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NEWSLETTER

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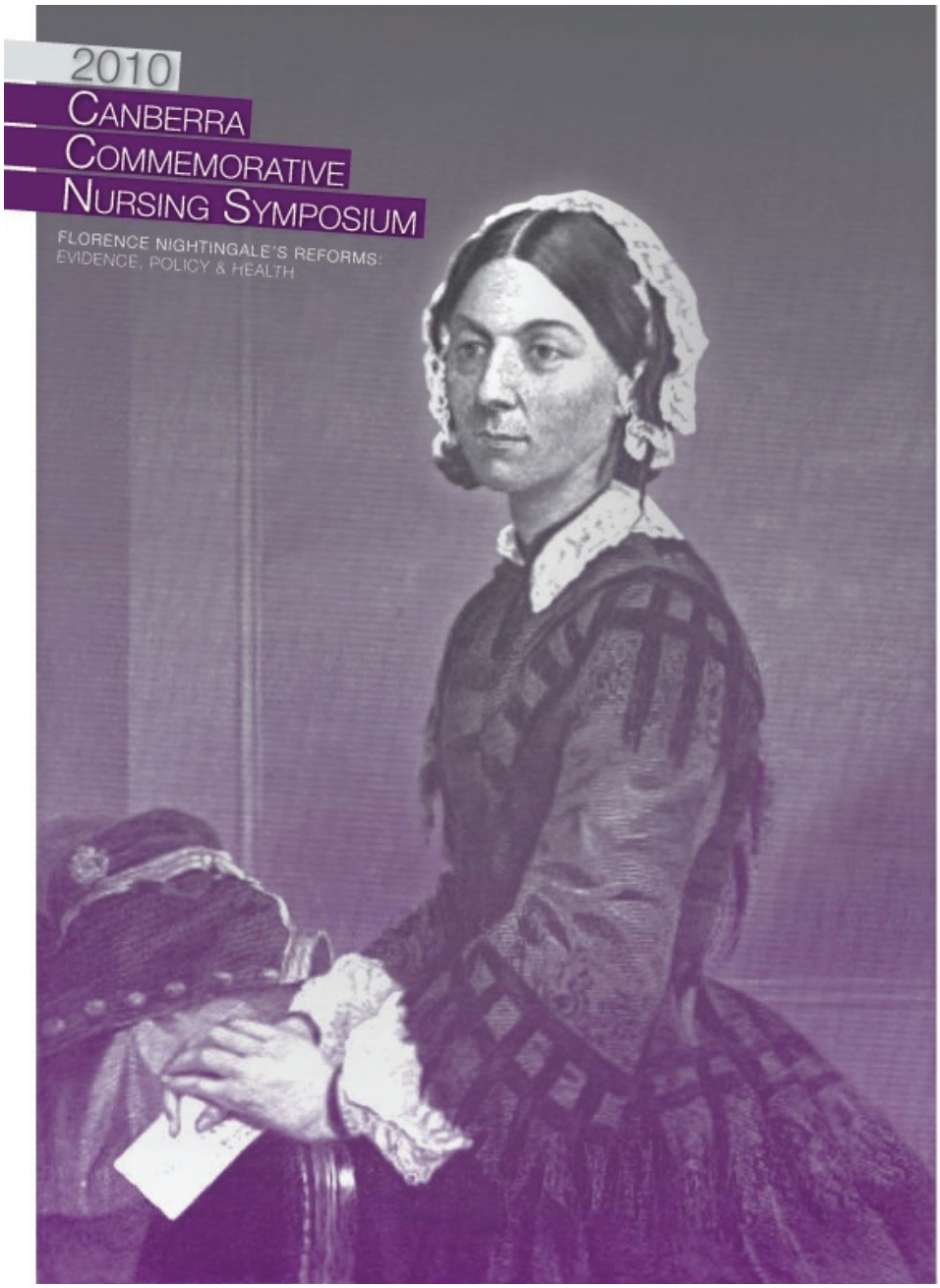
IN THIS ISSUE

Florence Nightingale Commemorative Symposium



On 13 August 1910, a great female polymath of Victorian England, Florence Nightingale, died at her home in London.

To celebrate the life and achievements of this remarkable woman, a Commemorative Nursing Symposium was held at the University of Canberra on 25 May 2010.

The Symposium was an initiative of Dr Alice Richardson, University of Canberra; Ms Lexie Brans, Monash University; and SQNLDR Shane Moloney, Royal Australian Air Force.

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Editorial

SSAI

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Advertising will be carried in the Newsletter on any matters which the Editors feel are of interest to the members of the Society. For details of advertising rates, etc.

Contact the SSAI Executive Officer at eo@statsoc.org.au

DEADLINE FOR NEXT ISSUE:
25 October 2010

Alice Richardson.

The office of the newsletter editors is experiencing a kind of calm before the storm, as we ensure that as much material as possible is printed here before the end of the year. We're planning to print copies of the next newsletter, the December issue, for each ASC2010 delegate.

As a result we hope to show readers in the next issue what a diverse range of activities are supported by the society. We'd like to showcase the activities of branches, sections and individuals in the SSAI, so please consider writing a piece, attaching some photos and sending it in. In order to meet deadlines imposed by the conference in early December, please note that the deadline for copy for this special issue has also moved, to 25 October 2010.

This deadline will just allow you time to write up the activities in your area for World Statistics Day (WSD). The inaugural WSD will be celebrated on Wednesday 20th October 2010 (20–10–2010). The RSS has begun its campaign with a website: www.getstats.org.uk and this may give you some ideas about how to promote statistics and statistical thinking in your workplace or other spheres of activity.

We hope you find something of interest in this newsletter and feel inspired to contribute to the next one.

Alice Richardson Editor

Michael Adena Editor

CONFERENCES AND WORKSHOPS

SSAI Workshop: Workshop on Causal Inference

4–5 September 2010, University of Queensland

http://www.statsoc.org.au/CPD15Info\

ALTC Workshop "Effective Teaching and Learning of Mathematics"

30 September – 1 October 2010, University of Queensland, St Lucia

http://www.austms.org.au/ALTC

Bayes on the Beach

A forum for discussion on developments and applications of Bayesian Statistics with David Elston (Biomathematics and Statistics Scotland) and Scott Sisson (University of New South Wales)

4–5 October 2010, Surfers Paradise, Queensland

Email: alice.currie@qut.edu.au

International Biometrics Conference

5–10 December 2010, Florianopolis, Brazil

http://www.tibs.org/Interior.aspx

Australian Statistical Conference 2010

6–10 December 2010, Perth, WA

http://www.promaco.com.au/2010/asc/index.htm

International Conference on Recent Developments in Statistics, Applied Econometrics and Forecasting

27–28 December, Allahabad University, Allahabad, India

Contact: Kuldeep Kumar
Email: kkumar@bond.edu.au or
Anoop Chaturvedi
Email: anoopchaturv@gmail.com

Mapping Global Change

23–25 March 2011 in Enschede, The Netherlands

http://www.spatialstatisticsconference.com/

ICIAM 2011 – Seventh International Congress on Industrial and Applied Mathematics

18–22 July 2011, Vancouver, Canada

http://www.iciam2011.com

58th Session of the International Statistical Institute

21–26 August 2011, Dublin, Ireland

http://www.isi2011.ie/

President's Message

Dear members

Just a short note this quarter. Most of my "literary" energy has been spent on writing a President's report for the recent AGM. It's quite long so I won't include the whole text here, but I will finish this message with an executive summary. What a difference 12 months makes. If you recall a year ago, the future of the society was still in doubt —now we are able to look forward and our concerns are about developing workshops and services for members, assisting the sections, and lobbying on behalf of the profession. All very much due to the tremendous support from a wide spectrum of the membership, and some notable efforts by individuals, for which I and the society are very grateful.

The AGM this month marks the formal handover from the outgoing Vice President, Professor William Dunsmuir, to the incoming Vice President/President to be, Professor Kerrie Mengersen. I can't let the occasion go by without recording my thanks for effort William spent on behalf of the Society over the last 4 years, and the help and guidance he gave me as I started, 2 years ago now, in my role as VP and now President. I hope I can match the contribution William made, as I look forward to working with Kerrie on all our behalf in the year ahead.

