conducted at different points in time by different study teams, but the industry used similar technology in similar eras in each of these countries. These studies have each been updated and the cases will be pooled to derive a more powerful study.

Aim
To ensure the exposure has been estimated similarly in each study.

Methods
A job history was assembled for each subject giving job title, dates of starting and leaving the job and location of work. Estimates of exposure were derived from measured data for each job by adjusting a generic job estimate for site- and era-specific exposure-related variables such as loading technology and percentage benzene in the product.

The derived job exposures were allocated to generic job categories, e.g. tanker driver, motor mechanic, etc., and stratified by era. The arithmetic mean, geometric mean and range of the grouped data were calculated, by study, for each generic job category. These were then compared.

Results
Although the studies covered some differing sectors of the industry and different time periods, for 22 job categories there was sufficient overlap to make comparisons possible. Reconciliation of differences resulted in changes to a small number of underlying estimates, particularly the background values. After adjustment, 12 job categories were judged to be similar and 10 were judged to be justifiably different.

Conclusions
The revised exposure estimates will be used in the pooled analysis to examine the risk of haematopoietic cancers in relation to benzene exposure. This exercise provided an important quality control check on the exposure estimates and identified similarly exposed job categories that could be grouped for risk assessment analyses.
Which occupational risk factors should be included in the Global Burden of Disease study?

T Driscoll
Sydney School of Public Health, University of Sydney, NSW, Australia

Background
The Global Burden of Disease (GBD) study is an international project designed to provide an evidence-based estimate of the burden of disease from various causes and of the main risk factors contributing to that burden. Occupational risk factors are one of the sub-groups of risk factors included in the GBD.

Aim
The aim of this presentation is to provide an overview of the approach to deciding which occupational risk factors can be included in the GBD study in order to illustrate the methodological considerations used in the overall study.

Methods
The GBD project requires decisions on inclusion of risk factors and their associated outcomes to be made on a consistent basis across all areas. Issues to be taken into account include the level of evidence that a particular risk factor results in a particular outcome, and the availability of exposure and outcome data on the relevant risk factor in all regions of the world, or the ability to extrapolate between regions.

Results
The risk factors included in the GBD are a range of carcinogens; asthmagens; airborne particulates resulting in chronic obstructive pulmonary disease; asbestos, silica and coal resulting in pneumoconiosis; ergonomic risk factors resulting in low back pain; injury risk factors; noise; and sex work resulting in HIV infection. Limitations in available data in certain regions of the world, or the ability to extrapolate between regions.

Conclusions
Occupational risk factors are likely to be a small but important contributor to the global burden of disease.

The incidence and implications of acute kidney injury in hospitalised patients with traumatic brain injury

E Moore¹, R Bellomo², A Nichol¹, N Harley², C Maclsaac², D Cooper¹,³

¹ Dep’t of Epidemiology and Preventive Medicine, Monash University, ANZIC Research Centre, Melbourne, VIC, Australia
² Intensive Care Unit, Royal Melbourne Hospital, Melbourne, VIC, Australia
³ Intensive Care Unit, The Alfred Hospital, Melbourne, VIC, Australia

Background
Information on the incidence of acute kidney injury in patients with traumatic brain injury is very limited, although acute kidney injury contributes to morbidity, mortality and resource use. We performed the first dedicated investigation of the incidence of acute kidney injury in patients with moderate and severe traumatic brain injury, and assessed the association of acute kidney injury with risk factors and outcomes in these patients.

Methods
We studied all traumatic brain injury patients over 16 years of age admitted to the two designated trauma hospitals in the state of Victoria, Australia from January 1 to December 31, 2008. Patients were included if they had head trauma and presented with a GCS < 13. Prospectively collected data from the hospital trauma registries, ICUs and pathology databases were analysed retrospectively. RIFLE criteria were used to categorise renal function.

Results
The incidence of acute kidney injury was 9.2% (19/207). Patients who developed acute kidney injury were older had higher severity of illness scores, and a lower GCS. Overall 42.1% of these patients died in hospital compared with 18.1% in patients without acute kidney injury. In univariable linear regression analysis, age, severity of illness and admitting hospital were associated with acute kidney injury. After multivariable logistic regression, the occurrence of acute kidney injury was associated with age (p<0.001) and higher APACHE III scores (p=0.016).

Conclusions
Acute kidney injury is relatively common even in patients with traumatic brain injury. Its association with age and APACHE III scores helps identify patients at higher risk of acute kidney injury. The presence of AKI in over 9% of patients and its association with increased mortality allows the identification of whether pharmacologic interventions which appear to be beneficial in neurotrauma can simultaneously protect brain and kidney and decrease the incidence of AKI; erythropoietin and carbamylated erythropoietin are 2 such treatments.

Design of a randomised controlled community trial to reduce falls in the home

M Keall¹, M Baker¹, P Howden-Chapman¹, C Cunningham², M Cunningham³

¹ Otago University, Wellington South, New Zealand
² Research Centre for Māori Health & Development, Massey University, Wellington, New Zealand
³ BRANZ, BRANZ, Wellington, New Zealand
Background
In New Zealand, the home is the most common place of occurrence for fall-related injury hospitalisations among those aged 0 to 4 years and adults aged 60 and older, and for fall-related injury deaths for these age groups. In a recent study, New Zealand homes were shown to have numerous remediable injury hazards, and each additional hazard was associated with a statistically significant increase in injury risk. However, there is little reliable research evidence of a causal link between hazards in the home and injuries from falls.

Aims
This paper describes a randomised controlled trial (RCT) of households to provide robust causal evidence and establish the cost-effectiveness of potentially expensive home hazard remediation.

Methods
The success of two other major household-based RCTs recently completed in New Zealand is based on initial piloting to estimate likely effects of the intervention together with the engagement of community support. Potential placebo effects arising from lack of blinding are minimised by collecting independent injury data that does not rely on self-report.

Houses recruited are allocated to a treatment or a control group. The treatment group has slip/trip/fall hazards remediated at the start of the trial by qualified builders. The control group has their home injuries monitored over the course of the trial but only receive the home injury remediations at the end.

Conclusions
This RCT is the first such study undertaken worldwide. It has the potential to inform effective new strategies of injury prevention that hitherto have been discouraged by significant costs and lack of evidence of cost-effectiveness.

Work and sociodemographic determinants of musculoskeletal disorders of the neck and upper limb among hospital based nurses in Australia

VCW Hoe1,2,3, H Kelsall1,2, DM Urquhart2, M Sim1,2
1 Monash Centre for Occupational and Environmental Health (MonCOEH), Monash University, Melbourne, VIC, Australia
2 Department of Epidemiology and Preventive Medicine, Monash University, Monash University, Melbourne, VIC, Australia
3 Julius Centre University of Malaya, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

Background
Nurses are an occupational group at high risk of work related musculoskeletal disorders. This has implications for workforce retention. This study is the Australian arm of the International Survey of Physical, Cultural and Psychosocial Influences on Musculoskeletal Symptoms and Associated Disability (CUPID).

Aim
The aim is to determine the prevalence of musculoskeletal symptoms of the neck and upper-limb and to investigate the association of work and sociodemographic factors with multi-site neck and upper-limb pain.

Methods
The study population consisted of all nurses working in a major metropolitan hospital who were invited to participate by completing the postal/online questionnaire. The questionnaire collected information on demographics, occupational and psychosocial risk factors and musculoskeletal symptoms and pain at several body sites. Association between the risk factor and outcome measure was determined using a modified Poisson Regression Model to estimate the prevalence ratio (PR) with 95% CI. Those with musculoskeletal pain in the neck, shoulder, elbow or wrist/hand for seven days or more in the past 12 months were considered as cases.

Results
After three mail-outs, 1,108 nurses had completed the questionnaire (participation rate 38%). Participants were predominantly female (91.2%), married/de-facto (61.9%), between 21 and 75 years (mean 41.5), and more than 45% had at least a post-graduate certificate. The most common site of pain lasting for seven days or more in the past 12 months was neck (29.6%) then shoulder (21.9%), hand/wrist (13.3%) and elbow (7.5%). Around 20% had pain in more than one neck/upper-limb site. After controlling for confounding factors, being female (PR 1.8; 95% CI 1.2-2.7), age >40 years (PR 1.4; 1.1-1.7), low job control (PR 1.4; 1.1-1.6) and physical load factor (PR 1.5; 1.2-1.9) were found to be associated with multi-site pain in the neck and upper-limb.

Conclusion
Several factors were found to be independently associated with multi-site pain in the neck and upper-limb.

Are high levels of workplace sedentary time associated with exposure to an adverse psychosocial work environment?

T Keegel1,2,3, AD LaMontagne2, A Thorp1, D Dunstan1
1 Baker IDI Heart and Diabetes Institute, Prahran, VIC, Australia
2 MonCOEH, Department of Epidemiology and Preventive Medicine, Monash University, Prahran, VIC, Australia
3 McCaughey Centre, School of Population Health, University of Melbourne, Melbourne, VIC, Australia

Background
Prolonged sitting time and exposure to an adverse
psychosocial work environment have been independently associated with poor metabolic outcomes, however little research has been conducted into the combined health effects of stressful working conditions and workplace sedentary time.

**Aim**
To present pilot data exploring the relationship between workplace sedentary time and exposure to an adverse psychosocial work environment.

**Methods**
The study sample consisted of 192 workers (aged 20-61, 66% female) from 12 separate workplaces, employed in call centres (n=34), customer service (n=44) and office (n=110) settings, employed a minimum of four days a week. The psychosocial work environment was assessed using Karasek’s demand and control model. Standard methods were used to compute these measures with the job control and psychological demand dimensions meeting international norms of reliability (Cronbach’s alpha of 0.82 and 0.73 respectively). Associations were tested between decision latitude (control) and psychological demand as well as job strain. Accelerometers were used to collect objective measurements of occupational sitting time across a seven day period, including at least one working day. Workplace sedentary time was divided into quartiles. Using logistic regression analysis, associations were tested between the highest quartile (HQ) of workplace sedentary time (>6.5 hours) and measures of the psychosocial work environment.

**Results**
No significant associations were observed for HQ sedentary work time and low control (OR 1.54, 95% CI: 0.74-3.22), high demand (0.90, 0.45-1.83), or overall job strain (0.89, 0.94- 1.06).

**Conclusions**
In this small convenience sample there was no evidence of associations between HQ sedentary work time and control, demand or job strain. Results were limited by the size and profile of the study population and further research is required to appropriately characterize possible associations between sedentary work time and the psychosocial work environment.

---

**Mortality and cancer incidence in male workers occupationally exposed to lead**

SM Gwini, A Del Monaco, E MacFarlane, GP Benke, MR Sim

Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia

**Background**
Inorganic lead is classified as a Group 2A carcinogen by the International Agency for Research on Cancer, but this is based on limited evidence in humans. The main occupational lead exposures are in the lead processes and manufacture/destruction of lead products.

**Aim**
This study aimed to measure mortality and cancer incidence in a cohort of lead-exposed workers.

**Methods**
We conducted a historical cohort of male lead workers in Victoria and New South Wales who had undergone blood lead testing as per the state’s Occupational Health and Safety (Lead) Regulations. Cancer incidence was observed from 1983-2004 and 1983-2005 for mortality. Subjects were matched to the Victorian Cancer Registry, Australian Cancer Database and National Death Index. The observed rates were compared with population rates to obtain standardised mortality ratios (SMR) and incidence ratios (SIR).

**Results**
4114 male subjects were identified; mean birth year 1952 and average follow-up time of 16.2years. 406 deaths were identified. Overall SMR was 111 (95% CI 101–123), and there were excesses from digestive system deaths (SMR 167; 95% CI 110–250) and deaths from external causes (SMR 135; 95% CI 105–174). There were no statistically significantly increased SMRs for any other causes of death in this cohort. Incident cancer was observed in 228 subjects with an overall SIR of 75 (95% CI 66–85) and an excess of liver cancer (SIR 217; 95% CI 103–454) and oesophagus cancer (SIR 240; 95% CI 129–447). No significant increases in cancers of the kidney, lung, brain, stomach or central nervous system were observed.

**Conclusions**
Overall mortality was mildly elevated, mainly due to excesses in gastrointestinal deaths and external causes. Incident rates of overall cancer were low. Further study and analysis is required to investigate any biologically plausible associations between lead and liver or oesophagus cancer.

---

**Improved injury management at an Australian aluminium smelter**

M Guest1, D Vlijoen2, M Boggess3, J Duke4

1 School of Health Science, University of Newcastle, Callaghan, NSW, Australia
2 Hunter Industrial Medicine, Maitland, NSW, Australia
3 School of Mathematics, Texas A&M University, College Station, United States
4 Faculty of Health Sciences, Curtin University of Technology, Perth, WA, Australia

**Background**
The social and financial costs of workplace injuries remain problematic. Successful rehabilitation of injured workers relies on the input of a number of stakeholders including the injured worker, the employer, the treating physician, occupational rehabilitation professionals, and insurance companies.
Aim
This longitudinal study determined the effectiveness of an intervention introduced to encourage active participation in rehabilitation processes by injured workers, improved communication with all stakeholders, identify and manage psychological issues, and focus the workforce of occupational health and safety matters.

Methods
Workers from three production departments were studied for fourteen months before and fifteen months after the introduction of the interventions. Linear regression modelling was used to determine the effectiveness of the interventions. The outcomes compared were the number of injuries, number of persons on restricted duties and number of lost hours per month. The confounding variables examined were department, production hours, and overtime hours worked.

Results
Modelling showed the intervention significantly reduced the number of injuries in the potrooms (14 to 6 per month). The number of persons on restricted duties was reduced in all departments (potrooms: 12 to 7 per month, casthouse: 3 to 1 per month, carbon plant: 3 to 1 per month. Lost hours were significantly reduced in the potrooms (from 244 to 61 per month).

Risk factors for late pregnancy stillbirth: pilot data from the Sydney Stillbirth Study

A Gordon1,2, CH Raynes-Greenow1, D Bond2, R Jones2, W Rawlinson2, J M. Morris2, H. Jeffery1,2
1 Sydney School of Public Health, University of Sydney, University of Sydney, NSW, Australia
2 RPA Newborn Care, RPA Women and Babies, Royal Prince Alfred Hospital, NSW, Australia
3 South Eastern Area Laboratory Services, Prince of Wales Hospital, NSW, Australia
4 Perinatal Research Group, Kolling Institute of Medical Research, University of Sydney, NSW, Australia

Background
The proportion of stillbirths classified as unexplained increases near term, often despite more investigations. There is a need to identify new or emerging risk factors for stillbirth and to collect detailed information on risk factors which are poorly collected on a population basis.

Aim
To identify potentially modifiable risk factors for late pregnancy stillbirth.

Methods
The Sydney Stillbirth Study is a population-based matched case control study of pregnant women ≥ 32 weeks gestation booked into tertiary maternity hospitals in metropolitan Sydney. There is a 1:2 ratio of cases to controls. Data collection is performed at a semi-structured interview using the PSANZ guideline recommended clinical history. Odds ratios (OR) were calculated for a priori specified risk factors.

Results
Data is completed on 49 cases and 91 controls. Recruitment of eligible cases is high at 86%. Mean gestation at recruitment was 36 weeks. Preliminary data show no significant differences between cases and controls for BMI (mean score 24), maternal age (mean 33 yrs), pre-pregnancy weight (mean 65 kg), primigravid status (33%) or previous miscarriage (24%). Significantly more cases were identified as having fetal growth restriction during pregnancy (OR 11.1, 95% CI 1.4-89) as well as being small for gestational age at birth (OR 7.4, 95% CI 3 -25).

Conclusions
Interview data provides detailed information on known and potential risk factors for stillbirth and is an acceptable method for both case and control families. Identification and management of growth restriction in late pregnancy remains a significant opportunity for prevention.

Source of Funding
The Sydney Stillbirth Study is supported by the Stillbirth Foundation Australia

Risk models for predicting obstetric trauma

PA Baghurst, G. Antoniou
Public Health Research Unit, Children Youth & Women’s Health Service, North Adelaide, SA, Australia

Background
Perineal trauma sustained during childbirth can cause long-term incontinence and pain – as well as delaying mother-infant bonding and breastfeeding. The severest form of trauma is tearing of the perineum that involves the anal sphincter (third degree tears) and the rectal mucosa (fourth degree tears. The incidence of third and fourth degree tears (typically around 3%) is now being adopted as a clinical indicator of comparing hospitals’ performance, but risk-adjustment will be essential for making fair comparisons.

Methods
In pilot work to establish risk-factors for severe perineal tearing, logistic regression modelling was undertaken on outcomes from 39000 vaginal births at the Women’s and Children’s Hospital. Models included known risk factors such as parity, induction and augmentation, delayed second stage of labour, instrumental assistance, epidural anaesthesia/analgesia, episiotomy, and the baby’s birth-weight and presentation.

Results
Instrumental assistance was confirmed as the strongest risk for third and fourth degree tears, and first-time mothers were at much greater risk of tearing (OR - 4) than women having a second or subsequent baby. The use of induction,
augmentation or epidurals was not associated with an increased risk of tearing. However there was increased tearing in women from Asian and African, who have been observed in other studies to have shorter perineal bodies. The WCH has seen nearly a three-fold increase in women from these countries over the past 10 years. Estimates of odds ratios of tearing were critically dependent on modelling strategies, especially the use of interaction terms and stratification – which may explain inconsistent reports in the literature. Episiotomy, for example was associated with an increased risk of third and fourth degree tears in multiparous women, but not in primiparous women.

Conclusion
Comparisons of the incidence of perineal tears during childbirth will require considerable care to ensure that the prediction models are performing satisfactorily.

AQUA: asking questions about alcohol in pregnancy

E Muggli1, B Cook1, C O’Leary2, D. Forster3,4, J Halliday15
1 Murdoch Childrens Research Institute, Parkville, VIC, Australia
2 National Drug Research Institute, Curtin University, Perth, WA, Australia
3 Mother & Child Health Research, La Trobe University, Melbourne, VIC, Australia
4 Royal Women’s Hospital, Parkville, VIC, Australia
5 Department of Paediatrics, The University of Melbourne, VIC, Australia

Background
There is uncertainty around the evidence on the effect of low to moderate levels of drinking in pregnancy on the fetus and the current NHMRC policy recommends that not drinking alcohol is the safest option. Conflicting reports arise mainly from a failure to accurately document alcohol consumption. There is currently no measurement tool that elicits all aspects of low to moderate risk drinking in pregnancy, determines a dose effect, and allows for a composite measure of alcohol effect at different stages of pregnancy.

Aim
To develop and pilot a set of questions for use in research that discriminates between low, moderate and high alcohol consumption and occasional binge drinking in pregnancy, including information on dose, frequency, pattern and duration of use and taking into account contextual factors.

Methods
Draft questions about alcohol intake were developed following a comprehensive review of the literature. A pictorial drinks guide based on the Australian Standard Drink allowed women to nominate drinks as pictures without requiring them to calculate the number of ‘standard drinks’ by means of complex arithmetic. Questions and drinks guide were trialled in focus groups with pregnant women and new mothers (n=26) and piloted with a further 32 women.

Results
Detailed questions about alcohol were generally well received provided they were justified and contextualised to elicit honest responses. Questions needed to be concise and unambiguous to increase accuracy. The drinks guide provided enough choices for women and allowed researchers to convert women’s answers to grams of alcohol consumed. Examples will be presented.

Conclusion
We now have a set of questions acceptable to women that informed a major part of the methodology for a prospective birth cohort to examine the effects of dose, frequency and timing of prenatal alcohol on birth outcomes.

Developing a composite measure for reproductive history and using it to estimate risks of subsequent very preterm birth

L Watson1, J Rayner1, J King2, D Jolley3, D Forster1,2, J Lumley1
1 Mother & Child Health Research, La Trobe University, Melbourne, VIC, Australia
2 The Royal Women’s Hospital, Parkville, VIC, Australia
3 Monash University, VIC, Australia

Background
Pregnancy histories are complex, and several variables are usually needed to define any woman’s history.

Aim
Our aim was to explore the risk of very preterm birth following spontaneous and induced abortions, adjusting for prior preterm birth.

Methods
A population-based case-control study was conducted in which women who gave birth between April 2002 and April 2004 were recruited from all Victorian hospitals providing maternity care. Cases were 603 women having a singleton birth between 20 and less than 32 weeks gestation; controls were 796 randomly selected women from the population having a singleton birth at greater than 36 weeks gestation in the same time period. All birth outcomes were included. Women were interviewed either face-to-face or by telephone. Unconditional logistic regression was used to analyse the data. By combining variables that described the number of spontaneous and induced abortions and prior preterm births, a composite measure with mutually exclusive categories of reproductive history was formed. Categories were systematically combined and likelihood ratio tests used to develop a parsimonious model of eleven reproductive history risk categories.
Results
Modelling the complex combinations of prior pregnancies showed that women having only term births prior to the index birth had the lowest risk of very preterm birth. Importantly, likelihood ratio tests showed that there was no evidence of difference in risk between spontaneous and induced abortions, independent of prior preterm birth. Women with higher numbers of abortions had increased risk of very preterm birth.

Conclusion
The composite measure for defining reproductive history simplified and clarified risks associated with prior reproductive events. To obtain consistent risks for preterm birth, all birth outcomes needed to be included; the joint distribution of reproductive history factors needed to be carefully modelled; and an appropriate reference category chosen.

The effect of birthweight toward early neonatal survival in Indonesia
R Mutahar
Public Health, Sriwijaya University, Ogan Ilir, Indonesia

Background
Two third of neonatal death are occurred in the period of early neonatal, and one of the cause is low birth weight (LBW). As IDHS data, the trend of the LBW rate in Indonesia is not been decrease, as in 1986 to 1991 the figure is 7.3%, 7.1% in 1989 to 1994, and increase in 1992-1997 as high as 7.7%.

Aim
The study’s purpose was to describe the impact of LBW on early neonatal survival.

Methods
The study use secondary data sourced from the IDHS 2002-2003. Data will be analysed in the form of univariate, bivariate that use Kaplan Meir and Log Rank, and multivariate with Cox Regression.

Results
The probability of early neonatal survival for low birthweight babies is 96.87%. The incidence rate for early neonatal death is 1.5 per 1,000 babies-days. The group of babies which delivery assisted with health provider, with birth weight less than 2,100 grams are have risk on early neonatal death 9 times than those who have birth weight around 2,100 to 2,499 grams. Meanwhile, the group of babies which delivery assisted with non-health providers, there is no different risk between the babies that have birth weight less than 2,110 grams with the baby who have birth weight around 2,100 to 2,499 grams,

Conclusions
It is suggested to increase the skill of the midwife in term of neonatal resuscitation, improving the neonatal reference system and increasing the antenatal visit coverage. It is proposed for advance study reviewing the in progress neonatal reference system.

Customised versus population-based growth charts as a screening tool for detecting small for gestational age infants in low-risk pregnant women – a Cochrane Review
AE Carberry\textsuperscript{1,2}, A Gordon\textsuperscript{1}, D Bond\textsuperscript{1}, C Raynes-Greenow\textsuperscript{2}, J Hyett\textsuperscript{3}, HE Jeffery\textsuperscript{1,2}

\textsuperscript{1} RPA Newborn Care, RPA Women’s and Babies, Royal Prince Alfred Hospital, Camperdown, NSW, Australia
\textsuperscript{2} School of Public Health, University of Sydney, Camperdown, NSW, Australia
\textsuperscript{3} Department of Obstetrics, RPA Women’s and Babies, Royal Prince Alfred Hospital, Camperdown, NSW, Australia

Background
Identification of Small for Gestational Age (SGA) infants is important because these infants are at increased risk of perinatal morbidity and mortality. Screening for SGA is a challenge for all maternity care providers and current methods of clinical assessment fail to detect many infants that are SGA. Large observational studies suggest that customised growth charts may be better able to differentiate between constitutional and pathologic smallness. Customised charts adjust for physiological variables such as maternal weight and height, ethnicity and parity.

Aim
To assess the use of customised versus population-based growth charts as a screening tool for detection of SGA in a general pregnant population.

Methods
This review included randomised, quasi-randomised or cluster randomised clinical trials that compared customised growth charts versus population-based growth charts in pregnant women. The primary outcomes included perinatal mortality and SGA at birth. The secondary outcomes were categorised into foetal/neonatal, childhood, adult outcomes and maternal outcomes. The search strategy included searches of Cochrane Central Register of Controlled Trials, MEDLINE, hand searches of conference proceedings and published abstracts (last searched April 2010).

Results
There were no trials identified for inclusion in this review. Published research in this area comprises prospective observational studies, retrospective studies and large population-based cohort studies. A meta-analysis was not undertaken.

Conclusions
There is a need for large randomised trials to assess potential benefits and harms of using customised versus population based growth charts as a screening tool for detection of SGA in low risk pregnant women.
Chronic health effects of diesel exhausts – a preliminary investigation

L Jian, P Meyerkort, J Jansz
School of Public Health, Curtin Health Innovation Research Institute, Curtin University, Perth, WA, Australia

Background
Diesel exhausts pose a significant health risk. The workplace can be a significant source of exposure to diesel exhausts.

Aim
This study aims to assess the reliability of a questionnaire that will be used to assess workplace diesel exhausts exposure and basic information regarding the health status of workers exposed to diesel exhausts.

Methods
A questionnaire involving 29 main questions, and a further 94 components, a total 123 parts, was developed and administered on two occasions (eight months apart), to all workers from a local logistics company. The response rate was 78%. Reliability was assessed by using paired sample t-tests and correlations; agreement between retest variables was further assessed using kappa. The questions assessed demonstrated good reliability. In regards to health conditions, sixteen percent had a chronic respiratory condition, and 12% had a chronic cardiac condition.

Conclusions
In summary, a reliable questionnaire has been developed in this pilot study that can be utilised for future larger studies to examine this important population health problem.

Mortality risk factors in an outbreak of pandemic influenza on a New Zealand troop ship in 1918

JA Summers1, N Wilson1, MG Baker1, DG Shanks2
1 Department of Public Health, University of Otago, Wellington, New Zealand
2 Gallipoli Barracks, Australian Army Malaria Institute, Enoggera, QLD, Australia

Background
There is evidence that closed military populations can suffer disproportionately during pandemic influenza outbreaks.

Aim
To understand one such influenza outbreak, the epidemiology and risk factors for mortality amongst military personnel onboard a troop ship in 1918 was reviewed.

Methods
Mortality and descriptive data for military personnel from various data sets were analysed (Roll-of-Honour dataset, Cenotaph dataset and other individual-level archival information from military records). Extensive coding work was required to allow for descriptive analyses.

Results
An estimated 830 to 1113 deaths from pandemic influenza occurred in 1918-1919 among NZ military personnel. This total greatly exceeds previous estimates and represents 4.5%-6.1% of all NZ deaths from WW1. The epidemic curve was much more drawn out for disease spread in the Northern Hemisphere than the Southern. The former region also showed clear evidence of an additional ‘third’ pandemic wave in 1919. Mortality rates varied markedly by setting (eg, 68.9 per 1000 population on a troop ship, 3.9 to 23.5 in military camps), by country (3.5 in France, 6.3 in Egypt) and by hemisphere (6.0 in the Northern and 15.7 in the Southern). The latter may relate to immunity and training camp conditions - since many deaths were in new recruits. Mortality rates varied by ethnicity, with high mortality rates observed amongst Māori troops (25.0 per 1,000 population compared to 11.0 amongst European/areas with hammocks was also associated with increased mortality risk (rate ratio = 4.28, 95% CI = 2.69-6.81). Assignment to a particular military unit, the Field Artillery (probably housed in cabins), was also significant (adjusted odds ratio in the logistic regression = 3.04, 95% CI = 1.59-5.82). There were no significant differences by assigned rurality or socio-economic status.

Conclusions
The results suggest that the virulent nature of the 1918 influenza strain, a crowded environment, and inadequate isolation measures, contributed to the high influenza mortality experienced onboard the Tahiti.
Other troops; risk ratio = 2.27, 95% CI=1.64 – 3.13).

Conclusions
This work documents the heavy mortality burden from pandemic influenza in these military personnel and highlights large variations in mortality rates by location, setting, and ethnicity. Archival information from the WW1 era can inform the descriptive epidemiology of pandemic influenza.

Recent trends in hospitalisations for asthma among children and adults in Australia, 2003-2007
R Ampon, S Cooper, A Waters, HK Reddel, GB Marks
Australian Centre for Asthma Monitoring, Woolcock Institute of Medical Research, Glebe, NSW, Australia

Background
Asthma is a common health problem among people of all ages and is associated with a high morbidity burden. Rates of hospitalisation for asthma declined substantially in Australia during the 1990s and early 2000s, among both children and adults.

Aim
Our primary aim was to determine whether the previous declines in hospitalisations for asthma among Australian children and adults have continued between 2003 and 2007. To determine the specificity of these trends for asthma, we compared this time series with the time series in hospitalisations due to all causes over the same time period.

Methods
Data were extracted from the Australian Institute of Health and Welfare National Hospital Morbidity Database. Hospital separations for asthma were classified according to the International Classification of Diseases, 10th Revision, Australian Modification (ICD-10-AM) codes J45 and J46. Age-standardised rates for hospital separations for asthma per 100,000 population were calculated based on the Australian Resident Population of 30 June 2001.

Results
Between 2002-03 and 2007-08, the rate of hospitalisation for asthma among adults decreased by 17.7% (115.2 to 94.8 per 100,000 population). However, the rate of asthma hospitalisation among children increased by 8.4% (481.8 to 522.5 per 100,000 population). Surprisingly, all-cause hospitalisation rates for adults increased over this time period (8.6%). The all-cause hospitalisations trend for children decreased between 2002-03 and 2004-05 but increased 2004-05 to 2007-08.

Conclusions
Hospitalisations due to asthma have increased among Australian children since 2002-03 at a time when all cause hospitalisations have changed little in this age group. If this trend continues it may be a cause for concern. In contrast, among adults rates of hospitalisation for asthma have continued to decrease at a time when all-cause hospitalisations have increased. This may be attributable to reduced prevalence and/or better management and control of asthma exacerbations requiring hospitalisation.

The implications of using different methods to measure ethnicity in a cohort study
S Simmonds, D Sarfati, R Harris, G Purdie
Otago University, Wellington South, New Zealand

Background
Māori, the indigenous population of Aotearoa/New Zealand, have the right to good health, healthy conditions and high quality epidemiological data in health. Consistent, comprehensive ethnicity data is crucial for appropriate representation of Māori health status and in order to monitor governmental progress towards equity in health. Māori have been undercounted in health datasets in the past and different methods of adjusting for this undercount have been developed and used in the calculation of population rates. This study investigates the implications of using four different methods to measure ethnicity in a cohort study.

Methods
Using a cohort of patients with ischaemic heart disease (IHD), a sensitivity analysis was applied to determine the impact of four different methods of measuring Māori ethnicity on outcomes that determine disparities in both mortality and receipt of procedures, between Māori and non-Māori with IHD.

Results
There was some slight variation in results with the use of different methods to measure ethnicity. Overall however, the interpretation of the results would remain largely unchanged with the use of the different methods. These implications will be discussed.

Conclusions
This study has wider considerations for the measurement of ethnicity in a cohort study, the right of indigenous populations to high quality ethnicity data, and the ongoing critique and development of an epidemiology that is responsive to the needs and aspirations of Māori.
A high HIV incidence subgroup suitable for prevention trials can be identified in low HIV incidence settings such as Australia

I Poynten, J Jin, GP Prestage, JM Kaldor, S Kippax, AE Grulich
1 National Centre in HIV Epidemiology and Clinical Research, University of New South Wales, Sydney, NSW, Australia
2 National Centre in HIV Social Research, University of New South Wales, Sydney, NSW, Australia

Background
HIV prevention trials are generally conducted in populations with an HIV incidence of ≥ 2.0%. Correct estimation of HIV incidence in potential trial populations is important, to ensure that the study size and duration will be adequate to address the research question. Here we determine whether groups with sufficiently high HIV incidences can be identified in low HIV incidence settings such as Australia.

Methods
In a community-based cohort study of HIV-negative homosexually active men in Sydney, Australia, potential risk factors associated with an annual HIV incidence ≥ 2 per 100 PY were identified. A stepwise procedure ranked these factors according to HIV incidence, starting with the highest HIV incidence risk factor and repeating until no remaining risk factor had an incidence of > 1.5/100 PY, thus creating a “high incidence” subgroup of participants. Willingness to participate in HIV prevention trials was assessed.

Results
The overall HIV incidence was 0.78 per 100 PY. Nine risk factors were associated with an HIV incidence of ≥ 2 per 100 PY. Stepwise inclusion of these variables revealed a “high incidence” subgroup, who reported at least one of three risk factors in the past six months (unprotected anal intercourse (UAI) with a known HIV positive partner, receptive UAI with a casual partner and/or use of both oral erectile dysfunction medication and methamphetamine). This “high incidence” subgroup had a combined HIV incidence of 2.71 per 100 PY and accounted for 24% of total follow up. These men indicated significantly more willingness to participate in HIV vaccine and antiretroviral therapy prevention trials.

Conclusions
These findings demonstrate that pragmatically defined sub-populations with high enough HIV incidences for recruitment into HIV prevention trials could be identified in low incidence settings such as Australia. That these men were of above average willingness to participate in trials holds promise for successful trial recruitment and retention.

Risk of invasive breast cancer in women diagnosed with ductal carcinoma in situ

C Sturrock
Cancer and Screening Unit, Australian Institute of Health and Welfare, Canberra, ACT, Australia

Background
Ductal carcinoma in situ (DCIS) of the breast is a non-invasive lesion diagnosed in approximately 1,600 women each year in Australia. It has been estimated that around 40% to 70% of DCIS lesions may progress to invasive breast cancer if left untreated. This poster presents results of a longitudinal data analysis project carried out on the cohort of Australian women diagnosed with DCIS between 1995 and 2005.

Methods
Specifically, for women diagnosed with DCIS, statistical inference pertaining to the following two aspects of transition to invasive breast cancer was considered: first, increased risk compared to the entire Australian female population; and second, the distribution of time between DCIS diagnosis and the onset of invasive breast cancer. The effect of age on these two measures was also explored.

Results
Based on the entire analysis cohort, women diagnosed with DCIS were 3.9 times more likely to develop invasive breast cancer than women in the whole Australian population. However, this relative risk measure varied considerably with age; the risk for women under 40 years was estimated to be 19.8 times greater while for women in their fifties the corresponding figure was 3.0.

Conclusions
The analysis also showed that invasive breast cancer in the DCIS cohort was detected at an earlier stage. Early diagnosis is favourable as it is associated with better prognostic indicators. In particular, it was found that within the cohort 42% of women with invasive breast cancer had tumours in the smallest size category (less than ten millimetres in diameter); this compared favourably to the 23% for all cases of invasive breast cancer in Australian women. Furthermore, women in the DCIS cohort who were later diagnosed with invasive breast cancer were less likely to have a node-positive tumour.
Agreement on identification of consolidation on chest radiograph across three specialist physicians

GJ Williams1,2, PM Macaskill1, M Kerr1, JC Craig1,2, DA Fitzgerald1,2, D Isaacs3, M Codarini1,2, M McCaskill4, K Prelog5

1 Centre for Kidney research, The Childrens Hospital at Westmead, Westmead, NSW, Australia
2 School of Public Health, Screening and Test Evaluation Program, University of Sydney, Camperdown, NSW, Australia
3 Dept of Infectious Diseases and Microbiology, The Childrens Hospital at Westmead, Westmead, NSW, Australia
4 Emergency Department, The Childrens Hospital at Westmead, Westmead, NSW, Australia
5 Medical Imaging, The Childrens Hospital at Westmead, Westmead, NSW, Australia
6 Dept. of Respiratory Medicine, The Childrens Hospital at Westmead, Westmead, NSW, Australia
7 Discipline of Paediatrics and Child Health, Faculty of Medicine, University of Sydney, Camperdown, NSW, Australia

Background
Chest X-ray appearances are commonly accepted as the reference standard for defining pneumonia, but interpretation of chest X-rays is variable.

Aim
To determine the extent of agreement between three reviewers for identification of consolidation on chest X-ray in children with a febrile illness.

Methods
Three paediatric sub-specialists (infectious diseases, radiology and respiratory medicine) viewed 3033 chest X-rays in children under five years of age who presented to an Emergency Department with a febrile illness and had a chest X-ray. During standard assessment each child was classified by the treating doctor as having, or not having, a chronic illness. X-rays were viewed blind to clinical or identifying information about the child and blind to findings of other readers. Each chest X-ray was identified as positive or negative for consolidation. Percentage agreement and kappa scores were calculated for pairs of readers.

Results
Using the majority rule, 456 (15%) chest X-rays were positive for consolidation. The radiologist was most likely and the respiratory physician least likely to diagnose consolidation. The overall percentage agreement for pairs of readers was 85-90%. However, chance corrected agreement between the readers was moderate, based on the usual criteria for interpreting kappa scores (0.4-0.6).

Conclusions
Overall agreement for identification of consolidation on chest X-rays was good, but agreement adjusted for chance was only moderate. The child’s age, gender and presence of chronic illness did not modify levels of agreement.

All-cause mortality during the first winter wave of pandemic (H1N1) 2009 virus, New South Wales, Australia

DJ Muscatello1,2, MA Cretikos1,3, CR MacIntyre2

1 Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
2 School of Public Health and Community Medicine, University of New South Wales, Kensington, NSW, Australia
3 School of Public Health, University of Sydney, University of Sydney, NSW, Australia

Background
In temperate countries, death rates increase in winter, but influenza epidemics often cause greater increases. The death rate time series that occurs without epidemic influenza can be called a seasonal baseline. The difference between observed death rates and baseline death rates can be used to estimate excess mortality associated with influenza.

Aim
To estimate age-specific excess mortality associated with the pandemic (H1N1) 2009 virus, and compare this with seasonal influenza in recent years.

Method
For 2003 to 2009 in New South Wales, Australia, we applied a Serfling seasonal harmonic regression approach, with robust estimation, to weekly counts of all-cause, age-specific death registrations. This estimated the age-specific weekly baseline all-cause mortality rates. The total differences between weekly observed and baseline rates during May to September provided annual estimates of influenza-associated mortality.

Results
In 2009, which included our first epidemic of pandemic 2009 (H1N1) virus, all-age mortality was 6.0 (95% confidence interval [CI]: 3.1-8.9) per 100,000 lower than the baseline. In those aged 80 years or more, it was 131.6 (95% CI: 126.2-137.1) per 100,000 lower.

Conclusions
Given that there was a large epidemic of influenza in our population in 2009, these findings are consistent with other reports of a pandemic virus that usually causes mild illness, and is sparing of older persons.
Self-reported childhood and adult medical history and risk of non-Hodgkin lymphoma — can retrospective case-control study data be trusted?
C Vajdic1, AE Grulich2, MO Falster1,2, On Behalf of InterLymph3

1 Cancer Aetiology and Prevention Group, Adult Cancer Program, University of New South Wales, UNSW, NSW, Australia
2 National Centre in HIV Epidemiology and Clinical Research, University of New South Wales, UNSW, NSW, Australia
3 International Lymphoma Epidemiology Consortium, United States

Background
Accepted risk factors for non-Hodgkin lymphoma (NHL) are immune deficiency and specific infections, such as HIV, Helicobacter pylori, human T-lymphotrophic virus type I, human herpesvirus 8, and Epstein-Barr virus, but these account for only a small proportion of all cases. The role of other infections and vaccinations on NHL risk is uncertain.

Methods
The association between infections and vaccinations and NHL risk was examined in a pooled analysis of 16 retrospective case-control studies within the InterLymph Consortium. Participating studies examined NHL in adults and collected self-reported data on specific childhood and adult infections and vaccinations via telephone or in-person interview. Data from the two years prior to diagnosis, or date of interview for controls, were excluded. Odds ratios (OR) and 95% confidence intervals (95% CI) were computed from unconditional logistic regression models using a two-stage random-effects model for all NHL. Heterogeneity was assessed using Cochran’s Q statistic and the I2 statistic.

