



Annual Report 2005

Medical Statistics Group

Health Services Research

ScHARR

**Regent's Court
30 Regent St
Sheffield S1 4DA
Tel 0114 2220839
FAX 0114 2220749
www.shef.ac.uk/scharr/sections/hsr/statistics**

Preface

This is the first year, 2005, when it could be said that the Medical Statistics Group functioned more as an academic unit and less a disparate group of support statisticians and so it is the first year that we have produced an annual report separately from the other Sections of SchARR.

At the start of the year Stephen Walters (SJW) and Francesca Lemme were coming to the Northern General Hospital for one day per week to improve cohesiveness. The group relocated organisationally to the Health Services Research (HSR) section in August 2005. The physical move happened in bits during November with staff currently occupying temporary offices in HSR, as by the year end the building work to refit the offices for the Group had not been started.

Mike Campbell (MJC) and Jenny Freeman (JF) continue to maintain links with Primary Care, and Stephen Walters continues to maintain links with Health Economics and Decision Science. Steven Julious (SAJ) and Mike will also link with Public Health. In addition, Steven Julious in 2005 took (and continues to take) the initiative for the Clinical Trials Support Unit through his role as Acting Director.

During the year Francesca Lemme left the Mental Health Section to take up a job with GSK in Italy. She has not yet been replaced and support in that Section is currently ad hoc.

Congratulations to Steven Julious on achieving his PhD and to Jenny Freeman for her Senate Award for Excellence in Teaching.

Mike Campbell was on sabbatical for 6 months, with Professor Allan Donner at the University of Western Ontario, during which time Stephen Walters held the reins.

As can be seen in the report, the four core members of the MSG teach and examine across a whole range of undergraduate and post graduate courses for both SchARR and for the Faculty of Medicine.

We have a strong list of peer reviewed publications with 16 papers in 2005 and a further 15 non-refereed papers or letters and one book. We have also been commissioned to write several books on medical statistics.

MJC January 2006

Statisticians in SchARR

Mike Campbell (MJC)	Professor of Medical Statistics	MSG
Steven Julious (SAJ)	Senior lecturer	MSG
Stephen Walters (SJW)	Senior Lecturer	MSG
Jenny Freeman (JF)	Lecturer	MSG
Adriana Ismail (AI)	PhD Student	MSG
(David Machin)	Emeritus Professor	MSG
Jon Nichol (JPN)	Professor of HSR	MCRU
Gareth Parry (GP)	Reader in HSR	HSR
Alicia O’Cathain (AOC)	Senior Research Fellow	HSR
Tracy Young (TY))	Lecturer	HEDS
Khadija Rantell (KR)	Research Fellow	HSR

Teaching 2005 by MSG

Undergraduate

MBCbB (MJC, JF, SAJ, SJW)
Intercalated BMedSci (Medical School) (MJC, SAJ, SJW)
BMedSci (SchARR) (JF, SJW)

Postgraduate

MSc Research Methods Orthoptics (MJC)
MSc in HSR & TA (SJW)
Master in Public Health (MJC, JF, SJW)
MSc Genetic Epidemiology (MJC)
Research Training Programme for PhDs (SAJ)
MSc Nutritional Epidemiology (MJC, JF)
MSc in Medical and Health Sciences - Generic Research Training Programme (MJC, SJW)
Royal College of Psychiatrists membership (MJC)

Specialist Registrars short course (JF)
MSc Renal Medicine (JF)

Trent RDSU New Researchers Training Programme (SJW)
Trent RDSU Short courses (JF, SJW)
Trent RDSU Statistics Clinics (MJC, JF, SAJ, SJW)

External Courses

MSc Med Stats (Leicester) (MJC)
Erasmus Winter Course Rotterdam (MJC)

