ISSN 2397-9917

Issue 14
Winter 2020- 2021

Galton Institute
Exploring Human Heredity

The Galton Review

CONTENTS

Front Cover Image: Robert Johnston

Published by:

The Galton Institute, 19 Northfields Prospect, London, SW18 1PE

Tel: 020 8874 7257 www.galtoninstitute.org.uk

General Secretary: Mrs Betty Nixon

executiveoffice@galtoninstitute.org.uk

Review Editor: Mr Robert Johnston

EDITORIAL

As I write this, vaccination against Covid-19 is starting across the UK so perhaps we can now dare to hope that the end of this pandemic isn't too far away. 2020 has, for many, been a year to forget but at least the endless sunny weather earlier in the year did wonders for the Passionflower in my garden so I decided to use it as our cover photo in the hope it might provide some cheer.

In this issue, Professor Dallas Swallow gives us a glimpse into her life and career as our subject in 'My Life in Genetics'. She reveals that her fascination with Genetics was born out of a chance purchase of a book. We have her mother to thank for providing the initial stimulus. There is also an account of work from CHASE Africa who received a grant from the Artemis Trust. It is most gratifying to read that the money is being put to such good use.

You may have seen on our website that the Trustees are considering a change of name for the Galton Institute and a working group has been set up to deliberate on the matter. More information will appear in due course.

Robert Johnston

My Life in Genetics

An Interview with Professor Dallas Swallow
Trustee of the Galton Institute

Tell us about your family and early education

I was born in the industrial town of Rotherham in Yorkshire, where my father had just taken on his first role as a Church of England Vicar. He was a former school teacher, who had been a first generation Cambridge graduate. His father came from a

family of steel workers but he was a Clerk in the Sanitation department in Sheffield.

My first school, from which I took the 'eleven plus', was good, though it was pretty tough. Discipline was maintained by a good measure of terror and the use of a ruler to strike a leg of naughty boys, who were hauled behind the blackboard for this treat! There was however a strong work ethic, which was supported by the families, as much as the discipline. All the other kids were children of miners and steel workers or lived at the local Barnardo's Home, and there was no truancy.

There were lots of playground and street games which were seasonal, and fun, and a walk across Rotherham once a week to the local swimming pool. Woe betide you if you stepped out of line! I learnt the hard way that you were then not allowed to swim. This all contrasted dramatically with the village school where I was later to spend a term, and kids mooched around reading comics in the breaks and all failed the 11 plus.

My mother, who was very much younger than my father, was a southerner and hated life in the North, so once my grandparents had died, persuaded my father to move to a much more comfortable parish near Cambridge, where I had the benefit of the excellent 'state' high school for girls.

What first appealed to you about studying genetics?

Otherwise a healthy child, I had a long and rather serious bout of 'flu when I was about 14 or 15. Keen to find something to interest me, my mother brought a children's book about Gregor Mendel back from the library. I was hooked! I loved the

segregation analyses - and had my own opportunity to try it out for myself in a project on radishes set up in school by someone from the University. I recall eating quite a few, (the ones hard to classify, if my memory serves me correctly) and suspect the data were thereby distorted!

Who have had the greatest influence on your work?

My fascination with Genetics led me to seek out a relevant degree course - and only a couple of universities did Genetics as such, at that time. I rebelled against school pressure to stay on for a third year in the sixth to sit for Oxbridge. Living in Cambridge, I felt there was too much inter-school rivalry and associated snobbery, and I wanted to get away from home.

Following advice from zoologist Martin Wells I went up to St Andrews to study Zoology. I acquired my Attestation of Fitness to study at a Sottish University, and entered a four year course, much to the annoyance of my school. At the time, English Universities almost all had 3 year courses. I was told by the school that I would be bored in the first year, because Scottish students entered younger and less qualified, but far from it; there were for example, remedial Maths classes for the English students who had not completed a 'Higher' in Maths, unlike their Scottish counterparts.

To get to St Andrews involved a long train journey ending up at Leuchars Junction, where one caught a branch line. I arrived at St Andrews station with a suitcase that I could barely lift (there were no wheelies in those days), which I dragged to my digs. I had never in my life taken a taxi and

did not consider this as an option.