Results
The analysis included 11,933 cases and 14,096 controls aged 17-89 years at recruitment. A self-reported history of measles (OR=0.84, 95% CI 0.76-0.93) or pertussis (OR=0.85, 95% CI 0.78-0.93) was associated with a significant reduction in risk and there was no significant heterogeneity. A self-reported history of infectious mononucleosis was associated with an excess risk of NHL (OR=1.26, 95% CI 1.01-1.57) but with significant (p=0.01) heterogeneity. No other report of infection was associated with NHL risk. Significant reductions in risk (OR 0.66 to 0.85) were observed for 7 of the 12 vaccinations examined, including childhood and adult vaccinations, for most of the common NHL subtypes.

Conclusions
There is no clear evidence of a positive association between the infections examined and NHL risk. As most participating countries had universal childhood vaccination policies, the apparent protective effect of vaccination may not be real and may reflect a systematic bias.

The use of area under the curve for longitudinal quality of life data in the presence of missing data
ML Bell
Psycho-oncology Co-operative Research Group/School of Psychology, University of Sydney, University of Sydney, NSW, Australia

Background
The analysis of longitudinal quality of life (QoL) data can be challenging for a variety of reasons. The statistician is faced with the quandary of keeping the analysis simple and understandable, yet valid, which can be difficult because missing data is common and often informative. One fairly simple approach is the use of summary measures, such as area under the time curve (AUC). However, it is not clear to what extent missing data affects the validity of AUC analysis.

Aim
This study aims to investigate statistical properties of the use of AUC in the presence of missing data, with simulations informed by QoL data.

Method
A simulation experiment was carried out to investigate bias and power of AUC in longitudinal QoL analysis with data which were complete, 30% missing at random (MAR) and 30% missing not at random (MNAR). Data from a two group randomised controlled trial with means, slopes and covariances informed by QoL data were simulated. AUC analysis using multiple imputation for missing data was compared to 1) an available case t-test approach and 2) a mixed model approach.

Results
Preliminary results show that AUC does not exhibit much bias when used with multiple imputation, even when data are MNAR, unlike the available case approach and the mixed model. Coverage rate was close to nominal, but power was lower than the mixed model approach.

Conclusions
A summary measures approach, such as AUC, when used with multiple imputation, appears to be a valid method for analysing QoL data.
Is the reported association between birth order and risk of non-hodgkin lymphoma due to selection bias?

AE Grulich¹, CM Vajdic², MO Falster¹

¹ National Centre in HIV Epidemiology and Clinical Research, University of New South Wales, Darlinghurst, NSW, Australia
² Adult Cancer Program, Lowy Cancer Research Centre, University of New South Wales, Kensington, NSW, Australia

**Background**
Increasing birth order is a proxy for increased likelihood of early life exposure to infection. There is some evidence that increasing birth order may be associated with risk of non-Hodgkin lymphoma (NHL).

**Methods**
The association between birth order and related variables and NHL risk was examined in a pooled analysis of 18 case-control studies within the InterLymph Consortium. Participating studies examined histologically confirmed NHL in adults and collected self-reported data on birth order and/or sibship size. Odds ratios and 95% confidence intervals were computed from unconditional logistic regression models using a two-stage random-effects model for all NHL, and a joint fixed-effects model for individual NHL subtypes. Heterogeneity was assessed using Cochran’s Q statistic and the I² statistic.

**Results**
The analysis included 13,535 cases and 16,427 controls. Overall, we found no significant association between increasing birth order and risk of NHL ($p_{\text{trend}} = 0.082$) and there was significant heterogeneity. There was considerable variation in study-specific risks which was partly explained by study design and participant characteristics. In particular, a significant positive association was present in population-based studies, which had lower response rates in cases and controls. It was absent in hospital-based studies, which had higher response rates. A significant positive association was present in higher but not lower socio-economic status (SES) participants.

**Conclusions**
An association between increasing birth order and NHL risk was not confined to studies with lower response rates, and to participants who were of upper SES, and was not specific to particular B or T cell subtypes. The known correlation of high birth order with low SES suggests that a selection bias mediated by SES may explain the association between NHL and birth order. SES-mediated selection bias should be considered as a potential explanation for reported associations in studies of birth order and disease.

Changes over time in the healthy soldier effect

M Waller, ACL McGuire
Centre for Military and Veterans Health, University of Queensland, Herston, QLD, Australia

**Background**
Death rates in military populations are often lower than those in the general population.

**Aim**
The study considers how this ‘healthy soldier effect’ changes over time.

**Methods**
Data from two large studies of Australian Veterans of the Korean War ($n=17381$) and the Vietnam War ($n=83908$) were used to compare the change in death rates and cancer incidence rates relative to the Australian population over time using age standardised ratios (SMRs and SIRs). Separate analyses were conducted for enlisted and National Service personnel.

**Results**
The healthy soldier effect was most consistently observed in the deaths from circulatory diseases. This was characterized by a large deficit in deaths in the initial follow-up period (10-20 years) before rates tended back to the level observed in the general population. There was no healthy soldier effect in deaths from external causes in enlisted personnel and these death rates were significantly higher than expected in the initial follow-up period among Korean War Veterans and Regular Army Vietnam Veterans. Those selected for National Service during the Vietnam War exhibited the strongest healthy soldier effect of all cohorts assessed.

**Conclusions**
Patterns of the healthy soldier effect over time varied markedly by study cohort and by the cause of death studied.
In a number of analyses a healthy soldier effect was still apparent after more than 30 years of follow-up.

A population case control study to identify predictors of cerebral palsy: will it translate to an earlier diagnosis for families?

S McIntyre1,2, N Badawi1,2,3, E Blair4
1 CP Institute, Sydney, NSW, Australia
2 Medicine: Paediatrics and Child Health, University of Sydney, Sydney, NSW, Australia
3 Grace Centre for Newborn Care, The Children's Hospital at Westmead, Sydney, NSW, Australia
4 Telethon Institute for Child Health Research, Perth, Australia

Background
Cerebral palsy (CP) is characterised by life-long motor impairment, often accompanied by sensory impairments and epilepsy. Birth prevalence has remained constant at 2/1000 neonatal survivors. Recent research has focused on those most at risk: infants born premature and those born at term and admitted to neonatal intensive care (NIC). However, 45% of all CP are born at term, not admitted to NIC and their time to diagnosis is a long, frustrating process.

Aim
Identify predictors for term infants with CP who are not admitted to NIC to reduce time to diagnosis.

Methods
Western Australian population case-control study. Preconceptional, antenatal, intrapartum and neonatal information was collected for cases (obtained from the WA CP Register n=295) and controls (n=450). Logistic regression was used to identify risk factors for singleton term infants with CP who were not admitted to NIC and their time to diagnosis is a long, frustrating process.

Results
Six independent predictors were identified: birth defects OR=5.1 (CI 2.4-10.5), abnormal consciousness OR=3.7 (CI 2-7), abnormal tone OR=7.9 (CI 2-26), being intubated or use of a bag and mask for more than one minute OR=2.9 (CI 1.1-7.9), abnormal temperature regulation OR=4.1 (CI 1.2-14) and abnormal fontanelle OR=4.4 (CI 0.8-23). The number of factors present was associated with CP (p<0.001). 42% (n=123) of cases had one factor compared to 9.5% (n=43) of controls, 14% (n=42) of cases had 2+ factors compared to 1% (n=4) of controls. Although insensitive, 2 + factors had high specificity. The childhood outcome of the 1% of controls is unknown, other than they did not have CP. There are prospective or retrospective options for the use of these predictors, none of which are perfect.

Conclusions
In term infants not admitted to NIC, six independent factors predictive of CP are now identifiable in the neonatal period.

It is questionable however whether this new evidence will benefit families immediately.

Geographic access to alcohol outlets and serious violent crime in New Zealand

P Day, G Breetzke, S Kingham
GeoHealth Laboratory, Department of Geography, University of Canterbury, Christchurch, New Zealand

Background
Alcohol is a major contributor to crime, anti-social behaviour and victimisation in New Zealand and is responsible for a range of social problems directly affecting the health and well-being of both offenders and victims. The rise in serious violent offending over the past 20 years may in part be due to greater access to alcohol which has become more affordable and available since deregulation.

Aim
In this national police station level study we examine the association between geographic access to alcohol outlets and serious violent offending.

Methods
Using GIS, the addresses of 9296 licensed premises across New Zealand in 2006 were geocoded. The travel distance from each Census meshblock centroid to the closest alcohol outlet (On- and Off-license) and category (supermarket/grocery, bottle store, hotel/tavern/club, licensed restaurants) were calculated. Serious violent offences were aggregated for 286 police station reporting areas for 2005-2007. Negative binomial regression models were fitted to measure the association between distance to the closest alcohol outlet and the number of serious violent offences in each Police station area, controlling for area-level measures of social deprivation, Māori population, young males 15-29 years, and population density.

Results
There were significant negative associations between distance to licensed outlets and the number of serious violent offences after controlling for area-level socio-demographic variables. Greater levels of serious violent offending were recorded in areas with the better geographic access to any licensed premise compared to those areas with least access (IRR 1.5, 95% CI 1.10 to 2.01), especially for access to Off-licensed premises (IRR 1.4, 95% CI 1.05 to 1.95).

Conclusions
These findings suggest that better geographic access to licensed outlets is associated with increased levels of serious violent offending and that alcohol availability and access promoted under the current licensing regime are important contextual determinants of alcohol-related harm within New Zealand communities.
Epidemiological methods

Influence of high-dose estrogen exposure in adolescence on mammographic density in adulthood

HL Jordan1,2, JL Hopper3, RJ Thomson4, AM Kavanagh4, DM Gertig5, J Stone5, AJ Venn1

1 Menzies Research Institute, The University of Tasmania, Hobart, TAS, Australia
2 Centre for Health Policy, Programs and Economics, The University of Melbourne, Carlton, VIC, Australia
3 Centre for Molecular, Environmental, Genetic, and Analytic Epidemiology, The University of Melbourne, Melbourne, VIC, Australia
4 Key Centre for Women’s Health in Society, The University of Melbourne, Melbourne, VIC, Australia
5 Victorian Cytology Services Inc., East Melbourne, VIC, Australia

Background
High-dose estrogens have been used to reduce the final height of tall girls since the 1950s based on the observation that estrogen promotes the fusion of the growth plate in long bones during the latter stages of puberty. Exposure to high-dose estrogens in adolescence, at a time of mammary development, may have long-term effects on mammographic density, a well established risk factor of breast cancer.

Aim
To examine the long-term effects of high-dose estrogen exposure in adolescent girls on mammographic density.

Methods
We conducted a retrospective cohort study of women from the Australian Tall Girls Study who were 40 years or older and had been assessed for tall stature during adolescence between 1959 and 1993. These women were either treated or not-treated in adolescence with one of two types of oestrogen: 3mg diethylstilbestrol (DES) or 150 µg ethinyl estradiol (EE). A mammogram was obtained from 167 treated women (mean age 48.4 yrs) and 142 untreated women (mean age 46.2 yrs). Total area of the breast image, area of mammographically dense tissue (dense area), non-dense area and percent mammographic density (PMD), were derived from digitally scanned cranio-caudal mammographic films using a computer thresholding technique. Reproductive history, lifestyle factors, hormone exposure, treatment and anthropometric data were collected from medical records and by telephone interview using a structured questionnaire.

Results
After adjusting for age and BMI, treated women had, on average, 17% lower dense area (p=0.03); adjusted means for treated and untreated women were 24.5 cm\(^2\) (95% CI: 21.8, 27.2) and 29.1 cm\(^2\) (95% CI: 26.0, 32.4), respectively. There was no difference in adjusted means between treated and untreated women for non-dense area, percent density or total area.

Conclusion
High-dose oestrogen treatment for tall stature in adolescence is unlikely to increase risk of breast cancer through mechanisms related to mammographic density.

The temporal association between the incidence of emergency department visits for acute alcohol problems and assaults attended by police in NSW, 2003-2008

J Descallar1, D Muscatello1, D Weatherburn2, M Chiu3, S Moffatt2

1 Population Health, NSW Department of Health, North Sydney, NSW, Australia
2 NSW Bureau of Crime Statistics and Research, Sydney, NSW, Australia
3 Canterbury Hospital, Sydney, NSW, Australia

Background
Past research shows strong links between assaults and alcohol misuse and sales, particularly in adolescent males. The number of Emergency Department (ED) visits for acute alcohol problems may be a useful marker of changes in both alcohol consumption or misuse.

Aim
To determine if there is a correlation over time between counts of ED visits for acute alcohol problems and incidence of assaults attended by police.

Methods
For the period 5 January 2003 to 4 January 2009, cross correlation analysis and Poisson regression were used to assess the short term temporal association between time series of weekly counts of ED alcohol visits and assaults in NSW. Cubic splines were used to control for long-term and seasonal trend and autocorrelation.

Results
A cubic spline with a total of 12 knots over the six years was sufficient to control for trend and autocorrelation from each series. Cross correlation analyses showed that the strongest temporal association between the two series was at lag 0, confirming that there was no time lag in the relationship between the two series. From the regression model, a short-term increase of 100 visits per week to NSW EDs for acute alcohol problems was associated with an 11% increase in the total number of assaults reported to police in NSW.

Conclusions
Considering the diverse and independent source of information used in this study, we observed a surprisingly strong association between the two time series. This population-based study provides further evidence that excessive alcohol use is associated with increased violence.
30-day hospital mortality measures: should all deaths be included?

L. Shepherd, S. Lujic, L. Jorm

1 School of Medicine, University of Western Sydney, Campbelltown, NSW, Australia
2 Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
3 The Sax Institute, Sydney, NSW, Australia

**Background**
Mortality within 30 days of admission is commonly used as a measure of hospital performance. However, some short-term deaths may be unrelated to the hospital stay.

**Aim**
To investigate the relationship between the cause of the hospital stay, and the cause of death, for people who died within 30 days of admission.

**Methods**
Retrospective analysis of probabilistically linked NSW Admitted Patient Data Collection (APDC), ABS cause of death and the Registry of Births, Deaths and Marriages (RBDM) fact of death for 2004/05-2005/06. “Unrelated deaths” were defined as those occurring within 30 days of an index hospital admission for which the underlying and contributing causes of death were in different ICD-10-AM chapter/s to the principal diagnosis code. 30–day standardized mortality rates (SMRs) were calculated both including and excluding unrelated deaths.

**Results**
A total of 15.9% of all deaths within 30 days of admission were classified as unrelated to the hospital stay. This proportion varied according to principal diagnosis, age and place of death. The proportion of unrelated deaths was 10.9% for in hospital deaths, compared with around 29.7% for out of hospital deaths. Hospital diagnoses with low proportions of unrelated deaths include neoplasms (2.1%), diseases of the circulatory system (4.5%) and diseases of the respiratory system (10.5%), while this proportion was highest for diseases of the musculoskeletal system and connective tissue (91.7%) and symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (84.7%) diagnoses. The effect of excluding unrelated deaths on the 30-day SMRs will be presented.

**Conclusions**
A significant proportion of deaths within 30 days of admission may be unrelated to the hospital stay. Implications of these findings for measures of hospital performance will be discussed.

Pharmacovigilance in pregnancy: a case study of citalopram exposure during pregnancy – maternal characteristics, birth outcomes and early hospital admissions for 1157 children

L. Colvin, L Slack-Smith, FJ Stanley, C Bower

1 Telethon Institute for Child Health Research, Centre for Child Health Research, The University of Western Australia, Subiaco, WA, Australia
2 School of Dentistry, The University of Western Australia, Crawley, WA, Australia

**Background**
Selective serotonin reuptake inhibitors (SSRIs), a class of antidepressant, are dispensed to around 4% of pregnant women in WA. The safety of the SSRI, citalopram, during pregnancy remains uncertain. Linkable health datasets enable the use of large study sizes and extended periods of follow-up.

**Aim**
To provide a detailed picture of the pregnancy outcomes for women dispensed citalopram during their pregnancy.

**Methods**
State-based health datasets were linked to dispensing data from the Pharmaceutical Benefits Scheme. The pregnancy outcomes for the women who were dispensed citalopram (cases) were compared to these outcomes for all other births for the women not dispensed an SSRI (controls) in 2002-2005. Maternal socio-demographic characteristics, pregnancy and delivery information were included as well as birth outcomes such as birth defects (BD), weight, length and GA. A novel approach was to include hospital admissions in the first two years of life.

**Results**
There were 4,777 dispenses of citalopram during 1,136 pregnancies (1,157 births) out of a total of 96,698 pregnancies. The case children were more likely to require resuscitation at birth, birth length < 50 cm, weigh < 2500g, born prematurely, and a registered BD. With first trimester exposure, an increased risk was found for PDA and vesico-ureteric reflux. The mean birth admission was longer for the case children: 5.3 vs 4.9 days. The mean number of admissions before 2 years was greater for the case children with the birth admissions excluded: 2.2 vs 1.8 admissions (p-value <0.0001). The case children were also more likely to be admitted to intensive care.

**Conclusions**
A significant proportion of deaths within 30 days of admission may be unrelated to the hospital stay. Implications of these findings for measures of hospital performance will be discussed.
Conclusions
The higher than expected number of children with vesico-ureteric reflux requires further investigation as this has not previously been reported. Through data linkage, we have demonstrated that there is an excess of non-birth hospital admissions per child before the age of 2 years in this group.

Assessing data quality by record linkage: using longitudinal data to validate cross-sectional reporting of previous caesarean birth

JS Chen1,2, CL Roberts1, JB Ford1, LK Taylor1, JM Simpson2
1 The Kolling Institute of Medical Research (Clinical and Population Perinatal Health), University of Sydney, St Leonards, NSW, Australia
2 Surveillance Methods, Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
3 School of Public Health, University of Sydney, NSW, Australia

Aim
The aim of this study is to demonstrate the feasibility of using linked health records to assess data quality in one population health data source with another of known reliability.

Methods
In the NSW birth records, caesarean section (CS) for current birth was reported with extremely high accuracy. So, constructing a woman’s reproductive history by linking her birth records over time would allow assessment of the implied historical components in her records. Reproductive histories of 155,897 women were constructed by longitudinal linkage of the birth records in 1998-2005; and 127,952 birth and hospital discharge records in 2000-2005 were cross-sectionally linked. The history of CS derived from the longitudinal linkage (‘gold standard’) was used to validate the CS history fields (i.e. ‘Was the last birth by caesarean section?’ and ‘Total number of previous caesarean sections?’) in birth records; and to validate ‘vaginal birth after previous caesarean (VBAC)’ and ‘maternal care for uterine scar’ in hospital records.

Results
The reporting of CS at last birth was reliable with sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) all > 95% as was the number of previous CS (weighted kappa statistic: 0.97) in birth records. For VBAC or maternal care for uterine scar in hospital records, the sensitivity was 46% and 76% respectively; and all other reporting characteristics were > 93%. These findings were similar to the results produced by two NSW Department of Health studies. For example, the percentage agreement and kappa statistics for a CS at last birth were found to be 99.1% and 0.97 respectively in this study and 98.8% and 0.95 respectively in the Department of Health study.

Conclusions
Assessing data quality by record linkage has the capacity to provide results as reliable as any traditional validation study.

Validation of morbidity, smoking and obesity codes in NSW administrative health dataset

S Lujic1, L Jorm1,2, D Watson1, F Blyth1, K Rogers2
1 School of Medicine, University of Western Sydney, Penrith South DC, Australia
2 The Sax Institute, Sydney, NSW, Australia
3 Bureau of Health Information, Sydney, NSW, Australia

Aim
To investigate: 1) the level of agreement between self-reported morbidity and risk factors and information captured in routine hospital morbidity data; and 2) how this varies according to co-morbid condition and patient characteristics, and across areas and facilities.

Methods
Self-reported morbidity data from the first 103,041 participants in the 45 and Up Study (a population-based cohort study of people aged 45 years and over) was used in conjunction with data from the NSW Admitted Patient Data Collection (APDC) for the 365 days prior to completion of the Study questionnaire. The sensitivity and specificity of recording in the APDC were calculated using the 45 and Up Study as the reference standard. Overall agreement was assessed using Cohen’s Kappa. Multivariable logistic regression analyses were conducted to indentify patient- and facility-related factors associated with agreement between the two data sources.

Results
9,499 Study participants had an overnight hospitalisation in the 1-year period prior to completing the 45 and Up Study questionnaire. Kappa values indicated good agreement for diabetes (κ=0.82), moderate agreement for breast cancer (κ=0.45) and smoking (κ=0.60), fair agreement for heart disease (κ=0.40) and slight agreement for asthma (κ=0.17) and obesity (κ=0.14). Sensitivities ranged from 89% for diabetes to 11% for obesity. The factors associated with agreement included age, sex (for heart attack and asthma only) and income (cancer and obesity only). Significant facility-related factors included hospital type, and area health service.

Conclusions
The completeness of capture in routine hospital data of common co-morbid conditions, including those used in conventional risk-adjustment metrics, is highly variable. These findings have important implications for computing measures of hospital performance, and for adjustment for confounding in research studies that use these data. A more sophisticated understanding of the strengths and weaknesses of these data is essential to inform their use to drive policy and practice.
Validation of self-reported cancer and predictors of false reports in Australian women

E Stavrou1, D Loxton2, C Vajdic1, S Pearson1
1 Adult Cancer Program, Prince of Wales Clinical School, UNSW, NSW, Australia
2 Australian Longitudinal Study on Women’s Health, Research Centre for Gender, Health & Ageing, University of Newcastle, NSW, Australia

Background
A diagnosis of cancer is often ascertained in epidemiological studies through the use of questionnaires. Very little investigation has occurred comparing self-reported cancer and cancer registry notifications, and those involving an older cohort is limited. This is important due to the increasing survival of cancer and the ageing population.

Methods
A total of 12,093 women from the older (70-75 years at baseline) cohort of the Australian Longitudinal Study in Women’s Health (ALSWH) (1996-2005) residing in New South Wales (NSW) were matched to 951 (7.9%) primary invasive cancers as registered on the NSW Central Cancer Registry (CCR) from 1972-2005. Of these 951 cases, 845 were first cancer diagnoses. Sensitivity and specificity were calculated for any cancer, breast cancer, colorectal cancer, invasive melanoma of the skin and ‘other’ cancer, using the CCR diagnosis as the ‘gold standard’. Adjusted logistic regression was calculated for covariates associated with false-positive (FP) and false-negative (FN) reporting (separately) of any cancer.

Results
Sensitivity for the report of any cancer was 59.9% (95% CI 56.5-63.1%), breast cancer 66.4% (95% CI 59.5-72.0%), melanoma 77.5% (95% CI 67.8-85.0%) and colorectal cancer 57.3% (47.9-66.1%). Sensitivity was higher for all cancers, with the exception of melanoma, when reported retrospectively rather than prospectively. Specificity was higher to sensitivity for colorectal, breast and ‘other’ cancer but low for melanoma (46.7%, 95% CI 45.6-47.9%). Having regionalised spread of disease, living in a major city and cancer type were predictors of FN reports of any cancer. Conversely, being Australian born and reporting prospectively were predictors of FP reports.

Conclusion
The low levels of sensitivity and specificity in self-reported cases of cancer in older women indicates the importance of utilising population health data linkage in investigations of cancer epidemiology, particularly in the use of prospective data and regarding remoteness location and ethnicity.

Recent trends in hospital morbidity and mortality associated with penetrating injuries in Queensland

S Howell1, T Johnston1, E Enraght-Moony2,3, V Tippett2,3
1 Health Statistics Centre, Queensland Health, Brisbane, QLD, Australia
2 Australian Centre for Prehospital Research, Brisbane, QLD, Australia
3 Queensland Ambulance Service, Brisbane, QLD, Australia

Background
Media reports suggest that the number of assaults resulting in penetrating injuries (e.g. knife and glass attacks) have increased in recent years. However, there have been no formal attempts to assess trends in penetrating injuries and reporting bias in the media remains a plausible explanation.

Aim
The purpose of this study is to evaluate trends in hospital morbidity and mortality for penetrating injuries and penetrating injury assaults in Queensland between 2002 and 2009.

Methods
Hospital morbidity was evaluated using data from the Queensland Hospital Admitted Patient Data Collection for the years 2002/2003 to 2008/2009. Mortality was assessed using the Australian Bureau of Statistics (ABS) Mortality Collection for the years 2003-2007. Injury mechanisms of intent were coded according to definitions used by the National Injury Surveillance Unit (NISU). Penetrating injuries included injuries resulting from sharp objects and those from a firearm discharge. Trends are described using directly age-standardised rates, and by Annual Percent Change (APC) with 95% confidence intervals.

Results
Penetrating injuries attributable to assault have increased significantly amongst males (APC=3.7; 95% CI: 1.1 – 6.4) but not amongst females (APC=1.8; 95% CI: 1.8 – 5.2). Injury mortality has declined in recent years (APC: -4.7; 95% CI: -6.6 – -3.3); mortality attributable to penetrating injuries has also declined, however, the trend was not significant (APC: -7.8; 95% CI: -15.3 – 0.3). Mortality data was too sparse to support an analysis by sex or intent.

Conclusions
Hospital morbidity data supports media claims that assaults resulting in penetrating injuries have increased in recent years. The results of this study highlight the need to identify and develop preventative strategies aimed at high risk subgroups within the community.
Intergenerational educational mobility and its association with healthy lifestyle behaviours in a cohort of young Australian adults

S Gall1, J Abbott-Chapman2, G Patton3, L Blizzard1, T Dwyer3, A Venn1
1 Menzies Research Institute, Hobart, TAS, Australia
2 University of Tasmania, Hobart, TAS, Australia
3 Murdoch Childrens Research Institute, Melbourne, VIC, Australia

Background
Although educational disparity has been linked to individual risk behaviours, it has not been studied in relation to summary measures of a healthy lifestyle. A simple healthy lifestyle score has been shown to predict survival in elderly men and to be associated with cardio-metabolic risk factors in young adults.

Aim
To examine whether education level, parental education, or educational mobility between generations was associated with a healthy lifestyle in young Australians.

Methods
In 2004-06, participant and parental education (high [bachelor degree or higher], intermediate [vocational training], low [secondary school only]) were assessed in the Childhood Determinants of Adult Health Study. Educational mobility was defined as: stable high (participant and parent in high group), stable intermediate (participant and parent in intermediate group), stable low (participant and parent in low group), downwardly (lower group than parent) and upwardly (higher group than parent) mobile. The healthy lifestyle score summed 10 healthy behaviours derived from BMI, non-smoking, alcohol consumption, leisure time physical activity and six components of diet. Scores ≥4 indicated a high healthy lifestyle score. We estimated the likelihood of having a high healthy lifestyle score by education (participant and parent) and educational mobility.

Results
Complete data were available for 1,973 participants (53% female, age range 26 to 36 years). Those with lower education were less likely to have a healthy lifestyle. Parental education was not associated with high healthy lifestyle score after adjustment for participant’s education. Those who moved upward or downward were as likely to have a high healthy lifestyle score as those in the group they attained.

Conclusions
We found clear disparities in health behaviour by educational attainment. People attaining a higher level of education than their parents appeared protected from adopting an unhealthy lifestyle suggesting that population-wide improvements in education may be important for health.

An Australian risk model for determining 30-day mortality following aortic valve replacement

TV Ariyaratne, B Billah, C Yap, D Dinh, CM Reid
Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia

Background
Recent reports reveal that around 32% to 38% patients with severe Aortic Stenosis are not referred to Aortic Valve Replacement (AVR) due to factors such as old age, severe comorbidities and patient refusal. Preoperative risk associated with AVR can be ascertained through a variety of risk prediction models, none of which are specific to the Australian population.

Aim
To identify risk factors associated with 30-day mortality following AVR in Australian patients, and to develop a multivariable logistic model for pre-operative risk prediction.

Methods
Prospectively collected data from the Australasian Society for Cardiac and Thoracic Surgeons (ASCTS) database project was used. All AVR surgeries performed between 01 July 2001 and 30 June 2008 were included for analysis. Preoperative variables with a p-value of < 0.10 in chi-squared analysis were considered for multiple logistic regression analysis. Using bootstrap re-sampling technique, five plausible models were identified based on variables that were significant predictors of mortality. All models were validated internally using average receiver operating characteristic (ROC) curve and p-value of Hosmer Lemeshow (H-L) goodness-of-fit test via bootstrap n-fold (n=100) validation method on 70% of data. The Akaike Information Criterion (AIC) and prediction mean square error (MSE), the ROC and H-L p-value were used to select the final model (AVR-Score) from the five plausible models.

Results
Between July 2001 and June 2008 a total of 3544 AVR procedures were performed, of which 147 (4.15%) reported a fatal outcome within 30-days. The final model,
AVR-Score (ROC:0.779; H-L p-value=0.042), comprised the following independent predictors of 30-day mortality following AVR: age, New York Heart Association class (NYHA), left main disease, infective endocarditis, cerebrovascular disease, renal dysfunction, previous cardiac surgery, arrhythmia, and estimated ejection fraction.

Conclusions
We have identified 8 key predictors of early AVR mortality in Australian patients and developed a preoperative risk prediction model for 30-day mortality.

Use of linked hospital data to assess the impact of the introduction of tissue plasminogen activator (tPA) therapy on stroke outcomes in NSW

A Schaffer1, C Levi2, H Moore1, N Rose1, M Gattellari2, J Worthington3
1 Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
2 Acute Stroke Services, John Hunter Hospital, Newcastle, NSW, Australia
3 South West Sydney Area Health Service, Liverpool, NSW, Australia

Background
Tissue plasminogen activator (tPA) is a thrombolytic agent which reduces stroke dependency and death when administered to eligible acute ischaemic stroke patients (estimated to be up to 20% of patients in this category).

Aim
The aims of this study were to compare stroke outcomes in patients in hospitals in NSW which had tPA-capable stroke units and those that did not and also to compare outcomes in rural and urban hospitals.

Methods
All admissions involving an acute diagnosis of ischaemic stroke in NSW hospitals were identified in the linked Admitted Patients Data Collection from 2000-01 to 2007-08. Dates of introduction of stroke units and tPA were obtained directly from hospitals. The impact of the introduction of tPA therapy in hospitals on the total length of stay of stroke patients was assessed in a multiple regression model.

Results
Being admitted to a hospital with a tPA-capable stroke unit was significantly associated with the total length of stay (p=0.0197) (after adjusting for the presence of a stroke unit, age, sex, year, hospital, co-morbidities, and discharge to nursing home). This significant association was observed in metropolitan hospitals (p=0.8024) but not in non-metropolitan hospitals (p=0.8814). For ischaemic stroke patients admitted to a hospital with a tPA-capable stroke unit, the length of stay is 6% shorter than for patients admitted to a hospital without a tPA-capable stroke unit.

Conclusions
Being admitted to a hospital with tPA therapy appears to reduce length of stay in metropolitan hospitals over and above the effect of the stroke unit itself, but not in non-metropolitan hospitals. The number of non-metropolitan hospitals with tPA access is small and implementation may also be insufficient to show an effect on a population basis.

Developing evidence to support the National Male Health Policy: the case for a longitudinal study of Australian men

VR Collins1,2, CA Holden1,2, RI McLachlan1,3
1 Andrology Australia, Clayton, VIC, Australia
2 Monash University, Clayton, VIC, Australia
3 Prince Henry’s Institute, Clayton, VIC, Australia

Background
The first National Male Health Policy was recently launched, with recognition of the need for a strong evidence base in male health. In 2003, Andrology Australia conducted a nation-wide prevalence study of male reproductive and associated health conditions (Men in Australia Telephone Survey – MATeS), as a first step in collecting Australia-wide data on men’s health and highlighting the need for a comprehensive longitudinal study.

Methods
MATeS used a CATI survey of a representative sample (n=5990) of Australian men aged 40+ years (response rate 78%). Self-reported general and reproductive health data were collected using validated instruments where available.

Results
High rates of reproductive health disorders were reported: 34% of men reported one or more reproductive health disorders including erectile dysfunction (ED), lower urinary tract symptoms (LUTS) and prostate disease (PD), increasing sharply with age. Only 30% of men with ED sought medical help. Controlling for several variables, sedentary lifestyle (odds ratio 1.4; 95% CI 1.1-1.8) and being underweight (OR 2.9; 1.5-5.8) were associated with ED. Diabetes and cardiovascular disease were associated with ED; hypertension with LUTS. All disorders were associated with depression.

Conclusions
The MATeS findings, other research, and routine population data provided the impetus for establishing a working group with representatives from Australian men’s health organisations, to develop a proposal for a longitudinal study to track the life-course trajectories of Australian men (30,000 men, 18+ years). It includes general, mental, and reproductive health measures, and social and biological determinants. The design allows elucidation of causal pathways for associations found in MATeS and will address many other questions related to men’s health. In addition
Combining evidence with personal preferences in a web-based decision support tool for preventive health choices

S Torvaldsen¹, L Trevena¹, M Deng¹, CH Raynes-Greenow¹, J Dowie²

¹ Sydney School of Public health, The University of Sydney, The University of Sydney, NSW, Australia
² London School of Hygiene & Tropical Medicine, University of London, London, United Kingdom

Aim
To develop a web-based decision support tool for prioritising preventive health choices, using both evidenced-based risk information and personal preferences.

Methods
Focus groups helped determine what is important when making decisions about preventive health choices. Age and gender specific data from The AIHW Burden of Disease and Injury in Australia 2003 Report informed the evidence-based component of the tool. We designed a questionnaire to elicit personal preferences.

Results
We developed My Health Check, a decision support tool for 30–69 year olds. It has a maximum of ten choices: stop smoking, reduce alcohol consumption, lower blood pressure, lose weight, increase physical activity, lower cholesterol, increase fruit and vegetable intake and have the recommended screening tests (Pap smear, mammogram and faecal occult blood test). Which choices are applicable to each user is determined via a web-based questionnaire. Users are shown four ‘attributes’ (premature death, chronic illness/disability, difficulty/loss of enjoyment, and financial cost). The first two are evidence-based. The relative ‘difficulty/loss of enjoyment’ and ‘financial cost’ of each choice is defined by the user. The attributes appear as four blue bars. The user is asked to adjust the length of each blue bar according to how important the attribute is to them. Once they have done this, they will see a set of yellow bars displaying the relative potential gain of each choice. The longer the yellow bar, the better the choice. Each choice displays a link for more information.

Conclusion
My Health Check prioritises preventive health choices. It is based on a combination of evidence, personal preferences and the relative importance of these to the user. It is currently being piloted. Whether My Health Check users are more likely to change their behaviour, compared with controls who are shown standard information, will be tested in a randomised controlled trial.

Inequity in the use of health care for coronary heart disease in Australia, 1996–2005

L Moon
NCEPH, ANU, Canberra, ACT, Australia

Background
Substantial socioeconomic inequality exists in coronary heart disease (CHD) health outcomes. Differences in risk factors play a role. However, little is known about the contribution of health care to these inequalities.

Aim
To assess socioeconomic inequities in CHD health care for 45–74 year olds at the national level in Australia, by comparing the use of health care relative to need across socioeconomic groups.

Methods
Unit-record national hospital and pharmaceutical data were used to calculate health care usage rates—by year, age group, sex and socioeconomic percentiles—for statins, angiographies, percutaneous coronary interventions (PCIs) and coronary artery bypass grafts (CABGs). The main measure of need was emergency hospitalisations for CHD. Negative binomial regression was used to calculate relative and slope indices of inequality (RIIs and SIIs).

Results
The RII for statin use relative to need was 2.26 (95% CI: 2.19–2.33) in 2003–2005, indicating that the highest socioeconomic group was over twice as likely as the lowest one to receive statins, after controlling for differences in need. For the diagnostic procedure angiography, the RII was 2.35 (95% CI: 2.29–2.41) in 2001–2005. For revascularisations, the results differed for the older and newer procedure—CABGs and PCIs respectively. The RII for CABGs was 1.45 (95% CI: 1.38–1.52), but it was much higher for PCIs at 2.34 (95% CI: 2.26–2.42). Inequity increased over time in both relative and absolute terms for angiography and PCIs, but was stable for CABGs.

Conclusions
Substantial inequity exists in all types of CHD health care examined and it increased over time in most cases. Inequity is higher for newer procedures, and for procedures used earlier in the disease process. Some characteristics of the Australian health care system appear to contribute to this inequity, particularly the mixed public-private system.
The prevalence and incidence of genital chlamydia trachomatis and mycoplasma genitalium in a cohort of young Australian women

J Walker1, CK Fairley1,2, S N Tabrizi2, MY Chen1,2, B Donovan1, J Kaldor2, K McNamee1, E Urban1, S Walker1, M Currie1, H Birden1, F. Bowden1, S Garland4, J Gunn1, M Pirotta9, S Walker1, M Currie7, H Birden8, F. Bowden7, S Garland4, J. Gunn9, M. Pirotta9, L. Gurrin10, V. Harindra11, JS Hocking1

1 School of Population Health, University of Melbourne, Carlton, VIC, Australia
2 Melbourne Sexual Health Centre, Carlton, VIC, Australia
3 Department of Epidemiology, Monash University, Melbourne, VIC, Australia
4 Department of Molecular Biology, The Royal Women’s Hospital, Parkville, VIC, Australia
5 National Centre in HIV Epidemiology & Clinical Research, University of NSW, Sydney, NSW, Australia
6 Family Planning Victoria, Melbourne, VIC, Australia
7 Department of Medicine, Australian National University, Canberra, ACT, Australia
8 Sydney School of Public Health, University of Sydney, Sydney, NSW, Australia
9 Department of General Practice, University of Melbourne, Carlton, VIC, Australia
10 MEGA Centre, University of Melbourne, Carlton, VIC, Australia
11 Department of Genito-Urinary Medicine, Portsmouth Hospital, Portsmouth, United Kingdom

Background
Chlamydia and Mycoplasma genitalium (Mg) are sexually transmitted infections that can cause serious upper genital tract infections. There are few prevalence estimates for chlamydia or Mg and no incidence data for Australian women, and therefore the burden of disease caused by these pathogens is largely unknown.

Methods
Women aged 16 to 25 years were recruited from sexual health clinics (SHC) and general practice clinics (GP) in south-eastern Australia and consented to participate in a 12-month study providing vaginal swabs through the mail to be tested for chlamydia and Mg.

Results
Overall, 1116 women were recruited from 29 clinics; with 79% retention. The prevalence of chlamydia and Mg at recruitment was 4.9% (95% CI: 2.9, 7.0) and 2.4% (95% CI: 1.5, 3.3) respectively. Increased numbers of sexual partners was strongly associated with chlamydia (OR=6.4; 95% CI:3.6, 11.3) and Mg (OR=2.2; 95% CI:1.0, 4.6), as was being recruited from a SHC clinic [chlamydia (OR=7.9; 95% CI: 4.1, 11.8); Mg (OR=3.4; 95% CI:1.5, 5.3)]. Antibiotic use in the last 2 months was protective against chlamydia (OR=0.4; 95% CI: 0.2, 1.0) but not Mg (OR=0.8; 95% CI: 0.3, 2.6). Chlamydia incidence was 4.7 per 100 women years (95% CI:3.6, 6.2) and was associated with younger age (Hazard ratio(HR)=0.3; 95% CI: 0.1, 0.5); less education (HR=0.4; 5% CI: 0.2, 0.6); and increased numbers of new sexual partners (HR=3.0; 95% CI: 1.5, 6.0). Mg incidence was 1.2 per 100 women years (95% CI: 0.7, 2.1) and was associated with women recruited from SHC (HR=4.9; 95% CI:1.5, 16.3) and having increased numbers of new sexual partners (HR=5.7; 95% CI: 1.4, 23.1).