It's always nice to finish with some good news. I heard the other day about the Australian Museum Eureka Prize for 2010 in the Research by an Interdisciplinary Team category. This year's award is for an application of statistics (and other science) to a really practical issue—paddock to plate meat grading—which is worth many millions to Australia's economy. It demonstrates once again the relevance of statistics to so many disciplines, which is one of the strengths and attractions of our work. Professor Ray Watson from the Victorian branch of the society was a key member of the winning team, and I congratulate him and all the team.

The next big event in our SSAI calendar is the conference in Fremantle in early December—I look forward to meeting many of you there.

Until then

Geoff Lee
President SSAI

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Symposium Cont.

Florence Nightingale Commemorative Symposium

Marilyn Gendek's stamp display

Cover story cont. >>

Detail of Marilyn Gendek's stamp display

Alice Richardson and John Maindonald, speakers at the symposium

Symposium organising committee, Shane Moloney, Alice Richardson and Lexie Brans

Support for the Symposium was provided in the form of a small grant from the University of Canberra. In addition, the University of Canberra contributed extensive in-kind support as did Defence Force Nursing and Royal College of Nursing, Australia.

In honour of Nightingale's many areas of expertise, the Symposium was deliberately designed to be as wide ranging as possible. The Symposium attracted an audience of nurses, military personnel, historians, statisticians, academics, and policy makers. All the speakers drew on the capacity of Nightingale's remarkable legacy to inform the present.

During the Crimean War of 1854–56, Nightingale was famous for doing evening rounds with a lighted lamp, and the symbol of a lamp has now become an iconic symbol for the nursing profession. The concepts inspired by that lamp, such as light, warmth and hope, were discussed in a presentation from Prof Violetta Lopez from the Australian National University and Research Centre for Nursing and Midwifery Practice. Her talk highlighted links between old and new as she analysed the ancient significance of the lamp using the modern research methodology of concept analysis.

Nightingale's links to the military are well known and SQNLDR Shane Maloney's presentation made that very clear. The title of his presentation was 'From Scutari to the Swat Valley' where he demonstrated the capacity of military nursing to shape emerging roles and specialities in the nursing profession. This presentation ended with a moving tribute to the men and women of the Australian Defence Force. That tribute was in the form of an excerpt from a diary written by a Royal Australian Air Force Nursing Officer during her service in Afghanistan.

Drawing on contemporary research and scholarship surrounding evidence based policy making in a health care context, Ms Lexie Brans showed how Nightingale represented an exemplar of policy making in nursing (and other fields). Using historical records applied to the present, Nightingale's extraordinary skill in what we could now call media communication, political acumen, networking and lobbying, became abundantly clear.

Dr Alice Richardson presented a view of Florence Nightingale as educator. Her talk was based on some of the most recent biographies of Nightingale. She featured the use of Nightingale's own words to investigate her attitude to her Training School for Nurses.

Executive Summary of 2009 and 2010

Executive Members

Dr John Maindonald spoke about Florence Nightingale's contribution to statistics. The graphics she invented were powerful means of conveying the message of data she collected. John both acknowledged this fact as well as showing alternative views of the same data.

The delegates at the Symposium were honoured to have as the key note speaker, Ms Rosemary Bryant, the current president of the International Council of Nurses and the Chief Nurse and Midwifery Officer of Australia. Finally, representing the Chief Executive Officer of RCNA, Dr Margaret McLeod, Director, Research, Faculties and National Activities, at RCNA, formally closed the symposium.

The Symposium was further enhanced by many displays and special features, such as a fascinating historical stamp display, posters from students of nursing at the University of Canberra, a continuous audio-visual display of military nursing, a large selection of publications by and about Nightingale, and a timeline which highlighted key aspects of Nightingale's life and achievements.

Notably, the historical stamp display was commissioned by the International Council of Nurses for the 24th Quadrennial Congress held in Durban, South Africa in 2009. Ms Marilyn Gendek, FRCNA, prepared the display and accompanying text and was also on hand to answer the many questions prompted by the display.

For further information go to

- http://www.canberra.edu.au/monitor/articles/new/2010_may_florencenightingale
- http://ise.canberra.edu.au/alicer/florence-nightingale/

Alice Richardson and Lexie Brans

Executive Summary of Presidents report on the 2009/2010 year, and on challenges for 2010/20 11

The society has had a good year, thanks to strong support from the membership, and many active contributors.

Financially we are on a much sounder footing, student membership numbers are growing, and full time membership numbers have stabilised. We do need to work on converting student memberships to full membership, and recruiting new members.

There is a solid program of services being provided for members, including :

- National workshops and conferences
- Courses and Professional Development
- Journals and newsletter
- Accreditation
- Branch monthly meetings and other activities
- Activities of the sections
- Awards

Generally the situation is healthy, and the success of the Courses in the Professional Development program is a particularly noteworthy advance on previous years. Some sections have languished a bit due to the recent need to focus on financial matters and membership numbers, and in the year ahead I believe we are in a position to give more assistance and encouragement to all section activities.

The SSAI has also been active in lobbying on behalf of and representing members. Three areas noted in the main report are :

Lobbying on behalf of statistical education and research in Australia

Relations with other societies

Establishing a positive identity for the work of professional statisticians and their contribution to society

Much activity and effort has gone into representations about statistical education and research in Australia, especially around the development of the National School Curriculum. Even if our efforts are successful (I am hopeful but not overconfident) it will take some years for the effects to be evident—but we will have achieved a significant step forward for statistics and the numerate sciences in Australia.

Relations with other societies are quite good, and I sense a pleasing sense of common purpose emerging in our joint lobbying efforts. Promoting the profession, and speaking out publically in favour of sound use of statistics is a challenging target, and one we have not addressed this last year. I would like the SSAI to do more in this space but recognise significant efforts would be required to have any impact, and at this stage cannot see a clear way forward.

It may be more fruitful for us to concentrate our efforts and resources on statistical education and research for the next 12 months.

Geoff Lee

Australian Statistical Conference 2010

ASC2010 AUSTRALIAN STATISTICAL CONFERENCE
Statistics in the West: UNDERSTANDING OUR WORLD
6-10 December 2010 Esplanade Hotel, FREMANTLE, Western Australia

It is now only a few months before ASC2010 takes place. More than 200 abstracts have been accepted as oral presentations at the conference from speakers in more than 20 countries. The program committee is putting together a draft program for the registration document which will be available in mid-August. In addition we have a wonderful group of invited speakers who will be giving plenary lectures at the conference:

Professor Adrian Baddeley
(CSIRO)
Spatial Statistics

Professor Tadeusz Bednarski
(University of Wroclaw, Poland)
Robust Methods in Finance, Insurance & Medicine

Professor Noel Cressie
(Ohio State University, USA)
Environmental Statistics

Professor Persi Diaconis
(Stanford University, USA)

Markov Chain Monte Carlo
Algorithms and more

Professor Jerome Friedman
(Stanford University, USA)
Machine Learning

Professor Denise Lievesley
(King's College London)
Official Statistics

Professor Chris Wild
(University of Auckland, NZ)
Statistics Education

Dr Gordon Smyth
(WEHI, Melbourne)
Biomedical Statistics

Dr Alan M Zaslavsky
(Harvard University, USA)

Professor Jerome Friedman, Stanford University

CSIRO has arranged for **Jerry Friedman** who has been a pioneer in the theory and practice of computational statistics and data to attend ASC2010. Jerry has been a Professor of Statistics at Stanford University for more than 20 years and has contributed a remarkable array of topics and methodologies to data mining and machine learning. He has written many expository articles and books and given an extraordinary number of invited talks relating data mining and machine learning to statistical foundations, and developed and implemented new methodologies including CART, MARS, PRIM, PPR, MART, and Gradient Boosting. He has won numerous awards for his many contributions to mathematical physics, and statistics. Jerry is a Fellow of the American Academy of Arts and Sciences, and a recipient of the prestigious Parzen Prize which is awarded to North American statisticians who have made outstanding and influential contributions to the development of applicable and innovative statistical methods. He is also a recipient of the ACM Data Mining Lifetime Innovation Award. A number of papers written by Jerry have been recognised by Technometrics and the Journal of the American Statistical Association as Paper of the Year.