HG (Mick) Callan who supervised my undergraduate project, was the first major influence on my career. He taught me the importance of patient observation and was the first to introduce me to the simple relationship between allelic variation and chromosomal bivalents - it was actually possible to *see* alleles in the amphibian lampbrush chromosomes- Callan HG and Lloyd L (1956) Visual demonstration of allelic differences within cell nuclei. ***Nature*** **178**: 355-357. Presumably these were structural rearrangements rather than SNPs, but what a wonderful way to learn!

In my Biochemistry classes I was given an article by Harry Harris, David Hopkinson and others to read. I can no longer recall which isozymes were reported, but relating all those blobs detected on starch gels, to alleles was much more of a challenge. I nevertheless ended up in UCL with Harry Harris as my PhD supervisor. He was a stimulating, but not intrusive supervisor, who taught me to really look at data. He certainly did not (re)write a word of my thesis. There were also so many experts around to learn from - for example Gerald Corney, who introduced me to clinicians and taught me how to communicate with collaborators and others, and introduced me to medical ethics; David Hopkinson, how to figure out how to do things in the lab; and many others.

What was your most exciting moment in the lab?

In the 1980s we had discovered a polymorphism of a urinary mucin, later known as MUC1, and we showed that the same polymorphism was detectable by existing monoclonal

antibodies raised against a cancer antigen, but were told by a referee that our interpretation that these were a reflection of segregating allelic (size) variants of the same glycoproteins was 'scientifically unsound'. Thus it was all the more exciting that when we re-probed a 'Southern' blot, with the first cDNA probe encoding the breast cancer mucin, and prepared by Joyce Taylor's lab at the ICRF, that it looked exactly like a Jeffreys 'VNTR'- polymorphism. What an exciting moment! We had indeed found an expressed VNTR.

What do you consider to be the greatest challenges for genetics in the future?

There have been high expectations for genetics and hope that what we learn will improve health. Knowledge of genetics has for a long time been able to help with diagnosis, prevention and in some cases treatment of Mendelian disorders but the great challenge is to better understand multifactorial genetic susceptibility conditions.

I always had my doubts that completing the human genome sequence would on its own lead to breakthrough, since it seemed predictable that regulatory variation would be more important in such conditions and these are particularly hard to track down. However once this is understood, manipulating the environment, or indeed gene expression, is likely to provide a less invasive approach to prevention and treatment. In my view the huge emphasis on overcoming the technological and computational challenges has obscured the value of careful observation, classification and understanding mechanism, which it will be necessary to return to.

What do you think the Galton Institute can contribute to the field of genetics?

The Galton Institute does not have a role in advancing genetic knowledge as such, rather to educate in the area of genetics, through its conferences and its publications. The Institute started out its life as the Eugenics Education Society with a goal of educating the public on the role of genetics in improving society. This goal turned sour because it was mixed with social ideas that we no longer find acceptable, and were hijacked in more extreme form by the Nazis and others. Some of the ideas also turned out to be erroneous—such as removing intellectual disability by selective breeding; some were extremely racist and quite unfounded.

We must try to learn from the mistakes of the past. To do this GI should not only keep alive the history of scientific advance in the field, including the ground breaking work of Galton and others, but how these advances also spawned and added fuel to toxic ideas. It needs to provide a forum for discussion, particularly in the area of ethics, of how advances in genetics can be used in a beneficial way and what are the risks of harm. It needs to keep up to date with societal changes, but at the same time challenge ideas that become popular myth.

Previous contributors to the *My Life in Genetics* series are:

Professor David Galton	Issue 13
Professor Andrew Read	Issue 12
Professor Veronica van Heyningen	Issue 11
Professor Dian Donnai	Issue 10
Professor Philippa Talmud	Issue 9

CHASE Africa

A progress report to the Artemis Trust of the Galton Institute

1st January – 30th June 2020

It has been an unusual year for us all, and there have been significant challenges to the work of CHASE Africa and Dandelion Africa (our implementing partner in Kenya) over the last few months. However, Dandelion has adjusted well to an altered method of reaching people with family planning information and services to comply with government guidelines and restrictions amid the COVID-19 pandemic, ensuring that these vital services have been maintained as far as possible.

Outputs

Over the past 6 months, Dandelion has been able to run 4 family planning and healthcare day-clinics. It was planned that 24 clinics would take place, but this turned out not to be possible due to various obstacles. Lengthy negotiations with the Eldama Ravine Ministry of Health (MoH) at the beginning of the project caused a slight delay in getting started. Then, due to the marginalisation of the locations chosen to work in, it was decided to begin the day clinics in February, allowing the Community Health Volunteers (CHVs) time to improve aware-

ness in the communities before the day clinics began. In mid-March the COVID-19 pandemic resulted in strict restrictions in Kenya, as in the UK, and the day clinics were not permitted.