Conclusion
Chlamydia and Mg are common in young Australian women, and consistent with international studies, Mg was less prevalent than chlamydia. An incidence of 4.9% for chlamydia suggests annual testing would be recommended for a chlamydia screening program, and there is a disconcerting amount of undiagnosed Mg.

Population attributable fractions of infant and maternal risk factors for respiratory infections in children: a population-based record linkage study

HC Moore1, D Lehmann1, P Richmond2,3, N De Klerk1

1 Telethon Institute for Child Health Research, Centre for Child Health Research, Perth, WA, Australia
2 School of Paediatrics and Child Health, University of WA, Perth, WA, Australia
3 Princess Margaret Hospital for Children, Perth, WA, Australia

Background
Many factors can lead to an increased risk of acute lower respiratory infections (ALRI) in children, but population attributable fractions (PAF) for different risk factors and whether risk factors differ between Aboriginal and non-Aboriginal children is unknown.

Aim
This study aimed to estimate PAFs of known infant and maternal risk factors for ALRI to inform prevention strategies.

Methods
A retrospective data linkage study of 245, 249 singleton births in Western Australia. PAFs of risk factors for ALRI hospitalisation between 1996 and 2005 were estimated using multiple logistic regression.
Infectious disease

Results
The overall ALRI hospitalisation rate was 16.1/1000 child-years for non-Aboriginal children and 93.0/1000 for Aboriginal children. Male gender, being born in autumn, gestational age <33 weeks, and multiparity were significant risk factors for ALRI in both Aboriginal and non-Aboriginal children. In Aboriginal children, maternal age <20 years accounted for 11.2% (95% CI: 7.8, 14.5) of the PAF for ALRI, remote location at birth accounted for 11.7% (8.5, 14.8) and being in the most disadvantaged socio-economic group accounted for 18.4% (-6.5, 37.4). In contrast, in non-Aboriginal children, maternal smoking during pregnancy accounted for 6.3% (95% CI: 5.0, 7.6) of the PAF for ALRI and delivery by elective caesarean accounted for 4.1% (2.8, 5.3). Compared with spontaneous vaginal delivery, second-born children delivered by elective caesarean had a 58% increase in odds of hospitalisation for ALRI in the first 6 months of life with a PAF of 7.6%, independent of other pregnancy and foetal factors.

Conclusions
PAFs are important in guiding public health interventions and a multifaceted approach is needed to move toward prevention of ALRI. Key target areas are maternal smoking during pregnancy, Aboriginal teenage pregnancies and access to services for Aboriginal families. The association between elective caesarean delivery and risk of ALRI in non-Aboriginal infants needs further investigation.

Rapid population surveillance using a continuous population health survey to assess the epidemiology of pandemic (H1N1) 2009 virus, NSW, Australia

DJ Muscatello1,2, M Barr1,3, S Thackway1, CR MacIntyre2
1 Centre for Epidemiology and Research, NSW Department of Health, North Sydney, NSW, Australia
2 School of Public Health and Community Medicine, University of New South Wales, Kensington, NSW, Australia
3 The Centre for Statistical & Survey Methodology, University of Wollongong, Wollongong, NSW, Australia

Background
In Australia, pandemic (H1N1) 2009 virus caused an influenza epidemic during the 2009 winter. We used the New South Wales (NSW) population health survey to quickly describe the epidemiology of the virus, risk factors for infection and vaccine effectiveness.

Methods
NSW has a continuous health survey using list-assisted, random digit dialling, household telephone interviews. It includes health risk behaviours including immunisations, health status and health service use. In July 2009, questions on influenza-like illness (ILI) and its outcomes were rapidly included. Poisson regression with robust variance estimation provided easily interpretable relative risk (prevalence ratio) estimates instead of odds ratios while adjusting for the complex sample design. This also facilitated easy calculation of age-adjusted vaccine effectiveness.

Results
During July to September 2009, ILI was experienced by 23% (95% confidence interval (CI) 19%-27%) of the population. The highest incidence was in children under 16 years (33%); 95% CI 25%-42% and lowest in people aged 65 years and over (5% [95% CI 2%-8%]). Around half (51%; 95% CI 41%-61%) of persons with ILI were unable to undertake normal duties for three days or less. Around half sought general practice care (55%; 95% CI 46% - 65%) and 5% (95% CI 1%-9%) went to a hospital. Factors independently associated with ILI were younger age, daily smoking (RR 1.90; 95% CI 1.10-3.26), and obesity (RR 2.32; 95% CI 1.30-4.16). Factors not associated were sex, socioeconomic disadvantage, household size, number of children in the household, asthma, diabetes, pneumococcal immunisation, psychological distress, physical activity, and alcohol use. Pre-pandemic seasonal vaccine effectiveness was estimated to be 20.0% (95% CI -30.5%-51.0%).

Conclusions
Around one quarter of the NSW population experienced ILI during July to September 2009. Daily smoking and obesity may be strong, but preventable, risk factors that increase susceptibility to influenza infection in a substantial proportion of the population. The seasonal vaccine did not offer significant protection from ILI. Using an existing survey allowed a rapid and thorough population-level assessment of the pandemic.

Infant anthropometry, early life infection and subsequent risk of type 1 diabetes mellitus: a prospective birth cohort study

A Ponsonby1,2,3, A Pezic1, J Cochrane2, F Cameron1,2, M Pascoe4, A Kemp1, T Dwyer1,2,3
1 Murdoch Childrens Research Institute, Parkville, VIC, Australia
2 Menzies Research Institute, Hobart, TAS, Australia
3 Department of Paediatrics, University of Melbourne, Melbourne, VIC, Australia
4 Department of Paediatrics and Child Health, University of Tasmania, Hobart, TAS, Australia

Background
Higher birthweight is associated with increased type 1 diabetes mellitus (T1DM) risk but the contribution of higher adiposity or lean mass is unclear. In this Tasmanian infant cohort, early respiratory infection has been associated with higher asthma risk.

Methods
Eligible infants represented one-fifth of live births in Tasmania, 1988 to 1995. Hospital interview data (day 6) were obtained on 96.3% (10628/11040), home (5 week) visit data (38 days) on 92.9% (9876/10628) of those, then a
phone (12 week) interview (87 days). Tricep and subscapular skinfold measures and upper arm circumference were recorded at the first two interviews. T1DM cases (n=26) arising by age 16 or under in Tasmania from 1988 to 2006 were ascertained. Cohort and a nested matched case control analysis was undertaken. The nested study was used to evaluate possible selection bias due to non-detection of T1DM due to migration from the state.

Results
Higher birthweight (AOR 2.82 (95% CI 1.31, 6.09)), lean mid upper arm circumference (AOR 1.76 (95% CI 1.16, 2.66)), not skinfold measures, were associated with T1DM risk. Children with an early respiratory tract infection by 5 week visit (AOR 2.74 (95% CI 1.19, 6.32)) or ear infection by 12 week interview (AOR 3.44 (95% CI 1.00, 11.79)) were also at higher risk. Putative markers of altered microbial exposure such as resident density were not associated with T1DM risk but the effect of increasing birth order on T1DM risk differed for older (AOR 0.41, p=0.02,) than young mother (AOR 2.45, p=0.01); difference in effect, p=0.001.

Conclusions
In this cohort, early respiratory tract infection was associated with T1DM risk, as had been previously found for asthma, consistent with immune-inflammatory up-regulation. Using the detailed anthropometric measures available, the link between higher birthweight and T1DM did not appear to reflect increased adiposity.

Linked hospitalisations for people diagnosed with hepatitis C in NSW: methodological issues and the added burden of HIV and hepatitis B co-infection

HF Gidding1, J. Amin1, GJ Dore1, K Ward2, MG Law1

1 National Centre in HIV Epidemiology and Clinical Research, The University of New, Sydney, NSW, Australia
2 New South Wales Department of Health, North Sydney, NSW, Australia

Background
Little is known about hospital-related morbidity, including the added burden of co-infection with HIV or hepatitis B (HBV), in people with hepatitis C (HCV).

Aim
To measure hospital-related morbidity, we performed a population-based study linking HCV notifications in New South Wales (NSW) with their hospital (July 2000–June 2006), HBV and HIV notification, and death records.

Methods
We calculated hospitalisation rates by person-years of observation and standardised hospitalisation ratios (SHRs) using rates for the NSW population. Duplicate and nested hospitalisations were removed and time at risk was left censored to account for a bias towards hospitalisation around the time of diagnosis in the HCV cohort. Because hospitalisation can occur more than once, a random effects Poisson model was used to calculate hospitalisation rate ratios (RRs) adjusting for sex, co-infection, calendar year and age. Co-infection RRs were used to estimate attributable risk (AR).

Results
Of the 86,501 people notified with HCV, 0.8% had HIV, 3.7% HBV, and 0.04% had both. SHRs for the HCV, HCV/HBV, HCV/HIV and HCV/HIV/HBV cohorts were 1.4, 2.0, 3.5, and 4.5, respectively. In individuals with HBV or HIV co-infection, over 70% of liver disease and 30-61% all cause and illicit drug-related hospitalisations could be attributed to their co-infection. However, for the HCV infected cohort as a whole fewer than 9% of liver-related, 4% of illicit drug-related and 2% of all cause hospitalisations were attributable to HBV co-infection and the population ARs for HIV were less than 3%.

Conclusions
Analysis of hospitalisation data requires methods to account for repeated measures and would benefit from standard data cleaning guidelines. In our study, HCV infection was associated with increased hospital-related morbidity and co-infection added significantly to an individual’s burden. However, the low prevalence of co-infection in the HCV infected cohort meant the burden from co-infection was minimised.

Social network analysis combining contact-tracing and spatial data to investigate a rapidly spreading epidemic

S Firestone1, N Christley2, M Ward1, N Dhand1

1 Faculty of Veterinary Science, The University of Sydney, Camden, NSW, Australia
2 Faculty of Health and Life Sciences, The University of Liverpool, United Kingdom

Background
Equine influenza is a highly contagious viral respiratory infection of horses that rapidly spread throughout the horse populations of New South Wales (NSW) and South East Queensland during the 2007 outbreak. Prior to the 2007 outbreak, Australia had never experienced equine influenza, leaving almost the whole horse population completely susceptible at the start of the outbreak. We conducted a network analysis based on contact-tracing data of horse premises infected before any interventions were applied.

Aim
To investigate the mechanisms of spread, importance of various aspects of the network of traced horse movements, and the usefulness of contact-tracing data during a highly contagious outbreak in a fully susceptible population prior to any intervention.
Methods
Over 1000 horse movement contact-tracing records from the 10 days prior to detection of the outbreak were cleaned and collated into a database. Three networks were constructed, analysed and compared using the R statistical package: a directed network of traced horse movements between infected premises; a proximity network based on distances between all premises infected in the first two weeks of the outbreak; and a combined proximity-and-traced horse movements network. Analyses were targeted at three levels of the networks: global network, sub-component and individual premises, leading to identification of important network features, key premises in the spread of the outbreak, and proportions of infected premises explained by horse movement and local spread.

Results
Over 90% of premises infected during the first two weeks of the outbreak could be described by two relatively simple networks: a network of traced horse movements and a proximity network used to represent local spread.

Conclusions
This study also demonstrates the utility of a novel approach combining contact-tracing and spatial data to identify network characteristics of importance during the early spread of a large outbreak.

Source of Funding
This research was jointly funded by the Rural Industries Research and Development Corporation and the Australian Biosecurity Cooperative Research Centre for Emerging Infectious Diseases.

Abstracts
CONCURRENT SESSION 15
Occupational Health, Safety & Injuries
Friday 1100 – 1230
Room 106
Chair: Tim Driscoll

Development of the prediction of falls in rehabilitation settings tool (Predict_FIRST): a prospective cohort study

C Sherrington1,2,3, S R Lord4, JCT Close1,4, E Barraclough1,2, M Taylor1,2, S O'Rourke2,4, S Kurrle3, A Tiedemann1,2, RG Cumming1, RD Herbert1

1 Musculoskeletal Division, The George Institute for International Health, Sydney, NSW, Australia
2 Falls and Balance Research Group, Prince of Wales Medical Research Institute, Sydney, NSW, Australia
3 School of Public Health, University of Sydney, Sydney, NSW, Australia
4 Prince of Wales Hospital, Sydney, NSW, Australia

Aim
This prospective cohort study aimed to develop and internally validate a simple falls prediction tool for rehabilitation settings (Predict_FIRST).

Methods
Participants were 533 patients aged 50 years and over consecutively admitted to rehabilitation wards in two hospitals. A range of possible risk factors for falls was collected from medical records, interview and physical assessment.

Results
Fourteen percent of participants fell during their inpatient stay. A multivariate model to predict falls included: male gender (OR 2.70, 95% CI 1.57 – 4.64), Central Nervous System (CNS) medications (OR 2.50, 95% CI 1.47 – 4.25), a fall in the previous 12 months (OR 2.21, 95% CI 1.07 – 4.56), frequent toileting (OR 2.14, 95% CI 1.27 – 3.62) and tandem stance inability (OR 2.00, 95% CI 1.11 – 3.59). The area under the ROC curve (AUC) for this model was 0.74 (95% CI 0.68 – 0.80). The Predict_FIRST tool is a unit weighted adaptation of this model (i.e., one point allocated for each predictor) and its AUC was 0.73 (95% CI 0.68 – 0.79). People with none of these risk factors had a 0% probability of falling during their inpatient stay, those with 3 risk factors had an 23% probability and those with all 5 risk factors a 47% probability of falling. The AUC for the Predict_FIRST tool was 0.73 (95% CI 0.68 – 0.79, bootstrap-corrected AUC also 0.73).

Conclusions
The Predict_FIRST tool provides good discrimination between fallers and non-fallers and enables the probability of falling (absolute risk) to be calculated for individual patients.

Estimation of the social costs of home injury: a comparison with estimates for road injury

M Keall1, J Guria2, P Howden-Chapman1

1 Otago University, Wellington South, New Zealand
2 New Zealand Institute of Economic Research, Wellington, New Zealand

Background
Home injury is thought to constitute a major health burden in most developed countries. However, efforts to address this burden have been hampered by a reluctance by outside agencies to interfere with the home environment of individuals, even if it benefits the occupants’ safety.
Estimates of costs imposed on society by home injury are rare internationally and have never before been calculated for New Zealand. Such estimates can provide an important motivator for initiating research and programmes to reduce home injury risk.

**Aim**
This paper aims to use cost-benefit evaluation methods established in the transport safety domain applied to home safety to estimate the social cost of unintentional home injury in New Zealand.

**Methods**
Data sources used included mortality data, hospitalisation data and data on minor injuries that required medical treatment, but not hospital admission. The social cost of a home injury includes mainly the costs of loss of life and life quality, medical costs and loss of output. The value to society of loss of life is measured by a Value of Statistical Life that is based on nationally representative Willingness-to-pay surveys.

**Results**
We estimated that unintentional home injuries in New Zealand impose an annual social cost of about $NZ 13 billion (about $US 9 billion), which is about 3.5 times the annual social cost of road injury.

**Conclusion**
These estimates provide a rational evidence base for decisions on housing-focused safety regulation or interventions that always carry some cost, and therefore need to be weighed against the benefits of injuries potentially prevented.

---

**Estimating the economic benefits of eliminating job strain as a risk factor for depression**

**AD LaMontagne**, K Sanderson, F Cocker

1 McCaughey Centre, Melbourne School of Population Heath, Melbourne, VIC, Australia
2 Menzies Research Institute, University of Tasmania, Hobart, TAS, Australia

**Background**
Improved understanding of the impacts of job stress on workers, employers, and society may support expanded job stress intervention efforts.

**Aim**
Building on previously-published population-attributable risk estimates of job strain-attributable (past year) depression of 13.2% for men and 17.2% for women, the overall aim of this study was to quantify the financial benefits of addressing job strain as a risk factor for depression using epidemiologic and economic modeling.

**Methods**
State-transition Markov modeling was used to capture costs and health outcomes over the shorter-term and longer-term from a societal perspective. Epidemiologic inputs were sourced from the 2007 National Survey of Mental Health and Wellbeing. Cost inputs were sourced nationally (e.g., Medicare, PBS) and from the international literature. The analysis was prevalence-based, and models the future costs and health outcomes for persons that were employed and met criteria for lifetime DSM-IV major depression in the study reference year (2007).

**Results**
In 2007 the weighted lifetime prevalence of DSM-IV depression in the Australian workforce was 14.7% (12.0% men, 18.0% women). In one year, $890 million (5.8%) of the societal cost of depression in the Australian workforce was attributable to job strain. In general, the vast majority of costs were notionally incurred in the workplace, arising from the cost of lost productive time and increased risk of job turnover/job loss among employees with depression.

**Conclusion**
These findings provide a starting point for understanding the potential economic gain from improving psychosocial working conditions for the Australian workforce. While these percentages may seem rather modest, in the context of total workplace depression costs of $14 billion over one year this is a significant burden on the Australian economy that is potentially avertable.

---

**Vehicle child restraint usage for Pacific children aged 6 weeks to 4 years: findings from the Pacific Islands families study**

**PJ Schluter**, J Paterson

1 School of Public Health and Psychosocial Studies, AUT University, Auckland, New Zealand
2 School of Nursing and Midwifery, The University of Queensland, Brisbane, QLD, Australia

**Background**
Child restraint systems (CRSs) for vehicles are designed to provide protection and reduce or prevent child mortality and morbidity in road traffic accidents. “Increasing the level of restraint use” is explicitly stated as one of the 13 priorities within the Ministry of Transport’s new road safety strategy. Overall, 90% of children under 5 years of age in New Zealand currently use CRSs but there is considerable regional variability in CRS usage and little information exists on ethnic variations and determinants.

**Aim**
To report the prevalence of self-reported car-seat/booster-seat usage for Pacific infants measured at 6-weeks, 1-year, 2-years, and 4-years postpartum; and to identify important associates.

**Methods**
A large birth cohort of Pacific children (n=1376 mothers) have been followed since 2000. Self-reported car-seat/
Results
Car-seats/booster-seats were not used by 161 (11.8%) Pacific children at the 6-weeks measurement wave, 71 (5.8%) at 1-year, 44 (3.8%) at 2-years, and by 139 (13.3%) at 4-years. Results from both complete case and imputed analyses revealed that mothers with no formal education, high parity, who smoked tobacco, lower household income, who lacked English language proficiency, and had multiple births were all at higher odds of failing to use car-seats/booster-seats. Additionally, two significant interactions over time were demonstrated: (i) mothers English language proficiency; and (ii) infant multiplicity.

Conclusions
Targeted initiatives and education programs are needed to decrease Pacific children’s exposure to injury risk. As New Zealand has a large and increasing proportion of Pacific, Māori and Asian people, there is a continuing need to understand cultural factors in traffic safety so that the national priority might be realised.

Does health status matter for the risk of injury? – Results from a longitudinal survey

R Cunningham1, K Carter1, J Connor2, J Fawcett1
1 Public Health, University of Otago, Wellington, New Zealand
2 Department of Preventive and Social Medicine, University of Otago, Dunedin, New Zealand

Background
Health status is a risk factor for injury which has not been well elucidated.

Aim
This study aimed to investigate the overall risk of injury causing significant disruption of activities and the association between health status and risk of such injury in New Zealand.

Methods
We used data from waves 1 to 3 of the Survey of Families, Income and Employment (SoFIE) (n=18,955). SoFIE is a representative household panel longitudinal survey of the usually resident population living in private dwellings in New Zealand, conducted between 2002 and 2010. The outcome measure was self-report of “an injury in the past 12 months which stopped you doing your normal activities for more than seven days.” Health status variables were prior self-rated health and number of comorbid conditions. Logistic regression was used to quantify the association adjusting for confounders, overall and for men and women separately.

Results
Twelve percent of respondents reported an injury in the past 12 months. Injury was more common in men, young people, and Māori respondents. A linear relationship between worsening health status and increasing injury risk was evident. A strong crude relationship was found between poor self-rated health and the risk of subsequent injury (OR 1.72 95% CI 1.48-2.01), and between 2 or more comorbid conditions and injury (OR 1.70 95% CI 1.47-1.96). The odds ratio was unchanged after adjustment for confounders and mutual adjustment for health status variables. Among those for whom hospitalisation data was available (79%), 5.7% of those who reported an injury had had a hospital admission where injury was the primary diagnosis in the same 12 month period.

Conclusion
Injuries which disrupt usual activities for more than a week are common and represent a significant impact on society from injury which is not captured by health care statistics. People with pre-existing medical conditions should be targeted for injury prevention activities.

Prognostic significance of time to mild traumatic brain injury in a cohort of nonprofessional rugby players

L Li1, S Hollis2, S Heritier2, M Stevenson2
1 Centre for Epidemiology and Research, Department of Health, NSW, Sydney, NSW, Australia
2 The George Institute for International Health, The University of Sydney, Sydney, NSW, Australia

Background
Mild traumatic brain injury (mTBI) can cause serious health problems. Our previous research in nonprofessional rugby highlights a high incidence of mTBI.

Aims
To identify the risk and protective factors relating to the time to injury among nonprofessional rugby players.

Methods
A cohort of 1958 male rugby players from Sydney, NSW, was recruited and followed over one to three playing seasons and mTBI cases were recorded. We carried out a survival analysis to examine time to injury using the Cox proportional hazard model.

Results
Seven factors were associated (at the univariate-level) with the likelihood of experiencing mTBI (in descending order of crude hazard ratio): two or more concussions in 12 months prior to recruitment into cohort, experienced concussion (Yes), impulsivity score (for five-point increase), BMI less than 27, forward versus backward player position, competition level (schoolboys versus adults) and training three or more hours per week. The model selected for multiple regression analysis was created by the backwards
elimination method. The adopted multiple regression model was stratified by competition level and included BMI, training hours and the number of concussions in the past 12 months prior to recruitment into the study.

**Conclusion**

The baseline hazard rate appears to be different for schoolboys and adult players. Those players with a low BMI (<27) may experience mTBI at a higher rate than those with BMI of 27 or more. The more training per week (three hours or more) appear to have a beneficial effect on preventing mTBI. Those players who had two or more concussions in past 12 months prior study have a 2.6 times higher risk of mTBI than those who had no concussion.

### Abstracts

**Concurrent session 16**

**Indigenous Health**

**Friday 1400 – 1500**

**Room 100**

**Chair: Sandra Eades**

Variation in outcomes for Aboriginal and non-Aboriginal people after admission for acute myocardial infarction: where can interventions have the most impact?

**DA Randall**, L Jorm, AH Leyland, T Churches, M Haines, S Eades, S Lujic

1 School of Medicine, University of Western Sydney, Penrith South DC, NSW, Australia
2 Medical Research Council, Social and Public Health Sciences Unit, Glasgow, United Kingdom
3 Sax Institute, Sydney, NSW, Australia
4 Baker IDI Heart & Diabetes Institute, Melbourne, VIC, Australia

**Background**

Numerous studies have described the excess burden of disease among Aboriginal people which begins before birth, and persists across the life-course; however, only a few have begun to explore how the health system may contribute to these inequalities.

**Aim**

To explore the factors that drive variations in the outcomes of hospital care for Aboriginal people versus non-Aboriginal people who have been admitted to hospital for acute myocardial infarction.

**Methods**

The NSW Admitted Patient Data Collection (APDC) was linked to NSW mortality data from July 2000 to June 2007. The first admission for each person with a primary diagnosis of acute myocardial infarction (I21) was chosen as the admission for analysis. Three-level random intercept hierarchical models were run for the following outcomes: 28-day readmission, 30-day and 365-day mortality. There were 67770 patients clustered within 238 hospitals within 17 broad geographic areas.

**Results**

After accounting for age, sex, co-morbidities on admission and private or public hospital, Aboriginal patients had 1.3 times the odds of non-Aboriginal patients of being readmitted within 28 days (95% CI: 1.1-1.5), but were not significantly more likely than non-Aboriginal patients to die within 30 or within 365 days. Hospitals and broad geographic areas accounted for only about 2% of the unexplained variation in 30-day and 365-day mortality after accounting for the factors listed above, with this variation predominantly at the hospital level.

**Conclusions**

This analysis suggests that, once admitted to hospital, Aboriginal patients in NSW with acute myocardial infarction have similar odds of dying within 30 or 365 days as non-Aboriginal patients, after controlling for factors such as co-morbidities on admission. Further work will investigate the impact of including those who die before they get to hospital, and how much of the variation in outcomes is explained by factors at the area-of-residence level.

Estimating cancer incidence in Indigenous Australians

**X Zhang**, JR Condon, AR Rumbold, J Cunningham, D Roder

1 Menzies School of Health Research, Casuarina, NT, Australia
2 University of Adelaide, Adelaide, SA, Australia
3 Cancer Australia, Canberra, ACT, Australia

**Aim**

To assess the quality of national cancer registrations data for Indigenous Australians and produce reliable national Indigenous cancer incidence statistics.

**Methods**

Completeness of Indigenous identification in cancer registrations was assessed for the eight Australian cancer registries using an innovative indirect assessment method. Using data from registries with a high level of Indigenous identification, national age-standardised incidence rates and rate ratios (Indigenous:non-Indigenous) were calculated for all cancers combined and 25 individual cancer sites. Multivariate regression analysis was used to investigate whether there were time or geographical (remoteness of residence) trends in Indigenous cancer incidence, and
whether the incidence rate ratio (Indigenous to non-Indigenous) was different in younger than older age-groups.

**Results**

Four registries covering 84% of the Indigenous population were assessed as having a high level of Indigenous identification, from 1998 onwards. Compared to other Australians, Indigenous Australians had much higher incidence of cervix, uterus, liver, lung and other smoking-related cancers but much lower incidence of breast, prostate, testis, bladder, colorectal, thyroid and brain cancer, melanoma of skin, lymphoma and leukaemia. Incidence was higher in remote areas for some cancers (including several smoking-related cancers) but lower for others. The incidence rate ratio for smoking-related cancers was higher in younger than older people.

**Conclusions**

Indigenous Australians have a different pattern of incidence of specific cancers than other Australians and large geographical variations for several cancers. National Indigenous cancer incidence statistics can, and should, be regularly reported. Tobacco control should be the highest priority cancer control issue for Indigenous Australians.

---

**Injury related hospitalisations in the Aboriginal population of New South Wales: key findings**

**SR Walter**

NSW Health, North Sydney, NSW, Australia

**Background**

The disparity in life expectancy and other health outcomes between Indigenous and non-Indigenous people in Australia has been well documented. Injury has been identified as a key contributor to the increased burden of disease in the Aboriginal population of New South Wales (NSW) and as such, represents a potential pathway for reducing the health ‘gap’ through injury prevention initiatives. There is, however, scant literature specific to NSW to inform such interventions.

**Aim**

This study aimed to identify sub-groups of the Aboriginal population of NSW at high risk of injury hospitalisation, with the intention of informing the direction of future prevention initiatives.

**Methods**

Using data from the NSW Admitted Patients Data Collection (APDC) between 2003-04 and 2008-09, age specific rates as well as standardised rates of hospitalisation by, sex, Aboriginality and remoteness were examined across a range of injury mechanisms. Trends in rates for the period 1999-00 to 2008-09 were also analysed using Poisson regression.

**Results**

Many of the identified high risk groups reflected patterns seen in other Australian states, however, some groups stood out as having further elevated risk of injury hospitalisation. Aboriginal males were at high risk of fall-related injuries in their pre-60 adult years. Aboriginal females in their early 40s were at very high risk of self-harm injuries, in contrast to the typical peak in the late teens among non-Aboriginal people. Rates of violence related hospitalisations were between seven and 20 times higher for Aboriginal people in their middle adult years compared to the non-Aboriginal population.

**Conclusions**

Injury prevention represents the potential for a tangible reduction in health inequality, however, interventions need to be both targeted and evidence-based in order to be effective. These findings identify key areas of focus for future prevention initiatives.

---

**Timeliness of Aboriginal infant immunisations in south west Sydney**

**VK Webster**, **MF Harris**, **EJ Comino**, **B Jalaludin**, **JA Knight**

1 Centre for Primary Health Care and Equity, UNSW, Kensington, NSW, Australia
2 Epidemiology Unit, SSWAHS, Liverpool, NSW, Australia

**Background**

The Gudaga Study is a longitudinal birth cohort study of Aboriginal infants in south west Sydney.

**Aim**

This paper compares the uptake of immunisations between Aboriginal and non Aboriginal infants in an urban environment.

**Methods**

A ward survey of new mothers identified 178 Aboriginal infants and a comparison group of 356 non-Aboriginal infants (matched on gender and date of birth) was extracted from the survey data. Data were manually extracted from the Australian Childhood Immunisation Register and linked to survey data. Timeliness of immunisations was calculated for each scheduled vaccination point (up to 18 months) recorded in the register. An age appropriate immunisation was received if it was within the 30 days following the due day. This study has ethics approval from SSWAHS, NHMRC, and AHMRC.

**Results**

Data on 161 Aboriginal infants and 330 non Aboriginal infants was extracted, 43 cases could not be found in the register. Overall, 74.1% of infants received all scheduled immunisations with no difference found between Aboriginal infants and non-Aboriginal infants. However, a smaller proportion of Aboriginal infants compared to non Aboriginal infants received an age appropriate immunisation.
Screening for influenza at the border – is it worthwhile?

P Priest¹, L Jennings², A Duncan³, C Brunton⁴, M Baker⁵

¹ Department of Preventive and Social Medicine, University of Otago, Dunedin, New Zealand
² Virology, Canterbury Health Laboratories, Christchurch, New Zealand
³ Planning and Funding, Canterbury District Health Board, Christchurch, New Zealand
⁴ Department of Public Health and General Practice, University of Otago Christchurch, New Zealand
⁵ Department of Public Health, University of Otago Wellington, Wellington, New Zealand

Background
The aim of border management for influenza is to prevent or delay the entry of a new pandemic strain, and various strategies for border management were implemented in response to the Influenza A (H1N1) 2009 pandemic. The evidence base for border management policy, however, consists of historical precedent (mainly from the 1918 influenza pandemic) and modelling studies.

Aim
The aims of this study were 1) to measure the prevalence of influenza infection in symptomatic and asymptomatic arriving international airline travellers; and 2) to assess the test characteristics of a health screening questionnaire and temperature measurement for predicting influenza infection in arriving international travellers.

Methods
A questionnaire was distributed on board three airlines’ flights from Australia to Christchurch, New Zealand during 12 weeks in June–September 2008. It included questions on basic demographics, symptoms, contacts, and countries visited. All symptomatic travellers and a random sample of asymptomatic travellers were asked to provide a throat swab and have their temperature measured.

Results
175 / 307 (57%) flights were screened according to protocol, and 15,618 / 22,192 (70%) travellers on screened flights returned questionnaires. 48% of symptomatic travellers and 35% of sampled asymptomatic travellers agreed to provide a swab. The overall prevalence of influenza infection was 1%; 4.1% among symptomatic and 0.1% among asymptomatic travellers. The sensitivity for influenza infection of ‘any symptom’ was 85%, for cough 58%, sore throat 26%, self reported fever 15%, and for measured temperature >37.8°C it was 8%. The highest PPV was for self reported fever, at 23%.

Conclusions
Poor sensitivity for most screening questions or tests and low prevalence of influenza infection among travellers, even during the height of the season, means that border screening would be enormously resource-intensive yet would fail to identify all, or possibly even most, influenza infected travellers entering the country.
Aim
This study investigates the effect of using dose, pattern and timing of consumption ('composite' method) for examining the association between prenatal alcohol exposure and fetal effects.

Methods
The ‘composite’ method resulted in six categories of exposure (abstinent, low, moderate, binge <weekly, binge 1-2x/week and heavy). The odds of language delay and child behaviour problems were calculated for the ‘composite’ method and then compared with an analysis using averaged estimates of <1 and 1+ drinks per day and with stratification by quantity ignoring dose per occasion. Data used for the analyses are from a 10% random sample of non-Indigenous women delivering a live infant in Western Australia (1995-1996) who were invited to participate in an 8-year longitudinal survey (78% response rate, n=2,224; 85% were followed-up at two-years, 73% (five-years), 61% (eight-years)).

Results
The effect of moderate and binge levels of exposure was only evident with the ‘composite’ method; anxious/depressed problems following first trimester moderate exposure OR 2.24. (95% CI 1.16;4.34) and following late pregnancy moderate (aggressive behaviour OR 1.93 (0.91-4.09)) and binge (language delay OR 3.00 (0.90,9,93)) exposures. Results for heavy levels of exposure were similar with each method. The estimates for late pregnancy were imprecise due to small numbers.

Conclusion
The ‘composite’ method of classification more closely reflects real life drinking patterns and better discriminates maternal drinking than the other methods, particularly low, moderate and binge levels.

Estimating bias generated by loss of blinding in randomised controlled trials with binary outcomes

E Mathieu1, R Herbert2, A Barrett1, K McGeehan1
1 CeMPED, School of Public Health, University of Sydney, NSW, Australia
2 The George Institute for International Health, NSW, Australia

Background
In randomised trials, blinding is used to minimise bias generated from contamination (participants obtaining the intervention assigned to the other group), co-intervention (participants obtaining other effective interventions) and misreporting (participants over- or under-reporting outcomes) based on belief of treatment allocation. However blinding is not always successful. During the course of a trial, participants may develop beliefs regarding treatment allocation.

Aim
To estimate the size of bias generated by loss of blinding, and to identify patterns of belief regarding treatment allocation that minimise bias, in randomised controlled trials with binary outcomes.

Methods
We developed expressions for the magnitude of bias associated with additive and multiplicative errors in counts of events associated with particular patterns of belief about treatment allocation.

Results
We have developed and applied formulae to data from two randomised controlled trials where the results may have been biased due to belief of treatment allocation. These formulae allows for the idea that reporting errors due to belief can be additive, multiplicative, or a combination of the two. Risk differences and risk ratios are biased by beliefs of treatment allocation except when specific conditions are met. There is no bias when all subjects are uncertain about allocation and uncertainty is not associated with either additive or multiplicative biases. Also, there is no bias in risk differences when patterns of belief about treatment allocation are the same in both groups and errors are only additive, or when patterns of belief about treatment allocation are the same in both groups and errors are only multiplicative. It is difficult to ascertain whether these conditions are satisfied in any particular trial, but it would appear likely that they are rarely satisfied.

Conclusions
Beliefs about treatment allocation produce bias in risk differences and risk ratios in all but a restricted set of circumstances.

Overcoming the barriers experienced in conducting a medication trial in adults with aggressive challenging behaviour and intellectual disabilities

P Oliver-Africano1, S Dickens2, Z Ahmed3, N Bouras3, S Cooray3, S Deb5, M Knapp3, M Hare3, M Meade3, B Reece5, S Bhaumik5, D Harley6, J Piachaud7, A Regan8, D Ade Thomas9, S Karatela9, B Rao9, T Dzendrowskyj10, L Lenotre5, J Watson5, P Tyrer10
1 Public Health and Psychosocial studies, AUT University, Auckland, New Zealand
2 Psychological Medicine, Imperial College London, London, United Kingdom
3 Welsh Centre for Learning Disabilities, University of Wales college of Medicine, Cardiff, United Kingdom
4 Mental Health in Learning Disabilities Centre, Institute of Psychiatry King’s College, London, United Kingdom
5 Kingswood Centre, Central and North West London NHS Foundation Trust, London, United Kingdom
6 College of Medical and Dental Sciences, University of Birmingham, Birmingham, United Kingdom
Abstracts

CONCURRENT SESSION 18
Social Epidemiology II

Friday 1400 – 1500
Room 102
Chair: John Lynch

Sunbed use during adolescence and early adulthood is associated with increased risk of early-onset melanoma

AE Cust1, BK Armstrong2, C Goumas2, MA Jenkins1, H Schmid3, JL Hopper1, RF Kefford1, GG Giles5, JF Aitken4, GJ Mann3
1 Centre for MEGA Epidemiology, The University of Melbourne, Melbourne, VIC, Australia
2 Sydney School of Public Health, University of Sydney, Sydney, NSW, Australia
3 Westmead Institute of Cancer Research, University of Sydney at Westmead Millennium Institute, Sydney, NSW, Australia
4 Vrije Universiteit Amsterdam, Amsterdam, The Netherlands
5 Cancer Epidemiology Centre, The Cancer Council Victoria, Melbourne, VIC, Australia

Background
Sunbed use is associated with an increased risk of melanoma at any age. Younger people might be more susceptible to the carcinogenic effects of artificial ultraviolet radiation, yet little is known about the association of sunbed use with early-onset melanoma.

Methods
From the Australian Melanoma Family Study, a multi-center, population-based, case-control-family study, we analysed data for 604 cases of cutaneous malignant melanoma diagnosed between 18 and 39 years of age and 479 controls. Information on sunbed use, sun exposure and skin phenotype was collected using questionnaires. Relative risks were estimated as odds ratios (OR) using unconditional logistic regression, adjusting for age, sex, city, education, family history, skin colour, ability to tan, and sun exposure.

Results
Compared with having never used a sunbed, the OR for melanoma associated with ever-use was 1.41 (95% confidence interval (CI) 1.01-1.96), and 2.01 (95% CI 1.22-3.31; p-trend = 0.01) for more than 10 lifetime sessions. An earlier age at first use was associated with greater risk (p-trend = 0.02); the OR was 1.64 (95% CI 1.07-2.51) for first use before age 25 years. The association was stronger for
melanoma diagnosed when aged 18-29 years (OR for more than 10 lifetime sessions = 6.57, 95% CI 1.41-30.49) than for melanoma diagnosed when 30 years or older (OR 1.60, 95% CI 0.92-2.77; p interaction 0.01).

**Conclusions**
Sunbed use is associated with increased risk of early-onset melanoma, with risk increasing with greater use, an earlier age at first use and for earlier onset disease.

Is there an association between melanoma thickness, clinical skin examination and socioeconomic status?

**Results from a large population-based case-control study**

P Youl¹, P Baade², S Parekh³, D English²,³, M Elwood⁴, J Aitken¹

1 Viertel Centre for Research in Cancer Control, Cancer Council Queensland, Brisbane, QLD, Australia
2 Centre for MEGA Epidemiology, The Melbourne University, Melbourne, VIC, Australia
3 Cancer Epidemiology Centre, Cancer Council Victoria, Melbourne, VIC, Australia
4 Cancer Control Research, BC Cancer Agency, Vancouver, British Columbia, Canada

**Background**
Survival from melanoma is inversely related to thickness of the lesion at diagnosis. Additionally survival is poorer in individuals with lower socioeconomic status (SES). In Queensland 5-year relative survival for those in the most disadvantaged areas is about 30% lower compared to those in the middle SES group. Currently we have little understanding of the reasons for this disparity.

**Aim**
To examine the association between thickness of melanoma, individual-level SES and whole-body clinical skin examination (CSE) using a population-based case-control study.

**Methods**
Cases were Queensland residents aged 20-75 years with a histologically confirmed first primary invasive melanoma diagnosed between January 2000 and December 2003. Controls were selected from the Queensland Electoral Roll using stratified random sampling. Information on screening history, melanoma risk factors and demographics were collected using telephone interviews. A multinomial model containing known and potential confounders was fitted using two melanoma thickness categories (≤2.00mm and >2.00mm) plus the control group.

**Results**
Telephone interviews were completed by 3,762 eligible cases (77.7%) and 3,824 controls (50.4%). Compared to controls, the risk of thick melanoma (>2mm) was significantly increased among men (Relative Risk Ratio (RRR)=1.56, 95% CI=1.22-2.00), participants 60+ years (RRR=1.78, 95% CI=1.12-2.83), those educated to a primary level compared to tertiary education (RRR=1.70, 95% CI=1.08-2.66), not currently married/living as married (RRR=1.47, 95% CI=1.14-1.88), being retired (RRR=1.44, 95% CI=1.12-1.86). There was a significant trend to increasing prevalence of CSE with higher educational attainment (p < 0.01) and the benefit of CSE in reducing risk of thick melanoma was most pronounced in that subgroup.