Professor Adrian Baddeley, CSIRO

Adrian Baddeley joined the University of Western Australia in 1994 and recently moved to CSIRO. He has been a recipient of numerous honours including being named the 2008 Georges Matheron Lecturer by the International Association of Mathematical Geology and being awarded both the Pitman Medal from the Statistical Society of Australia (2004) and the Hannan Medal in Statistical Science from the Australian Academy of Science (2001). Adrian is well known in the statistical community for the interpretation of spatial and geometrical information such as microscope images of biological tissue; the spatial arrangement of wildlife territories, trees in a wood, or copper deposits in a mining area; and spatial patterns generated

ASC 2010 Stats Conference

by random accidents such as crystal defects in semiconductors.
Outside the statistical community he is known as a world leader in the field of stereology and especially as the inventor of the vertical sections technique which has lead to a vast expansion in the scope of practical stereological methods. If provoked, he will demonstrate principles of spatial statistics by scattering coins or rice across a table or chopping up vegetables in different ways! A very visual thinker, Professor Baddeley is also a keen photographer, specialising in underwater photography.

WORKSHOP: Bayes for Beginners
DATE: Saturday 4 December 2010

Professor Kerrie Mengersen, Queensland University of Technology

Kerrie Mengersen will provide an overview of practical Bayesian modelling and analysis. Topics covered will include introductions to Bayesian models, Bayesian computation via MCMC, and Bayesian networks. Practical sessions will include the use of WinBugs for Bayesian analysis and GeNie for Bayesian networks. The course is deliberately aimed at a beginner level and is strongly practical in nature. Kerrie Mengersen is Professor of Statistics at QUT and Director of the QUT Collaborative Centre for Data Analysis, Modelling and Computation (DAMC). Her research interests are in Bayesian modelling and associated computational methods, with application to problems in environment, health and industry.

Jane Speijers
Chair of the Organising Committee
ASC2010

Aust. Museum Eureka Awards

Other News

News About Members

For about the last 15 years, Ray Watson (member, Victorian Branch) has been working on a project that provides a meat grading system that is now internationally recognised; it has led to applications of the method around the world.

This project has now won the Eureka Prize for 2010 in the category "Research by an Interdisciplinary Team".

See:

http://eureka.australianmuseum.net.au/eureka-prize/research-by-an-interdisciplinary-team1

The system is based on data from the preferences of consumers (from extensive surveys), and explanatory variables from the meat. Rather obviously, the statistical component of the project is large, and Ray's work (done through the Statistical Consulting Centre at the University of Melbourne) has been central to the success of the system.

The grading system is essentially statistical, and Ray is the statistician. He has been patiently, carefully and thoroughly refining and developing the model with the use of more and more data, and appropriate statistical modelling. The work has led to numerous joint publications. The Society congratulates Ray for his role in this award-winning project.

Ian Gordon

Ray Watson

LOOKING FOR A JOB?

For a listing of current statistical vacancies in Australia and New Zealand visit:

http://www.statsci.org/jobs

Do you have a job to advertise on the website?

Email a position description to eo@statsoc.org.au.

LISTING IS FREE!

NatStats 2010 Conference

NatStats 2010 will be held from 15–17 September 2010 at the Sydney Convention and Exhibition Centre, Darling Harbour.

As a participant in the NatStats 2010 Conference, you will contribute to the development of better, broader and more comparable information; improved monitoring of government services, improved access to and use made of data by the wider community and reduced overall costs for the provision of information services.

The overall theme for the conference is "Measuring what counts: economic development, wellbeing and progress in 21st century Australia", which will explore drivers of economic and related social change that are shaping Australia's progress.

NatStats 2010 Keynote Speakers include Dr Ken Henry AC, Secretary to the Commonwealth Treasury, will deliver the opening plenary address at the conference and the Hon Dr Geoff Gallop AC, Director of the Graduate School of Government at the University of Sydney, will deliver a presentation focused around improving the wellbeing of Australians.

Other NatStats 2010 speakers include Ms Jane Halton PSM, Secretary of the Department of Health and Ageing who will speak on the role of statistics in health; and Mr Paul McClintock AO, Chairman of the COAG Reform Council, who will be speaking about the measurement of disadvantage, inequality, and social inclusion. In addition, Ms Martine Durand, Chief Statistician and Director of the OECD Statistics Directorate, and Mr Phil Lowe, Assistant Governor (Economic) of the Reserve Bank of Australia, will together examine some of the changes we can expect to witness in the global economy and the implication for Australia.

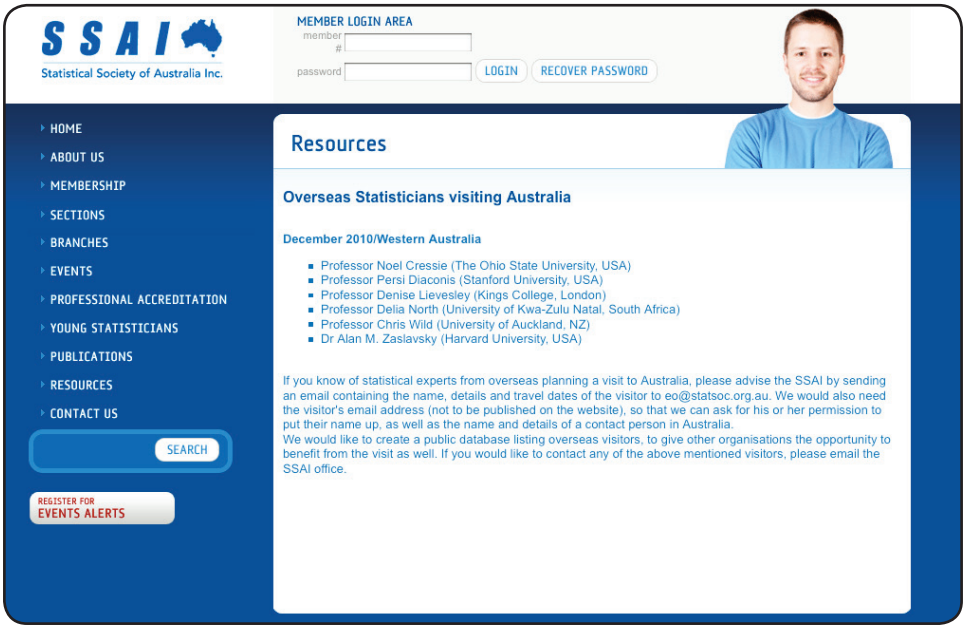
For more information please visit www.nss.gov.au/natstats2010 or email natstats@nss.gov.au Follow NatStats 2010 on Twitter.

Overseas Visitors

Overseas Statisticians visiting Australia

We have created an "Overseas Visitors" page on the SSAI website (http://www.statsoc.org.au/OverseasVisitors). The aim of this page is to provide a public database with the names of overseas visitors, giving other organisations the opportunity to benefit from the visit as well. If you or your organisation think that they would like to work with one of the visitors listed on the website, simply send an email to the SSAI office, explaining the details of your proposal, and the office will forward your email to the visitor in question.

If you know of statistical experts from overseas planning a visit to your organisation, please advise the SSAI by sending an email containing the name, details and travel dates of the visitor to eo@statsoc.org.au. We would also need the visitor's email address (not to be published on the website), so that we can ask for his or her permission to put their name up, as well as the name and details of a contact person in Australia.



Overseas Visitors web page

25% DISCOUNT ON WILEY PUBLICATIONS!

The SSAI is delighted to announce that we can now offer our members a special discount of 25% on online purchases with **Wiley or Wiley-Blackwell** (http://www.wiley.com/statistics). To receive this discount, please go to the Wiley website and purchase you items.

After purchasing the items, you need to telephone the Wiley customer services department to claim your 25% discount.

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Statistics without Borders

Developing Statistical Capacity in the Pacific Islands

Sightseeing in Fiji

Statistics plays a vital role in the world around us, in making sense of the complex world that we live in and in helping identify the policies that our organisations and countries will follow as we look to the future ahead. Statistics plays an even greater role in developing nations, countries often struggling under crippling health problems and political regimes. In these countries there is in general a vast shortage of statistical expertise, and there is a huge role that organisations such as the Statistical Society of Australia can play within such nations.

