

The Paratuberculosis Newsletter

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The official publication of the International Association for Paratuberculosis



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Note from the Editor

Our next meeting is only 3 months away – so don't delay registering for the 14th Colloquium. If you miss this opportunity the next meeting will be more than two years away.

Are you curious to know what the most popular story about paratuberculosis was on-line

in recent weeks? Read the current issue of the newsletter to find out!

This edition also contains two Opinion pieces for your consideration.

Kumi de Silva

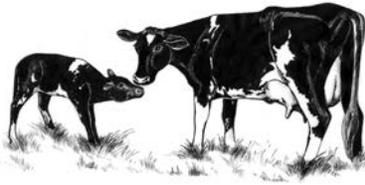
IAP business

14th International Colloquium on Paratuberculosis

The 14th ICP will be held in Cancun, Mexico from June 4-8 2018



Please check the [website](#) for details about the location and changes to important deadlines for attendees.



International Association for Paratuberculosis

112 Barnview Road
Kennett Square, PA 19348 USA

Financial Report- December 31, 2017

	Checking	Money Market	PayPal	Total
Open (1/1/17)	\$39,432.11	\$14,068.77	\$ 1,367.27	\$ 54,868.15
Q2: June 30, 2017	\$42,579.17	\$14,072.27	\$ 667.65	\$ 57,319.09
Close (12/31/17)	\$43,579.17	\$14,075.82	\$ 1,938.95	\$ 59,593.94

INCOME

	<u>1/1/17 to 6/30/17</u>	<u>7/1/17 to 12/31/17</u>	<u>Annual Total</u>
Dues	\$ 4140.00	\$ 2375.00	\$ 6515.00
Interest	\$ 3.50	\$ 3.55	\$ 7.05
Total	\$ 4143.50	\$ 2378.55	\$ 6,522.05

EXPENSES

	<u>1/1/17 to 6/30/17</u>	<u>7/1/17 to 12/31/17</u>	<u>Annual Total</u>
PayPal /Wire fees	\$ 205.62	\$ 103.70	\$ 309.32
ICP-officer travel	\$ 1,486.94	\$ 0.00	\$ 1,486.94
Total	\$ 1,692.56	\$ 103.70	\$ 1,796.26

Respectfully Submitted,

Raymond W. Sweeney, VMD
Secretary-Treasurer

Call for Bids to host the 16th ICP in 2022

The IAP Governing Board requests bids to host the 16th International Colloquium on Paratuberculosis, to be held in 2022. Bids will be presented to the Governing Board at their meeting just prior to the 14th ICP in Mexico on June 4th at 15:00.

Any member wishing to present a bid, please notify the Secretary-Treasurer, Dr. Ray Sweeney, by email (rsweeney@vet.upenn.edu) before **May 1, 2018**. This initial letter of intent should indicate the proposed city for the meeting, the chair of the local organizing committee, and the name and contact information of the person who will present the bid.

For the full bid presentation before the Board, below are listed some considerations.

The main points to prepare and evaluate a bid for hosting an International Colloquium on Paratuberculosis will be:

1. Date: Year (2022 for the 16th ICP, exceptions justified) and season (long days better).
2. City, venue and accommodation: proximity, room comfort and fees, touristic points of interest and infrastructures.
3. Colloquium duration and general program, invited speakers.
4. Accessibility and local transportation: well-connected airport with low cost options, other public transportation alternatives.
5. Budget: expected balance for the IAP
6. Commitment: institution support, sponsors, government support
7. Human resources available
8. Abstract book and proceedings edition perspectives

Bidders must prepare a brief presentation (about 15 minutes) to be delivered to the Governing Board in its pre-Colloquium meeting.

Opinion: Achieving gender balance at conferences

Kumudika de Silva

I am writing to bring to your attention something that, quite frankly, I was surprised to see in 2018.

I hope that you will take my comments in the spirit in which they are intended, as an attempt to highlight one of the structural barriers to women's equal participation and progression in science. It is now well recognized that women are currently not being provided with equal opportunities to speak at conferences and to participate in panel presentations. Removing such barriers will lead to appropriate gender balance and increased diversity which will in turn improve innovation, research and science for everyone, not just for women.

The particular matter I would like to highlight relates to the lack of gender balance and diversity in the invited speaker list for the upcoming 14th ICP. The information available on-line shows that all of the invited speakers are male. This imbalance is particularly concerning considering it is taking place at a time when

academia is attempting to address gender inequity in science.