**Conclusions**
Melanoma thickness is significantly associated with gender, older age, educational level, other measures of SES and absence of CSE. Public health education efforts should focus on identifying new avenues that specifically target those subgroups of the population who are at increased risk of being diagnosed with thick melanoma.

Characterisation of Australian horse owners with low levels of biosecurity compliance following the 2007 outbreak of equine influenza

K Schemann¹, M Taylor², J Toribio¹, N Dhand¹

1 Faculty of Veterinary Science, The University of Sydney, Camden, NSW, Australia
2 Science of Mental Health and Adversity Unit, University of Western Sydney, Penrith South DC, NSW, Australia

**Background**
In 2007 Australia experienced its first ever outbreak of equine influenza (EI) causing considerable financial and emotional adversity to horse owners and industry participants. Following the successful containment of the outbreak, general biosecurity recommendations were issued to horse owners. Perceptions are recognized as important factors in predicting behaviour.

**Aim**
We conducted a cross-sectional study of 1283 Australian horse owners to determine biosecurity practices and perceptions and their association, following the 2007 EI outbreak.

**Methods**
We used an online survey, with a link directed to the affected population. Biosecurity compliance (low, medium, high), as determined by horse owners’ median responses to a 16 item question on the frequency of various biosecurity measures, was used as the outcome variable. Explanatory variables with univariable likelihood ratio chi-square p-value of <0.25 were tested in multivariable ordinal logistic regression models. Two potential confounders- age and gender of participants- were included in the final model irrespective of their p-values.

**Results**
Of the 1283 participants, 28% were categorised as having low biosecurity compliance. Several demographic groups...
were over-represented in the low biosecurity compliance group, namely young horse owners (p < 0.001), males (p = 0.025) and parents of multiple children (p = 0.004). Horse owners who did not suffer long-term business or professional impacts had poorer biosecurity compliance than those who did experience professional impacts (OR = 2.65; CI: 1.7-4.19; p < 0.001). Those who were not at all fearful of a future outbreak had poorer compliance than those who were very fearful (OR = 4.36; CI: 2.54-7.84; p < 0.0001).

Conclusion

We characterised a group of horse owners with low biosecurity compliance, who pose a higher risk for the spread of equine infectious diseases. The results of this research should be used to inform targeted extension activities to increase biosecurity compliance in the Australian horse industry.

The management of heart conditions in older rural and urban Australian women

SJ Jordan, A Dobson
School of Population Health, University of Queensland, Herston, QLD, Australia

Background

In Australia, rural women aged over 75 years have excess mortality from coronary artery and other circulatory disease compared to urban women but the reasons for this difference are not well understood. We investigated this by examining variations in the management of three common cardiovascular conditions amongst older urban and rural women.

Method

In 2004, 944 participants in the Australian Longitudinal Study on Women’s Health aged 77-83 years with self-reported ischemic heart disease (IHD), congestive cardiac failure (CCF) or atrial fibrillation (AF) participated in a nested cross-sectional substudy. We used clinical guidelines to determine key management issues for these conditions. We used logistic regression to calculate odds ratios (OR) and 95% confidence intervals (CI) adjusting for socioeconomic status, cardiac conditions and lifestyle factors to assess the relationship between management and area of residence.

Results

Although some analyses were limited by missing data, overall they suggest that older Australian women often do not receive recommended management for their heart conditions. For example, only 30% reported having had an echocardiogram. Reported use of statins and beta-blockers were low amongst women with IHD (58% and 41% respectively) and only 32% of women reporting CCF were taking ACE inhibitors. There were no rural-urban differences in medication use but women from regional/remote areas had greater odds of never having seen a cardiologist for their heart condition (OR = 3.88, 95% CI 1.72-8.72) and more often reported never having had an echocardiogram than women from major cities (OR= 2.86, 95% CI 1.42-5.75).

Conclusions

Our results contribute additional evidence that best-practice treatments for heart conditions are under-utilized in older women. In addition they suggest differential use of some health services, which may help explain higher cardiovascular mortality amongst rural compared to urban women.
Mental health

Results
For both absenteeism and presenteeism only approximately half the explored health conditions had a significant risk when the condition was considered individually but when co-morbid with psychological distress, all were significantly associated with presenteeism and all except one were associated with absenteeism. Drug and alcohol problems had the greatest risk of both absenteeism and presenteeism when co-morbid with psychological distress.

Conclusions
Co-morbid psychological distress is associated with increased productivity losses for a range of health conditions affecting Australian workers.

Should employees with depression be encouraged to “work through it”? Epidemiologic evidence to improve health and work outcomes

K Sanderson1, F Cocker1, N Graves2, J Nicholson3, B Oldenburg4
1 Menzies Research Institute, Hobart, TAS, Australia
2 Institute for Health and Biomedical Innovation, Brisbane, QLD, Australia
3 Murdoch Childrens Research Institute, Melbourne, VIC, Australia
4 School of Public Health and Preventive Medicine, Monash University, Melbourne, VIC, Australia

Background
Depression in the workforce is common and costly. Working while ill (“presenteeism”) can have both positive and negative consequences, yet there is currently no consensus on how to get the balance right for both the employer and the employee.

Aim
For employed Australian adults with a major depressive disorder, estimate the positive and negative consequences of short-term absenteeism versus presenteeism from both employee and employer perspectives.

Methods
A cohort simulation study of a hypothetical cohort of 1000 employees with a lifetime history of depression was conducted, using state-transition Markov models for the Australian workforce using secondary sources. Two scenarios were compared: short-term absenteeism versus presenteeism. The principal epidemiological data source was the 2007 Australian Survey of Mental Health and Wellbeing (n=8,841). Model inputs included probabilities of moving between various disease states, utility weights, mortality including suicide risk, and costs from lost productive time, job loss/turnover, health service use, and medication use. Population-level outcomes were expressed in QALYs and total costs expressed in dollars for 1 year, then over 5 years and lifetime (discounted at 3%).

Results
No significant differences in outcome were observed at any time point. Absenteeism was associated with higher costs than presenteeism at all time points although 95% confidence intervals overlapped (e.g. 5-year total cost per person: absenteeism $60,834, 95% CI $60,324, $60,834; presenteeism $60,377, 95% CI $59,931, $64,438). Most costs were notionally incurred by the employer, with the major cost driver being job loss/turnover although there was substantial uncertainty associated with this estimate.

Conclusion
As far as we are aware, this is the first study to estimate both the health and economic consequences of presenteeism versus absenteeism for a chronic health condition. Additional analyses (underway) are stratifying results by demographic and work-related factors to provide further evidence of when “working though it” is advisable.

Does maternal severe mental illnesses increase the risk of sudden infant death syndrome?

ML Croft1,2, VA Morgan1, P Di Prinzio1, GM Valuri1, A Jablensky3
1 School of Psychiatry and Clinical Neurosciences, The University of Western Australia, Perth, WA, Australia
2 Centre for Child Health Research, University of Western Australia, West Perth, WA, Australia
3 Centre for Clinical Research in Neuropsychiatry, The University of Western Australia, Perth, WA, Australia

Background
Webb et al (2009) found higher Sudden Infant Death Syndrome (SIDS) rates in Sweden for infants born to mothers with a hospitalization for psychosis (OR 3.1 95% CI 2.6 - 3.8). That disparity increased after the Swedish Reducing the Risks (RTR) campaign (RR 4.4 95% CI 3.3 – 5.8). SIDS risk factors include: prone sleep position, male gender; poverty; low birth weight; preterm birth; indigenous status and tobacco smoke exposure. RTR campaigns target some risk factors via parental behaviours. A unique Western Australian (WA) population based e-cohort was created by record linkage. The McNeil Sjöström scoring system was used to measure risk factors for SIDS in infants born before and after the WA RTR campaign.

Aim
To measure whether the risk of SIDS, for infants born to women with psychotic illness, compared with infants born to unaffected women, has increased since the RTR campaign in WA.

Methods
Results
SIDS cases were significantly more likely to be infants of women with psychosis recorded at any time (OR 2.9 95% CI 2.2-4.0) than infants of comparison women. Relative to before the RTR campaign, after the campaign women with psychosis were significantly more likely to deliver a singleton live born of low birth weight (OR 1.8 95% CI 1.6 – 1.9) than other women. They were also significantly more likely to deliver a preterm (OR 1.1 95% CI 1.1 – 1.2) live born baby. Women with psychosis were in poorer health, prior to and during pregnancy, than other women.

Conclusions
More vulnerable small and/or preterm live-born babies are now at risk of SIDS and improving health care for women with psychosis may help to prevent SIDS through reduction in risk factors.

Life as a mother two years after birth: longer term outcomes of PRISM, a community randomised trial to improve maternal physical and mental health after childbirth

R Small1, S Brown2, L Watson1
1 Mother & Child Health Research, La Trobe University, Melbourne, VIC, Australia
2 Healthy Mothers Healthy Families, Murdoch Childrens Research Institute, Melbourne, VIC, Australia

Background
Little is known about maternal health status beyond the first postnatal year. PRISM – Program of Resources, Information and Support for Mothers – was a primary care and community-based cluster-randomised trial in sixteen municipalities in Victoria (1999-2003), which aimed to reduce depression in mothers and improve their physical health. Maternal health outcome data were collected at six months and two years. At six months there was no evidence that the intervention strategies were effective.

Aim
This paper has two aims: to report the longer term outcomes of PRISM and to provide an overview of maternal health status in a large population cohort of childbearing women two years after birth.

Methods
PRISM implemented a range of strategies in intervention communities, including: maternal health and communication skills training for primary care providers, resources for women, and community development activities and befriending opportunities to promote local support for mothers and decrease isolation. Main outcome measures, collected by postal questionnaire at two years, included the Edinburgh Postnatal Depression Scale (EPDS) and the SF-36. Analysis was by intention to treat, adjusting for the randomisation by cluster.

Results
7,169/18,424 (39%) women responded to the postal questionnaire at two years (3,894 in the intervention arm and 3,275 in the comparison arm). There were no differences in depression prevalence (EPDS≥13) between the intervention and comparison arms (13.4% vs 13.1%; ORadj=1.06, 95% CI 0.91-1.24). Women’s mental health (MCS: 48.6 vs 49.1) and physical health scores (PCS: 49.1 vs 49.0) on the SF-36 also did not differ between the trial arms.

Conclusion
PRISM intervention strategies showed no effect on depression or overall mental or physical health status of mothers at two years. The maternal health findings for the whole PRISM cohort indicate that two years after the birth of a child, the physical and emotional health of mothers is compromised.

Abstracts
CONCURRENT SESSION 20
Obesity

Friday 1400 – 1500
Room 106
Chair: Efty Stavrou

Maternal pre-pregnancy body weight and risk for affective disorders in offspring: a prospective pregnancy cohort followed to adulthood

M Robinson1, CE Pennell2, P Jacoby3, GL Ambrosini2, LJ Beilin1, SR Zubrick4, FJ Stanley5, JP Newnham2, WH Oddy5
1 Telethon Institute for Child Health Research, The University of Western Australia, West Perth, WA, Australia
2 School of Women’s and Infants’ Health, The University of Western Australia, Subiaco, WA, Australia
3 MRC Collaborative Centre for Human Nutrition Research, Cambridge, United Kingdom
4 Centre for Developmental Health, Curtin University of Technology, Bentley, WA, Australia
5 School of Medicine and Pharmacology, The University of Western Australia, Perth, WA, Australia

Background
Maternal pre-pregnancy obesity was recently associated with an increased risk for negative emotionality and inattentiveness in offspring in early childhood.
Aim
The aim of this study was to extend previous analyses by examining the impact of maternal pre-pregnancy body mass index (BMI) on the later development of affective disorders (dysthymia, major depression) throughout childhood and adolescence using a prospective pregnancy cohort.

Methods
In the Western Australian Pregnancy Cohort (Raine) Study, 2,900 women provided data at 18 weeks gestation on their pre-pregnancy weight, and height was measured. BMI was calculated and categorized using standardized cutpoints. Their offspring were followed up at ages five, eight, ten, 14 and 17 years. The Child Behaviour Checklist (CBCL) with DSM-oriented scales were obtained using an affective problems scale for ages five-17. At age 14 and 17 years the study adolescent also completed the Beck Depression Inventory for Youth (BDI-Y). Longitudinal models were applied to assess relationships linking maternal pre-pregnancy BMI and affective problems between age 5 and 17 years. We used separate models to examine the impact of maternal pre-pregnancy BMI on BDI-Y scores at 14 and 17 years.

Results
Compared with the offspring of women in the healthy pre-pregnancy weight range, the children of women who were overweight (OR= 1.48, 95% CI= 1.06, 2.08) or obese (OR= 1.75, 95% CI= 1.16, 2.65) had a higher risk for the development of affective disorders from age 5-17 years, following adjustment for biological, social and psychological confounders. This relationship was further supported by a significantly increased risk for elevated BDI-Y scores in offspring of obese mothers by age 17 years (OR= 3.77, 95% CI= 2.74, 4.80).

Conclusions
Maternal pre-pregnancy overweight and obesity may be implicated in the development of affective problems, including depression, in their offspring later in life.

Obesity and the risk of hospitalisation
R Korda1, E Banks1, M Clements1, A Bauman2, B Liu3, H Bambrick1, L Jorm3
1 NCEPH, The Australian National University, Canberra, ACT, Australia
2 Department of Public Health, University of Sydney, NSW, Australia
3 School of Medicine, University of Western Sydney, NSW, Australia

Background
Nearly two-thirds of Australian adults are overweight or obese. Obesity and overweight have a range of health effects, yet little evidence is available on their effect on hospitalisation.

Aim
This study quantifies the risk of hospitalisation relating to obesity and overweight in NSW.

Methods
We used baseline data from the first 103,040 people enrolled in the 45 and Up Study linked to hospital admissions and deaths. Participants were followed from recruitment (February 2006 onwards) through to June 2008 or death. Self-reported height and weight were used to classify patients into BMI categories, using cut-points of 15, 18.5, 20, 22.5, 25, 27.5, 30 and 35 kg/m2. Using these categories, we compared rates of incident (first) hospitalisation (Cox regression) and total hospitalisation (negative binomial regression), adjusting for age, smoking, education and income.

Results
Incident hospitalisation rates were, in males and females respectively, 299 (95% CI: 294–304) and 248 (95% CI: 243–252) per 1000 person years, while total hospitalisation rates were 625 (95% CI: 619–632) and 431 (95% CI: 426–437) per 1000 person years. Compared with those of healthy-weight (BMI 20–22.5kg/m2), incident hospitalisation rates in those with severe obesity (BMI 35–50kg/m2) were higher amongst males (HR: 1.36, 95% CI: 1.21–1.54) and females (HR: 1.52; 95% CI: 1.38–1.67); similarly, total hospitalisation rates were around 50% higher (RR: 1.47, 95% CI: 1.27–1.69 in males; RR: 1.48, 95% CI: 1.29–1.63 in females). There were clear gradients in these associations as weight increased from healthy to higher BMI, in mid-age (45-64 years) more so than in older people.

Conclusions
Given the excess risk of hospitalisation amongst overweight and obese individuals in the 45 and Up Study, the annual number of hospitalisations that may be attributable to overweight and obesity in Australia is likely to be substantial.

A cluster-randomised controlled trial of an early childhood obesity prevention program: promising outcomes from the Melbourne InFANT program
K Hesketh1, K Campbell1, D Crawford1, J Salmon1, K Ball1, SA McNaughton1, Z McCallum2
1 Centre for Physical Activity and Nutrition Research, Deakin University, Burwood, VIC, Australia
2 Royal Children’s Hospital & University of Melbourne, Parkville, VIC, Australia

Background
Obesity-promoting behaviours are established during early childhood (0-5 years), yet intervention strategies have typically focused on older children.
**Aim**
To assess the effectiveness of a child-focussed obesity prevention intervention delivered during early life to first-time parents in existing social networks.

**Methods**
The Melbourne Infant Feeding Activity & Nutrition Trial (InFANT) Program is a cluster-randomised controlled trial involving 542 families recruited in 62 first-time parent groups across Melbourne (87% recruitment uptake). It focuses on providing knowledge and skills to enable mothers to support the development of positive diet, physical activity and reduced sedentary behaviours in their infants. Intervention parents received quarterly two hour sessions promoting knowledge/skills likely to support obesity-protective behaviours for their children. Outcomes were assessed mid-intervention (after 2/6 sessions) and at intervention conclusion.

**Results**
Mid-intervention outcomes showed more optimal parent opinions and practices regarding infant feeding and television viewing. For example, compared to controls, intervention group mothers had significantly lower odds of offering their baby an alternative when food was refused (OR=1.96; CI95=1.26, 3.04) and of allowing their baby to watch television daily (OR=2.06; CI95=1.31, 3.26). Data from the first 239 families completing The Melbourne InFANT Program (48% of sample) show that compared with control-group children, at 18 months of age, intervention-group children spent significantly less time watching television (19-minutes less/day; β=-19.09, CI95= -36.29,-1.90). Significant positive outcomes were also observed for parenting knowledge and skills relating to diet, physical activity and sedentary behaviour for children. Results from the complete dataset will be presented.

**Conclusions**
Early data are promising and suggest this low-dose intervention may impact obesity-promoting behaviours, as well as parenting knowledge and skills likely to promote and support obesity protective home environments.

---

**Weight gain and risk of colon cancer**
JK Bassett¹, G Severi¹², DR English¹², L Baglietto¹², K Krishnan¹, JL Hopper¹, GG Giles¹²

¹ Cancer Epidemiology Centre, Cancer Council Victoria, Carlton, VIC, Australia
² Centre for Molecular, Environmental, Genetic and Analytical Epidemiology, School, The University of Melbourne, Parkville, VIC, Australia

**Background**
Epidemiological studies have consistently reported positive associations between overweight and obesity and colon cancer risk for men, but the evidence is less consistent for women. Few studies have investigated the effect of weight change on subsequent colon cancer risk.

**Aim**
The aim was to establish the effect of adult weight change (since age 18 years) on colon cancer risk using data from the Melbourne Collaborative Cohort Study.

**Methods**
At the baseline interview, weight and height were measured and participants recalled their weight at age 18 years. Colon adenocarcinomas were identified from population-based cancer registries. Hazard ratios (HR) and corresponding 95% confidence intervals (CI) were estimated using Cox regression with adjustment for confounding factors.

**Results**
During follow up of 16 189 men and 23 438 women for 14 years on average, we ascertained 569 incident colon cancers. Adult weight change was positively associated with colon cancer risk for men (HR=1.11 per 5 kg increment, 95% CI: 1.05-1.18), but not women (HR=1.00, 95% CI: 0.95-1.06). Men who gained ≥20 kg since age 18 years had an increased risk of colon cancer compared with those who remained within 3 kg of their weight (HR=1.49, 95% CI: 0.95-2.32).

**Conclusion**
Our findings suggest that weight maintenance, in particular avoiding excessive weight gain, might help reduce colon cancer risk for men.

---

**Return to work coordinators – contributions to the occupational rehabilitation process for injured nurses**
A Kable, C James, E Southgate, J Bohatko-Naismith, D Rivett, M Guest

Faculty of Health and School of Education, University of Newcastle, Callaghan, NSW, Australia

**Background**
Occupational Rehabilitation is a managed process that involves a wide variety of stakeholders. Return to work (RTW), coordinators are one such stakeholder. They are employees nominated by the employer to assist injured workers return to work in a safe and durable manner. Research suggests that RTW coordinators and return to work interventions have significant effects on disability outcomes, however, there is limited literature, both nationally and...
internationally, relating specifically to the current practices of RTW Coordinators. The RTW coordinator’s are at the forefront of the return to work process and are in an ideal position to describe the competing interests, organisational processes and local conditions that impact upon return to work for injured nurses.

Aim
This research aimed to explore the current practices, perceptions and experiences of workplace RTW coordinators when working with injured nurses.

Method
RTW coordinators from organisations in rural, regional and metropolitan geographical areas of NSW, who employ nurses were invited to participate in this study by mail. Interested persons contacted the researchers and were invited to attend a focus group being held in the local area. Twenty five RTW coordinators attended five focus groups, with public, private and aged care sectors being captured. The focus groups were tape recorded and transcribed. A series of meetings between the researchers were held, in which codes were developed according to a consensus process and informed by literature. These codes were used analyse the transcribed data.

Results
RTW coordinators identified a range of facilitators and barriers to return to work for injured nurses. This paper focuses on the organisational approaches to suitable duties and work accommodation.

Conclusions
Facilitators and barriers in the return to work process were identified both at an organisational and personal level, these will assist in informing practice and can inform future research into this area.

Nationwide trends in the uptake of laparoscopic resection for colorectal cancer, 2000/01 to 2008/09

B Thompson1, J Lumley2, M Coory3
1 Patient Safety and Quality Improvement, Queensland Health, Herston, QLD, Australia
2 The Wesley Hospital, Brisbane, QLD, Australia
3 Cancer Epidemiology Centre, Cancer Council Victoria, Melbourne, QLD, Australia

Background
Laparoscopic resection for colorectal cancer (CRC) began in the early 1990s. However, adoption and diffusion of laparoscopic surgery for CRC has been slower than for other abdominal procedures.

Aim
This study examines recent trends in the uptake of this technology across Australia.

Methods
Data indicating the number of resections for cancers of the colon and rectum for each financial year from 2000/2001 to 2008/09 and the number of these with laparoscopic access were obtained from the Australian Institute of Health and Welfare. Percentage of resections with laparoscopic access were calculated and further stratified by hospital characteristics.

Results
The percentage of segmental resections of the colon with laparoscopic access increased from 2.4% in 2000/01 to 27.5% in 2007/08. For resections of the rectum the increase was from 1.1% to 21.5%. High-volume private hospitals experienced the largest absolute increases (colon 31.4%, rectum 24.8%) over the eight years, but important increases were also seen at high-volume public hospitals (29.5%, 19.7%) and low-volume private (29.5%, 19.7%); and to a lesser extent in low-volume public (15.9%, 13.3%).

Conclusion
Laparoscopic resection for colorectal cancer is a complex procedure with a long learning curve. It is also likely to be a procedure in high demand, which without careful planning could strain already limited resources in terms of appropriately trained surgeons and theatre staff, and infrastructure.

Assessing the impact of smoking cessation services: a geographical analysis of QUIT group data

E Griffin1, S Kingham1, R Barnett1, Y Galloway2, E Holmes3, K Mason3, S Bowler1
1 GeoHealth Lab, University of Canterbury, Christchurch, New Zealand
2 Health and Disability Intelligence, Ministry of Health, Wellington, New Zealand
3 Research, The Quit Group, Wellington, New Zealand

Background
Smoking is one of the biggest causes of ill-health and it has been estimated that smokers lose around fourteen years of life. In New Zealand over one fifth of the adult population smoke on a regular basis and tobacco smoking is the leading cause of preventable death. As a result, governments try to deter people from smoking. Quitline, New Zealand’s national, free, quit smoking, telephone helpline, works to increase smoking cessation across the country.

Aim
This research examines the spatial distribution of Quitline callers between 2005 and 2009 and seeks to establish whether there is any variation in call rates between geographic areas, and if so what those variances are attributed to. The results will be used by the quit group to make decisions about how to target hard to reach groups.
Methods
The research uses unique Quitline address data and smoking prevalence from the 2006 census to produce a call rate for the 1800 census area units (CAUs) in NZ. Using a combination of geographically weighted regression analysis (ethnicity, deprivation, age and sex as explanatory variables) and Empirical Bayes analysis, CAUs showing abnormal call rates have been identified.

Results
When ethnicity, sex and age are accounted for there is still a significant variation in call rates between urban and rural areas, with urban having much higher rates. There also seems to be a decay of call rates as the size of the urban area decreases.

Conclusions
It is hypothesised that these differences are cultural and can be attributed to differences in exposure to advertising and marketing campaigns and also varying degrees of disidence towards a ‘controlling’ government. The Quit group need to target rural areas with different marketing strategies than that of urban areas where television advertising and so forth work well.

EMBASE, CENTRAL, PubMed and PEDro are the most comprehensive databases indexing randomised controlled trials of physiotherapy interventions

ZA Michealeff1, LOP Costa2, AM Moseley1, CG Maher1, MR Elkins3, RD Herbert1, C Sherrington1

1 Musculoskeletal Division, The George Institute for International Health, Missenden Road, NSW, Australia
2 Masters in Physical Therapy Program, UNICID, Brazil
3 Department of Respiratory Medicine, Royal Prince Alfred Hospital, Sydney, NSW, Australia

Background
A large number of bibliographic databases index research into the effects of healthcare interventions.

Aim
This study compared the completeness of indexing of reports of randomised controlled trials of physiotherapy interventions by eight bibliographic databases.

Methods
Using pre-specified criteria, four hundred randomised controlled trials were identified from the reference lists of systematic reviews that evaluated physiotherapy interventions and were published in 2008. Eight databases (AMED, CENTRAL, CINAHL, EMBASE, Hooked on Evidence, PEDro, PsycINFO and PubMed) were searched for each trial report.

Results
The proportion of the 400 trials indexed by each database was calculated. EMBASE indexed 96% of the trial reports, CENTRAL 95%, PEDro 92%, PubMed 89%, CINAHL 53%, AMED 50%, Hooked on Evidence 46% and PsycINFO 6%. Almost all of the trial reports (99%) were found on at least one of the databases and 91% were indexed on 4 or more databases. Three trials were uniquely indexed on a single database (two on CENTRAL and one on PEDro). The four most comprehensive databases of trials evaluating physiotherapy interventions were EMBASE, CENTRAL, PEDro and PubMed. Clinicians seeking quick answers to clinical questions could search any of these databases knowing that all are reasonably comprehensive. PEDro, unlike the other three most complete databases, is physiotherapy-specific, so irrelevant studies are less likely to be retrieved.

Conclusions
Researchers could use EMBASE, CENTRAL, PEDro and PubMed in combination to conduct exhaustive searches for randomised trials in physiotherapy.

Capture-recapture analysis of all-cause mortality in Bohol, Philippines

KL Carter1, G Williams1, D Sanvictores2, V Tallo2, I Riley1

1 School of Population Health, University of Queensland, Herston, QLD, Australia
2 Research Institute of Tropical Medicine, Muntinlupa City, Philippines

Background
Mortality indicators are critical for population health assessment; however death registration systems are rarely 100% complete. This paper presents work conducted in Bohol province, Philippines, to assess completeness of death reporting and correct subsequent mortality estimates using capture-recapture methods. We further discuss difficulties and assumptions made when applying capture-recapture methods to all-cause mortality data.

Methods
A system review was conducted in six municipalities of Bohol to assess reporting processes. Deaths for 2002-2007 were extracted from registers from health centres, local civil registration and churches then matched manually. Analysis was conducted using the Chandra Sekar-Deming method for 2 source combinations, and log-linear models for three sources using a SAS CATMOD procedure. Models were selected on the basis of statistical tests and system evaluation, and mortality rates calculated.

Results
Dependence between sources was identified between the civil and health registration data collections, and there was substantial variation in reporting procedures and data completeness between municipalities. Noting this dependency, several models were indicated as a close fit for
the data. 8075 deaths were recorded between 2002 and 2007. Deaths “missed” from official sources in Bohol were between 5-10%, giving a corrected mortality rate of 7.89 deaths per 1000 population.

**Conclusions**

While the three source method is more appropriate with dependent sources, it becomes unstable with can become unstable with regional variation in reporting procedures and small data sets. A system review was therefore critical for appropriate model selection. Despite limitations, capture-recapture is a useful tool for assessing death reporting systems, and provides a reliable measure of the limits of completeness within which these systems operate.

---

**Assessment of the health impact of heatwaves in Brisbane, Australia**

**S Tong, X Wang, P Vaneckova, A Barnett, G FitzGerald**

Queensland University of Technology, Kelvin Grove, QLD, Australia

**Aim**

To assess the impact of heatwaves on mortality and emergency hospital admissions in Brisbane, Australia – a subtropical city.

**Methods**

We acquired large scale daily data on weather, air pollution, and emergency hospital admissions in Brisbane between 1 January 1996 and 31 December 2005; and mortality between 1 January 1996 and 30 November 2004. Case-crossover analyses were performed to assess the impact of heatwaves on mortality and emergency hospital admissions in Brisbane using a locally-defined definition of heatwave (i.e. the daily maximum temperature was ≥ 37°C for 2 or more consecutive days).

**Results**

Three heatwave periods were identified (20-21 Jan 2000, 24-26 Dec 2001 and 21-22 Feb 2004). There was a statistically significant increase in total mortality and emergency hospital admissions, with odds ratios of 1.65 (95% Confidence Interval (95% CI): 1.40-1.94) and 1.23 (95% CI: 1.16-1.30), respectively. We also evaluated the impact of heatwaves on mortality and emergency hospital admissions for cause-specific diseases using the same approach. During the heatwave periods, there was a statistically significant increase in cardiovascular deaths (Odds Ratio (OR): 2.22; 95% CI: 1.76-2.81), with non-significant increased deaths from respiratory diseases (1.62; 95% CI: 0.93-2.83), and diabetes (2.39; 95% CI: 0.77-7.39); there were also significant increased emergency admissions from respiratory (1.20; 95% CI: 1.00-1.43) and renal diseases (1.61; 95% CI: 1.28-2.03). Elderly (>75 y) appeared vulnerable to heatwaves (OR_elder: 1.66; 95% CI: 1.36-2.02; OR_emergency: 1.71; 95% CI: 1.55-1.89)

**Conclusions**

A significant increase in mortality and emergency hospital admissions was observed during heatwave periods in Brisbane where people are well accustomed to warm weather. Elderly and people with cardiorespiratory and renal diseases appeared to be vulnerable to heatwaves.

---

**Prevalence of gastro-oesophageal reflux in Australia and the associated factors**

**N Pandeya¹, AC Green², DC Whiteman²**

1 School of Population Health, The University of Queensland, Herston, Brisbane, QLD, Australia
2 Cancer and Population Studies Group, Queensland Institute of Medical Research, Brisbane, QLD, Australia

**Background**

Frequent gastro-oesophageal reflux (GOR) causes chronic inflammation and damages oesophageal mucosa which can lead to Barrett’s oesophagus. It has been consistently found to be a strong risk factor for oesophageal adenocarcinoma. The prevalence of GOR symptoms appears to vary by population and population based Australian studies that investigated this are limited.

**Aim**

To measure the prevalence and determinants of GOR symptoms in Australian population.

**Methods**

We used self reported information on the frequency of GOR symptoms provided by community controls from a population based case-control study of oesophageal cancer in Australia. 1580 controls sampled from a population register took part in the study. We estimated the age and sex standardised prevalence of GOR symptoms in Australia. To examine the contributory factors, we also estimated the prevalence ratio (PR) of GOR symptoms associated with lifestyle and some dietary factors.

**Results**

Age-sex standardised prevalence of frequent and occasional GOR symptoms was 10% and 38% in the Australian population. The prevalence of frequent GOR symptoms were significantly higher among obese (PR 1.9; 95% CI 1.1–3.2), regular NSAIDs users (PR 1.7; 95% CI 1.1–3.2) and regular consumers of medium or well-done barbecued meat (PR 1.8; 95% CI 1.1-2.8) and fried food (PR 2.69; 95% CI 1.66–4.35). The prevalence was significantly lower among those with higher physical activities (PR 0.46; 95% CI 0.32–0.66) and had helicobacter pylori infection (PR 0.53; 95% CI 0.35–0.80).

**Conclusions**

GOR symptoms are common in Australian population and frequent GOR symptoms within the range to other Western countries. They are however associated with modifiable factors such as obesity and diet hence prevention can be applied to reduce its prevalence.
**Merkel cell carcinoma in Western Australia**

**J Girschik**, K Thorn, T Beer, P Heenan, L Fritschi  
1 Cancer Epidemiology, Western Australian Institute for Medical Research, Nedlands, WA, Australia  
2 Cutaneous Pathology, Nedlands, WA, Australia

**Background**  
Merkel Cell Carcinoma (MCC) is a poorly recognised, poorly understood, aggressive cutaneous skin cancer. Even with appropriate treatment, MCC is prone to recurrence and metastases are common, with a mortality rate of 30 to 70%. There is some evidence to suggest rates of this cancer are on the increase, however, it is unclear if this is a real increase or the result of improved diagnostic techniques.

**Aim**  
The aims of this study were to investigate the characteristics and trends in rates of incident cases of MCC in Western Australia.

**Methods**  
All incident cases of MCC between the years 1993 and 2007 were extracted from the Western Australian Cancer Registry (WACR). Pathology reports and, where necessary, histological specimens were reviewed by dermatopathologists to confirm the MCC diagnosis. Rates were standardised by age and sex to the USA 2000 population to allow comparison to the literature.

**Results**  
Overall, 226 cases of MCC were identified from the WACR, of these 214 were confirmed by pathological review. Cases were mainly males and were elderly. Most of the primary tumour sites were in areas of high sun exposure (face, ears and hands, and scalp in males). Standardised incidence rates increased with increasing age from 0.09/100 000 in the 40-44 year age group to 15.51/100 000 in the 85+ age group. In addition, standardised incidence rates were much higher in men than in women.

**Conclusions**  
The incidence of MCC in WA is the highest reported in the literature. The cancer predominantly affects the elderly, particularly elderly men. The primary tumour sites are predominantly in areas of high sun exposure. This research suggests several potential avenues for improving prevention and early detection of MCC.

**Health of Pacific children: environmental and nutritional determinants**

**S Karatela**, J Paterson, P Schluter  
1 Public Health and Psychosocial studies, AUT University, Auckland, New Zealand  
2 School of Nursing and Midwifery, The University of Queensland, Brisbane, QLD, Australia

**Background**  
Seafood is an important part of a healthy diet and is a major source of protein for many communities in New Zealand (NZ) especially Pacific people. According to the NZ National Children’s Nutrition survey (2002/03) 56% of Pacific children generally consume high fish diet. Along with the benefits of eating fish, seafood also contains environmental contaminants such as MeHg (a neurotoxin) which causes neurodevelopmental and impaired cognitive developments particularly prenatally and in children. Thus balancing the risks and benefits of eating fish is an important public health issue.

**Aim**  
A case-control study is being conducted within the Pacific Islands Families (PIF) birth cohort to identify the association between MeHg levels and developmental disorders within these children.

**Methods**  
Cases are all children aged 9 years old with behavioural disorders (n=125) and controls are all children free of these problem (n=125), all within the PIF cohort. Toe nail clippings are used as a biomarker for MeHg exposure in both the cases and controls and will be analysed using the inductively coupled plasma mass spectrometry. Seafood questionnaires are being administered to determine seafood intake. Dental amalgam information is also being collected as a confounding factor for this study.

**Results**  
The PIF cohort has identified 16% of the children with behavioral problems. The association between, behavior and MeHg levels is not known within this group and thus this doctoral study will identify any protective or adverse effect fish consumption has on Pacific children. The study is still in its data collection phase. We aim to complete data collection in August and preliminary results will be presented at the conference.

**Conclusion**  
This doctoral study will help us in understanding the effects MeHg can have on the health of Pacific children and will provide the foundation upon which effective prevention and control programs can be established.
Excess winter hospitalisation higher in “character” homes

LF Telfar Barnard, M Baker, P Howden-Chapman
Public Health, University of Otago, Wellington South, New Zealand

Background
Excess winter mortality (EWM) is higher in temperate countries, including New Zealand, than in harsher climates. Home heating and insulation levels have been associated with health outcomes, but few studies have implicated housing faults as contributing to EWM. Excess winter hospitalisation (EWH), and the contribution housing makes to EWH, have been little explored.

Aim
To investigate whether housing traits were associated with EWH.

Methods
We performed a retrospective population cohort study for the period 1 February 2000 – 31 January 2006. New Zealand residents were included if their national health index address could be matched to a Quotable Value NZ Ltd (QV) dwelling record. We included only acute overnight public hospitalisations, filtered to exclude non-relevant admissions. Person days were coded as cases if a hospitalisation occurred, or non-cases if no hospitalisation occurred; and categorised as exposed between 1 June – 30 September (winter), and non-exposed between 1 October – 31 May (non-winter). We used poisson regression to calculate the excess winter hospitalisation index (EWHI) for each dwelling type; and differences in EWHI, controlling for sex, age, ethnicity, and rurality, socioeconomic status, and annual average minimum outdoor temperature.

Results
We matched 44% of NHI addresses to a dwelling type. The distribution of dwelling ages in the matched dataset was similar to the distribution in all QV dwellings. Match rates were higher in cities, and in Māori and Pacific Peoples, and decreased with increasing age.

Compared to Post-war Bungalows, Villas had the highest EWH, Pre-war Bungalows also had significantly higher EWH, and Quality Bungalows had the lowest EWHI. Construction decade was not associated with EWH.

Conclusion
Dwelling type is associated with differences in excess winter hospitalisation levels. Dwelling design or construction may be responsible for at least 80 hospitalisations per year, with important policy implications for both housing and public health.

Motor vehicle emissions and fetal growth – issues in exposure assessment

G Pereira1,2,3
1 University of Western Australia, School of Population Health, Crawley, WA, Australia
2 Centre for Child Health Research, UWA, Telethon Telethon Institute for Child Health Research, Subiaco, WA, Australia
3 Cooperative Research Centre for Asthma, Sydney, NSW, Australia

Background
Recent studies on ambient air pollution have demonstrated associations with poor fetal growth. As motor vehicles are responsible for most anthropogenic air pollution in many developed areas, it is natural to hypothesize that elevated residential exposure to traffic emissions may adversely affect fetal growth. The problem is complicated by many different exposure assessment options, which need to be considered in relation to important intrauterine periods of development and vulnerability.

Methods
A study conducted in Sydney concluded that certain traffic-related pollutants have an adverse effect on birth weight. Elevated exposure during the first four months of pregnancy has been associated with poor fetal growth in Brisbane, a city characterized by low-moderate ambient air pollution. In Perth, traffic is growing at a faster rate than population growth, accompanied by a resources boom and an increasing fertility rate. Moreover, motor vehicle emissions are ubiquitous, making exposure unavoidable. There have been few studies on this topic to date possibly due to the complexity of exposure assessment.

Conclusions
There are many methods available to assess exposure ranging from direct measurement of traffic related air pollutants to proxies such as distance to main roads. However, spatial methods may lack the ability to assign trimester specific exposures, exposure proxies are non-specific to particular toxicants, and temporal methods relying on monitoring station data often lack exposure contrast in relation to proximity to major roads. Furthermore, total exposure is multi-factorial. For instance, is the incorporation of time-activity information necessary or can it be assumed non-differential? Each exposure assessment method is also subject to potentially different sources of confounding, such as smokers and individuals of lower SES being more likely to live near major roads.
Governance approval for multi-site, non-interventional research: what can HoMER learn from the NSW experience?

CM Vajdic, NS Meagher, SC Hicks, M Faedo, RL Ward, S Pearson
Adult Cancer Program, Lowy Cancer Research Centre, University of New South Wales, UNSW, NSW, Australia

**Background**
In July 2007, NSW Health mandated the separation of ethical and scientific review from research governance at all NSW public health sites based on their distinction in the NHMRC National Statement. Separating these processes allowed for the single-site ethical review of multi-centre studies.

**Aim**
The purpose of this study was to investigate the time taken to gain governance approval of multi-centre studies via the site specific approval (SSA) process.

**Methods**
A retrospective audit of the governance approval process for five multi-site, non-interventional studies proposed by a cancer research unit. SSA submissions were made to public and private hospitals in NSW. The main outcome measures were the time from starting the SSA process to obtaining approval and the reasons for any delays.

