Regional Newsletter, December 2017

In this issue

ELIZABETH WILLIAMSON & ROLAND LANGROCK

Welcome to the slightly belated December 2017 issue of the BIR Newsletter. This issue contains reports from our recent meeting celebrating young biometricians, as well as updates and news from our regional officers. We provide details of upcoming meetings and conferences, including the International Biometric Conference to be held in Barcelona in July 2018. Do make a note of our forthcoming events in your diary. We would love to hear from you if you have items to share in future newsletters. To get in touch, just send a message to elizabeth.williamson@lshtm.ac.uk.

President's corner

MARTIN RIDOUT

One of the main things that the Region does is to support career-young Biometricians. This is evident through free student membership and support for attending International Biometric Conferences and Channel Network Conferences through bursaries that are jointly funded by the Fisher Memorial Trust. In addition, during his term as President some years ago my colleague Byron Morgan initiated the biennial Young Biometrician Award, also co-sponsored by the Fisher Memorial Trust. This year it ran for the fourth time, attracting a strong field of entries, and I'm very grateful to Rosemary Bailey, Simon Thompson and Graham Hepworth, for undertaking the difficult task of judging the entries.

Following the 2017 AGM, our autumn meeting featured talks by this year's winner, Anaïs Rouanet, and the previous two winners David Robertson and Doug Speed, all of whom gave excellent talks. The meeting finished with a talk by ex-BIR and ex-IBS president John Hinde, who spoke about 'Translational Statistics'.

The autumn meeting was held in the comfortable surroundings of the Hardy room at the London Mathematical Society. There is another chance to visit the same venue on 18 April 2018 for our next meeting which is on the theme of recent developments of the bootstrap.

The BIR Committee is an ever-changing entity and I'd like to welcome new members Ruth King (incoming Vice President), Nicole Augustin and Mike Sweeting (BIR members of IBS Representative Council) and Emanuele Giorgi, Ruth Keogh and Kirsty Hassall (ordinary committee members). Amongst the departures, John Matthews has completed his term as outgoing Vice President, and I'd like to reiterate my thanks to John for all his support during my own period as President. Roland Langrock has amongst other things done a fine job of producing this Newsletter. Mark Brewer has finished his term as Treasurer, a job that he has done with quiet efficiency for several years. Mark continues his involvement with the Society as a member of the IBS Executive Board. Lisa McFetridge (previously McCrink) has been re-elected to the Committee as our new Treasurer.

By the time I write my next President's Corner, the IBC in Barcelona will be almost upon us and I hope that the convenient location will encourage many members of the BIR to attend and engage with international colleagues.

Celebrating Young Biometricians!

SUE WELHAM

This meeting on 28th November, following our AGM, gave a platform for the three most recent winners of the Young Biometrician Award to talk about their work. The AGM ended with presentation of the 2017 Award to Anaïs Rouanet of the MRC Biostatistics Unit in Cambridge, and Anaïs then gave a presentation on the work in her award-winning paper. Anaïs talked about modelling the course of dementia to identify risk factors, allowing for some heterogeneity in the progress of the disease across different sub-groups of the population, with these sub-groups identified within the analysis. Her model recognises that cognitive ability is only measured periodically, and that the risk of death is also present, and may be related or not to the presence of dementia. One interesting outcome of the model is the ability to quantify the expected course of natural cognitive decline as opposed to that in-

duced by dementia. Anaïs gave a clear account of a model addressing a complex and important biological problem, an excellent biometrical application.

The second talk was given by David Robertson (also of the MRC Biostatistics Unit), winner of the 2015 Award. David spoke on methods for correcting for selection bias in two-stage trials, where candidates are identified at the first stage of a process then studied in more detail at a second stage. An unbiased estimate can be obtained from just the second-stage data, but it is more efficient to use the data from both stages so long as the selection process is recognised within the estimation process. Examples included the identification of questions with good power to predict disease risk in a Family History Questionnaire and SNPs within a genome-wide association study (GWAS).