You may be aware of the Athena SWAN Charter which was established in 2005 in the UK in response to the chronic under-representation of women in academic science leadership. The first principle of their Charter is to *acknowledge that academia cannot reach its full potential unless it can benefit from the talents of all.*

Conferences and panels provide a platform to share experiences and perspectives. When you limit the range of perspectives, you limit the quality of the conversation.
- Simon Rothery
CEO, Goldman Sachs Australia

In 2014, the Australian Academy of Science launched the Science in Australia Gender Equity (SAGE) Pilot Project (which is largely based on

Athena SWAN) to promote gender equity and gender diversity in science, technology, engineering, mathematics and medicine (STEMM).

Such gender imbalance should not occur again. I would therefore ask IAP members to urge the Board to adopt a public policy of inclusivity for future meetings to ensure true representation of the field.

In this regard, I hope you will also take the time to read the paper **Ten Simple Rules to Achieve Conference Speaker Gender Balance** authored by Professor Jenny Martin, first published in *PLOS Comp Biol* and reproduced in the current IAP newsletter. I believe it has some useful ideas that could be adopted by the IAP.

I would be happy to discuss the issues raised and to provide any further

One of the things I've learnt is that if you don't intentionally include, the system unintentionally excludes.

– Elizabeth Broderick,
Sex Discrimination Commissioner,
Australian Human Rights
Commission

information. If you would like to support me in this matter please [email](#) me directly.

[Post comments on the IAP website](#)

Paratuberculosis News

What was the most discussed story about paratuberculosis on-line recently? There has been a flurry of stories about the publication by Sharp et al in *Frontiers in Cellular and Infection Microbiology* in January 2018. Some of these can be found at [Star2.com](#), [Sci-News.com](#), [ScienceDaily](#), [WellandGood.com](#)

[Post comments on the IAP website](#)



International control programs for paratuberculosis

Control programs for paratuberculosis have been implemented in many developed countries over the last few decades, and two excellent reviews have been published. They cover the programs in some countries, mainly in cattle, up until 2012 (Geraghty et al., 2014; Nielsen, 2009). There is little information on programs for other susceptible livestock species. New programs have begun (Ireland) and others have changed (Australia) in recent years. There is a lack of publicly accessible, authoritative information and it is hard to find out what is being done about paratuberculosis and the reasons for taking action on this disease in different countries. An effect of this knowledge gap is that animal health authorities are not in a good position to make recommendations to governments or the livestock industries. This was highlighted recently in Australia during two events, the first being the occurrence of paratuberculosis due to Bison strain, which had not previously been detected in Australia, in cattle in northern

Australia, a region thought to be free of the disease. The second event was a trade ban imposed by Japan on importation of live Australian breeder cattle due to detection of paratuberculosis in Australian cattle during their quarantine in Japan. The former event preceded a review of the national Johne's disease program, while the latter event followed just after the review, and both caused substantial national introspection about the best approaches to disease control and market assurance.

With all of this in mind, an international review has commenced to summarise paratuberculosis control programs in as many countries as possible. A very detailed questionnaire is currently being completed by collaborators from more than 40 countries. The first results from this research will be presented at the 14th ICP in Mexico in June this year.

If you would like further information please contact Richard Whittington by email: richard.whittington@sydney.edu.au



Opinion: Publish or perish - what is contributing to the drop in publication rates in the paratuberculosis community?

[Auriol Purdie](#)

As researchers we exist in a time where funding is ever diminishing and is often swayed by public perception. We are required to constantly expand out horizons in terms of interaction with social media and engagement however the bottom line is that publication is the lifeblood of our existence. If you don't publish you risk fading into obscurity or worse, someone else pips you to the post and publishes findings that invalidate your own offerings. If you work in the academic sector it is more than likely that your worth to your

employer is measured by a range of key performance indicators that take into account grant revenue which, in turn is intrinsically tied to the number of papers that you publish on an annual basis. The 'worth' of the papers themselves are measured by metrics incorporating journal impact factor and/or the number of citations.

Within the world of biological sciences, those whose research is centred on paratuberculosis is a small community however our output is comparatively

Table1. Top 20 Institutions with greatest publication output of manuscripts referencing the topic 'paratuberculosis' between 2012 and 2017 (<https://www.scival.com>)