Medical Statistics Group peer-reviewed publications 2005

1. **Julious SA.** Why do we use pooled variance analysis of variance? *Pharmaceutical Statistics* 2005; **4**:3-5.
2. **Julious SA.** Sample size of 12 per group rule of thumb for a pilot study. *Pharmaceutical Statistics* 2005; **4**:287-91.
3. **Walters SJ and Campbell MJ** The use of bootstrap methods for estimating samples sizes and analysing health related quality of life outcomes. *Statistics in Medicine* 2005; **24**, 1075-1102.
4. Caldron L.J.M, **Walters S.J.**, Reed J.A., Murphy A., Worley A., Reed M.W.R. Wide variation in mastectomy rates not explained by case-mix adjustment: The management of screen-detected breast cancer in a single UK region 1997-2003. *British Journal of Cancer* 2005. **92(1)**:55-9.
5. **Campbell MJ**, Hodges NG, Thomas HF, Paul A, Williams JG (2005) A 24 year cohort study of mortality in slate workers in North Wales. *J Occupational Medicine*, **55**, 448-453.
6. Greenhalgh J. Knight C. Hind D. Beverley C. **Walters S.** (2005). Clinical and cost-effectiveness of electroconvulsive therapy for depressive illness, schizophrenia, catatonia and mania: systematic reviews and economic modelling studies. *Health Technology Assessment* **9(9)**:1-170.
7. Gulliford MC, Adams G, Ukoumunne OC, Latinovic R, Chinn S, **Campbell MJ.** (2005) Intraclass correlation coefficient and outcome prevalence are associated in clustered binary data. *J Clin Epidemiology*, **58**, 246-251.
8. Jiwa M, **Freeman J**, Coleman M, Joesbury H. Do older patients feel able to cope with illness following telephone consultations? A multi-practice survey in the UK. *Current Medical Research and Opinion* 2005 **21(3)**: 339-343.
9. **Julious SA** and Swank D. Moving statistics beyond the individual clinical trial: applying decision science to optimise a clinical development plan. *Pharmaceutical Statistics* 2005; **4**:37-46.
10. Litchfield J, **Freeman J**, Schou H, Elsley M, Fuller R, Chubb B. Is the future for clinical trials internet-based? A cluster randomised clinical

- trial. *Clinical Trials: Journal of the Society for Clinical Trials* 2005; **2**:72-79.
11. Mitchell C., Walker J., **Walters S.**, Morgan A., Binns T., Mathers N. Costs and effectiveness of pre- and post-operative home physiotherapy for total knee replacement: randomised controlled trial. *Journal of Evaluation in Clinical Practice* 2005; **11(3)**: 283-292.
 12. Pearson T, Russell J, **Campbell MJ** and Barker ME Brief communication: Do food deserts influence fruit and vegetable consumption? - a cross-sectional study. *Appetite* 2005; **45**: 195-107.
 13. Thomas K.J., Macpherson H., Ratcliffe J., Thorpe L., Brazier J., **Campbell M.**, Fitter M., Roman M., **Walters S.**, Nicholl JP. Longer term clinical and economic benefits of offering acupuncture care to patients with chronic low back pain. *Health Technology Assessment* 2005 **9(32)**:1-126.
 14. **Walters S.J.**, and Brazier J.E. Comparison of the minimally important difference for two health state utility measures: EQ-5D and SF-6D. *Quality of Life Research* 2005, **14**:1523-1532.
 15. Kennedy C, McCann D, **Campbell MJ**, Kimm L and Thornton R. Universal newborn screening for permanent childhood hearing impairment: an 8 year follow-up of a controlled trial. *Lancet* 2005, **366**: 660-662.
 16. O'Hagan A, Stevens JW and **Campbell MJ**. Assurance in clinical trials design. *Pharmaceutical Statistics* 2005; **4**: 187-201

Other publications (non refereed)