The third talk was given by Doug Speed (now at the Aarhus Institute of Advanced Studies in Denmark). Doug was the winner of the 2013 Award and gave an entertaining account of the lively published discussion surrounding his award-winning paper on estimating heritability associated with SNPs in GWAS. The dispute concerned the relative performance of the method in Doug's paper (LDAK) with a well-known alternative, with the two methods sometimes giving very different answers. Unsurprisingly, both methods perform well under simulation when the assumptions underlying that method are present in the simulated data, which highlights an important question about the value of simulation studies. The discussion is still ongoing, and is one that biometricians analysing GWAS studies should watch.

The final talk of the afternoon was given by John Hinde, former President of the region and the international society. John talked about the concept of translational statistics. This recognises that many statistical concepts and outputs from analysis are difficult to understand for many people without good mathematical skills, and seeks to find ways to make both the results and their associated uncertainty easier to understand so that researchers can make best use of them. He also touched on the issue of reproducible research, ensuring that trials can be replicated and the analysis validated.
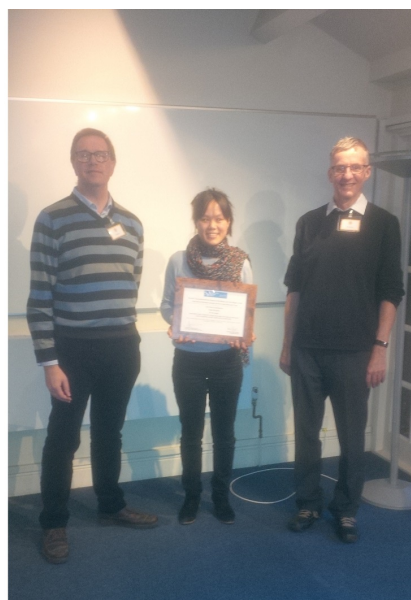
The slides from all 4 talks are available to BIR members on our regional website at http://bir.biometricsociety.org/events/ybameet.

David Hughes — honourable mention in the YBA 2017

Emily Dennis — honourable mention in the YBA 2017

Anaïs Rouanet, winner of the YBA 2017

Report from the winner of the Young Biometrician Award

ANAÏS ROUANET

I am truly honored to receive the Young Biometrician Award from these two prestigious societies, and thankful for the recognition given to young researchers. This represents a significant boost in our early career and great encouragement to pursue what motivates us. I also really enjoyed meeting the members of the IBS-BIR committee and the previous YB awardees in London.

I completed my PhD, supervised by Hélène Jacqmin-Gadda, in the Biostatistics team of the Inserm Research Center (Bordeaux, France) in 2016 and I am currently working as a research associate in the Medical Research Council Biostatistics Unit, Cambridge University (UK) with Brian Tom and Sylvia Richardson. My research is focused on the study of dementia, which is one of the main causes of dependency and disability among the elderly, with a growing burden as the world's population is ageing. In 2012, the World Health Organization recognized dementia as a public health priority, rising awareness on its health, social and economic costs. My work aims at studying and developing statistical methods to better understand the natural history of dementia and cognitive ageing and to enhance earlier diagnosis based on repeated measures of cognitive markers.

In studies of pre-dementia cognitive decline, cognitive decline and time-to-dementia onset are highly correlated. Moreover, cognitive decline is known to be heterogeneous in the population. The competing risk of death must also be considered in the elderly as death and dementia have common risk factors. Finally, in cohort studies, time-to-dementia is interval-censored since dementia is assessed intermittently. Thus, subjects can develop dementia and die between two visits without being diagnosed, possibly leading to an underestimation of the risk of dementia.

In our Biometrics paper, we proposed a joint latent class model combining a (possibly multivariate) mixed model and an illness-death model handling both semi-competing risks and interval censoring, by accounting for a possible unobserved transition to dementia. Parameters are estimated by maximum likelihood handling interval censoring. The correlation between the marker(s) and the times-to-events is captured by latent classes, homogeneous sub-groups with specific risks of death, dementia, and profiles of cognitive decline.