A team of 12 Community Health Volunteers (CHVs) have been trained and have been making door to door visits to educate people about family planning and make referrals to 6 nearby link facilities. This work has proven to be a very effective means of increasing awareness of family planning and increasing uptake of family planning methods.

Through this project, a total of 3,499 people (2,495 women and 1,004 men) were reached with information and awareness raising on family planning. This number is significantly lower than the 17,000 people anticipated due to the lower number of day clinics we were able to run. The day clinics attract large crowds and the CHVs and other educators are able to share family planning information with large groups of people, which has not been possible during the pandemic. Chiefs meetings are also normally used as a means to reach community members. Since mass gatherings were suspended, it has been hard to reach large numbers of people at once. Instead, the door to door visits that have taken place throughout the pandemic have enabled a more focussed approach, enabling more in-depth discussion between CHVs and individual clients.

The awareness raised through day-clinics and Chiefs meetings is a more light-touch education to greater numbers of people, and it doesn't allow for private, personal questions and answers between educators and the audience. The results of these one-to-one conversations have been positive and we have seen a particularly high number of first time users of family planning during the past 6 months. The in-depth dialogue

with individuals has been an effective way to give women confidence to try using contraceptives for the first time.

In the first half of this year, 2,341 women received a family planning method of their choice through this project. This number exceeds the number of women we anticipated would choose to use our family planning services over this period of time. We expected the number to be around 1,620 in the Eldama Ravine area. Of the 2,341 women, 1,086 were first time users of family planning, and the total couple year protection provided was 4,010. We are delighted with these results that have been achieved even under such challenging circumstances.

Challenges and consequent changes that had to be made

During the inception of this project this year, Dandelion Africa held a stakeholders meeting with the Eldama Ravine sub-county health management team. This was a planning meeting where the work plan for the four quarters of 2020 was formulated. Tugumoi and Soy-Emining were new sites suggested by the MoH due to the distance and lack of family planning knowledge in those areas due to its remoteness. It was agreed that day-clinics would begin in February to give the CHVs enough time for adequate awareness raising.

The negotiations between Dandelion Africa and MoH Eldama Ravine took time due to arrangements for the provision of commodities and supervision by the MoH to the health facilities to which referrals were being made. A stock out of commodities also posed a problem in Ravine sub-county, so to mitigate this Dandelion purchased contraceptives to enable the work to proceed.

Misconceptions about family planning usage is still high in rural areas of Eldama Ravine, meaning many people do not trust modern contraceptives and are unwilling to use them. Issues of stigma and a lack of men's involvement has been a hindrance to the uptake of contraceptives in the area. As such, an effort was made to target men during the outreaches since they pose a great barrier to contraceptive use.

Lack of confidentiality by service providers has seen a lot of women refusing to be served by nurses they know during outreaches. We recommend support to mentor / train service providers on Patient Confidentiality.

In mid-March the outbreak of COVID-19 was announced in Kenya and this resulted in the closure of schools, banning of gatherings and government directives to observe social distancing including 'stay home' directives. Consequently, day clinics and monthly meetings of CHVs had to be suspended.

With the coronavirus outbreak, an increase in stigma, fear and anxiety was observed among community members towards CHVs. The CHVs had difficulty accessing households in the villages because most families were afraid of COVID-19 hence they were hesitant in welcoming CHVs, hindering the house to house visits. PPE was provided for all CHVs (thanks to specific funding from another donor) and COVID-19 prevention training was facilitated through the MoH.

CHVs then provided a combination of COVID-19 sensitization and information concerning family planning during their house visits. CHVs were provided data bundles to enable them to take part in WhatsApp trainings and give them a direct link to

health care providers where they can ask any questions they may have and receive instant answers. This has ensured that CHVs give out correct information to the clients.

Heavy rains and poor infrastructure hindered performance with rivers flooding and roads impassable making it difficult for referred clients to access health facilities. To mitigate this, we plan to start a 'Back Pack Nurse Model' in the 3 villages most affected by poor access i.e. Gatarakwa, Igure and SoyEmining. The nurses will take a back-pack of medical supplies and contraceptives and visit a designated location to provide services in communities where people struggle to access a health facility. Each Backpack location should reach around 40 women per month and 720 women will be reached with contraceptives in 6 months.