Statistics Without Borders is a special interest group dedicated to providing pro bono statistical consultancy to developing nations. Under the umbrella of the American Statistical Association, SWB was founded in October 2008 and currently has approximately 100 members (primarily based in the US). Mark Griffin, the co-chair of the SSAI Biostatistics Section also serves as the head of the New Projects committee for SWB. Mark is passionate about the role that SWB can serve in the world around us, and is keen to form strong bonds between SWB and the SSAI.

In July 2010 Mark Griffin and Joseph Powell spent two weeks visiting the Fiji School of Medicine as representatives of SWB. Their time was spent giving seminars and workshops, teaching undergraduate and postgraduate classes, and providing general statistical consultancy. The Fiji School of Medicine is one of the leading medical institutions within the Pacific Island region, and trains students coming from the islands all across the region. They are also one of the most statistically literate institutions in the region, meaning that they have a couple of staff members who have more than a first-year, undergraduate knowledge of statistics (these staff members have the equivalent of a first-year PhD student's knowledge of statistics). A major obstacle within developing nations is the cost of statistical packages that we often take for granted, software such as SAS, Stata, and SPSS. A major role during this SWB visit was the presentation of a four-day introductory workshop on R, a software package previously generally unheard of within the school. Following this workshop R is now being introduced as

Presenting the R workshop

Meeting the Locals

Presenting the R workshop

Statistics without Borders Cont.

Mark Grifffin (in centre) with memebers of the Fiji school of medicine

The confrence being advertised at the Joint Statistical meeting in Vancouver, August 2010

Niels Becker, Val Gebski, Mark Griffin and Ian Marschner at the Joint Statistical Meeting

the major software platform for statistical training within the school.

Following this visit Mark Griffin will now be chairing the first "International Conference for Health and Health Statistics in the Pacific Islands" to be held in Fiji around July 2011. Complete details for this conference will shortly be made available through the Anzstat email list. This conference will host a number of parallel sessions and will serve in a dual role to bring together international research collaborators exploring population health in the Pacific Islands, and will also provide further training in basic statistics for the local residents within the region. This conference is being jointly organised by the Statistical Society of Australia, Statistics Without Borders, the Health Policy Section of the American Statistical Association, the Fiji School of Medicine, and the University of the South Pacific. If you were ever looking for an opportunity to attend a conference in a fantastic holiday location while also helping statisticians in developing nations then this is the conference for you !!
If you would like further details about this conference or about how you can get involved in other projects conducted by Statistics Without Borders then please email Mark Griffin on m.griffin@uq.edu.au

Mark Griffin

The Statistical Society of Australia represented at the Joint Statistical Meeting 2010

The Joint Statistical Meeting is the largest statistical conference around the world and typically boasts a registration of around 6000 delegates. JSM is jointly organised by a number of organisations, primarily the American Statistical Association. This year the Statistical Society of Australia won a successful bid to organise one of the sessions at the Joint Statistical Meeting in Vancouver in August 2010.

This session was entitled "Biostatistical Innovations in the Australasian Region", and was chaired by Mark Griffin (co-chair of the SSAI Biostatistics Section). The session featured three leading Australian speakers Niels Becker, Val Gebski, and Ian Marschner, representing the three arenas of biostatistics (population health, clinical trials, and government health policy). This session was warmly received by the largely American audience, though it was also a pleasure to see some familiar Australian faces amongst the audience. The SSAI is now discussing submitting a proposal for the next Joint Statistical Meeting, to be held in Miami in 2011.

Mark Griffin

Obituary

Ian Castles 1935–2010

Ian Castles died in Canberra on 2 August 2010 after a short illness. He was aged 75 years and was still very intellectually active at the time of his death.

Ian was born in rural Victoria in 1935. Whilst he undertook his primary education in local state schools, he boarded at Wesley College for his secondary education. He undertook university studies at Melbourne University where he was awarded a Bachelor of Commerce. Ian had an intellect of the highest order and certainly had the ability to undertake higher studies but there were higher priorities at that time. This included his marriage to Glenice in 1962. They had five children and continued to share many interests right through to Ian's passing.

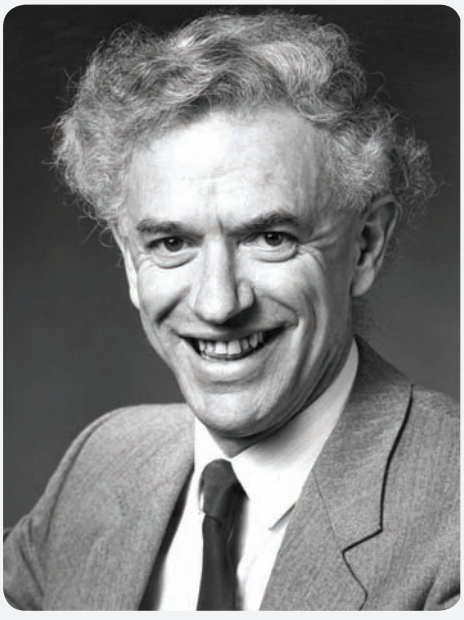
Ian had an outstanding career. Although he only spent some of that time as a statistician, he was always a significant and very well informed user of statistics, even post-retirement.

Ian had an outstanding public career in Australia. Prior to starting at the Australian Bureau of Statistics (ABS), some of his senior positions were Under-Secretary of the Department of Prime Minister and Cabinet, where he headed the Economics Division, and Secretary of the Department of Finance from 1979 to 1986. He was appointed to this position at the relatively young age of 44.

He was appointed Australian Statistician, head of the Australian Bureau of Statistics in 1986. Some saw this as a downward step from the higher profile Finance Secretary position but Ian saw it as the ideal job. He was now in a position to influence the type of statistics that the ABS produced to support policy analysis. Furthermore, he could influence the way statistics were presented to better support the needs of the user community, especially those closely involved in policy. This was a desire that remained until his retirement from the ABS in 1994 even though there were very substantial improvements in the ABS outputs over that time. Certainly the statistical work of the ABS became much more professional under his stewardship. It was not his only contribution – he took every opportunity, both internally and externally, to reinforce the importance of independence, objectivity and integrity in the work of the ABS.

Ian held many other senior positions in Australia. These include Australian Electoral Commissioner and, post-retirement from the ABS, as Executive Director of the Academy of the Social Sciences in Australia. He was also a member of the Advisory Board of the Bureau of the Meteorology and at the time of his death, Ian was a Visiting Fellow at the Crawford School of Economics and Government at the Australian National University.

Internationally, he had considerable influence. Ian was President of the International Association of Official Statistics, a Section of the International Statistical Institute (ISI), for the 1991–93 term. He attended many ISI Sessions and was renowned for asking difficult but insightful questions.



Ian Castles

He had considerable influence on international statistics. These include the balance of payments through his participation in the IMF Working Group on Capital Flows; the International Comparison Program through a review he undertook for the OECD; and the United Nations' Human Development Report (HDR) through his interventions on the lack of accuracy in the statistical data in the Report. The latter provides a good example of Ian's determination that statistics that are widely used are fit for purpose. The authors of the HDR were mainly concerned about advocacy. They were not concerned about the accuracy of the statistics they presented. In fact, you got the feeling that they thought accurate statistics shouldn't get in the way of a good story. Yet, the statistics in the HDR were used extensively in countries and, because of their problems, this use led to many inaccurate conclusions. Ian was persistent in criticising these statistics through a variety of channels despite considerable resistance from the highest levels. Ultimately, the authors were forced to take steps to improve the accuracy of the statistics in the publication and a much more useful publication is the result.

A special meeting will be held during the 2011 session of the UN Statistical Commission to honour Ian's contribution to international statistics.

Ian's achievements are numerous. Some are mentioned above. Others include his substantial influence on taxation and income support policy during his period at the Department of Finance. It is notable that Ministers attended both his retirement function and his funeral. His forte was analysis of socio-economic data and he led the development of many innovative and influential publications of this genre whilst at the ABS.