This type of model is of interest for etiologic analyses to distinguish different profiles of cognitive decline associated with risks of dementia and death, to identify homogeneous sub-groups in the population for precision medicine purposes, or to compute individual dynamic predictions of the time to dementia based on repeated markers.

In my current project, I extend mixture models in order to handle different types of markers, such as longitudinal cognitive tests and/or brain imaging biomarkers and highly correlated genetic ones, in an Bayesian integrative analysis. This is part of the Dementia Platform UK project created by the MRC, which aims at giving access to a large data resource for person-focused dementias research in order to fast-track scientific understanding, treatments and prevention of the disease.

IBC 2018 - Barcelona

SUE WELHAM

The 2018 IBC will be held at the Barcelona International Convention Centre during July 8-13. The deadline for submission of abstracts for contributed papers and posters has been extended to 19th January. The BIR (in association with Fisher Memorial Trust) has a bursary scheme for young biometricians (details in another article) but this requires presentation of a paper or poster, so do remember to submit an abstract if you wish to apply to this scheme. The IBS also has a competition open to young biometricians presenting their work, called the 'Young Biometricians Showcase Competition' which provides funding of up to US$3000 to attend the conference (full details via https://www.biometricsociety.org/2017/10/call-for-papers-young-statistician-showcase-at-ibc2018-barcelona-spain/). Registration is not yet open but is expected to open soon, with early-bird registration available until 16th April.

Barcelona

Rothamsted Research to host 2019 CNC

KIRSTY HASSALL

The next Channel Network Conference will take place at Rothamsted Research (Harpenden site) from Wednesday 10th to Friday 12th July 2019. This is a particularly opportune time for Rothamsted to host the Channel Network conference as 2019 sees the centenary celebrations of Fisher's appointment to Rothamsted kick-starting a long history of applied statistics in biological applications at the research institute.

A full programme of invited and contributed sessions is planned, beginning with a series of short courses and including a poster reception. In addition, it is proposed that the 2019 Fisher Memorial Lecture, along with an RSS special session will take place at the 2019 CNC. There will also be an opportunity to visit the "classical experiments", including Broadbalk (figure below), which in 2019 will be in its 176th year of experimentation investigating the effects of fertilizer regimes on wheat yields.

Broadbalk at Rothamsted Research

R.A. Fisher was the first president of the International Biometric Society and in keeping with the society and previous channel network conferences, it is anticipated that a broad range of topics representative of the society will be covered at the conference. In the words of the IBS website, "The International Biometric Society is an international society promoting the development and application of statistical and mathematical theory and methods in the biosciences, including agriculture, biomedical science and public health, ecology, environmental sciences, forestry, and allied disciplines." Rothamsted Re-

search looks forward to hosting this conference and to meeting many of you there – save the date!

There's more to the bootstrap than sampling with replacement…

DANIEL FAREWELL

We are very pleased to announce the next scientific meeting of the British and Irish Region of the International Biometric Society, on the theme of the modern bootstrap. Our speakers include Adriana Cornea-Madeira (York), Richard Everitt (Reading) and Alastair Young (Imperial), with topics to include the bag of little bootstraps and block bootstrap methods. The meeting will take place at the London Mathematical Society (Russell Square, London) on the afternoon of Wednesday 18 April 2018.

New committee members

Mike Sweeting

Mike is an Associate Professor of biostatistics based in the Department of Health Sciences at the University of Leicester and has ties with the Cardiovascular Epidemiology Unit at the University of Cambridge. He has previously worked on a number of projects in observational epidemiology and clinical trials including assessing the accuracy of haemoglobin testing devices in 30,000 blood donors, surgical trials in patients with abdominal aortic aneurysm (AAA), and developing a micro-simulation health economic model for AAA screening.

Mike Sweeting

Mike currently co-ordinates a programme of research to link national cancer and cardiovascular audit data to advance understanding of the interactions between cancer and cardiovascular disease from real world data.