The Backpack Nurses (BPN) will make visits once per month in each of the three different villages, and CHVs will increase family planning awareness. Two nurses will work together at the BPN sites. We will use both motorbikes and vehicles for hire depending on the weather conditions to access these sites. Dandelion will provide hand-washing facilities at each BPN site and will maintain social distancing for clients by ensuring the location selected has enough space and is pre-approved by the MoH. BPNs will provide immunisations, family planning, cervical cancer screening and pre- and post natal care.

In addition to the Back-pack nurses, Dandelion will also be working with 26 more MoH CHVs that already work in the target areas, who will assist with raising awareness of family planning. Those CHVs are already established through the MoH so no additional financial contribution is necessary through this project, except that each CHV will be provided

with a data bundle, giving them access to the training and expert advice available via WhatsApp to the other 12 CHVs.

At the time of writing, mobile day clinics are still suspended due to overcrowding, but MoH Eldama ravine sub-county has now allowed CHVs' monthly meetings and trainings as long as social distancing is enforced, facemasks are worn and hand washing facilities are provided. Online training and WhatsApp communications for CHVs will continue.

The coronavirus pandemic necessitated changes to our delivery methods and forced the suspension of our large day-clinics. We are delighted that, despite this, we have still managed to exceed the expected number of women to receive family planning, and 46% of those women were first-time users. This shows the effectiveness of the CHVs home visits even amid people's fears of COVID-19, and perhaps to some extent because of those fears causing people to want to avoid pregnancy at this time.

Despite the limitation to the number of people we were able to reach with information and awareness raising on family planning, it is hugely encouraging that more than the expected number of women have chosen to receive family planning during this 6-month period, even with reduced expenditure, and the project overall has been a great success.

We are very grateful to the Artemis Trust of the Galton Institute for helping to fund this project. The Trust's contribution is especially valuable to this project.

CHASE Africa, July 2020

British Society for Population Studies
2019 Conference, Cardiff University

The conference was a mix of papers from all parts of the demographic community: academic, local government, NGOs, and from senior researchers, early-career researchers and postgraduate students. The overall satisfaction level of the 200 who attended was high. BSPS covered the costs for a number of bursaries to allow student members presenting papers or posters to attend free of charge. Thanks are due to the **Galton Institute** for their support.

Over the two days, 133 papers were presented, with five simultaneous strand sessions running over most of the programme. Additionally, there were two ONS-produced sessions on developments in official population statistics, a training session on the analysis of longitudinal data using the UK Longitudinal Census Studies, and a training session on learning from data journalism and datavis. Additionally, an early career panel on grant applications was convened by **Dr Julia Mikolai** from the University of St. Andrews. **Dr Paul Norman** from the University of Leeds convened a novel session: *What is?* A number of presenters introduced a quantitative method, explained what could be done with it and with which kinds of data and gave example results and pointers to further materials. The presentations from this session can be accessed here:

https://www.researchgate.net/project/What-is-introductions-to-various-demographic-methods .

There were two plenary sessions and an early-career plenary.

Plenary 1: (with thanks to Judith Lieber, London School of Hygiene & Tropical Medicine for this report). **The health and care needs of future older populations: opportunities or challenges? – Carol Jagger (University of Newcastle)**

Professor Carol Jagger (Professor of Epidemiology of Ageing) delivered the first BSPS 2019 plenary. Her presentation focused largely on the UK government's target to increase healthy life expectancy by 5-years by 2035, while reducing the inequality between the richest and poorest populations. In particular, Professor Jagger queried the feasibility of this target, given the experience in EU countries, and previous and predicted trends in health in the UK.

Professor Jagger began with an explanation of the difference between life expectancy and healthy life expectancy (HLE), with a quote from a previous Director-General of the WHO describing increasing life expectancy without quality of life as an "empty prize". Jagger first examined trends in HLE across 28 EU countries, both HLE at birth and the gap between the highest and lowest country's HLE, as the European Union had set a target of two extra healthy life-years over a 10 -year period, and a reduction in inter-country inequalities. The results revealed that the EU had reached the target for men but not for women, and that the gap in country's HLE actually increased over the time period, reaching an over 20-year inter-country difference by 2017.

Jagger's presentation then moved onto the impact of potential ageing, and various care related versions of healthy life expectancy. In contrast to common perceptions of old-age care in the UK, most care for medium and high dependent old-

er adults is provided by their children, and older people with high needs are increasingly cared for in the community rather than care homes.