1. **Campbell MJ** (2005) Life and death decisions: A statistician on a data monitoring and ethics committee. *Significance* , 2, 116-118.
2. **Campbell MJ** (2005) *Cluster Randomised Trials*. In *Encyclopaedic Companion to Medical Statistics* Eds: Everitt BS and Palmer CR: Hodder Arnold, 61-62.
3. **Campbell MJ** (2005) *Sample size determination in clinical trials*. In *Encyclopaedic Companion to Medical Statistics* Eds: Everitt BS and Palmer CR Hodder Arnold, 302-306.
4. **Campbell MJ** (2005) *Time series in medicine*. In *Encyclopaedic Companion to Medical Statistics* Eds: Everitt BS and Palmer CR: Hodder Arnold, 351-355.
5. **Walters S.J.** (2005). Quality of Life Measurements. In *The Encyclopaedic Companion To Medical Statistics*. Eds Everitt BS and Palmer CR. London: Hodder Arnold, 280-284.
6. **Freeman J**, Julious S. The visual display of quantitative information. *Scope: Journal of the Institute of Physics and Engineering in Medicine*. **14(2)**:11-15.
7. **Freeman J**, Julious S. Describing and summarising data. *Scope: Journal of the Institute of Physics and Engineering in Medicine*. **14(3)**.
8. **Freeman J**, Julious S. The Normal Distribution. *Scope: Journal of the Institute of Physics and Engineering in Medicine*. **14(4)**.
9. **Julious SA**. (2005). Two-sided confidence intervals for the single proportion: comparison of seven methods (letter). *Statistics in Medicine* **24**:3383-4.
10. **Julious SA**, Cheung-Stein C and Furlong L. Editorial. *Pharmaceutical Statistics* 2005; 4:85-86.
11. Cheung-Stein C, **Julious SA** and Furlong L. Editorial. *Pharmaceutical Statistics* 2005; 4:1-2.
12. Cheung-Stein C, **Julious SA** and Furlong L. Editorial. (2005). *Pharmaceutical Statistics* **4(1)**:1-2.
13. Cheung-Stein C, Furlong L and **Julious SA** Editorial. (2005). *Pharmaceutical Statistics* **4(3)**:153-4
14. **Julious SA**. (2005). Issues with number needed to treat (letter). *Statistics in Medicine* 2005:24:3233-5.

Books

Machin D and **Campbell MJ** (2005) *Design of studies for medical research*. 274pp Chichester, John Wiley and Sons Ltd.

Invited Conference Talks

Campbell MJ Tales of a statistical reviewer: what to look out for when reading about statistics in manuscripts. *Spanish Biometrics Society Conference*, Oviedo, Spain June

Campbell MJ An introduction to complex interventions, clustering and complexity *International Society for Clinical Biostatistics Annual Conference*, Szeged, Hungary, August.

Freeman J Contextualising learning by involving clinical colleagues: how can it be done? *Annual UK meeting of Teachers of Medical Statistics*. Bristol April.

George, SL and **Julious SA**. Are we getting what we pay for? *American Public Health Association*, Philadelphia, USA, December.

Contributed talks and posters

Julious SA. Common questions from consulting, teaching and students as an applied statistician. *International Statistics Institute Conference*, Sydney.

Freeman J. The impact of continuity of antenatal care on outcomes of labour: a study based in primary care. *34th Annual Scientific Meeting of the Society for Academics in Primary Care*, Gateshead, July.

Freeman J. An evaluation of the effects of caseload midwifery: a retrospective analysis of routine data.. *49th Annual Scientific Meeting for the Society for Social Medicine*, Glasgow, October.

Campbell MJ. A 24 year cohort study of mortality in slate workers in North Wales. *49th Annual Scientific Meeting for the Society for Social Medicine*, Glasgow, October.

Campbell MJ. Assurance in Clinical Trial Design. *International Society for Clinical Biostatistics Annual Conference*, Szeged, Hungary, August.

Other Publication Activities

Steven A. Julious and Jennifer V. Freeman have been commissioned to write a series of statistics articles for the journal *Scope*.

Steven A. Julious has been commissioned to write a series of research articles for the journal *Public Health*.

Steven Julious passed the viva for his PhD entitled "Sample sizes for clinical trials with uncertain estimates of variability" at University College London (Supervisors Stephen Senn and Rex Galbraith).

Seminars

Walters SJ. *Using Poisson regression to model variation in cadaveric organ donation rates in the UK.* Royal Statistical Society Leeds/Bradford Local Group Meeting, Leeds, January.

Campbell MJ *Statistics and NICE: a personal impression.* University of Western Ontario. April.

Campbell MJ *Statistics and Primary Care.* University of Western Ontario. April.

Campbell MJ *Sample size calculations Ethics and tips.* Robarts Institute, University of Western Ontario, April.