**Results**
The median total governance approval time for all submissions (n=28) was 12 weeks (range 2.5-64); median time from starting the SSA to submission was 8 weeks (range 1-48) and median time for governance approval was 5 weeks (range 0.3-40). Approval times were significantly shorter for public compared to private institutions. Reasons for delays in finalising submissions for approval were the absence of institutional governance officers, lack of clarity regarding necessary signatories, the need to identify a principal investigator employed by the institution, and lack of recognition of ethical approval by private institutions. The need to develop legal agreements between the university and hospital was the main reason for delay in obtaining approval.

**Conclusions**
In NSW, the advantages of a harmonised single ethical review process were undermined by the coexistence of a fragmented, complex and lengthy governance approval process. The NSW experience has significant implications for the success and impact of the national Harmonisation of Multi-Centre Ethical Review (HoMER) model. A harmonised and fully supported national approach to research governance should be developed contemporaneously with HoMER.

The impact of the Australian government child health check initiative on avoidable hospitalisations among Northern Territory Indigenous children

SLM Pircher, S Li, SL Guthridge
Department of Health and Families, Health Gains Planning, Casuarina, NT, Australia

**Background**
As part of the Northern Territory Emergency Response (NTER), the Australian Government provided 10,605 child health checks and a program of follow-up service delivery in remote NT Indigenous communities between July 2007 and June 2009.

**Aim**
To analyse avoidable hospitalisations for NT Indigenous children, for the years 1998 to 2008, and to assess the impact and policy implications of the NTER on NT acute care hospitals.

**Methods**
NT public hospital morbidity data were used to identify hospitalisations that are attributable to conditions classified as ‘avoidable’. Comparison of avoidable hospitalisations was made between NT Indigenous and non-Indigenous children, as well as before and after the child health checks were conducted.

**Results**
Between 1998 and 2008 there were 12,057 avoidable hospitalisations among NT children aged 0 to 15 years and this comprises 10.3% of NT total hospital admissions (12.0% of NT Indigenous and 7.7% of NT non-Indigenous admissions). The rate of avoidable hospitalisations in NT Indigenous children (3,343 per 100,000 population) was 3.2 times that of NT non-Indigenous children (1,050 per 100,000 population). Avoidable hospitalisations in NT Indigenous children increased significantly after the start of child health checks. The leading causes for hospitalisations amongst NT Indigenous children changed from dehydration and gastroenteritis (30.5%), ear, nose and throat (ENT) infections (24.6%) and iron deficiency anaemia (18.9%) to ENT infections (24.3%), dental conditions (23.9%), and cellulitis (16.2%).

**Conclusions**
The Australian Government CHCI in NT remote Indigenous communities was associated with an increase in avoidable hospitalisations within NT public hospitals and changed the pattern of avoidable hospitalisation. The change is consistent with improved access to hospital for previously unmet health need in dental and ENT services.
Ethnic gradient in mortality amongst the New Zealand military personnel in World War One

JA Summers, N Wilson, MG Baker
Department of Public Health, University of Otago, Wellington, New Zealand

Background
The ethnic distribution in mortality rates for New Zealand (NZ) military personnel in World War One (WW1) has never been described, possibly due to an absence of ethnicity coding.

Aim
We aimed to describe these patterns to provide a more detailed historical context to the long term patterns of health inequalities in NZ.

Methods
Mortality data for military personnel in the NZ Expeditionary Force (NZEF) was obtained from an electronic dataset (Roll-of-Honour) covering all deaths in these personnel during WW1 and the immediate post-war period (1914-1923). For denominator data we randomly sampled 1000 individuals out of the Cenotaph database which is the most complete record of all personnel in the NZEF. Ethnicity classification used a range of data eg, for Māori ethnicity it included having a Māori language surname or first/second name; or having a parent with a Māori name.

Results
There were 18,307 deaths in NZEF personnel, with most of these being in European/Other (17,905), followed by Māori (348) and Pacific peoples (54). Māori suffered the highest all cause mortality rate at 221 per 1000 vs 186 for European/Other (mortality rate ratio (RR) = 1.19; 95% CI = 1.08 – 1.30). In particular, Māori and Pacific personnel experienced higher mortality rates from disease compared to European/Other (RR = 2.14, 95% CI = 1.62 – 2.83, respectively). But the latter figures may be underestimates given a significant proportion of deaths that remain with unknown causes ie, 18% for Māori, 27% for Pacific, and 8% for European/Other.

Conclusions
We document for the first time a higher all cause mortality burden among Māori military personnel compared to European/Other personnel for New Zealand’s WW1 effort. Further work is required to assign cause of death to these personnel to provide a more accurate assessment.

Māori and non-Māori disparities in oral cancer

S Simmonds
Eru Pomare Centre, Otago University, Wellington, Wellington South, New Zealand

Background
Māori, the indigenous population of Aotearoa/New Zealand, have considerably poorer oral health outcomes than those who do not identify as Māori. This one-year research project identified research and policy priorities in oral health for low income Māori adults, older Māori, and Māori with special needs, disabilities, or who are medically compromised. Within this project, quantitative data of oral cancer disparities between Māori and non-Māori was analysed. For the purpose of this project, oral cancer sites were defined as those likely to be visually detected by a health professional.

Methods
For the years 2000-2006, cancer registration rates, distribution of stage at diagnosis, mortality rates and hazard ratios for survival were calculated for adults (20+). Oral cancer registrations and mortality rates by deprivation were also calculated using the NZ Deprivation decile.

Results
Incidence of oral cancer was similar for Māori and non-Māori. A greater proportion of Māori were diagnosed with oral cancer at an advanced stage, and a greater proportion with unknown stage recorded. Māori and non-Māori females experienced similar mortality, however there was a significant disparity in death rates between Māori and non-Māori males. Māori have a higher risk of death from oral cancer following diagnosis, this disparity is greater for Māori males. Stage at diagnosis accounts for approximately 30% of the disparity in survival for both males and females. Incidence is lower in more deprived areas, however Māori death rates from oral cancer are higher in all areas.

Conclusions
Some of these results are surprising given the distribution of some of the major oral cancer risk factors for Māori. This study has raised further questions which will be discussed in this presentation.

Incidence in acute pancreatitis in the Northern Territory

M Al-Shawi, S Li, SL Guthridge, P Carson
Department of Health and Families, Darwin, NT, Australia

Aim
To assess the incidence of acute pancreatitis in the Northern Territory (NT) Aboriginal and non-Aboriginal populations, and to examine the changes between 1992/93 and 2008/09.
**Methods**

NT public hospital discharge data from the NT Department of Health and Families (DHF) for the years 1992/93 to 2008/09 and Australian hospital morbidity data for the years 1998/99 to 2007/08 from the Australian Institute of Health and Welfare (AIHW) were used for the analysis. Incidence rate due to acute pancreatitis was calculated for the NT population and compared with national average rates.

**Results**

The incidence of acute pancreatitis for NT Aboriginal males was more than five times higher (287.8 per 100,000) and NT Aboriginal females four times higher (174.4) than the corresponding national rates (57.1 per 100,000 for males and 42.5 per 100,000 for females). Alcohol contributed to 71% of the acute pancreatitis in NT Aboriginal people and 36% in NT non-Aboriginal people. The incidence for NT Aboriginal people has more than doubled during the study period between 1992/93 and 2008/09. This increase was more dramatic in the Central Australian region (328.4%) than in the Top End (159.5%) of the NT. The incidence also increased substantially in NT non-Aboriginal male and females (147.5% and 74.6% respectively).

**Conclusions**

The incidence of acute pancreatitis in the NT Aboriginal population was much higher than either the NT non-Aboriginal and Australian population and the rates are still rising. The findings are consistent with the high alcohol consumption and emphasise the need for public health interventions to tackle alcohol misuse in the NT, especially in the NT Aboriginal population.

---

**Do adverse climate conditions affect women’s self-rated health?**

**J Powers, D Loxton**

Priority Research Centre for Gender, Health and Ageing, University of Newcastle, Callaghan, Australia

**Background**

Adverse climate conditions may be defined by Exceptional Circumstances (EC). EC is a rare event such as drought or flood that occurs on average not more than once in 20-25 years and results in severe loss of income. In 2004, approximately 60% of Australia’s agricultural land was covered by EC.

**Aims**

To examine self-rated health and stress levels of women in EC and non-EC areas. To compare the self-rated health and stress levels of women living in EC areas in major centres, inner regional, outer regional and remote areas.

**Methods**

10,900 women in their fifties participated in the Australian Longitudinal Study on Women’s Health in 2004 and 39% were living in EC declared areas. Self-rated health was measured using the General Health (GH), Mental Health (MH) and Vitality (VT) domains of the Short Form Medical Outcomes Study 36 items. Perceived stress levels were based on how stressed women felt about specific life domains. Generalised linear models were used to compare self-rated health and stress levels adjusted for demographics, social support and health-related factors.

**Results**

No differences were found in self-rated health or stress levels for women living in EC and non-EC areas before or after adjustment. Nor were there differences for women living in major centres and inner regional, outer regional or remote EC areas before adjustment. After adjustment, women living in EC areas classified as outer regional had slightly better MH and stress levels than women living in major centres and those living in remote areas were slightly less stressed than women living in major centres.

**Conclusions**

This study provides little evidence that adverse climate conditions, including extended drought has an effect on women’s self-rated health and levels of stress. The strengths and limitations of this study will be discussed.

---

**Vitamin D deficiency in Tasmania – translating evidence into practice**

I Van Der Mei, D Dore

Menzies Research Institute, Hobart, TAS, Australia

**Aim**

Tasmania is the most southern State in Australia and has the highest prevalence of vitamin D deficiency. We used data from five cross-sectional studies in Tasmania (latitude 43°S) to provide a life-time picture of vitamin D (25(OH)D) deficiency and to estimate how much sun is required for vitamin D levels of 50 nmol/L. The next aim was to use the findings for translation to the general population and GPs in Tasmania.

**Methods**

Five cross-sectional studies: A sample of primary school children (n=201, aged 7-8 years, measured in winter/spring), two samples of teenagers (sample A: n=415, aged 15-18 years, measured throughout the year; sample B: n=136, aged 16-19 years, measured in winter), a sample of young to middle aged adults (n=262, aged 18-59 years, measured throughout the year), a sample of older adults (n=1092, aged 50-79 years, measured throughout the year).

**Results**

In summer/autumn, one third of the samples of teenagers, young, middle-aged and older adults had vitamin D levels <50 nmol/L. Very few had vitamin D levels <25 nmol/L. In winter/spring, two thirds had vitamin D levels <50 nmol/L. Around 10% had vitamin D levels <25 nmol/L in winter/spring. The prevalences were much lower for the sample of primary school children (11.5% <50 nmol/L, 0.5% <25
nmol/L). For the samples of teenagers, young, middle-aged and older adults, even among those who reported the highest category of sun exposure, 45% had vitamin D levels <50 nmol/L. Analyses on the estimates of how much sun is required for vitamin D levels of 50 nmol/L are in progress.

**Conclusions**
The key new messages for the general public and GPs will be discussed.

**Diet quality and all-cause mortality in adults aged >65 years**

**SA McNaughton¹, CJ Bates², GD Mishra³**

1 Centre for Physical Activity and Nutrition Research, School of Exercise and Nutrition, Deakin University, Melbourne, VIC, Australia
2 MRC Human Nutrition Research, Cambridge, United Kingdom
3 School of Population Health, University of Queensland, Brisbane, QLD, Australia

**Background**
Diet quality indices assess compliance with dietary guidelines and represent a measure of healthy dietary patterns. While there are a number of methods for assessing diet quality, few studies have compared different approaches in the same cohort.

**Aim**
The aim of this study was to compare three existing measures of diet quality and investigate the associations with all-cause mortality in a representative sample of community-living older British adults.

**Methods**
Analysis was based on 972 participants of the British Diet and Nutrition Survey of people aged 65 years and over in 1994/5 and who were followed-up for mortality status until 2008. Dietary intake was measured via a 4-day weighed food record. We compared the associations between all-cause mortality and three measures of diet quality which have previously been shown to be associated with all-cause mortality: the Healthy Diet Score (HDS), the Recommended Food Score (RFS) and the Mediterranean Diet Score (MDS). Higher scores on the diet quality indices reflect greater compliance with dietary guidelines. Hazard ratios for all-cause mortality by fourths of dietary index were obtained using Cox regression. Models were adjusted for age, sex, energy intake, social class, region, smoking, physical activity and BMI.

**Results**
After adjustment for potential confounders, the MDS was significantly associated with mortality (highest vs lowest quartile; hazard ratio = 0.77, 95% CI, 0.61 – 0.97). Similarly, the RFS was also associated with mortality (highest vs lowest quartile; HR =0.67, 95% CI, 0.52 – 0.86) however there were no significant associations for the HDS.

**Conclusions**
The HDS was not a predictor of mortality in this population, while the MDS and the RFS were both associated with all-cause mortality and show promise as measures of diet quality in the British population.

**Systematic review of first trimester vitamin D normative levels and outcomes of pregnancy**

**N Nassar, G Blythen, CL Roberts, J Morris, A Ashton**

Perinatal Research Group, Kolling Institute of Medical Research, University of Sydney, Sydney, NSW, Australia

**Background**
There has been increasing interest in low vitamin D levels and their association with adverse health outcomes, including pregnancy. To date, normative levels of vitamin D during pregnancy are unknown.

**Aim**
The aim of this study was to undertake a systematic review of the literature to assess normative levels of vitamin D in early pregnancy and identify any associations between first trimester vitamin D levels and subsequent pregnancy outcomes.

**Methods**
We conducted a search of Medline and EMBASE databases and reference lists. Studies were included if they were undertaken in pregnant populations where a blood sample was taken during first trimester of pregnancy and serum hydroxyvitamin D levels and pregnancy outcomes assessed.

**Results**
Twelve articles measured/reported vitamin D levels in first trimester (n=11-360), and of these, 2 examined pregnancy outcomes. All studies included women with singleton pregnancies without medical conditions from different ethnic backgrounds and undertaken in countries of varying latitudes. Nine studies reported mean vitamin D concentrations with results stratified by ethnicity; Caucasian (mean(SD): 29.4(11.7)–73.1(27.1)nmol/L) and non-Caucasian (15.2(12.1)–43(12)nmol/L). Most studies used general population cut-points to define vitamin D deficiency and found a large proportion of women ‘deficient’; but there was variation in definitions applied: <20–<37.5nmol/L. Of the two articles that examined pregnancy outcomes, one reported a fivefold increased risk of preeclampsia with levels <37.5nmol/L (AdjOR 5.0; 95% CI 1.7, 14.1), while the other reported no association between vitamin D levels in first trimester and infant size at birth.

**Conclusions**
There is little information available regarding vitamin D levels in early pregnancy and no clear definition as to what levels constitute vitamin D deficiency. It is important for clinicians to know normative levels and also the risks
involved for deficient pregnant women at a stage in their pregnancy when it is still early enough to intervene.

Factors associated with healthy eating and avoiding food-insecurity in low-income households: an international comparison between the UK and Australia

L Thornton\(^1\), J Pearce\(^2\), K Ball\(^1\)
1 School of Exercise and Nutrition Sciences, Deakin University, Burwood, VIC, Australia
2 School of Geosciences, University Of Edinburgh, Edinburgh, United Kingdom

Background
It is commonly reported that lower socioeconomic households are less likely to adhere to dietary guidelines and more likely to be food insecure. However, the drivers of healthy eating and resilience to food insecurity among low income households are not well-understood and may vary between nation states.

Aim
To determine context-specific sociodemographic factors associated with the consumption of healthy foods and avoidance of food-insecurity in the UK and Australia.

Methods
We compared data from women within low-income households (< 70% of national median) in disadvantaged neighbourhoods within Victoria, Australia (n=813) and the UK (n=637). Data were drawn from the 2007-08 READI and 2003-05 LIDNS surveys, respectively. Chi-square and regression analysis were used to assess whether key sociodemographic factors (e.g. education) were associated with indicators of healthy diet (consumption of fruit, vegetables, healthy bread (e.g. high-fibre) and healthy milk (e.g. low-fat)) and avoidance of food-insecurity (lack of money to purchase food).

Results
We observed differences between the UK and Australia in the daily consumption of fruits (22% vs 74%), vegetables (24% vs. 91%) and the consumption of healthy bread alternatives (e.g high-fibre) (21% vs 67%), but not healthy milk (55% and 52%). In both studies, consumption of vegetables, healthy bread and milk alternatives were associated with higher educational attainment while consumption of these was likely for those employed but this was statistically significant for the UK sample only.

Only 61% of UK participants avoided food-insecurity compared to 81% of Australians. Not working was associated with being food-insecure amongst the Australian women only.

Conclusions
The prevalence of healthy food consumption and food-insecurity differed substantially between the UK and Australia samples and that there were some variations in the factors associated with these. More international comparison work is required to better understand context-specific predictors of eating behaviours in low-income groups.

The role of parents in pediatric overweight and obesity management: a systematic review of clinical practice recommendations

VA Shrewsbury\(^1\), S Torvaldsen\(^2\), KS Steinbeck\(^3\), LA Baur\(^4\)
1 Discipline of Paediatrics and Child Health, University of Sydney, Westmead, NSW, Australia
2 Sydney School of Public Health, University of Sydney, Sydney, NSW, Australia
3 University of Sydney, Sydney, NSW, Australia

Background
Paediatric overweight and obesity management involves family members and is often complex. Clinical practice guidelines (CPGs) are used in obesity management to promote evidence-based best practice and to standardise treatment delivery.

Aim
To describe and compare clinical recommendations on the role of parents in child and adolescent overweight and obesity management and to identify deficiencies in the evidence-base from which these recommendations are developed.

Methods
Included documents were: CPGs, position or consensus statements on clinical management of paediatric overweight or obesity; developed by a national or international health professional association or government agency; and endorsed for current use. Potentially eligible documents were identified from a study of CPGs on childhood overweight and obesity prevention or treatment. In March 2010, a systematic literature search strategy was also implemented via various databases (e.g. Medline, Embase, Web of Science, Scopus), guideline compiler websites, and the Scirus search engine. Recommendation or guidance sections of included documents were screened for the words ‘parent’ and ‘family’, and synonyms, to identify recommendations relevant to the study aims.

Results
Eleven CPGs and seven consensus/position statements produced by six international groups and seven different countries were included. These documents covered single or multiple treatment modes encompassing lifestyle interventions, pharmacotherapy, or bariatric surgery. Preliminary analyses identified that most guidelines and statements provided recommendations that emphasised the importance of involving parents or the family in paediatric...
overweight and obesity treatment. However, the majority of recommendations did not distinguish between adolescents and younger children or provide specific guidance on how to effectively involve parents. The lack of specificity appeared to result from a limited evidence-base.

Conclusions
High quality research is needed on age-specific techniques to optimise the involvement of parents and family members in both child and adolescent weight management in order to improve the evidence-base that CPGs rely upon.

Variation in diabetes prevalence and risk factors by country of birth: a population based study

M Shamshirgaran1,2, L Jorm1, H Bambrick1, A Hennessy1
1 University of Western Sydney, Sydney, NSW, Australia
2 University of Tabriz, Tabriz, Iran

Aim
To explore variations in the prevalence of type 2 diabetes and its risk factors according to country of birth among Australian residents aged 45 years and over.

Methods
The analysis used self-reported baseline questionnaire data from 103042 participants in the 45 and Up Study. Country of birth (COB) was grouped according to major region using the Australian Standard Geographical Classification. Logistic regression models were used to investigate variations in the prevalence of diabetes and its risk factors according to country of birth. Odds ratios (ORs) presented here are adjusted for age and sex.

Results
The prevalence of type 2 diabetes was 8.5% among Australian-born participants. It was significantly higher than this among people born in other countries of Oceania and Antarctica and countries of Southern and Eastern Europe, the Middle East, South East Asia; and Southern and Central Asia. The prevalence of overweight/obesity was lower in people with diabetes born in Asian countries and the United Kingdom (UK) and higher among those born in countries of the Middle East (OR=2.2, 95% CI: 1.01-4.9). Higher rates of smoking were reported by people with diabetes born in the UK (OR=1.8, 95% CI: 1.5-2.1) and other countries of North West Europe (OR=1.6, 95% CI: 1.3-2.1), and lower rates of smoking were reported by those born in Asian countries. People with diabetes born in countries of North Africa (OR=2.2, 95% CI: 1.2-4.0) and the Middle East (OR=1.6, 95% CI: 1.0-2.5) reported higher levels of physical inactivity. Consumption of dietary components was also varied by COB, for example consumption of vegetables was lower among people with diabetes born in the UK, North West Europe, Asia and North America.

Conclusion
This analysis identified variations in the prevalence of type 2 diabetes, and in patterns of its risk factors among people with diabetes, according to COB.

The effect of diabetes on cardiovascular disease is not modified by body mass index: data from 160,085 individuals in the Asia-Pacific region

Y Murakami, R Tsukinoki, M Woodward
The George Institute for International Health, Camperdown, NSW, Australia

Background
Diabetes (DM) and body mass index (BMI) are well established risk factors for cardiovascular diseases and these two factors are highly correlated in the general population. We do not know whether the effect of DM on cardiovascular disease is similar regardless of BMI status. Only a large database can make it possible to analyze this issue of effect modification.

Aim
We investigated whether the effect of DM on the risk of cardiovascular diseases is modified by BMI status for people in Asia-pacific region.

Method
APCSC is an overview, using individual participant data, of prospective cohort studies from Asia Pacific region. Participants aged 30 to 89 who have data on the presence of DM, BMI, age and sex of baseline were selected from APCSC database, giving a total 160,085 people. DM presence was dichotomized and BMI was categorized into four groups (less than 18.5, 18.5 to 24.9, 25.0 to 29.9, 30.0 and over). The indicator variables of DM-BMI combination (reference group: not DM and 18.5<=BMI<25) were created to assess the effect modification of DM on BMI status. We applied the Cox proportional hazards model stratified by sex and study and adjusted for age, systolic blood pressure, cholesterol and smoking.

Results
The hazard ratio of DM presence in fatal and non-fatal CHD varied across BMI groups (3.79 (BMI<18.5), 2.12 (18.5<=BMI<25), 1.77 (25<=BMI<30), 2.73 (30<=BMI)), but the interaction test between DM and BMI was not statistically significant (p=0.29). Non-significant results of interaction were also observed in fatal and non-fatal stroke (p=0.89) and fatal and non-fatal CVD (p=0.75).

Conclusions
We found no apparent modification of the effect of DM presence between BMI categories. This result implies that DM management is equally important for prevention of cardiovascular disease, regardless of BMI status.
Joint effects of blood pressure and body mass index on cardiovascular disease in the Asia-Pacific region

R Tsukinoki, Y Murakami, M Woodward
The George Institute for International Health, Sydney, NSW, Australia

Background
Hypertension and obesity are important risk factors for cardiovascular disease (CVD), but interactions between blood pressure and body weight on the risk of CVD still remain controversial. Some studies have suggested that increasing blood pressure has a stronger effect on CVD in lean people than in obese people, but negative or opposite results have also been reported.

Aims
We explore whether there is an interaction between systolic blood pressure (SBP) and body mass index (BMI) for fatal and non-fatal CVD events in Asia-Pacific region.

Methods
Participants were 419,100 men and women who were aged from 30 to 90 years old at baseline. Cox proportional hazard models were used to compare the risk of fatal and non-fatal events against baseline SBP and BMI levels. We adjusted age, smoking status and total cholesterol as confounders and stratified by sex and study in the model. The interaction effect was assessed using a likelihood-ratio test.

Results
Fatal and nonfatal 10,877 CVD events occurred. The hazard ratios for CVD increased log-linearly with increasing SBP at all levels of BMI. The CVD hazard ratios for a 10-mmHg increment in SBP were 1.39 (95% confidence interval 1.28-1.51), 1.39 (1.37-1.43), 1.32 (1.28-1.36), 1.36 (1.27-1.46) in BMI categories of <18.5, 18.5-25.0, 25.0-30.0 and ≥30.0 kg/m², respectively (p value for interaction = 0.000). Similar trends were found for coronary heart disease, ischemic stroke and hemorrhagic stroke events.

Conclusions
In the Asia-Pacific population, the hazard ratios for CVD events increased log-linearly with increasing levels of SBP at all levels of BMI. There was synergism between BMI and SBP for CVD events. We suggest that joint control of blood pressure and body weight will reduce the risk of CVD events more than can be expected when either of these risk factor are controlled in isolation.

A life course investigation of the influence of precarious employment on older first-time motherhood

E Steele1,2, L Giles1,2, M Davies3, V Moore4
1 Discipline of Public Health, University of Adelaide, Adelaide, SA, Australia
2 Discipline of Obstetrics & Gynaecology, University of Adelaide, Adelaide, SA, Australia
3 Research Centre for the Early Origins of Health & Disease, University of Adelaide, Adelaide, SA, Australia

Background
The age at which women have their first child has increased over past decades. The average age of Australian women at first-time motherhood in 2006 was 28.2 years. Whilst 8% of first births were among women aged ≥35 years in 1997, this had increased to 14% by 2006. From a public health perspective, this shift has a raft of health consequences for women and children, and it is imperative to investigate potential barriers to childbearing at ‘optimal’ ages. Precarious employment conditions may play an important role in older age of first-time motherhood. However there is a paucity of Australian research investigating this issue.

Methods
A retrospective birth cohort (n ~ 1000, born 1973-75) was established when women were aged ~30 years. In the second wave of follow-up, pregnancy, partnering, education, employment and related data were collected. An ‘Event History Calendar’ was used to obtain annual (and in some cases monthly) data. Time-varying and time-constant survival analysis techniques were applied within a life course framework to examine the effects of precarious employment on age at first childbirth.

Results
Results from the first 200 women interviewed have been analysed to date. A Cox proportional hazards model stratified by educational attainment was fit. Results showed that every additional year (from age 14) in precarious employment decreased the likelihood of having a first child by age 35 years, by 12% (HR 0.88; 95% CI 0.83-0.94; P<0.001). This presentation will provide updated results.

Conclusions
Preliminary results support a cumulative influence of precarious employment on delayed motherhood.
Pandemic influenza (A/H1N1/09) in Sydney: trusted sources of information and public perceptions of the outbreak management

M Taylor¹, NK Dhand², M Hernandez-Jover², P Holyoake³

¹ Disaster Response and Resilience Research Group, School of Medicine, University of Western Sydney, Penrith South DC, NSW, Australia
² Faculty of Veterinary Science, University of Sydney, Sydney, NSW, Australia
³ Wagga Wagga Agricultural Institute, Industry and Investment NSW, Wagga Wagga, NSW, Australia

Background
The 2009 pandemic was a significant and challenging emergency event; due to both its potential impact on public health and demands on health service resources, but also its requirement for timely and changing public communication, outbreak control, and response management. A key element of risk communication, particularly under conditions of uncertainty, is trust. This is especially important in public health communication when public cooperation and compliance with protective health behaviours is sought.

Aim
To identify the most important and trusted sources of A/H1N1 09 information reported by the public, to identify differences in the demographic characteristics of those seeking information via these sources, and to assess public perceptions of the outbreak management.

Methods
Face-to-face interviews with the general population (n=510), convenience-sampled at 15 shopping centres in Greater Sydney (26th June -2nd August 2009).

Results
Federal and State Health Departments were reported as the most important sources for pandemic information, with 73% and 70% of the sample, respectively, reporting them as either extremely or very important. Women were significantly more likely to trust GPs and less likely to trust the media than men, and young people (16-24) were the most likely to trust Federal and State Health Departments. Overall, 34% felt the outbreak had been very well or well managed. With regard to improvements in outbreak management, most frequent suggestions were that there could have been stricter quarantine controls, better information, and greater observance of caution, not panic. With regard to strengths of outbreak management, good communication and awareness-raising through the media, use of containment and isolation to slow down spread, and vaccine development were mentioned frequently.

Conclusions
Differing levels of trust and engagement with sources of pandemic information were identified in this study. The presentation will include consideration of the significance of this in the context of future pandemics.

Mental health status among Chinese adolescents: only children compared to children with siblings

J Sun¹, MP Dunne¹, X Hou¹, A Xu²

¹ School of Public Health, Queensland University of Technology, Brisbane, Australia
² Shandong Centre for Disease Control and Prevention, Jinan, China

Background
Whether there is difference in mental health between only children and those who have siblings remains unclear in China due to limited research and inconsistent findings.

Aim
To examine whether mental health indicators differ between Chinese only children and their sibling counterparts.

Methods
A cross-sectional questionnaire survey was conducted in a convenience sample of secondary school students in three distinct socioeconomic areas of Shandong China. Dependent variables included development and environmental indicators, interpersonal stress, academic stress, and psychological measures. Both crude and adjusted relationships were analysed separately for urban and rural samples.

Results
Among 1670 respondents aged 11 - 20 years (Mean = 15.4, SD = 1.8), 44.6% were females; 42.2% were from urban families, and 55.1% were only children. The proportion of onlies differed greatly between urban (72.7%) and rural samples (41.9%), and between males (70.5%) and females (35.9%). In students from urban families (n=700), only-child students compared with non-onlies after controlling for gender, grade, and family income, reported significantly higher levels in family connectedness, father care, self-efficacy, and happiness; and lower levels in peer bullying, depressive symptoms, and suicidal attempts. However, there were no significant differences in any health indicator across sibling status in the rural sample (n=960) either controlling or uncontrolling for the demographics.

Conclusion
There are no differences in mental health between only and sibling children from rural families in China. Only children from urban families, however, show significant positive mental health tendency independent of gender, grade, and family income level.
Sleep disturbance in patients with low back pain

S Alsaadi¹, JH McAuley¹, CG Maher¹, JM Hush²

1 MSK division, the George Institute for International Health, University of Sydney, Auburn, NSW, Australia
2 Faculty of Health Sciences, University of Sydney, SYDNEY, NSW, Australia

Aim
To determine the prevalence of reported sleep disturbance in people with low back pain. In addition, to define whether the prevalence of sleep disturbance was dependent upon people seeking care for their back pain or not, whether sleep disturbance in people with low back pain was associated with back pain intensity, age, gender, and duration of back pain symptoms.

Methods
An Individual Participant Data analysis design (IPD) was conducted. Participants (n=1941) were drawn from 13 studies previously conducted by the authors or their colleagues between 2001 to 2009. A series of logistic regression analyses were performed to explore associations between care seeking, pain intensity, age, gender, duration of symptoms, and sleep disturbance. A ROC curve was used to identify a cut-off pain intensity score that identified sleep disturbance.

Results
The estimated prevalence of sleep disturbance was 58.1% (95% CI 56.4 % to 60.7%). The result suggests that sleep disturbance is dependent on pain intensity where each increase by one point on a VAS is associated with a 10% increase in the likelihood of having sleep disturbance. On the other hand, there was no association found between age, gender and pain duration and sleep disturbance.

Conclusions
There is a high prevalence of sleep disturbance in patients with low back pain.

Background
Mitigation of potential excess health risks requires communities to generate local knowledge and solutions.

Aim
This study aimed to (1) benchmark the prevalence of cardiometabolic, respiratory and psychological conditions in Whyalla, an industrial city in regional South Australia, against reference estimates; and (2) examine social gradients within Whyalla.

Methods
Two-thousand five-hundred households were sampled randomly from all households in Whyalla (N=10,000). One adult per household was selected for recruitment. Self-reported health conditions, behaviours, psychological distress (Kessler-10), depressive symptoms (CES-D), household income, financial reserves, education, work status, anthropometry, blood pressure, and fasting glucose and lipid concentrations were collected by telephone interview, questionnaire and clinical assessment. Indirect standardisation was used for benchmarking. Multiple-adjusted generalised linear models or logistic regression were used to test effects of socio-economic variables on outcome prevalence.

Results
Response rates were 51% (n=1143) and 32% (n=722), for telephone and clinical assessments respectively. Compared with national figures, Whyalla had a 6% excess prevalence of moderate psychological distress, 15% excess of abdominal obesity, 9% excess of moderate/high physical activity, and equivalent or less IFG, hypertension and hypertriglyceridaemia. Diabetes, ever diagnosed asthma, COPD and CVD were similar to a parent study in North-west Adelaide. The only observed social gradient was higher CVD prevalence across decreasing levels of financial reserve (max effect: OR 8.0 [95% CI 1.56, 41.07]). High school completion was associated with COPD (OR 0.47 [0.24, 0.91]) and psychological distress (pd -8.6 [-16.6, -4.8]). Relative to full-time workers, ‘unable-to-work’ was associated with psychological outcomes and COPD (OR 3.42 [1.1, 10.6]). Unemployment was associated with depressive symptoms (OR 3.93 [1.09, 14.18]) and diagnosed depression (OR 6.76 [1.69, 27.11]).

Conclusions
The relatively high prevalence of physical activity may have moderated the biochemical risk expected from the excess of abdominal obesity. The high burden of psychological ill-health was reflected by workforce exclusion.
Gender differences in self-reported health among New Zealand adults

S Jatrana, K Richardson, T Blakely, K Carter, S Collings
Public Health, University of Otago, Wellington, PO Box 7343, Wellington South, New Zealand

Aim
This study explores three specific research questions: 1) do gender differences exist in self-reported measures of health; 2) can any gender differences be explained by varying demographic, socioeconomic and health behaviour factors between men and women and 3) does the association of socioeconomic factors with health vary by gender?

Methods
Data was utilised from the health module (Wave 3) of the longitudinal Survey of Family, Income and Employment (SoFIE). The three main outcomes were self assessed health, Kessler-10 (psychological stress) and presence of a chronic condition. Logistic Regression was used.

Results
The demographic-adjusted odds ratios for women compared to men varied by the three health measures: 0.96 (95% CI 0.86 – 1.07) for SRH; 1.23 (95% CI 1.14 – 1.33) for K10; and 1.28 (95% CI 1.21 – 1.37) for chronic conditions.

Adjusting for socioeconomic factors resulted in odds ratios of: 0.80 (95% CI 0.72 – 0.09) for SRH; 1.10 (95% CI 1.02 – 1.2) for K10; and 1.23 (95% CI 1.15 – 1.31) for chronic conditions. That is, the female advantage strengthened after socioeconomic adjustment for SRH, whereas about a third to a half of the females disadvantage for K10 and chronic conditions was explained by socioeconomic factors. There were gender differences in the vulnerability to poor health by some variables (e.g. age ethnicity, family structure, and employment status), and this varied by the three health measures. For example, the association of ‘not working’ with K10 was 1.80 (1.54 – 2.12) among men and 1.31 (1.16 – 1.48) among women.

Conclusions
This study shows that gender differences in health vary depending on the measure of health. Gender differences are not completely explained by demographic, socioeconomic and health behaviour factors. The association of socioeconomic factors with health did vary by gender.

Depression in women with toddlers and risk of subsequent emotional and behavioural problems in the children

LC Giles1,2,4, MJ Davies1,4, MJ Whitrow1,2, MJ Warin1,3, VM Moore1,2
1 Life Course and Intergenerational Health, The University of Adelaide, Adelaide, SA, Australia
2 Discipline of Public Health, The University of Adelaide, Adelaide, SA, Australia
3 Gender Work and Social Inquiry, The University of Adelaide, Adelaide, SA, Australia
4 Robinson Institute, The University of Adelaide, Adelaide, SA, Australia

Background
Children of mothers with symptoms of depression post-natally are at increased risk of emotional and behavioural disorders. Post-natally, depressive symptoms interfere with mother-child attachment, and therefore programmes are in place to address depression in the perinatal period. Comparatively little research concerns depression in women with toddler or pre-school aged children. Furthermore the role of support (e.g. formal child-care and social relationships) in improving mother and child outcomes has not been investigated to date.

Methods
We examined the effects of maternal depressive symptoms in early childhood on child’s externalizing and internalizing problems at 5 years of age using data from the Generation 1 cohort study (n=557). Mothers reported medical conditions and completed the CES-D scale and Child Behaviour Check List.

Results
Almost a quarter of mothers had depressive symptoms when children were 2 and 3 years; 34% had symptoms at either or both times. Among the children of mothers with depressive symptoms (at either/both ages 2 and 3), 11% scored above the cut-off for externalizing behaviour problems and 14% above the cut-off for internalizing behaviour problems at age 5 years. Comparable proportions for children of mothers who did not have depressive symptoms in toddlerhood were 4% and 5% for externalizing and internalizing behaviour problems, respectively. At age 5, children whose mothers had depressive symptoms when they were toddlers had a twofold risk of externalizing (OR 2.2; 95% CI 1.0 – 5.2) and threefold risk of internalizing problems (OR 3.2; 95% CI 1.5 – 6.7), after adjustment for child, maternal, demographic and psychosocial characteristics.

Conclusions
Preliminary results suggest that depression in women with young children is common, unrecognised, and important for child development. Vulnerability of children may be linked to the demands of parenting at different developmental stages. The implications for health and social service delivery for mothers and children will be discussed.
Chronic disease in Australia’s younger generation, promoting a healthier future

RM Pilkington1, AW Taylor1,2, K Price3, TK Gill1,2, D Kralik4
1 Discipline of Medicine, Adelaide University, Adelaide, SA, Australia
2 Population Research and Outcome Studies, South Australian Department of Health, Adelaide, SA, Australia
3 School of Nursing and Midwifery, University of South Australia, Adelaide, SA, Australia
4 Strategy and Research, Royal District Nursing Service of South Australia, Adelaide, SA, Australia

Background
In Australia, the rising prevalence of chronic diseases presents an ever-evolving challenge to governments and health care professionals alike. Factors that influence the development of chronic disease have been comprehensively studied in the older population. However, exploration of the effect chronic disease has on young adults has been less common.

Aim
The aim of this paper is to investigate the relationship between various socio-demographic, protective and risk factors, health service and medicine use in adults aged 30 years and younger with at least one chronic disease, and comparing the results to those with no chronic diseases.

Methods
Participants aged 30 years or under from the North West Adelaide Health Study (NWAHS) (n=206) were examined. The NWAHS is a cohort of n=3206 adults living in the north-west suburbs of Adelaide, South Australia. Each randomly selected respondent was asked to participate in a telephone interview, a self-report questionnaire as well as a biomedical examination. The chronic conditions examined included asthma, diabetes, cardiovascular disease, chronic obstructive pulmonary disease, and osteoporosis.

Results
Initial univariate and bivariate results demonstrate an association between the presence of a chronic condition and socio economic factors such as lower education, residency status, higher health service use and expenditure as well as risk factors such as smoking status, increased depression and reduced sleep time.

Conclusions
The demand for improvements in chronic disease management is growing in line with the increasing prevalence, and the ability to target key risk factors in prevention and treatment is informed by research such as this. The focus on the ageing Australian population is important, however, it is crucial that there be at least an equal focus on the younger generation, given the cost and duration of their chronic conditions are likely to burden the health system now and into the future.

How do changes in income affect the health of the poor and the chronically ill?

F Gunasekara, K Carter, T Blakely
Public Health, University of Otago, Wellington, New Zealand

Background
Longitudinal data analysis of the New Zealand household panel Survey of Family Income and Employment (SoFIE) has found only a small positive association between income change and self-rated health (SRH). However, a larger association may be found in people who are vulnerable to income changes, including those in poverty and those with multiple chronic illnesses.

Aim
Do income changes have a greater effect on the health of people with poorer initial health? Do income changes have a greater effect on the health of people in poverty?

Methods
Data came from 15,130 adults from the first four waves (2002-2005) of SoFIE. The outcome was annual SRH with possible responses of excellent, very good, good, fair, poor. The main exposure variable was annual household equivalised income. Potential confounding variables included age, sex, ethnicity, wealth, education, employment status, marital status, family structure and area deprivation. Fixed effects (hybrid) proportional odds models were stratified by number of chronic conditions (classed as 0, 1-2, >2) and poverty (less than half median income at wave one).