The next step was to try and understand how current UK population and health trends are predicted to influence future healthy life expectancy. Using a dynamic microsimulation model (PACSim) and data from the Office of National Statistics and several large-scale UK household surveys, Jagger and colleagues demonstrated that the majority of gains in life expectancy at 65 will be in years with 4+ chronic conditions, and the population with 4+ conditions is expected to double by 2035. This will have huge implications for wellbeing of the population and health system.

The WHO has proposed a public-health framework for maintaining the physical independence of the population, a large component of which is preventing chronic conditions. Professor Jagger highlighted the interesting and unexpected effects that intervening on different risk-factors could have on HLE. For example, because smoking is linked more to mortality than disability, and obesity more to disability than mortality, tackling obesity would have a larger effect on preventing the expansion of disability.

Professor Jagger finished the plenary with some practical strategies for improving quality of life alongside longevity, for instance noting a need for high quality evaluations of the effect of social innovations on health, and a summary of current trends (including rising inequalities). Finishing on a positive, Jagger highlighted the malleability of ageing and potential opportunities of population ageing, which she proposed can be achieved through a long-term focus on preventative care and healthy life expectancy.

Plenary 2: The second plenary was given by **Dr Brian Beach**, senior research fellow at the International Longevity Centre UK (ILCUK). His theme was **longevity in research & policy: what happens next?**

Dr Beach argued that the narrative on ageing and longevity had to be reframed and challenged, with a recognition that this should be an opportunity, not a problem. With increasing longevity, retirement would account for a larger proportion of an adult lifetime, although working life was likely to be extended. Key priority for the future was to maximise the benefits of longevity, thus ensuring longer lives would be good for everyone.

Whilst those over 50 accounted for about 43% of total consumption, spending declined by 17.1% between the ages of 55 & 75, with barriers going beyond the lack of income – eg lack of internet access and mobility issues. Maintaining independence at home would be of increasing importance and later-life assets were shown to be influenced by whether or not financial advice had been sought. By 2051, 30% of the population aged over 50 would be from an ethnic minority.

Looking more closely at diversity, the prevalence of disability was projected to stay constant at around 21.6%, but older LGBT people reported poorer self-rated health. It was claimed that reducing health inequality between northern and southern England could inject over £13 billion into the UK economy by increasing productivity. Dr Beach also touched on perceptions of the older population and age discrimination.

Looking at future proofing policy and practice, changes in the state pension age risked creating new inequalities, especially amongst women who had to reconcile longer working lives with

increasing caring responsibilities. Later life unemployment would also be an issue, even more so with the advent of artificial intelligence. Whilst use of social media by over-65s had expanded greatly between 2012 and 2016, social isolation remained a growing threat, with over a million childless over-65s to add to the numbers without family members able to provide help & support.

To conclude, Dr Beach looked to how practice and policy should evolve, by shifting narrative & language on ageing and promoting this to others. Assumptions prevalent in policy had to be challenged, such as those that said older people generally were sitting on massive amounts of housing wealth. Society needed to work together to build a future for everyone, regardless of age.

Early-career plenary: Dr Fran Darlington-Pollock, University of Liverpool **– To move or not to move? Immobility, opportunity, & inequality.** Dr Paul Norman writes:

Fran Darlington-Pollock:
BSPS New investigator's Award recipient, 2019

During 2018, Rebecca Sear presented the excellent idea to BSPS Council of a New Investigator's Award for members who are early career researchers. Council approved this with the prize being an expenses-paid plenary slot at the BSPS Annual Conference. Criteria were discussed and a form devised for people to use to propose someone for this award.

The person who immediately sprang to mind was Fran Darlington-Pollock. I have known Fran since she started her PhD in 2012 and she is a very thoughtful, motivated and skilled social scientist; someone with a 'yes' attitude. Fran's PhD was firmly in BSPS' arena looking at the nexus of migration, health

and ethnicity. This research has led to a variety of publications and conference presentations in the UK, France, Netherlands, New Zealand and Australia. Her involvement with the geographic / demographic community is widespread. Not only is Fran a council member for BSPS but she has also engaged with the Royal Geographical Society as a committee member and is now a Trustee for the Equality Trust. She is not just a name on these committees but a pro-active member. Indeed, she motivated a BSPS day meeting on stalling life expectancies in July 2019, diligently fixing up speakers along with booking the location and refreshments.