PhD Students

Ranjit Lall *Ordinal regression models for quality of life data 2005* (Supervisor MJC).

MSc Students

Ritika Jain. *An investigation of asthma admissions in two cities in Britain* (Supervisor SAJ).

External examining

PhD Examiner University of Manchester (MJC)

MSc Medical Statistics. University of Hong Kong (MJC)

External Positions

Mike Campbell continues to be an Editor in Chief for Statistics in Medicine. He is a member of Appraisal Committee B for the National Institute for Health and Clinical Excellence. He is a member of Panel C12 (Professions Allied to Medicine) for the Research Assessment Exercise 2008. He continues on the Education Committee of the International Society for Clinical Biostatistics (ISCB).

Trials

He chairs the DMEC for ELSA (Trial of Early Stage Labour) University of York and is a member of DMECs for THREAD (Trial of fluoxetine in mild-moderate depression) University of Southampton and FINE (Trial of nurse-lead intervention in CFS), University of Manchester. He is on the TSG for VENUS (Trial of maggots for venous ulcers), University of York and for VULCAN (Anti-microbial treatment for venous ulcers) University of Sheffield. He is on the Academic Advisory Group to the Sheffield Health and Social Care Consortium.

Steven Julious was appointed an Editor in Chief of Pharmaceutical Statistics in January 2005 for 3 years. He also sits on the Scientific Review Committee for the Sheffield Research Consortium and has been nominated to become a Fellow of the Royal Institute of Public Health.

Stephen Walters is the Examiner in Medical Statistics for the Graduate Diploma of the Royal Statistical Society. He is secretary to the Medical Section for the Royal Statistical Society. Stephen is a member of the ELSA (Trial of Early Stage Labour) steering committee, University of York.

Both Mike Campbell and Stephen Walters are reviewers for the BMJ, whilst Jenny Freeman is a statistical referee for the BJGP.

Research Awards and Grants (both new and ongoing)

- J. Freeman:** Senate award for excellence in teaching. June 2005. Collaborative award with Kevin Smith (Public Health), David Staniforth (LDMU) & Steve Collier (LDMU) Total £3,000 for Dept to be spent on teaching resources and £3,000 between applicants.
- M.J. Campbell.** Travel Grant Royal Society £3000. To visit Canada and spend time with Professor Allan Donner
- M.J. Campbell:** Contamination in cluster trials. 2004 Co-applicant £120,00 HTA National Coordinating Centre for Research Methodology 12 months. Principal Investigator: Prof M Bachmann, UEA.
- S.J. Walters** Patient and professional factors influencing choice of surgery in the management of breast cancer: A qualitative and quantitative study. £267,000 50 months 2002-2006. Funding body: Cancer Research UK and Royal College of Surgeons. Principal Investigator: Prof. M. Read.
- S.J. Walters** A randomised 2x2 trial of community versus hospital rehabilitation followed by telephone or conventional follow up; impact on quality of life, exercise capacity and use of healthcare resources. £400,000. 48 months 2002-2006 Funding body: NHS R & D HTA Principal Investigator: Dr R. Lawson.
- S.J. Walters** An Investigation Of Organisational Factors Influencing Waiting Times In The Emergency Department. £200,000. 24 months Funding body: NHS SDO National R & D Programme Principal Investigator: Dr S. Mason.
- S.J. Walters** Comparison of review methods for evaluating quality and safety in health care £472,000 36 months 2004-2007. Funding body: Department of Health Principal Investigator: Prof. A. Hutchinson

Future Plans

2006 will be a period of consolidation for the group. In research we will continue to investigate practical applications of the latest theoretical research. In teaching we plan a number of innovations including: an MSc in Medical Statistics by distance learning, a generic 'Introduction to Medical Statistics' for the BMedSci and the MPH and a 'Further Medical Statistics' course for the MPH and RTP.

MJC and SJW are revising 'Medical Statistics a Commonsense Approach' Wiley 1999, with David Machin.

JF, SJW and MJC are writing a book on 'How to display data' for Blackwells.

SAJ is writing two books:

- i) Clinical Trial Design for Chapman and Hall.
- ii) Early Phase Trials (with Say-Beng Tan and David Machin) for Wiley.