His management style was somewhat unique. He was not all interested in the mundane administrative material that can distract much of the attention of many public sector chief executives. He left this to others. Rather, he chose the causes to which he would join in battle with care and a pit-bull like tenacity.

He was awarded an Officer of the British Empire (OBE) in 1978 and an Officer of Australia (AO) for his contributions to public policy. Interestingly he never cited his OBE. I think he felt it was superseded by the Australian award. He was also made a Fellow of the Academy of Social Sciences in 1989, a rare award for a current public servant.

Ian had many interests. These included research into the information requirements for public policy, the history of economic thought and classical music. He had a great love of numbers. But perhaps above all was his passion for libraries and spent of lot his spare time in libraries. It was fitting that the library at the new ABS building was named in his honour. Indeed he was the first customer – waiting at the door for it to open.

In summing up, Ian had a very high intellect as well as incredible intellectual curiosity. He was almost obsessive about the proper use of statistics and was a regular critic of those that didn't, especially when they were trying to influence public policy. He was able to provide an unusual blend of creative thought and elegant writing. Len Cook, former chief statistician of New Zealand and United Kingdom, said:

" ... He was someone who cared deeply about the place of official statistics in public life, and had a special gift for pulling together the methodological, political, ethical, constitutional and historical dimensions of our work".

He also had great courage and persistence. He was prepared to take on anyone who he thought might be misusing statistics and has a number of 'scalps'. His criticisms of the statistical work of the International Panel for Climate Change (IPCC) are a good case in point. He continued his arguments, using many channels, even though they were continually rebuffed and there were strident personal attacks. Some even questioned his political motives. Even though Ian showed great interest in the political process he was not politically aligned. He was driven only by the proper and effective use of statistical data. His arguments were not politically convenient so did not get the attention they deserved but hopefully they will lead to better statistical analysis in the next IPCC report.

He has many friends and admirers. His death notice said "A great mind and a generous heart". I couldn't think of more appropriate words.

Dennis Trewin

NSW Branch
Richard Gerlach

New South Wales Events

NSW Branch did not submit a report in the last Newsletter due mainly to the recent birth of my 5th child, Emma Catherine Gerlach on May 3rd, 2010 and my subsequent and persistent "baby brain" ☺. We did however manage to hold a very successful meeting in late May, May 29, with a well attended and interesting talk by outgoing SSAI President, Professor William Dunsmuir, held at University of Sydney.

I am grateful that William agreed to talk at such short notice. William gave us a well received seminar on intra-day financial return data analysis, focusing on modelling asset price changes and inter-trade durations. The price change models are mainly time series in nature, consisting of discrete components, since asset prices can only change by a multiple of tick size (often this is 1 cent), not continuously, via either dynamic multinomial probit regression or hurdle-type models employing direct gamma/Poisson regression models. The duration models are similar to ARIMA and/or GARCH type models. The talk raised just as many questions as it answered, and over 30 participants enjoyed an extended post-seminar discussion on various related research questions. After the seminar a few of us discovered an excellent Nepalese restaurant nearby to the Uni, which we will no doubt return to in the near future.

The June meeting was cancelled due to the speaker injuring himself and being unavailable at the last moment.

The "July" meeting was held on August 5th and was a talk on "psycho-biology". Though sounding a scary topic at first, instead Dr Melanie Bell gave us a wonderful talk on what a statistician in psycho-biology actually does. Firstly I am grateful that Melanie was able to talk at such short notice (baby brain strikes again ☺).

Apart from many analytical (and enjoyable) tasks, apparently, that also included lots of rock climbing, and we were treated to some breathtaking pictures, courtesy of Melanie's professional "climbing photographer" husband. We also had some enjoyable (mostly non-technical) discussion regarding sample selection models, missing data, as well as the more amusing common statistical errors made by non-statisticians (Melanie is giving a workshop on this topic at Sydney Uni on late August), balancing research work, consulting and giving workshops and striking a balance between our own research interests and undertaking more applied joint research (e.g. with non-statisticians).

Dr Melanie Bell giving her talk

Richard Gerlach

Queensland Branch Events

QLD Branch
Nicholas Graves

June

June saw a well attended half day meeting about Systematic Reviews and Meta-Analyses organised by Adrian Barnett (IHBI, QUT). There were 80 attendees and space permitting the audience would have been larger. It seems this topic is popular among a range of researchers working in health. Four presenters made valuable contributions and the audience asked good questions from these experts.

Prof Jenny Doust from Bond University gave short history of systematic reviews and the role of the Cochrane Collaboration, which is an international network of people assisting and overseeing Cochrane systematic reviews. The Cochrane Collaboration can assist by providing training (free for those conducting a Cochrane review), a manual for systematic reviews, software, and information, which can be accessed on the Cochrane Collaboration website www.cochrane.org. Jenny compared Cochrane reviews to other types of systematic reviews, highlighting their strengths and weaknesses, and the often more transparent and rigorous nature of Cochrane reviews. She also discussed the methodological issues with systematic reviews, e.g., bias, heterogeneity and inappropriate data aggregation, and inappropriate interpretation of results.

A/Prof. Suhail Doi (UQ) provided a convincing argument for not ignoring heterogeneity between studies in a meta-analysis by just carrying out a fixed effects analysis and advised that a random effects model is preferred in the presence of heterogeneity. His arguments were well demonstrated through three examples. In his first example he carried out a fixed effects analysis on heterogeneous studies and showed that this is really a "meta-reduction" rather than a "meta-analysis" since the meta-analysis estimates simply reduced to the estimates of the largest study in the meta-analysis, i.e., the study with sample size much larger than the rest. In his second example, Suhail started with a homogenous study and introduced heterogeneity by increasing the effect size for one large study whilst keeping the rest of the smaller studies homogeneous. Here he showed that a random effects analysis penalises the large study simply because it is large. In his final example, he advocated analysis using a "quality effects model" rather than a random (or fixed) effects analysis by demonstrating how this model deals with bias in a large study, in comparison to how poorly a random effects analysis deals with bias.

Dr. Henry Zheng (QUT) presented a practical example of a meta-analysis based on his PhD work. His meta-analysis was an evidence-based approach for prescribing the amount of exercise, specifically walking, for the general population to aid in reducing the risk of coronary heart disease (CHD). His introduction included well justified arguments for investigating CHD, since it was the single most common cause of death in Australia; and the impact of walking, as opposed to other modalities of exercise, on CHD, since walking is a physical activity freely accessible to the general population. There had previously been no systematic meta-analysis review done on the impact of walking on CHD, although other types of physical activity had been considered. His extensive literature search narrowed down over 5,000 studies to 11 useable studies for conducting his meta-analysis. Henry discussed his treatment of heterogeneity between studies, which finally concluded with advising that 30 minutes of walking, or more, five days per week is associated with a 24–42% risk reduction of CHD. These results were in close agreement with studies on the effect of more general exercise in reducing risk of CHD.

Dr. Adrian Barnett wrapped the meeting up with counter-example of quality in a meta-analysis where studies had been carried out showing a "Monday" effect (or mid-month or 1st of month) effect on CHD, i.e., higher risk on Mondays. He discussed sources of heterogeneity and the usefulness of identified sources of heterogeneity in explaining effects, such as using latitude to help explain the effects of heatwaves, with those located further away from the equator often experienced larger effects of heatwaves. Adrian emphasised the importance of identifying possible sources of heterogeneity for use in quality assessment a priori and advised that, if you want to improve the quality of your meta-analysis, use a statistician or epidemiologist. He also discussed some of the available meta-analyses guidelines/checklists for assessing study quality, which most recently includes his MAGIC (Meta-Analyses: Getting it Correct) assessment.

Lunch was provided and there was an opportunity for discussion and networking in the atrium of IHBI afterwards.

July

The July meeting hosted Dr. Archie Clements, School of Population Health at the University of Queensland who talked about model-based geostatistics. Archie gave and overview of model-based geostatistics and an application of Bayesian model-based geostatistics to model the spatial variation of Schistosomiasis, an infection that can lead to significant illness and mortality, in north-western Tanzania. Control of the infection is through school-based programs and so there is a need to determine which schools to target for intervention.