I was delighted when Council decided to award Fran with this first New Investigator's Award and was later asked to chair the 'Early career plenary' at the 2019 annual conference in Cardiff. Fran spoke about, 'To move or not to move? Immobility, opportunity and inequality' exploring the concept of 'selective migration' and its relationship with health from a mobilities perspective. Fran provided evidence about whether differently healthy groups are 'sorted' into different area types and whether any sorting processes contribute to changing area level health gradients. As session chair, I encouraged questions from the audience by other early career researchers and, amongst other answers, Fran encouraged people to present their work to others as often as they can.

There will be a call for proposals for this award during the coming months so start thinking now about which 'new investigator' you would like to nominate.

In fact, the call for nominations for the 2020 award is now out & can be accessed on the BSPS website at:

http://www.lse.ac.uk/social-policy/research/Research-clusters/british-society-for-population-studies/news

LMIC visitor in 2019: Each year, BSPS offers the opportunity for a researcher from a low or middle-income country to attend the BSPS Conference. This year's visitor was **Dr Weeam Hammoudeh** from the Institute of Community and Public Health, Birzeit University, West Bank. Dr Hamoudeh gave a co-authored paper in the health and mortality session entitled **The psychological impact of deprivation in conflict: The case of the occupied Palestinian territory**. The call for applications to be the LMIC visitor in 2020 can be found in this Newsletter.

BSPS Conference poster prize: The judges for the poster competition were **Professor Jagger** and **Dr Beach.** They decided on joint winners: one postgraduate student poster and one from ONS. The winners were: Nick Campisi (University of St Andrews) for Sub-national fertility variation across Europe and Emma Hand and Freya Griffiths (ONS) for Making sure the Census results are reliable. The prizes were £50 in book tokens for each winning poster.

BSPS Secretariat

Early career panel: Grant applications
Tuesday 10 September 2019

Compiled and edited by, ESRC Centre for Population Change, University of Southampton

Panel members: **Professor Jakub Bijak**, University of Southampton; **Professor Jane Falkingham,** University of Southampton; **Professor Hill Kulu,** University of St Andrews; **Professor Melinda Mills,** University of Oxford

Chair: **Dr Julia Mikolai,** University of St Andrews

Following on from a really useful, well-attended panel session for early career researchers on the grant application process, we have compiled some notes and tips incorporating the panel members' extensive experience as proposal writers and reviewers. Professor Melinda Mills condensed her advice down to the 'FOUR Rs', and later on in the discussion the wider panel added two more. We have therefore found it useful to group the advice discussed in the room under these broad headings, with thanks to Professor Mills for the concept.

Rejection
This is something that happens a lot, but the failures are not often widely talked about. They are, however, an important part of the applications process. Don't take it personally, it is the norm, just make sure you do something constructive with it.

Resilience
Those who apply for funding, get funding. It is vital to keep applying, keeping in mind that you won't get them all. The people that, after rejection, keep trying, get the grants. Be passionate and play to your strengths, particularly your expertise coming out of your PhD.

Revision
Keep rewriting and developing your proposal. Take your time, be vulnerable, don't just accept 'nice' comments, and allow people to challenge you. Ensure you leave plenty of time to compile and complete your proposal, particularly if working with international colleagues.

Reviewer
Think about how the reviewers have to grade the proposals. Find out who has been on the committee, and discover any in-

side knowledge on the process. Know your funder and what they want, and know the call. Most funders have extensive guidance resources and FAQs on their websites. USE THESE. The bottom line is that your bid has to answer the specification, so it is your job to convince the panel that you have the answer they are looking for, and you are the right person to do it. You should be clear in the first paragraph about your research aims, and strive to pre-empt any questions reviewers and panellists might have. Make it obvious why they should fund you!

Risk

Reviewers are looking for innovative proposals that incorporate an element of scientific risk; consider whether what you are planning to do will bring significant change to your field. Capture a reviewer's interest by presenting something novel, and create some urgency for what you want funded. Scientific progress is, after all, about risk-taking.

Recycle

Time spent writing proposals is not time wasted, even if rejected. The work can be used as the basis for future proposals. Be careful, though, when changing funders – as in 'Reviewers' above, ensure that if you recycle elsewhere, you still do your homework on the funding body and its reviewers. Try to work with senior colleagues on writing proposals and learning the process, collaborate on grants where you are not PI, and be open to invitations.