Results
An increase in income had a small positive effect on SRH for people with more than two chronic conditions (OR 1.036, 95% confidence interval 1.005 – 1.066) compared to those with fewer or none. The association of income with SRH was three times larger in people in poverty (OR 1.015, 95% confidence interval 0.986 – 1.044) than those not in poverty, but this was not statistically significant.

Conclusions
Income change had a stronger effect on SRH in adults with multiple chronic conditions (poorer initial health), at least over the short-term. A stronger association of income change with SRH in people in poverty was only suggestive using this New Zealand longitudinal dataset.
Factors associated with academic stress in adolescent students in Shandong, China

J Sun¹, MP Dunne¹, X Hou¹, A Xu²
1 School of Public Health, Queensland University of Technology, Brisbane, QLD, Australia
2 Shandong Centre for Disease Control and Prevention, Jinan, China

Background
Academic performance is an important source of stress in adolescents worldwide. Psychological stress related to study appears to be serious in Asian countries. However, there is limited research reported on the levels and determinants of academic stress.

Aim
To explore associated factors for academic stress among Chinese adolescents.

Methods
A cross-sectional convenience sample of secondary school students from Shandong China was surveyed with a self-report, structured questionnaire in 2009. Academic stress was measured using a newly developed instrument, the Educational Stress Scale for Adolescents (ESSA). A series of linear regressions were conducted to examine the relationships between variables.

Results
Among the 347 adolescents aged 12 – 18 years (Mean = 15.4, SD = 1.7), 44.8% were females; 55.6% were Grade 8 students; and 43.2% were from urban families. No gender differences were observed in stress scores. Grade 11 and rural students reported significantly more academic stress than Grade 8 and urban students, respectively. Self-efficacy, father care, family connectedness, school connectedness, academic performance, homework hours, and academic tutoring were negatively associated with increases in overall academic stress. Father and mother control, quarrels with parents, emotional and physical punishment by teachers, peer quarrels and fighting and emotional bullying from peers were positively associated with academic stress. These associations remained significant even controlling for gender, grades, and family location.

Conclusions
A wide range of personal, family, school and social factors are associated with academic stress among Chinese adolescents attending secondary schools. The relative contribution and interactions among these factors need further investigation.

Predictors of change in blood pressure after participation in a pedometer-based workplace program

R Freak-Poli, R Wolfe, M De Courten, A Peeters
Department of Epidemiology & Preventive Medicine, Monash University, Melbourne, VIC, Australia

Background
The number of workplace physical activity interventions is increasing, but there has been little evaluation of predictors of “success”. A preliminary before and after analysis of a four-month, team based, pedometer workplace intervention, the Global Corporate Challenge® (GCC®), found that systolic blood pressure (sBP) and diastolic blood pressure (dBP) both decreased on average by 1.7mmHg.

Aim
To determine the potential predictors of a reduction in BP after completing a four-month workplace pedometer-based intervention.

Method
Recruitment was targeted at educated adults who were employed in relatively sedentary occupations. Participants were voluntary, aged >18 years and participating in the GCC 2008 Event from 10 workplaces in Melbourne. Measurement included weight, height, waist circumference, hip circumference, BP, fasting total cholesterol, triglycerides and glucose. An online self-reported questionnaire included questions on demographic details, health history and behavioural measures including physical activity and fruit and vegetable consumption. Pregnant women (13) and participants receiving BP medication (68) at either baseline or follow-up were excluded from analysis.

Results
A total of 468 eligible participants completed relevant baseline and follow-up measures. BP measures improved after the GCC® with only 9% (verses 16% at baseline) not meeting recommended guidelines for BP (mean+SD: sBP 116.1+13.1; dBP 77.3+9.4). Preliminary univariate results suggested that baseline factors such as public (verses private) workplace ownership, having family or colleagues also participating in the GCC®, the reasons for participating, not having participated in the GCC® before 2008, being overweight, having a higher cardiovascular risk, having a higher diabetes risk and having a higher BP could be predictors of improved BP at follow-up. Only reason for participation and higher baseline BP were identified as predictors of improved BP when preliminary multivariate analyses were undertaken.

Conclusion
It will be important to take these predictors of success into account when designing and implementing health programs in the workplace.
**Comparison of complete-case and multiple imputation analysis in the investigation of the prognostic significance of parental reports of “asthma” and “wheeze” in kindergarten children**

A Waters, LM Poulos, RD Ampon, W Xuan, SJ Cooper, HK Reddel, GB Marks
Australian Centre for Asthma Monitoring, Woolcock Institute of Medical Research, Glebe, NSW, Australia

**Background**
Missing data can be a source of selection bias in epidemiological studies if analysis is limited to cases with complete data and the data are not missing completely at random (MCAR). Multiple imputation is one method that has been recommended to overcome this bias.

**Aim**
To compare the findings of complete-case and imputed-data analyses in examining whether parental-report of asthma and wheeze in the Longitudinal Study of Australian Children (LSAC) had any independent prognostic significance for future urgent health care utilisation in children.

**Methods**
Children with parent-reported ever-doctor-diagnosed asthma were identified from Wave 1 of the LSAC kindergarten cohort (age 4-5 years). Children were classified as having “current wheeze” if their parent reported they had wheeze that lasted for a week or more in the preceding 12 months. Urgent health care utilisation at 2-year follow-up was defined as: any hospitalisations/ED attendances/>6 GP visits in the previous 12 months.

We used Markov Chain Monte Carlo (MCMC) multiple imputation to create five imputed datasets. Odds ratios (ORs) were calculated for the complete-case and the five imputed datasets. A summary OR was derived from the five imputed-data estimates.

**Results**
4,464 children were followed-up and 3,414 had complete data for all included variables. In the complete-case analysis of children with ever-diagnosed asthma at baseline, those who had current wheeze had a significantly higher risk of urgent health care utilisation in the 12 months before follow-up (OR=1.53; 95% CI:1.12–2.10). Similar results were found for the imputed analysis (OR=1.49; 95% CI:1.05–2.10).

**Conclusions**
Among children with diagnosed asthma, those with current wheeze were more likely to require future urgent health care than those without current wheeze. The finding that the OR based on the multiply-imputed data did not differ from the complete-case estimate indicates the data were MCAR and were not a source of selection bias in this case.

**Blind to the grind? A randomised controlled trial to assess whether coffee drinkers can tell the difference between caffeinated and decaffeinated coffee**

E Mathieu1, A Barratt1, K McGeechan1, R Herbert2
1 CeMPED, Sydney School of Public Health, University of Sydney, NSW, Australia
2 The George Institute for International Health, NSW, Australia

**Background**
To conduct a preliminary study to an intervention study on the effect of caffeine avoidance on menopause symptoms in order to determine whether participants can be adequately blinded to allocation in studies where the intervention is caffeine removal (decaffeinated coffee).

**Aim**
To determine whether regular coffee drinkers can distinguish caffeinated from decaffeinated coffee

**Methods**
A 7-day double-blind placebo-controlled randomised trial. Internet-based study. Most participants were from Sydney, Australia. Participants were 150 participants aged 18 years or older who were regular caffeinated coffee drinkers. Participants were randomised to either caffeinated or decaffeinated coffee. They were asked to consume only the coffee provided for 1 week. Participants were asked to guess which coffee they were drinking. Occurrence of headaches and sleep quality were also measured.

**Results**
On Day 1, most participants were unable to determine which coffee they were drinking. Overall, 30% of participants guessed correctly (95% CI 23 – 38%). Similar proportions of those given caffeinated and those given decaffeinated coffee (28% and 31% respectively) guessed correctly. The pattern of guesses did not differ significantly between groups (p = 0.45). By Day 7 more were able to guess correctly, with 53% of participants able to guess correctly (95% CI 45 – 61%). Of those given caffeinated coffee, 44% (95% CI 32 – 55%) guessed correctly, and 63% of those given decaffeinated coffee (95% CI 51 – 74%) guessed correctly. The pattern of guesses differed significantly between groups (p=0.002).

**Conclusions**
On Day 1, most participants were unable to determine which coffee they were drinking. By Day 7 more were able to guess correctly, but many participants remained unsure or guessed incorrectly.
Age-specific smoking-related individual risk and population attributable fraction for periodontal disease in the Australian adult population

L Do, A Spencer, KF Roberts-Thomson
Australian Research Centre for Population Oral Health, The University of Adelaide, Adelaide, SA, Australia

Background
Smoking has been found as a risk factor for periodontal (gum) disease. However, it is not yet clear if the smoking-related risk changes between age groups or whether individual risk differs from population impact.

Aim
To estimate age-specific smoking-related individual risk and population attributable fraction (PAF) for periodontal disease in the Australian adult population.

Methods
The Australian National Survey of Adult Oral Health (NSAOH) 2004-06 collected population representative data on sociodemographic (age, sex, residential location, education) and health behavioural factors (smoking) and oral health status including periodontal condition. Cases of periodontitis were defined using the U.S. CDC case definition. Study participants were grouped into 15–34, 35–54, and 55+ years age groups. Smoking variables were used to define never-smokers (NS), former-smokers (FS) and current-smokers (CS). Data were weighted to produce population estimates. Individual prevalence ratios (PR) of smoking were calculated using multivariable regression models for the cases of periodontitis, adjusting for other factors. Smoking-related PAF and number of potential cases were estimated.

Results
Data of 3551 individuals were used. The prevalence of periodontitis increased with age (7.6%, 22.0% and 44.6%). Proportion of CS was highest in the 35–54 and lowest in the 55+ groups. Relative to NS, adjusted PR estimates in CS was 1.43, 1.51 and 1.31 in the three age groups. PAF estimates were 22%, 18% and 2% in the three age groups, corresponding to 89,500, 194,200 and 33,720 periodontitis cases in the population respectively.

Conclusions
Smoking was associated with significantly higher risk of periodontitis in all age groups. The population impact of smoking on periodontal health was largest in the middle-aged group. Prevention of uptake of smoking by the young population and early cessation can significantly reduce the periodontal disease burden in the Australian adults.

Source of funding
Supported by NHMRC project and Capacity Building grants.

A review of reporting missing data in cohort studies with repeated assessment of exposure measures

E Karahalios¹,², L Baglietto¹,², DR English¹,², JA Simpson¹,²
1 Cancer Epidemiology Centre, Cancer Council Victoria, Carlton, VIC, Australia
2 Centre for Molecular, Environmental, Genetic and Analytic Epidemiology, The University of Melbourne, Melbourne, VIC, Australia

Background
Retaining participants in cohort studies with multiple follow-up waves is difficult. Analysis of data with missing follow-up information can produce biased results, a loss of power and precision. Also, some commonly used methods for dealing with missing data should be avoided because they produce biased results. The STROBE guidelines and the guidelines proposed by Sterne et al. recommend that cohort studies report on the amount of missing data, the reasons for non-participation, and the method used to handle the missing data.

Aim
To review how publications from cohort studies have reported missing exposures and which missing data methods they have used.

Methods
A systematic search of English language papers published from January 2000 to December 2009 was carried out in PubMed. Prospective cohort studies with a sample size greater than 1,000 that analysed data from repeated measures of exposure were included.

Results
Among the 81 papers meeting the inclusion criteria only 32 (40%) reported the amount of missing data consistent with the suggested guidelines. 75 papers (93%) described how they dealt with the missing data in the analysis. Most of the papers excluded participants with missing data and performed a complete case analysis (n=45). Other papers used more sophisticated methods including multiple imputation (n=6), mixed-effects modeling (n=4) and generalized estimating equations (n=3). Methods known to produce biased results were also used, for example, last value carried forward (n=12), missing indicator method (n=2), mean value substitution (n=2).

Conclusions
This review highlights the inconsistent reporting of missing data in cohort studies and the use of inappropriate methods to handle missing data in the analysis. Epidemiological journals should include the STROBE guidelines as a checklist for all future publications so that the amount of missing data and how this was accounted for in the analysis is transparent in the article.
Time trends in the incidence and prevalence of asthma in Australian children: a cohort and age-period analysis

RD Ampon, SJ Cooper, A Waters, HK Reddel, GB Marks
Australian Centre for Asthma Monitoring, Woolcock Institute of Medical Research, Sydney, NSW, Australia

Background
Knowledge about the incidence and prevalence of asthma in children can help researchers and policy makers predict demand for health care.

Aim
To examine time-trends in the cumulative incidence of physician-diagnosed asthma and the prevalence of current asthma in two children’s cohorts followed up over four years.

Methods
An infant cohort, initially enrolled at age 0-1 year, and a kindergarten cohort, initially enrolled at age 4-5 years, were followed up 2-yearly over four years in the Longitudinal Study of Australian Children. For each cohort we estimated the cumulative incidence of parent-reported ever-diagnosed asthma and the prevalence of current asthma at each assessment. Cumulative incidence was defined as having reported ever-diagnosed asthma at the current or any preceding assessment. Current asthma was defined as having a parent-reported diagnosis of asthma at or before the assessment and either taking asthma medication and/or having an illness with wheezing that lasted for a week or more in the previous 12 months.

Results
At baseline, the infant and kindergarten cohorts comprised 5,107 and 4,983 children respectively, with 83% and 84% followed up after 4 years. At age 4-5, the cumulative incidence of ever-diagnosed asthma was almost identical in the infant and kindergarten cohorts, as was the prevalence of current asthma. Almost one-third of children had a diagnosis of asthma by age 8-9.

Conclusions
The prevalence of current asthma increased with age, reaching a plateau at age 6-7. However, the cumulative incidence of ever being diagnosed with asthma continues to rise from birth to age 8-9 years.

Source of funding
ACAM is an Australian Institute of Health and Welfare collaborating unit, funded by the Department of Health and Ageing.

Measuring the placebo effect in unblinded randomised community trials

N Pierse1, M Keall1, R Arnold2, P Howden-Chapman1
1 Public Health, University of Otago, Wellington, Wellington, New Zealand
2 School of Mathematics, Statistics and Operations Research, Victoria University, Wellington, New Zealand
3 Medicine, University of Otago, Wellington, Wellington, New Zealand

Background
The double blinded randomised controlled trial provides a gold standard estimation of causal effects. However, it is often impossible to conduct studies that meet this standard of blinding and confounding placebo effects are a common result. The current literature on differences between subjective and objective outcome measures estimates that the placebo effect can be as high as 25% of the intervention effect.

Methods
One example of a single-blinded study is the Heating Housing and Health Study (HHHS) where the intervention was the installation of a modern efficient heater in the participant’s home and hence it was impossible to blind the participants as to whether they received the intervention or not.

Results
Using the HHHS as a worked example, we show how with careful study design we can use Bayesian models to estimate the placebo effect. We do this through three non-exclusive methods. Firstly we include “dummy” outcome variables that we already know are not affected by the invention, but may experience similar placebo effects to the outcomes of interest. Secondly we look at characteristics that may identify people with a high susceptibility to displaying a placebo effect. Thirdly we examine “intermediate variables” on the causal pathway between the intervention and the health effect, and use these to calculate a direct effect of the intervention. These methods can be combined in Bayesian models to give estimates of the placebo effect or bounds to the potential placebo effect and hence inform the causal inferences made about the intervention.

Conclusions
In single-blinded randomised controlled trials it is important to account for placebo effects. On the basis of good baseline questionnaire design to identify those with a high propensity to the placebo effect and measurement of variables via which the intervention acts, estimates of the true effect of the intervention can be made.
Low survey response rates and the effect on estimates of drinking in a general population sample

J Meiklejohn, J Connor, K Kypri
Department of Preventive and Social Medicine, University of Otago, Dunedin, New Zealand

Background
Response rates for surveys of alcohol use are declining, for all modes of administration (postal, telephone, face-to-face). Low response rates may result in prevalence estimates that are biased by selective non-response. We examined non-response bias in the NZ GENACIS survey, a postal survey of a random electoral roll sample, with a response rate of 49.5% (n=1924).

Aim
To estimate the magnitude of non-response bias in the prevalence of current drinking and heavy episodic (binge) drinking.

Methods
We used the “continuum of resistance” model as an explanation for survey response behaviour. In this model the likelihood of response by sample members is related to the amount of effort expended by the researchers in order to elicit a response. First, the demographic characteristics of respondents and non-respondents were compared to identify differences relevant to drinking patterns. Second, respondents who returned their survey before the first reminder (early), before the second reminder (intermediate) or after the second reminder (late) were compared by demographic characteristics, 12 month prevalence of drinking and prevalence of binge drinking.

Results
Proportions of men, young people, Māori, and people living in more deprived areas were significantly lower in the respondents than non-respondents. Demographic characteristics and prevalence of binge drinking were significantly different between late respondents and early/ intermediate respondents, with the demographics of late respondents being similar to non-respondents. Assuming non-respondents had the same drinking patterns as late respondents, the prevalence of binge drinkers in the population was underestimated by 4.0 percentage points (17.6 vs. 21.6%) or 19%. The prevalence of binge drinking amongst current drinkers was underestimated by 5.6 percentage points (20.6 vs. 26.2%), or 21%.

Conclusions
These findings suggest non-respondents are likely to have similar, or more extreme, drinking behaviours than late respondents, and surveys substantially underestimate the prevalence of binge drinking in the population.
Delegate List (as of 25 August 2010)

<table>
<thead>
<tr>
<th>Delegate Name</th>
<th>Institution</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hisham Abu-Rayya</td>
<td>NSW Department of Health</td>
<td><a href="mailto:hrayy@doh.health.nsw.gov.au">hrayy@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Paul Agius</td>
<td>La Trobe University</td>
<td><a href="mailto:p.agius@latrobe.edu.au">p.agius@latrobe.edu.au</a></td>
</tr>
<tr>
<td>Charles Algert</td>
<td>Kolling Institute</td>
<td><a href="mailto:calgert@med.usyd.edu.au">calgert@med.usyd.edu.au</a></td>
</tr>
<tr>
<td>Saad Alsaadi</td>
<td>University of Sydney</td>
<td><a href="mailto:ssadaid@george.org.au">ssadaid@george.org.au</a></td>
</tr>
<tr>
<td>Janaki Amin</td>
<td>National Centre in HIV Epidemiology</td>
<td><a href="mailto:jamin@nchecr.unsw.edu.au">jamin@nchecr.unsw.edu.au</a></td>
</tr>
<tr>
<td>Rosario Ampon</td>
<td>Woolcock Institute of Medical Research</td>
<td><a href="mailto:rosarios@woolcock.org.au">rosarios@woolcock.org.au</a></td>
</tr>
<tr>
<td>Thathya Ariyaratne</td>
<td>Monash University</td>
<td><a href="mailto:Thathya.Ariyaratne@med.monash.edu.au">Thathya.Ariyaratne@med.monash.edu.au</a></td>
</tr>
<tr>
<td>Lesley Ashton</td>
<td>Children's Cancer Institute Australia</td>
<td><a href="mailto:lashton@ccia.unsw.edu.au">lashton@ccia.unsw.edu.au</a></td>
</tr>
<tr>
<td>Tim Badgery-Parker</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:badgerypark@timhp.com">badgerypark@timhp.com</a></td>
</tr>
<tr>
<td>Peter Baghurst</td>
<td>Children Youth &amp; Women's Health Service</td>
<td><a href="mailto:Peter.Baghurst@health.sa.gov.au">Peter.Baghurst@health.sa.gov.au</a></td>
</tr>
<tr>
<td>Laura Baglietto</td>
<td>Cancer Council Victoria</td>
<td><a href="mailto:Laura.Baglietto@cancervic.org.au">Laura.Baglietto@cancervic.org.au</a></td>
</tr>
<tr>
<td>Helen Bailey</td>
<td>Telethon Institute for Child Health Research</td>
<td><a href="mailto:helenb@ichr.uwa.edu.au">helenb@ichr.uwa.edu.au</a></td>
</tr>
<tr>
<td>Anne Maree Baldwin</td>
<td>University of Queensland</td>
<td><a href="mailto:anne.baldwin@uqconnect.edu.au">anne.baldwin@uqconnect.edu.au</a></td>
</tr>
<tr>
<td>Julie Basset</td>
<td>Cancer Council Victoria</td>
<td><a href="mailto:Julie.Bassett@cancervic.org.au">Julie.Bassett@cancervic.org.au</a></td>
</tr>
<tr>
<td>Adrian Bauman</td>
<td>Sydney University</td>
<td><a href="mailto:adrian.bauman@gmail.com">adrian.bauman@gmail.com</a></td>
</tr>
<tr>
<td>Anne Bech</td>
<td>Australian Institute of Health &amp; Welfare</td>
<td><a href="mailto:anne.bech@aihw.gov.au">anne.bech@aihw.gov.au</a></td>
</tr>
<tr>
<td>Melanie Bell</td>
<td>University of Sydney</td>
<td><a href="mailto:melanie.bell@sydney.edu.au">melanie.bell@sydney.edu.au</a></td>
</tr>
<tr>
<td>Daniel Belshaw</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:dbelshaw@doh.health.nsw.gov.au">dbelshaw@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Jason Bentley</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:jibent@doh.health.nsw.gov.au">jibent@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Di Best</td>
<td>Massey University</td>
<td><a href="mailto:d.v.best@massey.ac.nz">d.v.best@massey.ac.nz</a></td>
</tr>
<tr>
<td>Leigh Blizzard</td>
<td>Menzies Research Institute</td>
<td><a href="mailto:Leigh.Blizzard@utas.edu.au">Leigh.Blizzard@utas.edu.au</a></td>
</tr>
<tr>
<td>Charlie Blumer</td>
<td>Australian Institute of Health &amp; Welfare</td>
<td><a href="mailto:Debbie.VanDeDonk@aihw.gov.au">Debbie.VanDeDonk@aihw.gov.au</a></td>
</tr>
<tr>
<td>Terry Boyle</td>
<td>University of Western Australia</td>
<td><a href="mailto:tboyle@waimr.uwa.edu.au">tboyle@waimr.uwa.edu.au</a></td>
</tr>
<tr>
<td>Naomi Brewer</td>
<td>Massey University</td>
<td><a href="mailto:n.brewer@massey.ac.nz">n.brewer@massey.ac.nz</a></td>
</tr>
<tr>
<td>Fiona Bruinsma</td>
<td>La Trobe University</td>
<td><a href="mailto:fbruinsma@latrobe.edu.au">fbruinsma@latrobe.edu.au</a></td>
</tr>
<tr>
<td>Roy Byun</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:roy.byun@sswahs.nsw.gov.au">roy.byun@sswahs.nsw.gov.au</a></td>
</tr>
<tr>
<td>Adrian Cameron</td>
<td>Deakin University</td>
<td><a href="mailto:adrian.cameron@deakin.edu.au">adrian.cameron@deakin.edu.au</a></td>
</tr>
<tr>
<td>Therese Carroll</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:therese.carroll@saxinstitute.org.au">therese.carroll@saxinstitute.org.au</a></td>
</tr>
<tr>
<td>Kristie Carter</td>
<td>University of Otago</td>
<td><a href="mailto:kristie.carter@otago.ac.nz">kristie.carter@otago.ac.nz</a></td>
</tr>
<tr>
<td>Karen Carter</td>
<td>University of Queensland</td>
<td><a href="mailto:k.carter1@uq.edu.au">k.carter1@uq.edu.au</a></td>
</tr>
<tr>
<td>Alison Carver</td>
<td>Deakin University</td>
<td><a href="mailto:alison.carver@deakin.edu.au">alison.carver@deakin.edu.au</a></td>
</tr>
<tr>
<td>Karen Charlton</td>
<td>University of Wollongong</td>
<td><a href="mailto:karen@uow.edu.au">karen@uow.edu.au</a></td>
</tr>
<tr>
<td>Jian Sheng Chen</td>
<td>University of Sydney</td>
<td><a href="mailto:jschen@med.usyd.edu.au">jschen@med.usyd.edu.au</a></td>
</tr>
<tr>
<td>Soo Cheng</td>
<td>Massey University</td>
<td><a href="mailto:s.k.cheng@massey.ac.nz">s.k.cheng@massey.ac.nz</a></td>
</tr>
<tr>
<td>Kerry Cheung</td>
<td>Massey University</td>
<td><a href="mailto:k.cheung@massey.ac.nz">k.cheung@massey.ac.nz</a></td>
</tr>
<tr>
<td>Bruce Christie</td>
<td>Industry &amp; Investment</td>
<td><a href="mailto:bruce.christie@industry.nsw.gov.au">bruce.christie@industry.nsw.gov.au</a></td>
</tr>
<tr>
<td>Richard Clark</td>
<td>Avant Mutual Group Limited</td>
<td><a href="mailto:richard.clark@avant.org.au">richard.clark@avant.org.au</a></td>
</tr>
<tr>
<td>Verity Cland</td>
<td>Menzies Research Institute</td>
<td><a href="mailto:verity.cland@utas.edu.au">verity.cland@utas.edu.au</a></td>
</tr>
<tr>
<td>Veronica Collins</td>
<td>Monash Institute of Medical Research</td>
<td><a href="mailto:veronica.collins@monash.edu">veronica.collins@monash.edu</a></td>
</tr>
<tr>
<td>Lyn Colvin</td>
<td>Telethon Institute for Child Health Research</td>
<td><a href="mailto:lyn@ichr.uwa.edu.au">lyn@ichr.uwa.edu.au</a></td>
</tr>
<tr>
<td>Elizabeth Comino</td>
<td>University of New South Wales</td>
<td><a href="mailto:e.comino@unsw.edu.au">e.comino@unsw.edu.au</a></td>
</tr>
<tr>
<td>Jennie Connor</td>
<td>University of Otago</td>
<td><a href="mailto:jennie.connor@otago.ac.nz">jennie.connor@otago.ac.nz</a></td>
</tr>
<tr>
<td>Stephanie Cooper</td>
<td>Woolcock Institute of Medical Research</td>
<td><a href="mailto:stephaniecooper@woolcock.org.au">stephaniecooper@woolcock.org.au</a></td>
</tr>
</tbody>
</table>
Delegate list

Marine Corbin
Centre for Public Health Research, Massey University
m.corbin@massey.ac.nz

Hanisah Corner
New South Wales Department of Health
hanisah.corner@ncahs.health.nsw.gov.au

Carmen Cosgrove
New South Wales Department of Health
ccosg@doh.health.nsw.gov.au

Nicola Creighton
Cancer Institute NSW
nicola.creighton@cancerinstitute.org.au

Michelle Cretikos
New South Wales Department of Health
mcret@doh.health.nsw.gov.au

Maxine Croft
University of Western Australia
maxine.croft@uwa.edu.au

Robert Cumming
University of Sydney
robert.cumming@sydney.edu.au

Ruth Cunningham
University of Otago
ruth.cunningham@otago.ac.nz

Beverley Curry
Menzies Research Institute
beverley.curry@utas.edu.au

Anne Cust
University of Melbourne
aceust@unimelb.edu.au

Marita Dalton
Menzies Research Institute
marita.dalton@utas.edu.au

Elizabeth Davey
Sydney Medical School
edward_griffin@moh.govt.nz

Mary-Ann Davey
La Trobe University
m.davey@latrobe.edu.au

Peter Day
Geo Health Laboratory, Department of Geography, University of Canterbury
peter.day@canterbury.ac.nz

Karen Dempsey
NT Department of Health and Families
karen.dempsey@nt.gov.au

Martine Dennkamp
Monash University
martine.dennkamp@monash.edu

Joseph Descallar
New South Wales Department of Health
jdesc@doh.health.nsw.gov.au

Mbathio Dieng
University of Sydney
mbathio.dieng@sydney.edu.au

Loc Do
University of Adelaide
loc.do@adelaide.edu.au

Timothy Dobbins
Lowy Cancer Research Centre
t.dobbins@unsw.edu.au

Robert (Bob) Douglas
Australia 21
bobdouglas@netspeed.com.au

George Doukas
New South Wales Department of Health
gdouk@doh.health.nsw.gov.au

Tim Driscoll
Sydney School of Public Health
tim.driscoll@unsw.edu.au

Sandra Eades
Baker International Diabetes Institute,
Heart and Diabetes Institute
sandra.eades@bakeridi.edu.au

Amanda Eng
Massey University
a.j.eng@massey.ac.nz

Dallas English
University of Melbourne
d.english@unimelb.edu.au

Michael Falster
New South Wales Department of Health
mfals@doh.health.nsw.gov.au

Natalie Farnworth
DNA Genotek
natalie.farnworth@dnagenotek.com

Simon Firestone
University of Sydney
simon.firestone@sydney.edu.au

Riz Firestone
Massey University
r.t.firestone@massey.ac.nz

Jane Ford
University of Sydney
Jane.ford@sydney.edu.au

Rosanne Freak-Poli
Monash University
Rosanne.Freak-Poli@monash.edu.au

Evan Freeman
New South Wales Department of Health
evan.freeman@doh.health.nsw.gov.au

Lin Fritschi
University of Western Australia
fritschi@waimr.uwa.edu.au

Frances Garden
University of Sydney
frances.garden@sydney.edu.au

Lyne Giles
University of Adelaide
lyne.giles@adelaide.edu.au

Jennifer Girschik
Western Australian Institute for Medical Research
girschik@waimr.uwa.edu.au

Deborah Glass
Monash University
deborah.glass@monash.edu.au

Melissa Goodwin
Australian Institute of Health & Welfare
mellisa.goodwin@aihw.gov.au

Adrienne Gordon
Royal Prince Alfred Hospital
adrienne.gordon@email.cs.nsw.gov.au

Edward Griffin
University of Canterbury
edward.griffin@ucn.edu.au

Kalinda Griffiths
Menzies School of Health Research
KALINDA.GRIFITHS@MENZIES.EDU.AU

Andrew Grulich
University of New South Wales
agrulich@nchecr.unsw.edu.au

Maya Guest
University of Newcastle
maya.guest@newcastle.edu.au

Fiona Gunasekara
University of Otago
fiona.gunasekara@otago.ac.nz

Stella Gwini
Monash University
Stella.Gwini@monash.edu

Katharine Haddock
Massey University
k.haddock@massey.ac.nz

Sue Hailstone
New South Wales Department of Health
shail@doh.health.nsw.gov.au
## Delegate list

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jane Halliday</td>
<td>Murdoch Childrens Research Institute</td>
<td><a href="mailto:janehalliday.b@mcri.edu.au">janehalliday.b@mcri.edu.au</a></td>
</tr>
<tr>
<td>Linda Halliday</td>
<td>Australian Capital Territory, Department of Health</td>
<td><a href="mailto:linda.halliday@act.gov.au">linda.halliday@act.gov.au</a></td>
</tr>
<tr>
<td>Taylor Harchak</td>
<td>New South Wales Deptment of Health</td>
<td><a href="mailto:tharc@doh.health.nsw.gov.au">tharc@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Matthew Haren</td>
<td>University of South Australia</td>
<td><a href="mailto:Matt.Haren@unisa.edu.au">Matt.Haren@unisa.edu.au</a></td>
</tr>
<tr>
<td>James Harrison</td>
<td>Surgical Outcomes Research Centre, Sydney South West Area Health Service &amp; University of Sydney</td>
<td><a href="mailto:james.harrison@email.cs.nsw.gov.au">james.harrison@email.cs.nsw.gov.au</a></td>
</tr>
<tr>
<td>Tim Harrold</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:tharr@doh.health.nsw.gov.au">tharr@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Tim Hayden</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:Timothy.Hayden@ncahs.health.nsw.gov.au">Timothy.Hayden@ncahs.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Danielle Herbert</td>
<td>University of Queensland</td>
<td><a href="mailto:d.herbert@sph.uq.edu.au">d.herbert@sph.uq.edu.au</a></td>
</tr>
<tr>
<td>Kylie Hesketh</td>
<td>Deakin University</td>
<td><a href="mailto:kylie.hesketh@deakin.edu.au">kylie.hesketh@deakin.edu.au</a></td>
</tr>
<tr>
<td>Kym Hickey</td>
<td>Repatriation Medical Authority</td>
<td><a href="mailto:kym.hickey@rma.gov.au">kym.hickey@rma.gov.au</a></td>
</tr>
<tr>
<td>Victor Hoe</td>
<td>Monash University</td>
<td><a href="mailto:victor.hoe@monash.edu">victor.hoe@monash.edu</a></td>
</tr>
<tr>
<td>Libby Holden</td>
<td>Griffith University</td>
<td><a href="mailto:lholden@dodo.com.au">lholden@dodo.com.au</a></td>
</tr>
<tr>
<td>John Hopper</td>
<td>University of Melbourne</td>
<td><a href="mailto:j.hopper@unimelb.edu.au">j.hopper@unimelb.edu.au</a></td>
</tr>
<tr>
<td>Xiang-Yu Hou</td>
<td>Queensland University of Technology</td>
<td><a href="mailto:x.hou@qut.edu.au">x.hou@qut.edu.au</a></td>
</tr>
<tr>
<td>Stuart Howell</td>
<td>Queensland Health</td>
<td><a href="mailto:stuart_howell@health.qld.gov.au">stuart_howell@health.qld.gov.au</a></td>
</tr>
<tr>
<td>Ann-Maree Hughes</td>
<td>Australian National University</td>
<td><a href="mailto:annmaree.hughes@anu.edu.au">annmaree.hughes@anu.edu.au</a></td>
</tr>
<tr>
<td>Renee Iannotti</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:rianne@doh.health.nsw.gov.au">rianne@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Les Irwig</td>
<td>University of Sydney</td>
<td><a href="mailto:les.irwig@sydney.edu.au">les.irwig@sydney.edu.au</a></td>
</tr>
<tr>
<td>Vivienne Ivory</td>
<td>Public Health, University of Otago</td>
<td><a href="mailto:vivienne.ivory@otago.ac.nz">vivienne.ivory@otago.ac.nz</a></td>
</tr>
<tr>
<td>Santosh Jatrana</td>
<td>University of Otago</td>
<td><a href="mailto:santosh.jatrana@otago.ac.nz">santosh.jatrana@otago.ac.nz</a></td>
</tr>
<tr>
<td>Binna Jeong</td>
<td>University of New South Wales</td>
<td><a href="mailto:eyebinna@hotmail.com">eyebinna@hotmail.com</a></td>
</tr>
<tr>
<td>Le Jian</td>
<td>Curtin University</td>
<td><a href="mailto:ljian@curtin.edu.au">ljian@curtin.edu.au</a></td>
</tr>
<tr>
<td>Susan Jordan</td>
<td>University of Queensland</td>
<td><a href="mailto:s.jordan@uq.edu.au">s.jordan@uq.edu.au</a></td>
</tr>
<tr>
<td>Helen Jordan</td>
<td>Centre for Health Policy, Programs and Economics</td>
<td><a href="mailto:h.jordan@animelb.edu.au">h.jordan@animelb.edu.au</a></td>
</tr>
<tr>
<td>Mikaela Jorgensen</td>
<td>Surgical Outcomes Research Centre (SOUrCe)</td>
<td><a href="mailto:mikaela.jorgensen@sswahs.nsw.gov.au">mikaela.jorgensen@sswahs.nsw.gov.au</a></td>
</tr>
<tr>
<td>Grace Joshy</td>
<td>University of Auckland</td>
<td><a href="mailto:grace.joshy@waikatodhb.govt.nz">grace.joshy@waikatodhb.govt.nz</a></td>
</tr>
<tr>
<td>Ashley Kable</td>
<td>University of Newcastle</td>
<td><a href="mailto:ashley.kable@newcastle.edu.au">ashley.kable@newcastle.edu.au</a></td>
</tr>
<tr>
<td>John Kaldor</td>
<td>University of New South Wales</td>
<td><a href="mailto:jkaldor@nchert.unsw.edu.au">jkaldor@nchert.unsw.edu.au</a></td>
</tr>
<tr>
<td>Emily Karahalios</td>
<td>Cancer Council Victoria</td>
<td><a href="mailto:emily.karahalios@cancervic.org.au">emily.karahalios@cancervic.org.au</a></td>
</tr>
<tr>
<td>Shamshad Karatela</td>
<td>Auckland University of Technology</td>
<td><a href="mailto:skaratel@aut.ac.nz">skaratel@aut.ac.nz</a></td>
</tr>
<tr>
<td>Michael Keall</td>
<td>Otago University</td>
<td><a href="mailto:michael.keall@otago.ac.nz">michael.keall@otago.ac.nz</a></td>
</tr>
<tr>
<td>Tessa Keegel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monash University</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paul Kelly</td>
<td>Australian National University</td>
<td><a href="mailto:paul.kelly@anu.edu.au">paul.kelly@anu.edu.au</a></td>
</tr>
<tr>
<td>Helen Kelsall</td>
<td>Monash University</td>
<td><a href="mailto:helen.kelsall@monash.edu">helen.kelsall@monash.edu</a></td>
</tr>
<tr>
<td>Amina Khabalbia</td>
<td>University of Sydney</td>
<td><a href="mailto:amina.khabalbia@sydney.edu.au">amina.khabalbia@sydney.edu.au</a></td>
</tr>
<tr>
<td>Asad Khan</td>
<td>University of Queensland</td>
<td><a href="mailto:a.khan2@uq.edu.au">a.khan2@uq.edu.au</a></td>
</tr>
<tr>
<td>Tania King</td>
<td>University of Melbourne</td>
<td><a href="mailto:tking@animelb.edu.au">tking@animelb.edu.au</a></td>
</tr>
<tr>
<td>Rosemary Korda</td>
<td>Australian National University</td>
<td><a href="mailto:Rosemary.Korda@anu.edu.au">Rosemary.Korda@anu.edu.au</a></td>
</tr>
<tr>
<td>Katherine Lee</td>
<td>Murdoch Childrens Research Institute</td>
<td><a href="mailto:katherine.lee@mcri.edu.au">katherine.lee@mcri.edu.au</a></td>
</tr>
<tr>
<td>Yuen Yi (Cathy) Lee</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:calee@doh.health.nsw.gov.au">calee@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Stephen Leeder</td>
<td>University of Sydney</td>
<td><a href="mailto:stephen.leeder@sydney.edu.au">stephen.leeder@sydney.edu.au</a></td>
</tr>
<tr>
<td>Andrew Leiboff</td>
<td>Repatriation Medical Authority</td>
<td><a href="mailto:andrew.leiboff@rma.gov.au">andrew.leiboff@rma.gov.au</a></td>
</tr>
<tr>
<td>Sharon Lewis</td>
<td>Murdoch Childrens Research Institute</td>
<td><a href="mailto:sharon.lewis@mcri.edu.au">sharon.lewis@mcri.edu.au</a></td>
</tr>
</tbody>
</table>
### Delegate list