Archie demonstrated how Bayesian model-based geostatistical methods can be used to identify areas of high prevalence (with uncertainty measures given by credible intervals) so that target areas for intervention can be identified. Future work in this area could be around quantifying the uncertainty in control decisions and the value of reducing uncertainty by collection more information. Refreshments were provided and Archie joined the committee for dinner afterwards.

Nicholas Graves

SA Branch
Paul Sutcliffe

South Australian Branch News

June 2010 Meeting: The Challenge of Unmeasured Confounding

The June meeting was held jointly with the Australasian Epidemiological Association. Dr Nicole Pratt, a Research Fellow in the Quality Use of Medicines and Pharmacy Research Centre, Sansom Institute, University of South Australia, gave a talk on "Using an Australian administrative data set for post-marketing surveillance of antipsychotics in elderly veterans: The challenge of unmeasured confounding.".

Nicole described how useful the Department of Veterans' Affairs claims database (data on over 300,000 veterans) was for research on patient outcomes in large populations without the need for costly patient recruitment and data collection. The large sample sizes increases statistical power to detect rare events. Data is collected longitudinally and has extended follow-up which means that long-term safety conditions of therapy for chronic conditions can be measured. On the other hand possible biases may exist due to the fact that subjects are not randomised to treatment but are prescribed medications based on both patient and doctor characteristics leading to confounding. Also the databases often lack information on many potentially important covariates such as smoking, BMI, disease severity and diagnosis, which is unmeasured confounding.

Increasing use of antipsychotics in the elderly to manage symptoms associated with dementia has led to concerns due to the limited evidence of their efficacy and the potential for serious adverse effects. Evidence from randomised controlled trials suggests differing results from the use of typical antipsychotics (e.g. haloperidol) and atypical antipsychotics (e.g. risperidone, olanzapine). Controlling for confounding is important because "Observational studies suggest that, similar to atypical drugs, treatment with conventional antipsychotic drugs may increase mortality. The extent to which the finding of increased mortality in observational studies may be attributed to the antipsychotic drug as opposed to some other characteristic(s) of the patient is not clear.".

Adjustment techniques to approximate for measured confounding include comorbidity scores and propensity scores. Special study designs can also be employed if confounders are unmeasured and newer methods that try to address unmeasured confounding by emulating randomization may also be useful.

Nicole described the use of self-controlled case studies, a design which uses the individual as their own control, comparing the risk of hospitalisation in periods of exposure to other periods of non-exposure in the same individual. This means that it controls implicitly patient-specific confounders that do not vary over time. Prescription Sequence Symmetry Analysis is another within-subject study design which compares sequences of events, producing a ratio of the number of persons with an event after a prescription with the number of persons with an event before the prescription. This quantity estimates the incidence rate ratio of the event in exposed compared to non-exposed person time and can be adjusted for underlying trends in medicine use over time. More recently, attempts have been made to adjust the results of traditional study designs, in particular cohort studies, using the instrumental variable technique. This technique uses a variable, called an instrument, which attempts to mimic randomisation in RCTs. This method use a two-stage least squares where the treatment is predicted by the instrument $X = c + dZ + f$, and in the second stage the outcome is predicted by the instrument $Y = a + bX + e$.

Nicole gave an example using the nursing home preference as an instrument for comparing the risk of death between new users of typical and atypical antipsychotics from Jan 2003 –Dec 2006 and she analysed the follow-up for 12 months. Nursing home preference makes a good instrument because it is independent of confounders (unrelated to patient characteristics), is associated with treatment, and is independent of the outcome, except through its association with treatment. Among nursing home residents, doctor's choice of antipsychotic appeared to depend more upon facility factors and economic forces rather than patient characteristics when the association between patient characteristics and instrument was tested. Antipsychotics are associated with significant harm in the elderly and the increasing use of these medicines in Australia poses a major public health concern. Reporting this research has provided doctors with information which has led to 15% reduction in risperidone use in the veteran community.

For further information about the techniques contact Nicole. Pratt@unisa.edu.au

Paul Sutcliffe

Victoria Branch News

VIC Branch
Sue Finch &
Ian Gordon

Dates for your diary!

By the time you read this, hopefully Victorian Branch members will have attended the national AGM being held on 24 August in conjunction with presentations from the Young statisticians - Pete Hickey, Martin Shield, Minh Huynh – reports next newsletter.

On 28 September, Rob Hyndman will present "Demographic forecasting using functional data analysis" and the annual Belz lecture is on 26 October and will be presented by Chris Lloyd on "Data based public debate. Why aren't we at the centre of it?". We also expect to have a 23 November presentation by Nicole Watson on the "Causes and effects of non-monotonic attrition in a panel study".

May seminar: Trials on the edge – Can we really do randomized controlled trials of treatments in mental health?

A big crowd gathered to hear Andrew Mackinnon, Head, Statistics Unit, Orygen Youth Health Research Centre, on contemporary challenges in the design, conduct and analysis of trials of treatments in psychiatry. Andrew's stimulating talk presented these challenges in the context of the historical development of clinical trials and of the discipline of psychiatry.

James Lind's 1747 trial of 6 different treatments for scurvy in 12 sailors is hailed as the world's first clinical trial. It is remembered each year on 20 May – International Clinical Trials' Day. However, the principle of randomisation to placebo and control groups was first introduced in the Medical Research Council's 1948 streptomycin trial in order to conceal treatment allocation of a rare resource. Although today randomisation provides the basis for making statistical inferences about causal relationships, statistical inference played no part in the original report of the trial.

Psychiatric conditions are notoriously difficult to define and describe. There are no objective tests of the conditions psychiatrists wish to treat. Definitions of psychiatric disorders attempt to describe the patterns of symptoms that psychiatrists recognise as characterising a particular disorder; this involves non-linear combinations of symptoms that might have to persist for minimal amounts of time. Schizophrenia, as defined in the Diagnostic and Statistical Manual (version IV) for example, must involve social and personal levels of dysfunction that last for at least six months. There is also the problem of psychiatric chameleons—conditions that were once considered to be psychiatric disorders. Examples include pellagra, now known to be a vitamin B disorder, and homosexuality (included as a psychiatric disorder in early versions of the Diagnostic and Statistical Manual).

The prevalence and impact of psychiatric disorders is significant. In the second national survey of mental health disorders in Australia (ABS, 2007), 1 in 5 people reported symptoms that qualified for a clinical diagnosis over a 12 month period. When the impact of illnesses, disabilities and disorders is quantified in terms of years of life lived with disability, unipolar major depression has the most impact and the list of the top ten conditions includes many psychiatric disorders.

Psychotherapeutic drugs are the first line treatment for many disorders. Melbourne's John Cade's discovery of lithium carbonate as effective in the treatment of mania in the late 1940s was a major breakthrough. Chlorpromazine for psychosis and imipramine for depression followed in the 1950s; in the last decade, fluoxetine (Prozac) as a treatment for depression has had widespread use.

Psychotherapeutic therapies began with Freudian-based psychotherapy. Clinical psychologists embraced Skinner's learning theory from which behaviour therapy and then cognitive behaviour therapy was developed. In 1977, the first randomised controlled trial of cognitive behaviour therapy was carried out. Despite the advances in drug treatments and other therapies, many psychiatric disorders are difficult to treat effectively. Best treatments for depression, for example, remain antidepressant medication and cognitive behaviour therapy. These are not effective or acceptable for everyone.

Andrew introduced the idea of trialability; psychotherapy and non-drug based interventions need to have certain characteristics to be amenable to a randomised controlled trial. The therapeutic treatment must be clearly defined in terms of ordered steps; it should be manualisable – able to be written down in a manual. The outcomes should be pre-defined process variables that are sensitive to change. The treatment must be prescribable – it should be possible to judge who will benefit from the treatment without knowing the treatment outcome. Finally the therapy must be generalisable; it should be efficacious in the hands of any suitably trained clinician, not just its developers. Developers of cognitive behavioural therapy, in contrast to psychodynamic psychotherapy, were prepared to meet these criteria.

The conduct of a clinical trial of a trialable psychotherapy faces considerable problems. Andrew elaborated the issues and suggested solutions. Although large numbers of people are in need of treatment, finding participants is typically very difficult. ABS (2007) data suggest, for example, that 65% of those who meet the criteria for a disorder fail to receive treatment.