Common mistakes

1) A proposal not tailored to the call.

2) A proposal not professionally prepared (typos, fonts etc.) looks sloppy and introduces doubt into a reviewer's

mind - don’t give them any excuses to disregard your pro posal.

3) Quickly submitted, low quality work – you risk your reputation.

4) Overplaying your strengths with hyperbolic language - avoid clichés and jargon.

5) Overuse of technical or specific language. This is where it helps to know the type of panel and reviewers you are submitting to. They are usually a mixed group who may not have an in-depth knowledge of your area of re search, so write in a way that doesn’t assume prior knowledge of the subject. Where possible, give your pro posal to a colleague from a completely different field to check if it’s understandable.

6) Work that hasn’t been planned properly, obvious in consistencies or repetition.

7) Including literature reviews or feasibility analyses. It should transpire from the proposal that, to some extent, this work has already been undertaken, you are well read, you know where the gaps are, and that your aim is to fill these gaps. Having recently done a PhD, you are in a good position to show this.

8) Allowing too much feedback. While some feedback is vital, ensure you maintain ownership of your work and your conviction so that you don’t lose your voice. Also be wary of circulating your work too widely, keep your feed-back circle limited.

9) Limiting yourself to a certain funding bodies. Think outside of the box for the funders you apply to. Don't just focus on one. You might be surprised how many funders look for a social sciences element in their calls. Scan as many calls and funding bodies as you can, including gov ernment bodies, local authorities and commercial compa nies, because there is demand for expertise everywhere that often goes unmet.

10) Unclear invitations to collaborators. Ensure you send a concise, succinct invitation that will persuade a collaborator to join your team. Collaborators are often more experienced, very busy and will not be in a position to take on projects without confidence in you that you can successfully manage the work. It is your job to convince them that you are capable of delivering, that you know what your value added is, and have thought about active ties for impact, so consider sending them a summary of your case for support for this purpose. If you are planning to collaborate with a non-academic person / organisation, ensure you outline what's in it for them.

Remember

Reviewers do know what it's like to be at the start of your career, and will be sympathetic to that. They are all volunteers, and want to contribute and foster the research careers of the next generation. Keep applying and don't be discouraged!

Becki Dey
ESRC Centre for Population Change
University of Southampton

Research Students' Conference in Probability and Statistics (RSC2019)
University of Exeter, June 2019

This was the 42nd edition of the Research Students' Conference where PhD and Masters students from across the UK and Europe were able to discuss and present current work in the field of statistics and probability. In total we had 50 students attend our conference (22 male and 28 female), with a further 4 invited academics and 9 sponsor representatives.

Four plenary speakers (**Prof Deborah Ashby**, **Dr John Paul Gosling**, **Dr Theo Economou** and **Dr Tim Paulden**) gave stimulating yet accessible talks, spanning a wide range of topics such as Bayesian elicitation, clinical trials, environmental statistics and sports modelling. They spoke in depth about their experiences in research, whether in academia or industry, and were prepared to engage with delegates, providing them with invaluable advice regarding their career trajectory.

All conference delegates had an opportunity to present their work in the form of a talk and/or a poster. 35 student talks were organised into 12 hour-long sessions split into two parallel streams, with presentations on similar subjects taking place in the same session. These student-led sessions encompassed a variety of topics, including stochastic processes, medical statistics, machine learning and Bayesian statistics.

Each speaker was given fifteen minutes to present their work followed by five minutes of discussion with the audience. The sessions were chaired by student delegates that managed to encourage a friendly and yet stimulating interaction between the audience and the speakers.

Following the final student talks, representatives from sponsoring companies were invited to attend and give a short talk on the research they perform in their respective jobs. They were able to elaborate at the poster session, where sponsors had time to discuss potential opportunities in related careers at their companies, while also distributing promotional material. 15 delegates also presented their work in the form of a poster.

A large appeal of the RSC is the relaxed environment it provides for early career researchers to interact with fellow students and begin to discover the statistical community that surrounds them. This was achieved through several recreational activities, including bowling, canoeing and board games, offering a great opportunity for delegates to meet, network and connect. The final event of an intense week was a Gala dinner in the heart of Exeter, where the winners of best talks and best posters, who were voted for by the delegates themselves, were announced.

The RSC2019 organising committee would like to thank the **Galton Institute** for their support of the event. Conference information is available at **http://blogs.exeter.ac.uk/rsc2019/**.

The RSC2019 Committee