<table>
<thead>
<tr>
<th>Name</th>
<th>Position/Institution</th>
<th>Email/Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ling Li</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:lynnllynliiau@gmail.com">lynnllynliiau@gmail.com</a></td>
</tr>
<tr>
<td>Shu Qin Li</td>
<td>Department of Health and Families</td>
<td><a href="mailto:shu.li@nt.gov.au">shu.li@nt.gov.au</a></td>
</tr>
<tr>
<td>Gosta Liljeqvist</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:glijeqvist@nscachs.health.nsw.gov.au">glijeqvist@nscachs.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Kim Lim</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:klim@doh.health.nsw.gov.au">klim@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Sarah Lord</td>
<td>University of Sydney</td>
<td><a href="mailto:slord@ctc.usyd.edu">slord@ctc.usyd.edu</a></td>
</tr>
<tr>
<td>Chris Lowbridge</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:chris.lowbridge@doh.health.nsw.gov.au">chris.lowbridge@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Isobel Ludford</td>
<td>South Australia Health</td>
<td><a href="mailto:ilud7683@uni.sydney.edu">ilud7683@uni.sydney.edu</a></td>
</tr>
<tr>
<td>Sanja Lujic</td>
<td>University of Western Sydney</td>
<td><a href="mailto:s.lujic@uws.edu">s.lujic@uws.edu</a></td>
</tr>
<tr>
<td>John Lynch</td>
<td>University of South Australia</td>
<td><a href="mailto:John.Lynch@unisa.edu">John.Lynch@unisa.edu</a></td>
</tr>
<tr>
<td>Ewan MacFarlane</td>
<td>Monash University Department of Epidemiology</td>
<td><a href="mailto:Ewan.MacFarlane@monash.edu">Ewan.MacFarlane@monash.edu</a></td>
</tr>
<tr>
<td>Vicki Maguire</td>
<td>Massey University</td>
<td><a href="mailto:v.n.maguire@massey.ac.nz">v.n.maguire@massey.ac.nz</a></td>
</tr>
<tr>
<td>Abdullah Mamun</td>
<td>University of Queensland</td>
<td><a href="mailto:mammun@sph.uq.edu">mammun@sph.uq.edu</a></td>
</tr>
<tr>
<td>Sadaf Marashi Pour</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:sadaf.marashipour@gmail.com">sadaf.marashipour@gmail.com</a></td>
</tr>
<tr>
<td>Nathaniel Marshall</td>
<td>University of Sydney</td>
<td><a href="mailto:nmmarshall@med.usyd.edu">nmmarshall@med.usyd.edu</a></td>
</tr>
<tr>
<td>Erin Mathieu</td>
<td>School of Public Health</td>
<td><a href="mailto:erinm@health.usyd.edu">erinm@health.usyd.edu</a></td>
</tr>
<tr>
<td>Jeremy McAnulty</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:jmcan@doh.health.nsw.gov.au">jmcan@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Ian McDermid</td>
<td>Australian National University College of Business and Economics</td>
<td><a href="mailto:Ian.McDermid@anu.edu">Ian.McDermid@anu.edu</a></td>
</tr>
<tr>
<td>Kerrie McDonald</td>
<td>University of New South Wales</td>
<td><a href="mailto:k.mcdonald@unsw.edu">k.mcdonald@unsw.edu</a></td>
</tr>
<tr>
<td>Sarah McIntyre</td>
<td>Cerebral Palsy Institute</td>
<td><a href="mailto:smcintyre@tscnsw.org.au">smcintyre@tscnsw.org.au</a></td>
</tr>
<tr>
<td>Sarah Mckenzie</td>
<td>University of Otago</td>
<td><a href="mailto:sarah.mckenzie@otago.ac.nz">sarah.mckenzie@otago.ac.nz</a></td>
</tr>
<tr>
<td>Bridgette McNamara</td>
<td>Baker International Diabetes Institute</td>
<td><a href="mailto:bridgette.mcnamara@bakeridi.edu">bridgette.mcnamara@bakeridi.edu</a></td>
</tr>
<tr>
<td>Sarah McNaughton</td>
<td>Deakin University</td>
<td><a href="mailto:sarah.mcnaughton@deakin.edu">sarah.mcnaughton@deakin.edu</a></td>
</tr>
<tr>
<td>Michelle McPherson</td>
<td>National Centre for Epidemiology and Population Health</td>
<td><a href="mailto:michelle.mcpherson@anu.edu">michelle.mcpherson@anu.edu</a></td>
</tr>
<tr>
<td>Nicola Meagher</td>
<td>University of New South Wales</td>
<td><a href="mailto:nicki.meagher@unsw.edu">nicki.meagher@unsw.edu</a></td>
</tr>
<tr>
<td>Nicole Mealing</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:N.Mealing@unsw.edu">N.Mealing@unsw.edu</a></td>
</tr>
<tr>
<td>Jessica Meiklejohn</td>
<td>University of Otago</td>
<td><a href="mailto:jessica.meiklejohn@otago.ac.nz">jessica.meiklejohn@otago.ac.nz</a></td>
</tr>
<tr>
<td>Gloria Mejia</td>
<td>University of Adelaide</td>
<td><a href="mailto:gloria.mejia@adelaide.edu">gloria.mejia@adelaide.edu</a></td>
</tr>
<tr>
<td>Alistair Merrifield</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:amerr@doh.health.nsw.gov.au">amerr@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Zoe Michaleff</td>
<td>George Institute for International Health</td>
<td><a href="mailto:zmichaleff@george.org.au">zmichaleff@george.org.au</a></td>
</tr>
<tr>
<td>Keryll Michener</td>
<td>Repatriation Medical Authority</td>
<td><a href="mailto:keryll.michener@rama.gov.au">keryll.michener@rama.gov.au</a></td>
</tr>
<tr>
<td>Adriana Milazzo</td>
<td>Adelaide University</td>
<td><a href="mailto:adriana.milazzo@adelaide.edu">adriana.milazzo@adelaide.edu</a></td>
</tr>
<tr>
<td>Thais Miles</td>
<td>Northern Sydney Central Coast Health</td>
<td><a href="mailto:thais@bravo.net.au">thais@bravo.net.au</a></td>
</tr>
<tr>
<td>Clair Mills</td>
<td>University of Auckland</td>
<td><a href="mailto:cf.mills@aubkland.ac.nz">cf.mills@aubkland.ac.nz</a></td>
</tr>
<tr>
<td>Liz Milne</td>
<td>Telethon Institute for Child Health Research</td>
<td><a href="mailto:lizm@ichr.uwa.edu">lizm@ichr.uwa.edu</a></td>
</tr>
<tr>
<td>Lynelle Moon</td>
<td>Australian Institute of Health and Welfare</td>
<td><a href="mailto:lynelle.moon@aihw.gov.au">lynelle.moon@aihw.gov.au</a></td>
</tr>
<tr>
<td>Hannah Moore</td>
<td>Telethon Institute for Child Health Research</td>
<td><a href="mailto:hannahm@ichr.uwa.edu">hannahm@ichr.uwa.edu</a></td>
</tr>
<tr>
<td>Helen Moore</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:hmoor@doh.health.nsw.gov.au">hmoor@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Elizabeth Moore</td>
<td>The Australian and New Zealand Intensive Care Research Centre, Monash University Department of Epidemiology and Preventive</td>
<td><a href="mailto:elizabeth.moore@monash.edu">elizabeth.moore@monash.edu</a></td>
</tr>
<tr>
<td>Evi Muggli</td>
<td>Murdoch Childrens Research Institute</td>
<td><a href="mailto:evi.muggli@mcrl.edu">evi.muggli@mcrl.edu</a></td>
</tr>
<tr>
<td>David Muller</td>
<td>Cancer Council Victoria</td>
<td><a href="mailto:David.Muller@cancervic.org.au">David.Muller@cancervic.org.au</a></td>
</tr>
<tr>
<td>Yoshitaka Murakami</td>
<td>Geroje Institute for International Health</td>
<td><a href="mailto:ymura@belle.shiga-med.ac.jp">ymura@belle.shiga-med.ac.jp</a></td>
</tr>
<tr>
<td>David Muscatello</td>
<td>New South Wales Department of Health</td>
<td><a href="mailto:dmsuc@doh.health.nsw.gov.au">dmsuc@doh.health.nsw.gov.au</a></td>
</tr>
<tr>
<td>Christina Nagle</td>
<td>Queensland Institute of Medical Research</td>
<td><a href="mailto:Christina.Nagle@qimr.edu">Christina.Nagle@qimr.edu</a></td>
</tr>
<tr>
<td>Natasha Nassar</td>
<td>University of Sydney</td>
<td><a href="mailto:natasha.nassar@sydney.edu">natasha.nassar@sydney.edu</a></td>
</tr>
<tr>
<td>Rachel Neale</td>
<td>Queensland Institute of Medical Research</td>
<td><a href="mailto:rachel.neale@qimr.edu">rachel.neale@qimr.edu</a></td>
</tr>
<tr>
<td>Annette Neill</td>
<td>Queensland Health</td>
<td><a href="mailto:Annette_Neill@health.qld.gov.au">Annette_Neill@health.qld.gov.au</a></td>
</tr>
<tr>
<td>Robyn Norton</td>
<td>University of Sydney</td>
<td><a href="mailto:rnorton@georgeinstitute.org">rnorton@georgeinstitute.org</a></td>
</tr>
</tbody>
</table>
Colleen O’Leary  
Curtin University  
collen.oleary@curtin.edu.au

Catherine Olsen  
Queensland Institute of Medical Research  
Catherine.Olsen@qimr.edu.au

Nirmala Pandeya  
University of Queensland  
n.pandeya1@uq.edu.au

Jillian Patterson  
New South Wales Department of Health  
jpatt@doh.health.nsw.gov.au

Neil Pearce  
Massey University  
n.e.pearce@massey.ac.nz

Amber Pearson  
University of Canterbury  
amber.pearson@canterbury.ac.nz

Gavin Pereira  
University of Western Australia  
pereirag@gmail.com

Angela Pezic  
Murdoch Childrens Research Institute  
angela.pezic@mcri.edu.au

Nevil Pierse  
University of Otago  
evil.pierse@otago.ac.nz

Rhiannon Pilkington  
Adelaide University  
rhiannon.pilkington@adelaide.edu.au

Sabine Pircher  
Health Gains Planning  
sabine.pircher@nt.gov.au

Ben Polkinghorne  
New South Wales Department of Health  
bpolk@doh.health.nsw.gov.au

Sandra Pollitt  
Repatiation Medical Authority  
sandra.pollitt@rma.gov.au

Anne-Louise Ponsonby  
Murdoch Children's Research Institute  
anne-louise.ponsonby@mcri.edu.au

Jennifer Powers  
Priority Research Centre for Gender, Health and Ageing  
jenny.powers@newcastle.edu.au

Mary Poynten  
University of New South Wales  
m.poynent@nchcr.unsw.edu.au

Brad Prezant  
Massey University  
b.prezant@massey.ac.nz

Patricia Priest  
University of Otago  
patricia.priest@otago.ac.nz

Melinda Protani  
University of Queensland  
melinda.protani@uqconnect.edu.au

Michele Puech  
Northern Sydney Central Coast Area Health Service  
mpuech@nsccahs.health.nsw.gov.au

Alexander Purdie  
New South Wales Department of Health  
A.purdie@nswhealth.gov.au

Mark Ragg  
RaggAhmed  
mark@ragghmed.com

Sanjeeva Ranasingha  
Australian Institute of Health & Welfare  
sanjeeva.ranasingha@aihw.gov.au

Sanjeeva Ranasinghes  
Australian Institute of Health and Welfare  
sanjeva.ranasinghes@gmail.com

Geetha Ramurthugala  
University of New South Wales  
gpr868@gmail.com

Camille Raynes-Greenow  
University of Sydney  
camille.raynes-greenow@sydney.edu.au

Tracie Reiten-Reynolds  
New South Wales Department of Health  
trein@doh.health.nsw.gov.au

Christine Roberts  
University of Sydney  
christine.roberts@sydney.edu.au

Penny Robinson  
Monash University  
Penny.Robinson@monash.edu.au

Monique Robinson  
Telethon Institute for Child Health Research  
monique@icr.uwa.edu.au

Monica Robotin  
Cancer Council New South Wales  
monica@ccns.org.au

Nectarios Rose  
New South Wales Department of Health  
n.rose@doh.health.nsw.gov.au

Kristy Sanderson  
Menzies Research Institute  
kristy.sanderson@utas.edu.au

Diana Sarfati  
University of Otago  
diana.sarfati@otago.ac.nz

James Scandol  
New South Wales Department of Health  
jscandol@doh.health.nsw.gov.au

Andrea Schaffer  
New South Wales Department of Health  
andrea.schaffer@mail.mcgill.ca

Kathrin Schemann  
University of Sydney  
kathrin.schemann@sydney.edu.au

Philip Schluter  
Auckland University of Technology  
philip.schluter@aut.ac.nz

Francisco Schneuer  
Kolling Institute of Medical Research, University of Sydney  
franeuer@gmail.com

Gianluca Severi  
Cancer Council Victoria  
gianluca.severi@cancervic.org.au

Morteza Shamshirgaran  
University of Western Sydney  
s.shamshirgaran@uws.edu.au

Leah Shepherd  
New South Wales Department of Health  
leah.shepherd@nsw.gov.au

Cathie Sherrington  
George Institute for International Health  
csherrington@george.org.au

Ivy Shiu  
University of Sydney  
jshiu69@uni.sydney.edu.au

Mark Short  
Australian Institute of Health & Welfare  
mark.short@aihw.gov.au

Vanessa Shrewsbury  
University of Sydney  
vshrewsbury@yahoo.com.au

Shirley Simmonds  
Otago University  
shirley.simmonds@otago.ac.nz

Judy Simpson  
University of Sydney  
judy.simpson@sydney.edu.au

Steve Simpson, Jr.  
University of Tasmania  
steves@utas.edu.au
Delegate list

Rico Sitorus  
Sriwijaya University  
rico_sitorus81@yahoo.com

Michael Skilton  
Baker International Diabetes Institute, Heart and Diabetes Institute  
michael.skilton@bakeridi.edu.au

Linda Slack-Smith  
University of Western Australia  
Linda.Slack-Smith@uwa.edu.au

Rhonda Small  
La Trobe University  
r.small@latrobe.edu.au

Kylie Smith  
Menzies Research Institute  
k.j.smith@utas.edu.au

Efry Stavrou  
Adult Cancer Program, Prince of Wales Clinical School  
efry.stavrou@unsw.edu.au

Emily Steele  
University of Adelaide  
emily.steele@adelaide.edu.au

Chris Sturrock  
Australian Institute of Health and Welfare  
christine.sturrock@aihw.gov.au

Jennifer Summers  
University of Otago  
jenn.summers@gmail.com

Jiandong Sun  
Queensland University of Technology  
j1.sun@qut.edu.au

Melanie Taylor  
School of Medicine, University of Western Sydney  
melanie.taylor@uws.edu.au

Lee Taylor  
New South Wales Health Department  
mrez@doh.health.nsw.gov.au

Lucy Telfar Barnard  
University of Otago  
lucy.telfar-barnard@otago.ac.nz

Sarah Thackway  
New South Wales Department of Health  
xthac@doh.health.nsw.gov.au

Bridie Thompson  
Queensland Health  
bridie_thompson@health.qld.gov.au

Lukar Thornton  
Deakin University  
lukar.thornton@deakin.edu.au

Tim Threlfall  
Department of Health Western Australia  
tim.threlfall@health.wa.gov.au

Maria Torres  
Northern Sydney Central Coast Health  
chtorres@nscachs.health.nsw.gov.au

Siranda Torvoldsen  
University of new South Wales  
siranda@unsw.edu.au

Danielle Tran  
University of Western Sydney  
D.Trans@uws.edu.au

Rumi Tsukinoki  
George Institute for International Health  
lumitsukinok}@0616rt@yahoo.co.jp

Shahid Ullah  
University of Ballarat  
s.ullah@ballarat.edu.au

Claire Vajdic  
University of New South Wales  
claire.vajdic@unsw.edu.au

Ingrid Van Der Mei  
Menzies Research Institute  
ingrid.vanmer@utas.edu.au

Marina Van Leeuwen  
University of New South Wales  
m.vanleeuwen@unsw.edu.au

Alison Venn  
Menzies Research Institute  
Alison.Venn@utas.edu.au

Jo Vivian-Taylor  
Kolling Institute of Medical Research, University of Sydney  
jviviantaylor@med.usyd.edu.au

Sholom Wacholder  
National Cancer Institute  
wachold@exchange.nih.gov

Jennifer Walker  
University of Melbourne  
walker@unimelb.edu.au

Michael Waller  
University of Queensland  
m.waller@uq.edu.au

Scott Walter  
New South Wales Department of Health  
scwal@doh.health.nsw.gov.au

Anne-Marie Waters  
Woolcock Institute of Medical Research  
amwaters@asthmamonitoring.org

Melanie Watson  
Queensland Health

Melanie_Watson@health.qld.gov.au  
Lyn Watson  
La Trobe University  
lWatson@latrobe.edu.au  
Vana Webster  
University of New South Wales  
v.webster@unsw.edu.au  
Victoria Westley-Wise  
South Eastern Sydney Illawarra Area Health Service  
Victoria.Westley-Wise@sesiahs.health.nsw.gov.au  
Gabrielle Williams  
Childrens Hospital at Westmead  
gabriew4@chw.edu.au  
Rachael Wills  
Queensland Health  
Rachael.Wills@health.qld.gov.au  
Carmen Wilson  
Children’s Cancer Institute Australia  
cwilson@ccia.unsw.edu.au  
Anna Wood  
George Institute  
awoo6214@uni.sydney.edu.au  
Philippa Youl  
Cancer Council Queensland  
pipyoul@cancerqld.org.au  
Jane Young  
University of Sydney  
jane.young@sydney.edu.au  
Nikolajs Zeps  
St John of God  
nik.zeps@sjog.org.au  
Xiaohua Zhang  
Menzies School of Health Research  
xiaohua.zhang@menzies.edu.au  
Wei Zheng  
New South Wales Department of Health  
wzhen@doh.health.nsw.gov.au
<table>
<thead>
<tr>
<th>Author Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbott-Chapman, J</td>
<td>86</td>
</tr>
<tr>
<td>Abramson, MJ</td>
<td>31</td>
</tr>
<tr>
<td>Ade Thomas, D</td>
<td>98</td>
</tr>
<tr>
<td>Ahmed, Z</td>
<td>98</td>
</tr>
<tr>
<td>Aitken, J</td>
<td>99, 100</td>
</tr>
<tr>
<td>Al-Shawi, M</td>
<td>112</td>
</tr>
<tr>
<td>Alpert, C</td>
<td>36, 47, 49, 62</td>
</tr>
<tr>
<td>Almqvist, C</td>
<td>46</td>
</tr>
<tr>
<td>Alsaadi, S</td>
<td>119</td>
</tr>
<tr>
<td>Alvaro, F</td>
<td>34</td>
</tr>
<tr>
<td>Ambrosini, GL</td>
<td>103</td>
</tr>
<tr>
<td>Amin, J</td>
<td>91</td>
</tr>
<tr>
<td>Amor, D</td>
<td>40</td>
</tr>
<tr>
<td>Ampson, R</td>
<td>76, 123, 125</td>
</tr>
<tr>
<td>Andrushis, IL</td>
<td>55</td>
</tr>
<tr>
<td>Antoniou, G</td>
<td>72</td>
</tr>
<tr>
<td>Apicella, C</td>
<td>55</td>
</tr>
<tr>
<td>Aria, J</td>
<td>38</td>
</tr>
<tr>
<td>Auld, S</td>
<td>32</td>
</tr>
<tr>
<td>Baade, P</td>
<td>57, 100</td>
</tr>
<tr>
<td>Badawi, N</td>
<td>81</td>
</tr>
<tr>
<td>Badger-Parker, T</td>
<td>36</td>
</tr>
<tr>
<td>Baghurst, PA</td>
<td>72</td>
</tr>
<tr>
<td>Baglietto, L</td>
<td>32, 60, 61, 105, 124</td>
</tr>
<tr>
<td>Bailey, HD</td>
<td>38</td>
</tr>
<tr>
<td>Bain, C</td>
<td>44</td>
</tr>
<tr>
<td>Baker, D</td>
<td>62</td>
</tr>
<tr>
<td>Baker, M</td>
<td>30, 67, 69, 75, 75, 97, 110, 112</td>
</tr>
<tr>
<td>Baldwin, AM</td>
<td>44</td>
</tr>
<tr>
<td>Balkau, B</td>
<td>63</td>
</tr>
<tr>
<td>Ball, K</td>
<td>43, 104, 115</td>
</tr>
<tr>
<td>Bambrick, H</td>
<td>48, 104, 116</td>
</tr>
<tr>
<td>Banks, E</td>
<td>104</td>
</tr>
<tr>
<td>Barber, P</td>
<td>63</td>
</tr>
<tr>
<td>Barnett, A</td>
<td>108</td>
</tr>
<tr>
<td>Barnett, R</td>
<td>106</td>
</tr>
<tr>
<td>Barr, M</td>
<td>90</td>
</tr>
<tr>
<td>Barracough, E</td>
<td>92</td>
</tr>
<tr>
<td>Barratt, A</td>
<td>123</td>
</tr>
<tr>
<td>Bassett, J</td>
<td>59, 105</td>
</tr>
<tr>
<td>Bates, C</td>
<td>114</td>
</tr>
<tr>
<td>Bauman, A</td>
<td>23, 104</td>
</tr>
<tr>
<td>Baur, LA</td>
<td>115</td>
</tr>
<tr>
<td>Beer, T</td>
<td>109</td>
</tr>
<tr>
<td>Beilin, LJ</td>
<td>103</td>
</tr>
<tr>
<td>Bell, ML</td>
<td>79</td>
</tr>
<tr>
<td>Bell, RJ</td>
<td>36</td>
</tr>
<tr>
<td>Bellomo, R</td>
<td>69</td>
</tr>
<tr>
<td>Benke, G</td>
<td>52, 71</td>
</tr>
<tr>
<td>Bentley, RJ</td>
<td>41, 68</td>
</tr>
<tr>
<td>Bhadri, V</td>
<td>62</td>
</tr>
<tr>
<td>Bhaumik, S</td>
<td>98</td>
</tr>
<tr>
<td>Billah, B</td>
<td>86</td>
</tr>
<tr>
<td>Birden, H</td>
<td>89</td>
</tr>
<tr>
<td>Blair, E</td>
<td>81</td>
</tr>
<tr>
<td>Blakely, T</td>
<td>35, 120, 121</td>
</tr>
<tr>
<td>Blizzard, L</td>
<td>29, 42, 45, 86</td>
</tr>
<tr>
<td>Blyth, F</td>
<td>84</td>
</tr>
<tr>
<td>Blythen, G</td>
<td>114</td>
</tr>
<tr>
<td>Bogoss, M</td>
<td>71</td>
</tr>
<tr>
<td>Boharatal-Nainsmith, J</td>
<td>105</td>
</tr>
<tr>
<td>Bond, D</td>
<td>39, 72, 74</td>
</tr>
<tr>
<td>Bonnet, F</td>
<td>63</td>
</tr>
<tr>
<td>Borman, B</td>
<td>33</td>
</tr>
<tr>
<td>Bouras, N</td>
<td>98</td>
</tr>
<tr>
<td>Bowden, F</td>
<td>89</td>
</tr>
<tr>
<td>Bowden, J</td>
<td>36, 47</td>
</tr>
<tr>
<td>Bower, C</td>
<td>83, 97</td>
</tr>
<tr>
<td>Bower, J</td>
<td>49</td>
</tr>
<tr>
<td>Bowler, S</td>
<td>106</td>
</tr>
<tr>
<td>Bowman, R</td>
<td>57</td>
</tr>
<tr>
<td>Boyle, T</td>
<td>33</td>
</tr>
<tr>
<td>Bradshaw, C</td>
<td>89</td>
</tr>
<tr>
<td>Breetzke, G</td>
<td>81</td>
</tr>
<tr>
<td>Brennan, DS</td>
<td>51</td>
</tr>
<tr>
<td>Brewer, N</td>
<td>33</td>
</tr>
<tr>
<td>Brinkman, M</td>
<td>32</td>
</tr>
<tr>
<td>Brown, N</td>
<td>50</td>
</tr>
<tr>
<td>Brown, S</td>
<td>103</td>
</tr>
<tr>
<td>Brunton, C</td>
<td>97</td>
</tr>
<tr>
<td>Bull, F</td>
<td>33</td>
</tr>
<tr>
<td>Butow, PN</td>
<td>30</td>
</tr>
<tr>
<td>Callaway, L</td>
<td>40</td>
</tr>
<tr>
<td>Cameron, AJ</td>
<td>43</td>
</tr>
<tr>
<td>Cameron, F</td>
<td>90</td>
</tr>
<tr>
<td>Cameron, S</td>
<td>65, 66, 66</td>
</tr>
<tr>
<td>Campbell, K</td>
<td>43, 104</td>
</tr>
<tr>
<td>Carberry, AE</td>
<td>74</td>
</tr>
<tr>
<td>Carlin, JB</td>
<td>53</td>
</tr>
<tr>
<td>Carroll, HJ</td>
<td>59</td>
</tr>
<tr>
<td>Carson, P</td>
<td>112</td>
</tr>
<tr>
<td>Carter, KL</td>
<td>37, 107</td>
</tr>
<tr>
<td>Carter, K</td>
<td>35, 63, 94, 120, 121</td>
</tr>
<tr>
<td>Carver, A</td>
<td>52</td>
</tr>
<tr>
<td>Carver, A</td>
<td>52</td>
</tr>
<tr>
<td>Charlton, KE</td>
<td>42</td>
</tr>
<tr>
<td>Chen, JS</td>
<td>84</td>
</tr>
<tr>
<td>Chen, MY</td>
<td>89</td>
</tr>
<tr>
<td>Cheng, S</td>
<td>33</td>
</tr>
<tr>
<td>Cheung, K</td>
<td>46</td>
</tr>
<tr>
<td>Chi, M</td>
<td>82</td>
</tr>
<tr>
<td>Chow, CK</td>
<td>65</td>
</tr>
<tr>
<td>Christie, B</td>
<td>24</td>
</tr>
<tr>
<td>Christley, N</td>
<td>91</td>
</tr>
<tr>
<td>Churches, T</td>
<td>95</td>
</tr>
<tr>
<td>Cistulli, P</td>
<td>47</td>
</tr>
<tr>
<td>Cleland, VJ</td>
<td>41</td>
</tr>
<tr>
<td>Clements, M</td>
<td>104</td>
</tr>
<tr>
<td>Close, JCT</td>
<td>92</td>
</tr>
<tr>
<td>Cochrane, J</td>
<td>90</td>
</tr>
<tr>
<td>Cocker, F</td>
<td>93, 102</td>
</tr>
<tr>
<td>Codarini, M</td>
<td>78</td>
</tr>
<tr>
<td>Cohn, RJ</td>
<td>34</td>
</tr>
<tr>
<td>Collings, S</td>
<td>120</td>
</tr>
<tr>
<td>Collins, VR</td>
<td>87</td>
</tr>
<tr>
<td>Colvin, L</td>
<td>83</td>
</tr>
<tr>
<td>Comino, EJ</td>
<td>37, 96</td>
</tr>
<tr>
<td>Condron, JR</td>
<td>95</td>
</tr>
<tr>
<td>Connor, J</td>
<td>126, 94</td>
</tr>
<tr>
<td>Cook, B</td>
<td>73</td>
</tr>
<tr>
<td>Cooper, D</td>
<td>69</td>
</tr>
<tr>
<td>Cooper, S</td>
<td>76</td>
</tr>
<tr>
<td>Cooper, SJ</td>
<td>123, 125</td>
</tr>
<tr>
<td>Cooray, S</td>
<td>98</td>
</tr>
<tr>
<td>Coory, M</td>
<td>57, 60, 106</td>
</tr>
<tr>
<td>Corbin, M</td>
<td>53</td>
</tr>
<tr>
<td>Cornes, S</td>
<td>40</td>
</tr>
<tr>
<td>Costa, LOP</td>
<td>107</td>
</tr>
<tr>
<td>Cotter, T</td>
<td>62</td>
</tr>
<tr>
<td>Cox, C</td>
<td>40</td>
</tr>
<tr>
<td>Craig, JC</td>
<td>78</td>
</tr>
<tr>
<td>Crane, J</td>
<td>29</td>
</tr>
<tr>
<td>Crawford, D</td>
<td>43, 52, 104</td>
</tr>
<tr>
<td>Creighton, N</td>
<td>62</td>
</tr>
<tr>
<td>Crettikos, MA</td>
<td>54, 78</td>
</tr>
<tr>
<td>Croft, ML</td>
<td>102</td>
</tr>
<tr>
<td>Crossing, S</td>
<td>56</td>
</tr>
<tr>
<td>Cumming, RG</td>
<td>26, 92</td>
</tr>
<tr>
<td>Cunningham, C</td>
<td>69</td>
</tr>
<tr>
<td>Cunningham, D</td>
<td>95</td>
</tr>
<tr>
<td>Cunningham, M</td>
<td>69</td>
</tr>
<tr>
<td>Cunningham, R</td>
<td>94</td>
</tr>
<tr>
<td>Currie, M</td>
<td>89</td>
</tr>
<tr>
<td>Curry, B</td>
<td>45</td>
</tr>
<tr>
<td>Cust, AE</td>
<td>99</td>
</tr>
<tr>
<td>Dalla-Pozza, L</td>
<td>34</td>
</tr>
<tr>
<td>Dalon, M</td>
<td>64</td>
</tr>
<tr>
<td>Davies, M</td>
<td>117, 120</td>
</tr>
<tr>
<td>Davis, SR</td>
<td>36</td>
</tr>
<tr>
<td>Day, P</td>
<td>81</td>
</tr>
<tr>
<td>de Courten, M</td>
<td>122</td>
</tr>
<tr>
<td>de Klerk, NH</td>
<td>38, 51, 89</td>
</tr>
<tr>
<td>Deb, S</td>
<td>98</td>
</tr>
<tr>
<td>Del Monaco, A</td>
<td>71</td>
</tr>
<tr>
<td>Deng, M</td>
<td>88</td>
</tr>
<tr>
<td>Dhand, N</td>
<td>91, 100, 118</td>
</tr>
<tr>
<td>Di Prinzio, P</td>
<td>102</td>
</tr>
<tr>
<td>Dickens, S</td>
<td>98</td>
</tr>
<tr>
<td>Dieng, M</td>
<td>61</td>
</tr>
<tr>
<td>Dinh, D</td>
<td>86</td>
</tr>
<tr>
<td>Dite, GS</td>
<td>55</td>
</tr>
<tr>
<td>Do, L</td>
<td>124</td>
</tr>
<tr>
<td>Dobbins, T</td>
<td>56, 58</td>
</tr>
<tr>
<td>Dobson, A</td>
<td>35, 101</td>
</tr>
<tr>
<td>Donovan, B</td>
<td>89</td>
</tr>
<tr>
<td>Author</td>
<td>Index</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>Dore, D</td>
<td>113</td>
</tr>
<tr>
<td>Dore, GJ</td>
<td>91</td>
</tr>
<tr>
<td>Doukas, G</td>
<td>54</td>
</tr>
<tr>
<td>Douwes, J</td>
<td>46, 50</td>
</tr>
<tr>
<td>Dowie, J</td>
<td>88</td>
</tr>
<tr>
<td>Driscoll, T</td>
<td>69</td>
</tr>
<tr>
<td>Duke, J</td>
<td>71</td>
</tr>
<tr>
<td>Duncan, A</td>
<td>97</td>
</tr>
<tr>
<td>Dunca, C</td>
<td>62</td>
</tr>
<tr>
<td>Dunne, MP</td>
<td>118, 122</td>
</tr>
<tr>
<td>Dwyer, T</td>
<td>41, 42, 45, 86, 90</td>
</tr>
<tr>
<td>Dzendrowskyj, T</td>
<td>98</td>
</tr>
<tr>
<td>Eades, S</td>
<td>95</td>
</tr>
<tr>
<td>Elkins, MR</td>
<td>107</td>
</tr>
<tr>
<td>Ellison-Loschmann, L</td>
<td>50</td>
</tr>
<tr>
<td>Elwood, M</td>
<td>100</td>
</tr>
<tr>
<td>Eng, AJ</td>
<td>50</td>
</tr>
<tr>
<td>English, D</td>
<td>32, 59, 60, 61, 100, 105, 124</td>
</tr>
<tr>
<td>Enraght-Moony, E</td>
<td>85</td>
</tr>
<tr>
<td>Erbas, B</td>
<td>31</td>
</tr>
<tr>
<td>Faedo, M</td>
<td>111</td>
</tr>
<tr>
<td>Fafe, P</td>
<td>58</td>
</tr>
<tr>
<td>Failey, CK</td>
<td>89</td>
</tr>
<tr>
<td>Falster, MO</td>
<td>48, 79, 80</td>
</tr>
<tr>
<td>Fawcett, J</td>
<td>94</td>
</tr>
<tr>
<td>Finch, CF</td>
<td>54</td>
</tr>
<tr>
<td>Firestone, S</td>
<td>91</td>
</tr>
<tr>
<td>Fitzgider, DA</td>
<td>78</td>
</tr>
<tr>
<td>FitzGerald, G</td>
<td>108</td>
</tr>
<tr>
<td>Fleming, ST</td>
<td>33</td>
</tr>
<tr>
<td>Fong, K</td>
<td>57</td>
</tr>
<tr>
<td>Ford, J</td>
<td>38, 48, 62, 84</td>
</tr>
<tr>
<td>Forster, D</td>
<td>73, 73</td>
</tr>
<tr>
<td>Freak-Poli, R</td>
<td>122</td>
</tr>
<tr>
<td>Fritsch, L</td>
<td>33, 38, 50, 57, 109</td>
</tr>
<tr>
<td>Gall, S</td>
<td>42, 64, 86</td>
</tr>
<tr>
<td>Galloway, L</td>
<td>106</td>
</tr>
<tr>
<td>Garden, F</td>
<td>46</td>
</tr>
<tr>
<td>Garland, S</td>
<td>89</td>
</tr>
<tr>
<td>Gattellari, M</td>
<td>56, 87</td>
</tr>
<tr>
<td>Gebski, V</td>
<td>56</td>
</tr>
<tr>
<td>Geelhoed, E</td>
<td>97</td>
</tr>
<tr>
<td>Gertig, DM</td>
<td>82</td>
</tr>
<tr>
<td>Gidding, HH</td>
<td>91</td>
</tr>
<tr>
<td>Gilbert, G</td>
<td>54</td>
</tr>
<tr>
<td>Giles, G</td>
<td>32, 55, 59, 60, 61, 99, 105</td>
</tr>
<tr>
<td>Gild, L</td>
<td>117, 120</td>
</tr>
<tr>
<td>Gill, TK</td>
<td>121</td>
</tr>
<tr>
<td>Girschik, J</td>
<td>109</td>
</tr>
<tr>
<td>Glass, D</td>
<td>50, 67, 68</td>
</tr>
<tr>
<td>Gordon, A</td>
<td>39, 72, 74</td>
</tr>
<tr>
<td>Goumas, C</td>
<td>99</td>
</tr>
<tr>
<td>Grant, J</td>
<td>119</td>
</tr>
<tr>
<td>Graves, N</td>
<td>102</td>
</tr>
<tr>
<td>Green, AC</td>
<td>43, 108</td>
</tr>
<tr>
<td>Green, F</td>
<td>49</td>
</tr>
<tr>
<td>Griffin, E</td>
<td>106</td>
</tr>
<tr>
<td>Grulich, AE</td>
<td>77, 79, 80</td>
</tr>
<tr>
<td>Guest, M</td>
<td>71, 105</td>
</tr>
<tr>
<td>Gunasekara, F</td>
<td>121</td>
</tr>
<tr>
<td>Gunn, J</td>
<td>89</td>
</tr>
<tr>
<td>Guria, J</td>
<td>92</td>
</tr>
<tr>
<td>Gurin, L</td>
<td>89</td>
</tr>
</tbody>
</table>

- Guthridge, SL: 111, 112
- Guthrie, J: 65, 66
- Gwini, SM: 71
- Haber, M: 34
- Hadfield, RM: 47
- Haines, M: 95
- Hales, S: 30
- Halliday, J: 40, 73
- Hare, M: 98
- Haren, MT: 119
- Harin, V: 89
- Harley, D: 98
- Harley, N: 69
- Harris, MF: 37, 96
- Harris, R: 76
- Harrison, CA: 87
- Holden, L: 101
- Holiss, S: 94
- Holmes, E: 106
- Holyoake, P: 118
- Hopping, JS: 89
- Hodge, A: 32
- Hoe, VCW: 101
- Holdman, CA: 87
- Howden-Chapman, P: 111, 125
- Howden, J: 40, 85
- Hug, W: 62
- Hush, JM: 119
- Hyett, G: 74
- Ibiede, TI: 43
- Isaacs, D: 78
- Jablemeski, A: 102
- Jacoby, P: 51, 103
- Jalaludin, B: 31, 96
- James, C: 105
- Jansz, J: 75
- Jatrama, S: 120
- Jayasinghe, U: 37
- Jeffery, H: 39, 72, 74
- Jeffreys, M: 33
- Jenkins, MA: 99
- Jennings, L: 97
- Jia, L: 75
- Jin, J: 77
- John, EM: 55
- Johnson, M: 48
- Johnston, T: 39, 40, 85
- Jolley, D: 73
- Jones, R: 39, 72
- Jordan, HL: 82
- Jordan, SJ: 101
- Jorgensen, ML: 27
- Jorm, L: 48, 83, 84, 95, 104, 116
- Joske, D: 57
- Kable, A: 105
- Kaldor, J: 77, 89
- Karahalios, A: 60
- Karahalios, E: 124
- Karatea, D: 98, 109
- Kavanagh, AM: 41, 68, 82
- Keall, M: 29, 69, 92, 125
- Kegeel, T: 70
- Keeford, RF: 99
- Kelly, PM: 65
- Kelly, P: 66, 66
- Kelsall, H: 50, 70
- Kemp, A: 90
- Kerr, M: 78
- Khabalama, A: 28
- Khan, A: 55
- Kimlin, MG: 30
- King, J: 73
- King, TL: 41
- Kingham, S: 81, 106
- Kippax, S: 77
- Kirby, C: 36
- Knapp, M: 98
- Knight, JA: 55, 96
- Knight, M: 47
- Kolahdooz, F: 43
- Korda, R: 104
- Kralik, D: 121
- Krishnan, K: 32, 61, 105
- Krajciak, L: 68
- Kurinczuk, JJ: 97
- Kurrel, S: 92
- Kypry, K: 126
- Lahmann, P: 43
- Lain, S: 49
- LaMontagne, AD: 68, 70, 93
- Lange, C: 63
- Lanzafame, A: 36
- Lau, DT: 34
- Law, MG: 91
- Lawrence, GL: 45
- Lee, KJ: 53
- Lehmanna, D: 89
- Lenotte, L: 98
- Levi, C: 87
- Lewis, S: 40
- Leyland, AH: 95
- Li, J: 51
- Li, L: 94
- Li, S: 111, 112
- Lindley, R: 34
- Liu, B: 104
- Lockwood, MR: 38
- Loff, B: 50
- Loke, K: 65, 66, 66
- Lord, SJ: 56
- Lord, SR: 92
- Loxton, D: 85, 113
- Lucke, J: 35
- Lujic, S: 48, 83, 84, 95
Author index