Mike's current methodological research includes developing statistical methodology for incorporating repeated measures of risk factors into clinical prediction models, and developing dynamic approaches to optimise surveillance intervals and treatment options in screening programmes. In particular, Mike is interested in the utilisation of routinely collected general practice data for targeted surveillance strategies.

Kirsty Hassall

Kirsty is a scientific statistician at Rothamsted Research working in a wide range of biological and agricultural applications, including data from molecular cell biology, 'omics technologies, field experiments and observational landscape studies. Kirsty previously completed a PhD in Statistics from the University of Warwick in 2015.

Kirsty Hassall

Her current research focuses on the incorporation of data from multiple diverse datasets as well as from expert knowledge within unified modelling frameworks. More generally, Kirsty is interested in translating data from new technologies, which often present new problems to standard methods of analysis, into usable information, particularly through the use of multivariate methods, state space models and spatial statistics.

Emanuele Giorgi

Emanuele is a biostatistics fellow of the Medical Research Council based at Lancaster University, where he obtained a PhD in Statistics and Epidemiology in September 2015.

He formerly completed an MSc in Statistics in 2012 at the University of Padua in Italy.

His research focuses on the development of novel statistical methods for applications in tropical disease epidemiology, in particular malaria and neglected tropical diseases.

Emanuele Giorgi

Two of his current projects are on joint geostatistical modelling of prevalence data from multiple diagnostics procedures and on the development of early warning systems for disease outbreaks in low-resource settings.

He is also a lecturer for African Institute for Mathematical Sciences in Ghana and Tanzania and a member of the College of Experts of the Africa Research Excellence Fund. One of the driving factors of Emanuele's work is to contribute to capacity-building of statistical education and expertise in Africa.

Ruth Keogh

Ruth is a statistician and Associate Professor in the Medical Statistics Department at the London School of Hygiene & Tropical Medicine. Her work interests encompass both statistical methodology and applications and she is funded by a Medical Research Council Methodology Fellowship. Ruth's current research includes a focus on methods for predicting survival using large patient databases using an approach called landmarking. This work is motived by an aim of making dynamic predictions of survival and times to other events for people with cystic fibrosis using data from the UK Cystic Fibrosis Patient Registry and other national registries.

Ruth Keogh

Ruth has a number of other research interests, including estimation of treatment effects using observational data; use of multiple imputation to handle missing data in survival studies and in case-control studies; and methods to correct for the effects of exposure measurement error, particularly in the field of nutritional epidemiology. She is looking forward to being a committee member.

Bursaries to attend IBC 2018

Sue Welham

The IBS British and Irish Region will be awarding up to 5 bursaries, each of up to £500, to help career-young biometricians attend and present their work at the IBC in Barcelona (July 8-13 2018, see http://2018.biometricconference.org/). The scheme is co-funded by the BIR and the Fisher Memorial Trust. Applications should consist of a one-page cover letter, a two-page CV, and the abstract submitted to the conference website. In the cover letter, please make your case for support, stating clearly any other financial support you have for attending the conference, and outlinin the importance of the conference to you. Please ensure that your CV makes clear that you are 'career-young' i.e. that you have not been employed as a biometrician for more than five years. Preference will be given to those who have been employed as biometricians for less than three years. Applicants must be members of the British and Irish Region of the IBS and employed or studying in the UK or Ireland at the closing date for applications, but members who join after 1st January 2018 may only qualify for a reduced bursary.

Applications should be submitted by email to the BIR Secretary (Sue Welham, email stats4biol@gmail.com) by 31st January 2018 and applicants will receive a decision by 23rd March 2018 (during the period for early-bird registration).

The award is contingent on your abstract being accepted for oral or poster presentation and you will be expected to submit a report on your attendance at the conference and its benefits for young biometricians.

Note that the last date for submission of abstracts on the conference website is 19th January 2018.