Andrew described the recruitment strategy he and his collaborators used in a large randomised trial of investigating the effectiveness of an online health application for the prevention of depression. A large scale mailout to 105,000 individuals sampled from electoral rolls received about 24,000 responses to the invitation to participate; 14,000 people did not meet the criteria for the disorder of interest, 8,700 of those who qualified declined to participate. Less than one percent of the original mailout (909 participants) were randomised in the study.

Today, recruitment strategies can utilise the internet with advertisements on search engines and mental health websites. A focus on trial literacy should aim to better educate the population about the purpose and practicalities of clinical trials. A change in the way we think about the role of participants is needed; 'subjects' can become real participants in >>

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trials by recognising their treatment preferences and their intent to be treated. In this view, participants are not accessed by researchers, but researchers are accessed by participants.

There are many challenges in the design of randomised controlled trials of psychotherapy. Participants are often recruited when their condition is exacerbated, so it is likely that some improvement will occur in the course of a trial. The specification of an appropriate comparator or placebo group is often far from straightforward. For psychiatric conditions, it can be difficult to characterise or define "treatment as usual". Arms of trials with wait list comparators are not parallel but are confounded with time; studies with wait list comparators preclude long term follow-up as ultimately all participants receive the intervention of interest. Treatment comparators can be based on a sham therapy which is designed to provide the same kind of attention, interaction and activity as the active therapy but without the active treatment; however sham therapies sometimes appear to be effective. Head-to-head comparisons of two different treatments can be tricky to interpret; equivalent treatment outcomes can arise if both treatments prove effective or if neither is effective. Appropriate interpretation of such outcomes relies on a good understanding of the likely effects of one of the treatments.

Blinding has limited application in many trials of psychotherapy. Therapists cannot be blind to treatment; participants can be uniformed about treatment alternatives but not blind to the treatment they are receiving. The requirements of informed consent limit the extent to which participants can be uninformed about treatment alternatives; however, it is important to maintain good separation of treatments groups to avoid contamination from participant interaction. Assessors of the treatment success can be blinded to the participants' treatment allocations.

Trials of psychotherapy often involve only a limited number of therapists. In many trials few therapists will treat many patients, and hence patients are nested within therapists. Therapist factors are sometimes ignored or treated as a nuisance factor but should be carefully considered in the evaluation and analysis of a trial. Similar issues arise in many trials of medical procedures that involve a skilled operator. Use of standardised, manualisable treatments with clearly specified training criteria can help to minimize therapist factors. However a finding suitable numbers of patients and therapists would be a challenge.

Issues relating to the measurement of psychotherapeutic outcomes arise in the design and analysis of randomized controlled trials. Given that a diagnosis is often difficult to characterise, an outcome will be difficult to define. In the analysis stage, there may be many potential candidates for the primary outcome variable; outcomes might only be measured twice and follow-up times can be long. The result is impoverished information about outcomes.

In trials of psychotherapy, many participants may not complete the treatment; about one third of the participants in trials of psychotherapy for depression drop out. Analysts often wish to use an intention-to-treat analysis but are faced with a large amount of missing data. A common 'solution' to the problem of missingness is to use the method of last observation carried forward (LOCF); this uses the last observation for a given patient as the value for any subsequent missing observations. Andrew discussed the problems of this approach in trials of degenerative disorders such as dementia. There are many examples of the use of LOCF in studies of Alzheimer's patients in high quality journals; these studies assume that a degenerative process has halted in patients who have dropped out. Andrew suggested that LOCF might be the best available treatment for Alzheimer's disease! (See Andrew's 2008 comment in The Lancet.) A recent trend in dealing with missing data is the use of data imputation methods that assume dropout is missing at random. This is a strong assumption that is inherently untestable, and has doubtful plausibility in many trials. Andrew suggested that a well calibrated sensitivity analysis might often be preferable.

Andrew argued that the routine adoption of solutions for missing data creates a risk of distracting researchers from solving the real problem of retaining people in trials and knowing how they are faring. Better design and planning is needed including relinquishing simple pre-post designs and ensuring that more frequent outcome measurements are taken during the intervention. Research is needed to help us understand why people join and leave trials, and what makes trials aversive or attractive to the people who need treatment.

In his closing remarks, Andrew discussed the hegemony of trialability and summarised the problems of current approaches. Many of the current treatments do not reach the people in need. Effective treatments need to be attractive, rather than aversive, to many of those needing therapy. The best treatments may not be easily amenable to a randomized controlled trial. Small, inconclusive trials proliferate. What the world needs is large trials with low infrastructure costs; researchers around the world should be able to share published protocols specifying intervention and assessment training methods. Andrew argued that what is needed is a new view of trials and trialability—trials in a box. Internet resources such as Google docs for sharing data and the freely available R package for checking data integrity open up exciting new possibilities in design and management of large, global trials.

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June seminar: Development of the Index of Community Socio-Educational Advantage (ICSEA) and like school groups

This seminar was presented by Geoff Barnes, School and System Measurement and Evaluation Office, NSW Department of Education and Training, who has primary responsibility for the analysis of data >>

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VIC Branch
Sue Finch &
Ian Gordon

from state-wide testing programs such as NAPLAN, the NSW School Certificate and the NSW Higher School Certificate. Geoff talked about the development of the Index of School Community Educational Advantage (ICSEA) and its use in the generation of data for evaluating school outcomes. The ICSEA is featured on the MySchool website and allows schools to obtain information about the performance of schools with similar ICSEA values to their own.

The rationale for the ICSEA is based on the need to sift out the community level factors in considering academic outcomes across schools, and to allow comparisons across schools serving similar communities. The ICSEA is a measure of socio-educational advantage based on predictors of education outcomes.

The ICSEA was developed in two phases; first factor analysis was used to develop an overall measure of school performance. In the second phase, ABS collector's district level census data and school characteristics were used to predict school performance. The analyses were based on over 9,000 primary and secondary, government and non-government schools.

For primary schools the overall measure of school performance was based on mean scores on reading and numeracy in years 3 and 5; for secondary schools, the measure used mean scores on reading and numeracy in years 7 and 9. The primary and secondary measures were standardised to allow the measures to be merged into a single index.

The ABS collects census data within collection districts of 200 to 250 residences. This provided socioeconomic status indicators that were used to describe schools. Each student's collection district of residence was identified and the values of potentially relevant socioeconomic status indicators were collected. Schools were characterised by the average values of these indicators across their students.

Geoff described 14 mean socioeconomic indicators as related to school performance; this included, for example, variables related to income. Thirteen of these variables were used in the construction of the ICSEA. In predicting school performance, variables related to parental income are considered first; income related variables are included later in the regression model. The socioeconomic variables account for 62% of the variance in primary school performance and 54% of the variance in secondary school performance. The inclusion of school characteristics, including the percentage of indigenous enrolments, improved the variance accounted for by 6% and 5% respectively. Geoff noted that selective schools with very high school performance are problematic for modelling and are very influential in the proportion of variance explained. The ICSEA is constructed using the standardised regression coefficients for 13 socioeconomic predictors and one school characteristic.

The ICSEA is used to identify statistically similar school groups. Geoff discussed issues in finding the optimum size for these like school groups; it was important that the variability of schools within a like school group did not depend on the number of schools in the group. The like schools group size is 60.

Geoff discussed a number of issues about ICSEA. He provided an interpretation: if schools have a similar ICSEA value it simply means, on average, the students in those schools experience a similar level of educational advantage. The use of ABS data has some limitations; in some areas coding address data to census collection districts can be problematic. Further the averaging of census data for students from the same school assumes that the census collection districts are homogeneous. A common concern about the construction of the ICSEA has been the absence of an indicator related to the proportion of students with a language background other than English. Geoff suggested that analysis was consistent with the view that this did not need to be included. He argued that despite its limitations, the ICSEA is an excellent measure of the influence of community factors on school outcomes.