Lumley, J 73, 106
Macaskill, PM 78
MacFarlane, E 52, 71
MacIntyre, CR 45, 78, 90
MacIsaac, C 69
MacLeod, SL 39, 40
Maher, CG 107, 119
Mann, GJ 99
Mannetje, AM 50
Marinovich, LM 66
Marks, GB 46, 76, 123, 125
Marshall, GM 34, 62
Martin, JH 60
Mason, K 106
Masya, L 32
Mathieu, E 98, 123
Mattes, E 51
Maule, M 53
McAnulty, J 24
McAuley, JH 119
McCaffery, K 61
McCallum, Z 104
McCaskill, M 78
McDermott, RA 119
McDonald, K 34
McGeechan, K 98, 123
McGuire, ACL 80
McIntyre, S 81
McLachlan, RI 87
McLean, C 32
McLean, D 46, 50
McLean, NJ 51
McNamee, K 89
McNaughton, SA 42, 104, 112
McPherson, M 65, 66, 66
Meade, M 98
Meagher, NS 111
Mealing, N 56, 58
Meiklejohn, J 126
Meja, GC 51
Meyerkort, P 75
Michaelfe, ZA 107
Middleton, PM 45
Miles, TA 64
Milne, E 38
Milne, RL 55
Misan, G 119
Mishra, GD 114
Moffatt, S 82
Moloney, BJ 24
Moon, L 49, 88
Moore, E 69
Moore, HC 89
Moore, H 31, 87
Moore, V 117, 120
Morgan, VA 102
Morris, HA 59
Morris, J 39, 47, 48, 62, 72, 114
Moseley, AM 107
Muggli, E 73
Muller, D 59
Murakami, Y 116, 117
Murray, J 34
Muscatello, D 44, 45, 54, 78, 82, 90
Mutahar, R 74
Nagle, C 43, 58
Nassar, N 36, 49, 97, 114
Neal, B 65
Neale, RE 30
Newbury, J 119
Nichol, A 69
Nicholl, M 48
Nicholson, J 102
Nitz, J 55
Oddy, WH 51, 103
Oldenburg, B 102
Olsen, CM 43, 59
Oral, P 29
O’Rourke, S 92
Page, A 57
Pandeya, N 108
Parekh, S 100
Pascoe, M 90
Patel, A 65
Paterson, J 93, 109
Patton, G 86
Pearce, J 115
Pearce, N 25, 33, 50, 53
Pearlman, ED 68
Peeters, A 122
Pell, CE 103, 51
Pereira, G 110
Perez, D 62
Pezic, A 90
Piachaud, J 98
Pikington, RM 121
Pircher, SLM 111
Pirota, M 89
Pitman, L 36
Polkinghorne, BG 45
Ponsonby, AL 90
Poulos, LM 123
Powell, J 113
Poynten, I 77
Prelog, K 78
Price, K 121
Priest, P 97
Protani, MM 60
Purdie, G 76
Ragg, M 27
Randall, DA 95
Rao, B 98
Rawlinson, W 72
Rayner, JA 73
Raynes-Greenow, C 39, 47, 72, 74, 88
Reddel, HK 76, 123, 125
Reece, B 98
Regan, A 98
Reid, CM 86
Richardson, K 120
Richmond, P 89
Riley, I 107
Rivett, D 105
Roberts, C 36, 38, 47, 48, 49, 62, 84, 114
Roberts-Thomson, KF 51, 124
Robinson, M 51, 103
Robinson, PJ 36
Roder, D 56, 95
Rogers, K 84
Rose, N 31, 87
Royle, J 57
Rumbold, AR 95
Rushton, L 67, 68
Ryan, C 49
Salmon, J 41, 104
Sanderson, K 64, 93, 102
Sanvictores, D 107
Sarfaty, D 33, 76
Schaffer, A 87
Schemann, K 100
Schluter, P 93, 109
Schmid, H 99
Schmidt, MD 41
Schluter, AR 67, 68
Seuffert, P 101
Severi, G 32, 59, 60, 61, 105
Seymour, GA, M 116
Shanks, DG 75
Shanks, GD 67
Shaw, C 63
Shepherd, L 83
Sherrington, C 92, 107
Shrewsby, VA 115
Sim, M 31, 52, 70, 71
Simmonds, S 76, 112
Simons, JM 46, 84
Simons, JA 124
Simons, P 52
Simpson, Jr, SL 29
Skilton, M 63
Slack-Smith, L 83
Skeggs, C 50
Sleigh, A 44
Small, R 103
Smith, KJ 42
Soeberg, M 35
Solomon, MJ 32
Southey, M 34, 55
Southgate, E 105
Spencer, A 51, 124
Srausseh, P 58
Stanley, FJ 51, 83, 103
Stavrou, E 56, 58, 85
Steele, E 117
Steinbeck, KS 115
Stevenson, M 94
Stone, J 82
Sturrock, C 77
Summers, JA 67, 75, 71, 112
Sun, J 118, 122
Tabrizi, SN 89
Tilley, V 107
Tang, G 67
Taylor, AW 119, 121
Taylor, BV 29
Taylor, L 31

AUA Annual Conference – Sydney, Australia, 2010 135
<table>
<thead>
<tr>
<th>Author</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taylor, LK</td>
<td>84</td>
</tr>
<tr>
<td>Taylor, M</td>
<td>92, 100, 118</td>
</tr>
<tr>
<td>Taylor, R</td>
<td>37</td>
</tr>
<tr>
<td>Telfar Barnard, LF</td>
<td>30, 67, 110</td>
</tr>
<tr>
<td>Thackway, S</td>
<td>90</td>
</tr>
<tr>
<td>Thompson, B</td>
<td>57, 106</td>
</tr>
<tr>
<td>Thomson, RJ</td>
<td>82</td>
</tr>
<tr>
<td>Thorn, K</td>
<td>109</td>
</tr>
<tr>
<td>Thornton, L</td>
<td>41, 115</td>
</tr>
<tr>
<td>Thorp, A</td>
<td>70</td>
</tr>
<tr>
<td>Tiedemann, A</td>
<td>92</td>
</tr>
<tr>
<td>Tippett, V</td>
<td>85</td>
</tr>
<tr>
<td>Tong, S</td>
<td>108</td>
</tr>
<tr>
<td>Tonkin, A</td>
<td>31</td>
</tr>
<tr>
<td>Toribio, JA</td>
<td>100</td>
</tr>
<tr>
<td>Torvaldsen, S</td>
<td>88, 115</td>
</tr>
<tr>
<td>Tovey, E</td>
<td>46</td>
</tr>
<tr>
<td>Tran, D</td>
<td>48</td>
</tr>
<tr>
<td>Trevena, L</td>
<td>61, 88</td>
</tr>
<tr>
<td>Tsukinoki, R</td>
<td>116, 117</td>
</tr>
<tr>
<td>Turner, R</td>
<td>61</td>
</tr>
<tr>
<td>Tyrer, P</td>
<td>98</td>
</tr>
<tr>
<td>Ullah, S</td>
<td>54, 55</td>
</tr>
<tr>
<td>Urban, E</td>
<td>89</td>
</tr>
<tr>
<td>Urruhart, DM</td>
<td>70</td>
</tr>
<tr>
<td>Vajdic, CM</td>
<td>79, 80, 85, 111</td>
</tr>
<tr>
<td>Vally, H</td>
<td>65, 66, 66</td>
</tr>
<tr>
<td>Valhuri, GM</td>
<td>102</td>
</tr>
<tr>
<td>van der Mei, I</td>
<td>29, 113</td>
</tr>
<tr>
<td>van der Pols, JC</td>
<td>30</td>
</tr>
<tr>
<td>van Eekelen, A</td>
<td>51</td>
</tr>
<tr>
<td>Vanecova, P</td>
<td>108</td>
</tr>
<tr>
<td>Vecchio, N</td>
<td>101</td>
</tr>
<tr>
<td>Venn, A</td>
<td>41, 42, 45, 64, 82, 86</td>
</tr>
<tr>
<td>Verma, DK</td>
<td>68</td>
</tr>
<tr>
<td>Vellios, D</td>
<td>71</td>
</tr>
<tr>
<td>Vineis, P</td>
<td>25</td>
</tr>
<tr>
<td>Vol, S</td>
<td>63</td>
</tr>
<tr>
<td>Vu, LH</td>
<td>30</td>
</tr>
<tr>
<td>Wacholder, S</td>
<td>23, 25, 27</td>
</tr>
<tr>
<td>Wadloowski, M</td>
<td>61</td>
</tr>
<tr>
<td>Walker, J</td>
<td>89</td>
</tr>
<tr>
<td>Walker, S</td>
<td>89</td>
</tr>
<tr>
<td>Waller, M</td>
<td>80</td>
</tr>
<tr>
<td>Walter, SR</td>
<td>96</td>
</tr>
<tr>
<td>Walters, H</td>
<td>45</td>
</tr>
<tr>
<td>Wang, X</td>
<td>108</td>
</tr>
<tr>
<td>Ward, K</td>
<td>91</td>
</tr>
<tr>
<td>Ward, M</td>
<td>91</td>
</tr>
<tr>
<td>Ward, RL</td>
<td>111</td>
</tr>
<tr>
<td>Ware, R</td>
<td>101</td>
</tr>
<tr>
<td>Warin, MJ</td>
<td>120</td>
</tr>
<tr>
<td>Waters, A</td>
<td>76, 123, 125</td>
</tr>
<tr>
<td>Watson, D</td>
<td>84</td>
</tr>
<tr>
<td>Watson, J</td>
<td>98</td>
</tr>
<tr>
<td>Watson, L</td>
<td>73, 103</td>
</tr>
<tr>
<td>Watson, M</td>
<td>40, 57</td>
</tr>
<tr>
<td>Weatherburn, D</td>
<td>82</td>
</tr>
<tr>
<td>Webb, PM</td>
<td>43</td>
</tr>
<tr>
<td>Webster, VK</td>
<td>96</td>
</tr>
<tr>
<td>Weekes, A</td>
<td>36</td>
</tr>
<tr>
<td>West, DW</td>
<td>55</td>
</tr>
<tr>
<td>Whiteford, H</td>
<td>101</td>
</tr>
<tr>
<td>Whiteman, DC</td>
<td>30, 58, 59, 108</td>
</tr>
<tr>
<td>Whitrow, MJ</td>
<td>120</td>
</tr>
<tr>
<td>Whitemore, AS</td>
<td>55</td>
</tr>
<tr>
<td>Wilczen, N</td>
<td>56</td>
</tr>
<tr>
<td>Williams, G</td>
<td>78, 107</td>
</tr>
<tr>
<td>Wills, JH</td>
<td>39</td>
</tr>
<tr>
<td>Wilson, CL</td>
<td>34</td>
</tr>
<tr>
<td>Wilson, N</td>
<td>67, 75, 75, 112</td>
</tr>
<tr>
<td>Wolfe, R</td>
<td>122</td>
</tr>
<tr>
<td>Wong, KC</td>
<td>46</td>
</tr>
<tr>
<td>Wood, A</td>
<td>65</td>
</tr>
<tr>
<td>Woodward, M</td>
<td>116, 117</td>
</tr>
<tr>
<td>Worthington, J</td>
<td>87</td>
</tr>
<tr>
<td>Xu, A</td>
<td>118, 122</td>
</tr>
<tr>
<td>Xuan, W</td>
<td>123</td>
</tr>
<tr>
<td>Yap, C</td>
<td>86</td>
</tr>
<tr>
<td>Yeatman, H</td>
<td>42</td>
</tr>
<tr>
<td>Youl, P</td>
<td>100</td>
</tr>
<tr>
<td>Young, JM</td>
<td>32</td>
</tr>
<tr>
<td>Zeps, N</td>
<td>26</td>
</tr>
<tr>
<td>Zhang, X</td>
<td>95</td>
</tr>
<tr>
<td>Zion, D</td>
<td>50</td>
</tr>
<tr>
<td>Zubrick, SR</td>
<td>51, 97, 103</td>
</tr>
</tbody>
</table>
FROM THE PRESIDENT’S DESK

The 18th Annual Scientific Meeting of AEA in Dunedin was a success, and I still marvel at the great job that Patricia Priest and her team did in organising the event with the aid of the indefatigable Sally Boult, the professional conference organiser. The pre-conference workshop conducted by Sander Greenland was well-attended and a lively affair. The keynote addresses provided a good blend of sociological perspectives on public health, the practice of epidemiology, public health advocacy and methodological challenges with the Ian Prior Oration delivered by David Skegg something of a highlight. At the dinner we celebrated the careers of two of New Zealand’s leading practitioners. Life membership of the Association was awarded to John Langley and Neil Pearse. For the first time, the meeting incorporated the annual scientific meeting of the Australasian Association of Cancer Registries, and it was great to meet and renew acquaintances with colleagues in that field who do not always get to AEA meetings. It was my pleasure to award an Early Career Award to Matt Soeberg, a student presentation prize to Helen Walls, the student poster prize to Mary Poynton, and student travel awards to Au Bich Thuy, Terry Boyle, Fiona Clay, Fiona Imlach Gunasekara, Mary Poynten, Penny Robinson, Lukas Staub, Bridie Thompson and Helen Walls.

The AEA Travel Awards were an initiative of Council this year. We invited applications from student members, and from members who have recently completed postgraduate studies, for two $2500 cash grants to support travel for professional purposes. The travel may be for the purpose of presenting research findings at an international conference, or attending a training course, or spending a period of time working with international collaborators. We received eleven applications and the judging panel, made up of senior epidemiologists who are current or past members of the executive of the Council of AEA, had a difficult task choosing the winners. They selected Colleen O’Leary and Hannah Moore as the winners. That both recipients are from the Telethon Institute for Child Health Research at the University of Western Australia was an oddity of selection based on merit.

A second initiative of Council was the AEA Mentoring Award. This award is to recognise a senior member of AEA who has made a significant contribution to mentoring early-career practitioners in the fields of epidemiology, biostatistics or related disciplines. Its purpose is to formally acknowledge the importance of mentoring in career development and in recognition of the time commitments and other sacrifices that are involved for mentors. Mentoring plays an important role in developing proficiency and increased capacity of the epidemiological workforce, and this award furthers the objects of the Association. As I write this report, the selection process is underway. By the time I present this report, the winner will be known and I will have had great pleasure in presenting it.

Council has committed itself to association liability insurance and personal injury cover. We have professional risk insurance for associations and non profit organisations that includes professional indemnity insurance and directors and officers insurance. We have been concerned for some time about the potential risks facing the Association and its officers. Our Association provides services to AEA members and to the public, undertakes business transactions in respect of the supply of those services and the management of the organisation, publishes a journal that includes commentary on persons and events, responds to requests from committees of inquiry to provide submissions in respect of matters relevant to the Association and its members, and occasionally authorises its officers or prominent members to make media comment on behalf of the Association. In each of these respects, there is potential for damage to be caused to others and for the Association to be liable for losses incurred. In some circumstances, the officers of the Association (the Council members) may be personally liable. In addition, the potential for major financial loss to the Association through dishonesty or fraud can no longer be ignored. Finally, unless they have private cover, Council members travelling to and attending Council meetings or other meetings on behalf of the Association may not be insured against personal injury at those times. It is incumbent on the Association to properly manage the risks outlined above in a manner that is expected of a professional organisation.

I wish to thank the members of Council for their contributions during the year. Patricia Priest (NZ Branch President) has been a tireless representative of New Zealand members, and a tower of strength on Council providing wisdom and strategic input with a keen nose for what is feasible. Additionally, Trish and her group organised an enjoyable and stimulating conference in Dunedin and that was, in itself, a remarkable contribution to the Association. Shilu Tong (Vice-President and Strategic Planning Officer) and I have been busy during the past year working to create a strategic plan for the Association. We have found it to be a major undertaking, and we now better understand how the goal of developing a strategic plan has eluded the reach of successive past Councils. We hope to present a draft of it to this meeting. Jane Ford (Secretary) has been indefatigable in dealing with a myriad of matters as our chief administrator, and has done so with cheerfulness and remarkable efficiency. Kristy Sanderson (Treasurer) has done a great job as chief financial officer, and thankfully our finances are in good hands. You will learn from her financial report that Council is continuing to allow a slow drawdown on our large accumulated funds in a measured and deliberate way, and with the purpose of providing greater service for members. Siranda Torvaldsen (Membership Secretary) has attended with enthusiasm to all those pesky membership issues for members. Siranda Torvaldsen (Membership Secretary) has attended with enthusiasm to all those pesky membership issues that only a glutton for punishment could countenance. Richard Clark (AE Chapters Coordinator) has been nurturing our regional groupings and, whilst growth has been slow, there are some green shoots emerging. Verity Cleland and Sarah McNaughton (Editors of Australasian Epidemiologist) continue to produce an excellent journal with a very informative and well-regarded Round Table section that is supplemented by other gems including the peer-reviewed section. They have revamped our procedures and
processes for dealing with authors and manuscripts, and slowly our publication machinery is starting to run more smoothly. Frances Garden (Student Representative) has made a valuable contribution on behalf of student members. In particular, she was relentless in protecting the interests of student members during our discussions at a strategic planning meeting in January. Ashley Fletcher (Website Coordinator) is a quiet source of inspiration and advice in respect of web-based matters, including re-design of the website that he has coordinated and which you may have seen in action. Kylie Smith (Executive Officer) came in at late notice after the departure of Kate Greenhill, who regretted resigning but found that commitments of family and PhD candidature had to take priority. Kylie has done a superb job in the circumstances. Both Kate and Kylie found that their time on the job is almost completely eroded by production of AE Bulletin, the fortnightly email to members, and Council proposes to increase the time allocation from one day per week to two days per week to allow the Executive Officer to contribute more fully to providing services to members.

Sadly, we must say goodbye to three members of Council are not continuing. They are Shilu, Patricia (Trish) and Frances. We thank them for their contributions and, on a personal note, I will miss them greatly.

Sarah and Verity will conclude their tenure as AE Editors in December, after the final edition of Australasian Epidemiologist for 2010. We will shower them with thanks at that time. At present, I need to urge members to consider taking their place for the next two years. As I write this, we have advertised for AE Editors for 2011-12. This is a fantastic opportunity for emerging stars of epidemiology to make their mark. You get to meet and make connections with the elite of epidemiology in Australia and New Zealand, and internationally. (For guest editors for the Round Tables, Sarah and Verity chose Professors Alison Venn, John Lynch, Tony Worsley, and Tony Blakely – how is that for a who’s who in Australasian epidemiology). You will find that nearly all of the true leaders in our field will, if they possibly can, respond positively to your requests for input. They will do so because they are committed to fostering epidemiology in Australia and New Zealand. And, at some point towards the end of your tenure, you will realise that you will have made a contribution to epidemiology in Australia and New Zealand. That is a nice feeling.

Leigh Blizzard
AEA President
AEA ANNUAL GENERAL MEETING 2010 AGENDA

Thursday 30th September, 5.00pm AEST
Main Theatre Room 101

Agenda

1. Attendance and apologies
2. Election of Council Members
3. Minutes of 2009 AGM
4. Business arising
5. President’s report
6. Public Officer
7. Treasurer’s report
7.1 Appointment of auditor
8. Strategic Planning Officer Report
9. Membership Officer’s Report
10. Australasian Epidemiologist
11. Report on Local AEA Chapters
12. Student report
13. Other business

AEA ANNUAL GENERAL MEETING 2009 MINUTES

Monday, 31st August 2009, 5.00pm NZST
Room 3, St David Lecture Theatre complex, Dunedin, New Zealand

1. Attendance and apologies

Present: Leigh Blizzard, Jane Ford, Kristy Sanderson, Patricia Priest, Siranda Torvaldsen, Fiona Clay, Alison Venn, Vera Morgan, Shilu Tong, Priscilla Robinson, Nigel Dickson, Richard Clark, Jackie Benschop, Martine Dennekamp, Tessa Keegel, Margo Barr, Elizabeth Comino, Thais Miles, Sue Pearson, Karen Wills, Au Bich Thuy, Frances Garden, Jennie Connor, Liz Milne, Alison Reid, Nick de Klerk, Elisabeth Wells, Neil Pearce, Camille Raynes-Greenow, Christine Roberts, Adrian Estermann, Bridget Kool, Penny Robinson

Proxies: Lesley Day, Joan Cunningham.

Apologies: Maxine Croft, Jane Halliday

2. Election of Council Members

Leigh Blizzard announced the election of Siranda Torvaldsen to Council and the re-election of Richard Clark.

3. Minutes of 2008 AGM

It was noted that Kathleen Greenhill’s name was incorrectly specified (2 occasions) as Catherine Greenhall in the 2008 AGM minutes.

Motion: With these amendments made it was proposed that the 2008 AGM minutes be accepted.

Proposer: Patricia Priest.
Seconder: Shilu Tong.
Motion carried.

4. Business arising

4.1 Changes to Constitution

Jane Ford outlined that Section 5.5 of the Constitution currently states that members who have retired during the last year be eligible for reduced membership fees (upon application to the Secretary). Council had identified that the retiree category should not be restricted to those retiring in the last year.

Motion: that the words ‘during the last year’ be removed from Section 5.5 of the Constitution.

Proposer: Jane Ford
Seconder: Richard Clark.
Motion carried.

5. President’s report

Leigh Blizzard reported that there had been a significant transition and learning period with 6 new members joining Council last year. Council held a face to face meeting in Hobart in January 2009 which was helpful for ensuring a smooth transition and sharing of information. Leigh outlined some of the new initiatives that have been introduced by Council in the last year. These included:
Annual General Meeting

- a student prize for graduates of epidemiology courses who achieved the highest marks. In total 20 of these have been awarded, of whom 5 have become new members. Other student awards/prizes have included travel awards to (Mary Poynten, Terry Boyle, Fiona Gunasekara, Penny Robinson, Lukas Staub, Bridie Thompson, Au Bich Thuy, Helen Walls, Fiona Clay) this AEA conference. Although there were 3 applications for the $500 early career/student award, two applicants had to withdraw at the last minute so only 1 prize was awarded to Matthew Soeberg. Council also funded $200 each for the best student poster and oral presentations in Dunedin (Helen Walls, Mary Poynten).

- two $2500 student international travel awards for which applications will be sought later this year.

- a mentoring award for a senior researcher (and AEA member) who has made an important contribution to mentoring junior researchers. Nominations for this award will be sought later this year.

Finally, Leigh announced that 2 further life memberships (3rd and 4th life members for AEA) will be awarded at the Conference dinner to Neil Pearce and John Langley.

Motion: that the President’s report be accepted.
Proposer: Leigh Blizzard.
Seconder: Alison Venn.
Motion carried.

6. Public Officer
Len Smith has agreed to again be Public Officer in 2009/2010. Part of this role includes ensuring that constitutional changes are notified to Registrar General’s Office. It was proposed that Len Smith continue in his current capacity as Public Officer.

Proposer: Leigh Blizzard.
Motion carried.

7. Treasurer’s report
Kristy Sanderson tabled the audited accounts. She noted that net assets increased. A significant contributor to the healthy profit was the 2008 Population Health Congress. Expenses incurred were generally as expected. It is anticipated that the current financial year will incur a loss. This is due to expecting to break even on the Dunedin conference and the costs of additional initiatives that have been introduced this year including - new student travel awards, distinguished scholar visiting programme. It was also noted that publication costs of AE have gone up considerably. Part of the increased cost related to the production of 3 issues last year, although AE costs have been creeping up. AE is currently printed on environmentally friendly paper and this was suggested to be appropriate. The decrease in bank interest was noted as reflecting the dramatic drop in cash management account rates across the board. There was some discussion at this point regarding whether or not AEA should seek profitable avenues (future Population Health Congresses), whether a financial loss was problematic given the current cash reserves and philosophically whether AEA should focus on members rather than focus on making a profit.

Motion: that the Treasurer’s report be accepted.
Proposer: Kristy Sanderson
Seconder: Vera Morgan.
Motion carried.

7.1 Appointment of auditor
The auditor appointed last year declined at the last minute to audit the accounts. The Council were able to appoint Stephen Allen to step in to conduct the most recent audit.

Motion: that the minutes note that the 2008/2009 audit was carried out by Stephen Allen.
Proposer: Kristy Sanderson
Seconder: Priscilla Robinson.
Motion carried.

Motion: that Stephen Allen also be appointed for the 2009/10 audit.
Proposer: Kristy Sanderson
Seconder: Fiona Clay.
Motion carried.

8. Membership Officer’s Report
Priscilla directed attendees to the Membership Officer report published in the journal. She noted that it has previously been noted that there are 3 AEA life members, however this is not correct. There are currently 2 not 3 life members. Two further life members will be added at this conference (John Langley, Neil Pearce). Priscilla also noted that the figure of 612 members noted in the report was incorrect and should read 602. This includes 531 Australian members, 51 New Zealand members, with the rest being offshore members. Priscilla noted that membership has grown over the last few years. There has been a reasonable turnover of members with a number choosing not to renew. Most of these wrote and stated why (eg. moving out of epidemiology to some other area). Priscilla noted that the increase in life memberships was great to see. Neil Pearce noted that joint membership with IEA was still creating teething problems and renewal problems. He was part of an IEA meeting in Edinburgh recently where these issues were discussed. By this time next year the renewal process will be online and will be done by us. Neil apologised for the continuing subscription problems. IEA will offer similar reduced subscriptions to other countries now that a system has been established.

Motion: that the Membership Officer Report be accepted.
Proposer: Priscilla Robinson.
Seconder: Alison Venn.
Motion carried.

9. Australasian Epidemiologist
The editors’ (Sarah McNaughton, Verity Cleland) report was read by Jane Ford in their absence. The editors report that processes are still being tweaked for dealing with peer reviewed articles. There have been 2 peer review submissions in 2009. The non peer review section continues to attract some great articles. Leigh commended Sarah, Verity and Alison Venn on the last issue of the journal.
Annual General Meeting

Motion: that the editors’ report be accepted.
Proposer: Jenny Connor
Seconder: Priscilla Robinson.
Motion carried.

10. Report on Local AEA Chapters
Jane Ford presented the AEA Chapters report. She noted increased activity in South Australia. Chapter activities are occurring in all states and territories except Northern Territory (reduced activity) and the ACT (currently not meeting). The Perinatal and Paediatric Special Interest Group are still meeting and will have a social function at the conclusion of the conference.

Motion: that the chapter report be accepted.
Proposer: Jane Ford
Seconder: Shilu Tong
Motion carried.

11. Student report
Fiona Clay presented the Student report. She thanked Adrian Estermann and Alison Venn for being discussants at this year’s student presentation. Student prizes have now been awarded to 20 of the top epidemiology course graduates around the country. Fiona is still establishing contacts at some universities (Uni of NSW). Given that she is hoping to submit her PhD soon Fiona wanted someone else to have the opportunity to be student representative for a full year, and therefore welcomed Frances Garden to the role. Fiona acknowledged that students are well supported by Council.

Fiona and Priscilla Robinson have been setting up a combined student event with Public Health Association to be held on 5th November. There has been lots of interest to date. There are possibilities for similar showcases of student work in other states. Fiona thanked Leigh and Council and members of AEA for their support.

Motion: that the student report be accepted.
Proposer: Fiona Clay
Seconder: Siranda Torvaldsen.
Motion carried.

12. Other business
There being no other business, the meeting was declared closed at 5.42pm.

AEA TREASURER’S REPORT
for the year ended 30 June 2010

Balance Sheet
Net assets decreased from $214,620.91 to $200,411.81 as at 30 June 2010. The Association held $20,411.81 in a cheque account and $170,000 on deposit in a cash management trust.

Profit and Loss
We budgeted a loss of $7,210 in financial year 2009-10, and saw a loss of $14,209. This result was driven by AEA receiving less income than expected rather than an increase in expenses. Total income was approximately $10,000 less than budget. While the Dunedin conference achieved a great result of a small profit, less membership income had been received compared to last year as at 30 June. Advertising income was slightly higher than expected, and a good increase compared to last financial year. Total expenses were slightly less than budgeted. AEA continues to reinvest income to the benefit of members, including producing the Australasian Epidemiologist, conference awards, supporting Chapter activities, and the new international travel awards (2x$2500).

Budget for the 2010-11 year
The Association has enjoyed good returns from recent conferences (Melbourne, Brisbane). For 2010-11 we have budgeted for a loss of $11,810. This makes allowance for continued member benefits including the international travel awards which will again be offered in 2010-11, Chapter activities, production of Australasian Epidemiologist, and development costs for an enhanced AEA website. The Executive Officer position has been increased from 0.2FTE to 0.4FTE from October onwards to provide support to the website and editorial assistance for Australasian Epidemiologist. The budget assumes a good profit for the 2010 conference in Sydney.

Kristy Sanderson
Honorary Treasurer
Australasian Epidemiological Association Inc.

BALANCE SHEET AS AT 30 JUNE 2010
with previous financial year

<table>
<thead>
<tr>
<th>Assets</th>
<th>30 JUNE 2009</th>
<th>30 JUNE 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Assets</td>
<td>219,591.54</td>
<td>190,411.81</td>
</tr>
<tr>
<td>Cash on hand – Cheque Account</td>
<td>49,591.54</td>
<td>20,411.81</td>
</tr>
<tr>
<td>Commonwealth Cash Mgt Trust</td>
<td>170,000.00</td>
<td>170,000.00</td>
</tr>
<tr>
<td>Other Assets</td>
<td>10,000.00</td>
<td>10,000.00</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$229,591.54</td>
<td>$200,411.81</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>30 JUNE 2009</th>
<th>30 JUNE 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Liabilities</td>
<td>14,970.63</td>
<td>0.00</td>
</tr>
<tr>
<td>Amount owing – Council expenses</td>
<td>5,880.16</td>
<td>0.00</td>
</tr>
<tr>
<td>Amount owing – Other expenses</td>
<td>9,090.47</td>
<td>0.00</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>$14,970.63</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equity</th>
<th>30 JUNE 2009</th>
<th>30 JUNE 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained Earnings</td>
<td>139,310.61</td>
<td>179,706.63</td>
</tr>
<tr>
<td>Current Year Earnings</td>
<td>40,396.02</td>
<td>(14,209.10)</td>
</tr>
<tr>
<td>Historical Balancing</td>
<td>34,914.28</td>
<td>34,914.28</td>
</tr>
<tr>
<td>Total Equity</td>
<td>$214,620.91</td>
<td>$200,411.81</td>
</tr>
</tbody>
</table>
Australasian Epidemiological Association Inc.

PROFIT & LOSS STATEMENT
for the year ended 30 June 2010 with previous financial year and budget

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AE Publication Income</td>
<td>1,400.00</td>
<td>4,340.00</td>
<td>4,100</td>
<td>(4,000)</td>
<td>(5,000)</td>
</tr>
<tr>
<td>Advertising</td>
<td>1,400.00</td>
<td>4,340.00</td>
<td>(4,000)</td>
<td>(5,000)</td>
<td></td>
</tr>
<tr>
<td>Copyright</td>
<td>0.00</td>
<td>0.00</td>
<td>(100)</td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Bank Interest</td>
<td>7,200.26</td>
<td>5,197.41</td>
<td>6,500</td>
<td>6,500</td>
<td></td>
</tr>
<tr>
<td>Conference Income</td>
<td>43,385.74</td>
<td>4,514.58</td>
<td>0</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Brisbane Workshop income</td>
<td>412.85</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>New Zealand Contribution</td>
<td>0.00</td>
<td>2,528.26</td>
<td>2,000</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Memberships</td>
<td>56,427.50</td>
<td>33,195.50</td>
<td>46,910</td>
<td>48,750</td>
<td></td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td><strong>108,826.35</strong></td>
<td><strong>49,775.75</strong></td>
<td><strong>59,510</strong></td>
<td><strong>71,350</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting Fees</td>
<td>220.00</td>
<td>0.00</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>AE Publication Expenses</td>
<td>26,033.10</td>
<td>20,204.80</td>
<td>17,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Bank Fees and Charges</td>
<td>2,165.84</td>
<td>1,288.77</td>
<td>2,500</td>
<td>2,000</td>
</tr>
<tr>
<td>Chapter Expenses</td>
<td>395.00</td>
<td>281.98</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Conference Expenses</td>
<td>2,105.22</td>
<td>2,425.95</td>
<td>3,700</td>
<td>3,700</td>
</tr>
<tr>
<td>Student Bursaries</td>
<td>1,000.00</td>
<td>1,600.00</td>
<td>(2,000)</td>
<td>(2,000)</td>
</tr>
<tr>
<td>Student Awards</td>
<td>1,000.00</td>
<td>400.00</td>
<td>(1,500)</td>
<td>(1,500)</td>
</tr>
<tr>
<td>Other Conf. Expenses</td>
<td>105.22</td>
<td>425.95</td>
<td>(200)</td>
<td>(200)</td>
</tr>
<tr>
<td>Council Expenses</td>
<td>23,234.27</td>
<td>26,398.68</td>
<td>25,000</td>
<td>35,940</td>
</tr>
<tr>
<td>Council AGM</td>
<td>3,363.99</td>
<td>6,476.11</td>
<td>(7,800)</td>
<td>(7,190)</td>
</tr>
<tr>
<td>Executive support</td>
<td>10,385.58</td>
<td>13,442.26</td>
<td>(12,000)</td>
<td>(22,750)</td>
</tr>
<tr>
<td>Other Council Expenses</td>
<td>6,462.03</td>
<td>5,827.78</td>
<td>(4,000)</td>
<td>(5,000)</td>
</tr>
<tr>
<td>Teleconferences</td>
<td>1,022.67</td>
<td>652.53</td>
<td>(1,200)</td>
<td>(1,000)</td>
</tr>
<tr>
<td>Legal Expenses</td>
<td>60.00</td>
<td>36.00</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Membership expenses</td>
<td>15,466.90</td>
<td>6,651.43</td>
<td>7,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Membership admin.</td>
<td>6,217.02</td>
<td>6,237.43</td>
<td>(6,500)</td>
<td>(6,500)</td>
</tr>
<tr>
<td>Other Expenses</td>
<td>9,249.88</td>
<td>414.00</td>
<td>(500)</td>
<td>(500)</td>
</tr>
<tr>
<td>Sponsorship</td>
<td>300.00</td>
<td>1,100.00</td>
<td>2,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Strategic initiatives</td>
<td>5,000.00</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Postage/Stationery</td>
<td>0.00</td>
<td>96.75</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Website</td>
<td>450.00</td>
<td>500.49</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td><strong>$68,430.33</strong></td>
<td><strong>$63,984.85</strong></td>
<td><strong>$66,720</strong></td>
<td><strong>$83,160</strong></td>
</tr>
</tbody>
</table>

Net Profit / (Loss) $40,396.02 (14,209.10) -$7,210 -$11,810

1. Based on 430 full-fee members and 101 student or retired members.
2. Based on 450 full-fee members and 100 student or retired members.
3. Provision is made for increased Executive Officer time to provide website support and editorial assistance to Australasian Epidemiologist.
4. Provision is made for a face-to-face Council meeting ($2,000) and Director’s and Officer’s insurance ($3,000).
5. Provision is made for an international travel award for members (2x$2,500).
6. Provision is made for re-design of the AEA website.
Membership
At the end of June 2010 there were 587 financial members. Of these, 495 were Australian resident members, 76 were New Zealand members, and 16 were resident in other countries. New Zealand membership numbers were considerably augmented by people joining prior to attending the conference in Dunedin in 2009.

The retired membership category has been well-received and now includes 13 members. To date this option has only been available to Australian members, but is now available to New Zealand members for the year 2010–11. AEA now has five life members. There were 108 members in 2008–09 who did not renew their membership in 2009–10, of whom 30 (28%) were students at the time of last membership.

AEA members are eligible to join the International Epidemiology Association at the considerably reduced fee of £10. New membership forms and renewal forms for AEA members can be downloaded from the AEA website. These are handled independently by IEA.

Management of membership list
Convention Associates continues to be the organisation which cheerfully and tirelessly manages the Australian membership list and acts as the return address for AEA membership mail. This organisation also distributes items such as the electronic Bulletin to the membership list and liaises extensively with the membership secretary regarding membership issues. In New Zealand the list is managed by Catherine Adamson.

Figure 1: June 2010 AEA membership status by geographical location
**Table: Membership by location, 2006-07 to 2009-10**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>34</td>
<td>28</td>
<td>34</td>
<td>28</td>
</tr>
<tr>
<td>NSW</td>
<td>129</td>
<td>128</td>
<td>135</td>
<td>118</td>
</tr>
<tr>
<td>NT</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Queensland</td>
<td>65</td>
<td>54</td>
<td>68</td>
<td>69</td>
</tr>
<tr>
<td>SA</td>
<td>47</td>
<td>44</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Tasmania</td>
<td>21</td>
<td>18</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Victoria</td>
<td>135</td>
<td>124</td>
<td>141</td>
<td>136</td>
</tr>
<tr>
<td>WA</td>
<td>73</td>
<td>63</td>
<td>70</td>
<td>62</td>
</tr>
<tr>
<td>Total members resident in Australia</td>
<td>516</td>
<td>472</td>
<td>531</td>
<td>495</td>
</tr>
</tbody>
</table>

| **New Zealand** |         |         |         |         |
| North Island    | 37      | 37      | 46      |         |
| South Island    | 19      | 22      | 30      |         |
| Total New Zealand Members | 56 | 60 | 59 | 76 |

| **Members overseas** |         |         |         |         |
| Bangladesh        |         |         |         | 1       |
| Canada            | 2       | 1       | 1       |         |
| Fiji              | 1       | 1       | 1       |         |
| Germany           |         |         | 1       | 1       |
| France            |         |         | 1       |         |
| Hong Kong         | 1       | 1       | 1       | 2       |
| Indonesia         |         |         | 1       |         |
| Iran              |         |         | 1       |         |
| Israel            | 1       | 1       | 1       | 1       |
| Nepal             | 1       | 1       | 1       | 1       |
| Netherlands       |         |         | 1       | 1       |
| PNG               |         |         | 1       |         |
| Sri Lanka         |         |         | 1       |         |
| Spain             |         |         | 1       | 1       |
| Switzerland       |         |         | 1       | 1       |
| New Caledonia     |         |         |         |         |
| Samoa             |         |         |         | 1       |
| UK                |         |         | 2       | 2       |
| USA               |         |         | 2       | 3       |
| Total members resident overseas | 12 | 9 | 12 | 16 |

| **Total AEA members** | 584 | 541 | 612 | 587 |

_Siranda Torvaldsen_

AEA Membership Officer
AEA MEMBERSHIP

The Australasian Epidemiological Association was founded in 1987. Membership is open to anyone with an interest in epidemiology.

AEA is governed by a seven member council elected from the membership. Five members of Council form the Executive, namely the President, New Zealand Branch President, Vice President, Treasurer and Secretary. At least one member of the Council must be based in New Zealand.

Other roles within the Council include the coordination of local chapters and management of the membership. The council co-opts a member to undertake duties related to student matters, the journal and conference planning.

As of October 2010, AEA also employs an Executive Officer two days per week.

THE ASSOCIATION’S AIMS:

To develop and promote the discipline of epidemiology in Australasia through:

- promoting excellence in epidemiological methods
- communication
- advocating for funding, capacity building and policy development
- strategic alliances with related organisations to maintain high standards of public health practice, teaching and research in Australasia.

This will be achieved through being an organisation committed to:

- excellence in governance
- a strong member focus.

BENEFITS OF MEMBERSHIP

Australasian Epidemiologist

The Association produces the journal Australasian Epidemiologist to keep you up to date with events and issues affecting epidemiology in Australia and New Zealand.

AEA Annual Scientific Meeting

The annual AEA Scientific Meeting provides a forum where issues of importance to epidemiology and biostatistics can be discussed and where members may present scientific papers.

AEA in New Zealand

The AEA includes a New Zealand member on Council and the New Zealand branch of the AEA organises a workshop every two years.

Chapters

The AEA encourages the establishment of local epidemiology interest groups, which will be supported by the Association to undertake ongoing education and training courses. These local chapters which organise social events, talks and conferences have been established in several States and Territories: Perth Epidemiology Group (PEG), Darwin Epidemiological Group (DREG) and Queensland Epidemiological Group (QEG).

Student membership

The AEA encourages student participation. It organises student workshops at the annual Scientific Meeting and offers travel bursaries for conference attendance. There is also an email discussion list for students.

ANNUAL FEES

<table>
<thead>
<tr>
<th></th>
<th>Australia</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>ordinary member</td>
<td>A$95</td>
<td>NZ$95</td>
</tr>
<tr>
<td>full-time student</td>
<td>A$60</td>
<td>NZ$60</td>
</tr>
<tr>
<td>retired</td>
<td>A$60</td>
<td>NZ$60</td>
</tr>
</tbody>
</table>

MEMBERSHIP FORM

The membership form can be downloaded from our website at www.aea.asn.au or requested from:

AEA Secretariat

Convention Associates P/L
8 Ewart St, Malvern, VIC 3144
Telephone: (03) 9509 0323 Fax: (03) 9509 8206
Email: convention@optusnet.com.au

New Zealand residents should contact:

Patricia Priest
Department of Preventive and Social Medicine
Dunedin School of Medicine
PO Box 913, Dunedin 9054, New Zealand
Telephone: +64 3 479 7204 Fax: +64 3 479 7298
Email: patricia.priest@otago.ac.nz