The IBS, The British and Irish Region, and Brexit

Mark Brewer & Lisa McFetridge

As we wrote in this newsletter a year ago, the Brexit-induced changes in currency exchange rates between the pound sterling and US dollars have meant that our current subscription rates are no longer sustainable. This is because the Region has to pass on subscription fees to the international Society, and those fees are set in US dollars. The international "full member" rate has been set at $60 for a number of years now, and until June 2016 the equivalent Region rate of £40 was sufficient – but this is no longer the case.

Exchange rate changes now mean that $60 now equates to a little over £45, meaning that the Region committee must now, regretfully, increase the Regional subscription rates. We have delayed this decision for a year, choosing instead to use our cash reserves – but of course we cannot maintain this forever.

At a meeting in September 2017, the BIR Committee decided to raise the Full Member rate to £45. Some members will remember that this was the rate some years ago, and that in fact the Region reduced rates when circumstances allowed; in fact, many of you reading this will need to take no action, as your standing orders are already set at £45, reflecting that earlier rate! The Committee decided to keep the Retired Member rate fixed at £20, with the cost of printed journals now at £10 each (from £7) – which still seems like a bargain! Student memberships are still free.

We would urge everyone to please check their standing orders to reflect the new rates, summarised below. We can only apologise for these changes, which have been forced upon us.

2018 Subscriptions due!

MARK BREWER & LISA MCFETRIDGE

Your membership of the International Biometric Society, British and Irish Region is now due for renewal. The fees for 2018 are now:

- Full Member: £45
- Retired Member: £20
- Biometrics and the Biometric Bulletin: £10 extra
- JABES and the Biometric Bulletin: £10 extra
- JABES, Biometrics and the Biometric Bulletin: £20 extra
- Student Member: Free (Note: please renew your membership for 2018 on the website)

If you are a full or retired Member, there are several ways that you can pay for your membership for next year.

- Standing order: If you have set up a standing order your membership renewal is automatic each year. If you would like to set up a standing order please contact Lisa McFetridge (L.McFetridge@qub.ac.uk);
- Paypal: Go to https://biometricsociety.org.uk/amember/ to pay your membership fees;
- Cheque: If you pay by cheque, please send the form at the end of this newsletter with your cheque to Lisa McFetridge (address is on the form).

Please advertise the society widely amongst your colleagues!

Any new members can join the society by visiting http://bir.biometricsociety.org/membership.

International Biometric Society, British and Irish Region

RENEWAL OF MEMBERSHIP for …………………………………………………….. (name)

MEMBERSHIP CATEGORY: Please check

FULL member ☐ (Annual Subscription 45 pounds sterling) Full benefits of the Society including electronic subscription to Biometrics, Journal of Agricultural, Biological, and Environmental Statistics (JABES) and the Biometric Bulletin, voting privileges and the right to hold elective office.

RETIRED member ☐ (Annual Subscription 20 pounds sterling) All the rights of Full Membership. The retired category is open to anyone who has been a member for at least 10 years, and who is no longer in paid employment (working less than 0.2FTE).

Members have the options of receiving paper copies of the journals. Please check if applicable:

Biometrics and Biometric Bulletin £10 extra	☐	JABES and Biometric Bulletin £10 extra	☐	Biometrics, JABES and Biometric Bulletin £20 extra	☐

Please detail any changes to contact details here:

Title _____

Organisation _____

Address _____

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_____

Telephone _____ Fax _____

Email _____

You can renew your subscription online at http://bir.biometricsociety.org/membership (see foot of page). If this is not possible, then please send this form with a cheque made payable to 'BIOMETRIC SOCIETY' to Lisa McFetridge (Treasurer), Mathematical Sciences Research Centre, School of Mathematics & Physics, Queen's University Belfast, Belfast, BT7 1NN.

If you would prefer to pay by standing order or bank transfer, please contact Lisa at L.McFetridge@qub.ac.uk for details. Note that with online membership renewal, payment can be made via PayPal (but please note you do not in fact need a PayPal account – just a debit or credit card).