Geoff's presentation fully engaged the audience who peppered him with questions throughout the talk, and lively conversation ensued with Geoff and his colleague Peter Starkey (ACARA) at dinner. A report of this work ("Model for Generating Like School data report paper") can be found at:

http://www.myschool.edu.au/Resources.aspx

Sue Finch

July: Data prediction competitions: more than just a bit of fun

At the July meeting of the SSAI Victorian Branch for 2010, held at The University of Melbourne, Anthony Goldbloom from kaggle.com presented a talk on the business he has founded, which hosts data prediction competitions. The motivation for this is that increasing amounts of data are being produced, and these datasets are often under-utilised or not even analysed. Anthony related several anecdotes about the explosion in the amount of data available. He related the story of Tesco, a large supermarket chain in Europe, whose mailed advertising is now opened and read by 98 per cent of recipients (compared with an industry average of one per cent), because it is effectively targeted, based on a large database of consumer interests and preferences.

The competitions hosted on the Kaggle website have a training dataset; a separate test dataset is maintained by Kaggle. Competitors develop their model on the training data set, and are able to get some feedback about the success of their model by Kaggle posting the results of testing on a small test set, typically 10% the size of the full test dataset. The final result of the competition is scored based on the full test set.

A mix of competitions have so far been hosted, including one based on the 2010 Eurovision song contest (won by a computer programmer from Ljubljana, Slovenia) and one involving the prediction of HIV progression. The competitions current at the time of writing involve improving on the long-standing Elo chess rating system, forecasting tourism and predicting short term movements in stock prices.

The talk was very well attended and a highly engaged audience peppered Anthony with questions on the statistical aspects of the process, as well as some of the practical and commercial elements of Kaggle.

Ian Gordon

WA Branch
Alex Stuckey

Western Australia Branch News

May Meeting: Young Statisticians Honours Scholarship

At the May meeting the WA branch awarded its Honours scholarship for 2010 to Ben Fitzpatrick of UWA. Ben is a BSc. Honours student jointly supervised by Prof. Jessica Meeuwig of the Centre for Marine Futures and Asst./Prof. Edward Cripps of the School of Mathematics & Statistics. Congratulations Ben.

The title of Ben's Honours project is Environmental modelling of abundances of wrasse species off South Western Australia. The goal of this research is to explore models that provide accurate spatial maps of the relative abundances of each of three species of wrasse in South Western Australia. This project is primarily one of ecological inquiry though this style of modelling may have applications in environmental impact assessment and marine reserve design. Data for this project are drawn from the Marine Futures Project 2007 data. Part of this survey saw 58 stereo baited remote underwater video systems (stereo-BRUVS) deployed off the coast of Cape Naturaliste, south west Western Australia, over an area of approximately 32km2 in water 15 to 50m deep. Stereo-BRUVS are a non-destructive method of recording fish counts at a site. The region was stratified by habitat and within each stratification BRUVS deployments were randomly allocated subject to a minimum separation distance between deployments. At each deployment, the maximum number of each species observed on screen at any one time during the hour of video footage recorded is used as a measure of abundance. Explanatory variables including depth, habitat and bathymetry descriptors are also included in the study. The data are spatially correlated and the project develops spatial generalised linear models. The results present spatial maps of predicted values and associated standard errors and also discuss which of the environmental variables are statistically significant in describing the wrasse species abundances.

June Meeting: Dr Richard Katz

For the June meeting the WA branch was very pleased to welcome Dr Richard Katz from the Institute for Mathematics Applied to Geosciences at the National Center for Atmospheric Research, Boulder Colorado. Rick's talk was titled Assessing the Quality and Economic Value of Weather and Climate Forecasts. This is an area in which Rick has extensive experience and expertise, as he is co-editor of the 1997 book Economic Value of Weather and Climate Forecasts. Dr Katz has been heavily involved in climate research in the USA and internationally (including the Intergovernmental Panel on Climate Change) over a period of many years.

The talk described a framework for assessing the performance of forecasts. For example, in measuring how successful predictions of a binary event are, Peirce's skill score is equal to the hit rate minus the false alarm rate. One can also study the joint distribution of the observed events and forecast events. This joint distribution can be factorised by conditioning on the forecast (calibration) and observation (likelihood).

Probability forecasts give a probability of a future event occuring. Such forecasts should be "reliable" in that the probability of the event occurring, given the predicted probability, is close to the predicted probability. They should also have "sharpness" or "resolution" meaning that reliable individual probability forecasts close to zero or one are more useful.

Consequences of decisions are a function of the actions taken based on forecasts and the observed events (Rick quotes Lou Gerstner that "You don't get points for predicting rain. You get points for building arks".) The maximization of the expected utility of these consequences given the probability forecast can be a criterion for choosing actions taken. Such actions will thus depend on the utility function which represents the level of risk undertaken.

Using probability forecasts can give improvements in utility compared to using no forecasts. This is measured by the Value of Imperfect Information. This value needs to be weighed against the cost of undertaking incorrect actions based on these forecasts. One way to do this is the Brier Skill Score based on the mean squared error of the probability forecast and the variance of the observed events. Using this, Rick showed how the economic value of a forecasting system changes as the skill of the system changes. This leads to a general result allowing the comparison of two forecasting systems in terms of economic value.

Ensemble forecasting is related to a binomial experiment in that out of a fixed number of ensemble members we observe the event of interest (eg. rain) in only some. This ensemble can be used to create a probability forecast, the face-value forecast being the observed ratio of events over members. When either all or none of the ensemble members exhibit the event the resulting face-value probability forecast is one of certainty, not accounting for the uncertainty inherent in the finite number of members. In an economic value sense, we were shown the improvement provided by a Bayesian probability forecast over such face-value ones. An application of ensemble forecasting was given in which an ensemble of forecasts is used to predict a large storm in the USA with varying lead time.

The slides from the talk appear on Dr Katz' webpage http://www.isse.ucar.edu/staff/katz/

Alex Stuckey

LAYMAN'S UNDERSTANDING OF NONRESPONSE

How Michael and Amy Adjust a Missing Phone-Call

I explain the topic of non-response in layman's terms with a story: Today our daily life is too busy and too fast. Amy called Michael's cell phone to ask him to go for dinner, but Michael missed her important call. There could be several reasons: Michael left his phone in his office while going for coffee, Michael has an urgent meeting with his boss, Michael does not want to go for dinner because he wants to save money, Michael's phone is not functioning, Michael is busy with another girl friend and wants to maintain his privacy, and so on. Amy and Michael know each other very well, but still Amy may be unsure of the reason for Michael's non-response.

If Michael left his phone in his office while going for coffee, or he has an urgent meeting with his boss, such a missed call can be treated as Missing at Random (MAR) and can easily be adjusted by either Michael or Amy calling at a later time. If Michael's phone is not working, then the missed call is unrelated to Michael's attitude (unobserved) nor to observed circumstances of time of call; such a call can be treated as Missing Completely at Random (MCAR). The reason eventually could be discovered; Amy might later be able to reach him via the office phone or may wait until they meet each other. On the other hand if Michael knows about Amy's call, but he does not want to take it because either he does not want to go for dinner, or he is busy with another girl, such a missing call can be treated as deliberate non-response.

There are many reasons why Michael missed Amy's call, but one thing is certain: if Michael wishes to maintain good relations with Amy then he will have to adjust the missed call in an appropriate manner. "Sweetie! Sweetie! It was a long day! Sorry! I missed your call." Such a nice reply from Michael to Amy will reduce negative bias from Amy's mind resulting from speculation on the reasons for the missed call.

Amy could impute a reason for the missed call in several other ways. Amy calls several of her girl friends and finds that all girls are preparing supper at home and concludes that their spouses are also busy like Michael. Amy ignores the issue of the missed call with Michael and makes up her mind to cook supper at home. Such a method is called the mean method of imputation. Amy could call at Michael's office and ask about him, which could be considered as a hot-deck method of imputation, that is substituting the nearest available response. Both these methods work if the missing call is MAR or MCAR. If Michael deliberately missed the call, then it is difficult for Amy to know the reason, but some auxiliary information might be used to find a reason. Perhaps, earlier in the week Michael mentioned that this month's salary might be late, so one might suspect there is a financial reason to avoid dinner. Michael may behave badly towards Amy more generally, so she might suspect the reason could be another girl. Such a method could be named model-assisted imputation, the model or picture being built out of such stories. Thus, in our daily life we use imputation in a variety of ways, without realizing that we are applying statistical techniques.

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