Institution	Country	Publications	Citations	Field-Weighted Citation Impact
U.S. Department of Agriculture	United States	65	505	1.35
University of Sydney	Australia	42	250	1.65
University of Wisconsin	United States	42	353	1.11
Indian Veterinary Research Institute	India	40	99	0.53
Cornell University	United States	39	257	1.45
University of Calgary	Canada	36	298	1.87
Tecnalia	Spain	27	128	1.6
University of Minnesota	United States	27	242	1.29
University of Guelph	Canada	26	122	1.07
Justus-Liebig-University Giessen	Germany	23	122	0.84
Moredun Research Institute	United Kingdom	23	143	1.08
University of Sassari	Italy	23	158	1.22
University of Copenhagen	Denmark	20	145	2.36
Utrecht University	Netherlands	19	144	1.45
Friedrich-Loeffler-Institute	Germany	18	121	1.16
University of Tennessee, Knoxville	United States	18	109	1.39
Washington State University Pullman	United States	18	135	1.74
Pennsylvania State University	United States	17	124	1.39
Veterinary Research Institute	Czech Republic	17	95	1.18
Wageningen University & Research	Netherlands	17	86	1.64

robust. According to SciVal metrics (<https://www.scival.com/home>) the most publication prolific research groups (Table 1) under the entity of 'Paratuberculosis; Mycobacterium avium subsp. paratuberculosis; paratuberculosis infection T.445' are successful in journals with 5 year impact factors ranging from 0.08-4.92 (<https://jcr.incites.thomsonreuters.com/JCRJournal>) (Table 2). Bearing this in mind

tend to submit to journals that are both subject-appropriate and have previously published our research; however, in recent years within our lab we have noticed a noteworthy increase in the time between the submission of a manuscript to a journal and the final response. Where in past years the average maximum time was 13 weeks now it often stretches to 28 to 30 weeks and this is combined with repeated

Table 2. Top 20 Journals with greatest publication output of manuscripts referencing the topic 'paratuberculosis' between 2012 and 2017 (<https://www.scival.com>)

Scopus Source	Publications	Citations	Citations per Publication	Source-Normalized Impact per Paper (SNIP)**	5 year IF*
Journal of Dairy Science	66	368	5.6	1.464	2.80
PLoS ONE	50	418	8.4	1.092	3.39
Veterinary Immunology and Immunopathology	42	279	6.6	0.704	1.68
Preventive Veterinary Medicine	41	290	7.1	1.329	2.34
Veterinary Research	28	244	8.7	1.142	3.22
Veterinary Microbiology	26	133	5.1	1.208	2.54
Tropical Animal Health and Production	22	90	4.1	0.911	1.00
BMC Veterinary Research	20	85	4.3	0.983	2.00
Clinical and Vaccine Immunology	16	83	5.2	0.911	2.37
Research in Veterinary Science	16	125	7.8	0.807	1.45
Frontiers in cellular and infection microbiology	15	87	5.8	1.16	4.92
Applied and Environmental Microbiology	13	101	7.8	1.243	4.28
Small Ruminant Research	13	31	2.4	0.947	1.15
Veterinary Journal	11	63	5.7	1.138	2.06
Veterinary Record	11	44	4	0.692	1.65
Canadian Veterinary Journal	11	48	4.4	0.561	0.76
Indian Veterinary Journal	11	3	0.3	0.024	0.08
Infection and Immunity	10	152	15.2	0.914	3.78
Journal of Veterinary Diagnostic Investigation	10	79	7.9	0.864	1.36
Pesquisa Veterinaria Brasileira	10	32	3.2	0.677	0.55

*=5 year impact factor (<https://jcr.incites.thomsonreuters.com/JCRJournal>)

**=SNIP measures contextual citation impact by weighting citations based on the total number of citations within a subject field.

the decision of where to publish is often predicated by prior success therefore we

comments by editors of difficulty in finding suitable referees. This paucity of suitable

referees is often made clear when reading off-topic comments from referees who don't appear to fully comprehend the subject matter. The increased turnaround time is perplexing since, as a reviewer, the time granted by the publishers to return comments seems to have decreased.

The explosive advent of predatory 'open-access' publishers offering the potential of a more rapid turnaround is a tempting proposition. It can be difficult to verify the validity of journals although there are some resources e.g. Bealls' List (now discontinued) or the Directory of Open Access Journals (<https://doaj.org/>). The temptation must be unavoidable to many and in my opinion, it will eventually result in a dilution of research integrity since the quality of the research published has potential to diminish due to a lack of proper peer review and lines are blurred between

reputable journals and those previously categorised as predatory.

It is evident that as a community we are highly prolific and the papers that we do publish are highly cited; yet since 2010 our output has noticeably decreased (Figure 1). Has the ever-increasing pressure placed upon academics to show worth somehow contributed to an overall drop in publication success? If so then this is a Catch-22 conundrum. Would the existence of a journal backed by the International Association for Paratuberculosis lend weight to the validity of papers and encourage greater publication success? Could members of the IAP approach reputable journals and offer their service as reviewers? Evidently this topic merits some thought and perhaps it may be discussed in the upcoming 14th International Colloquium on Paratuberculosis.

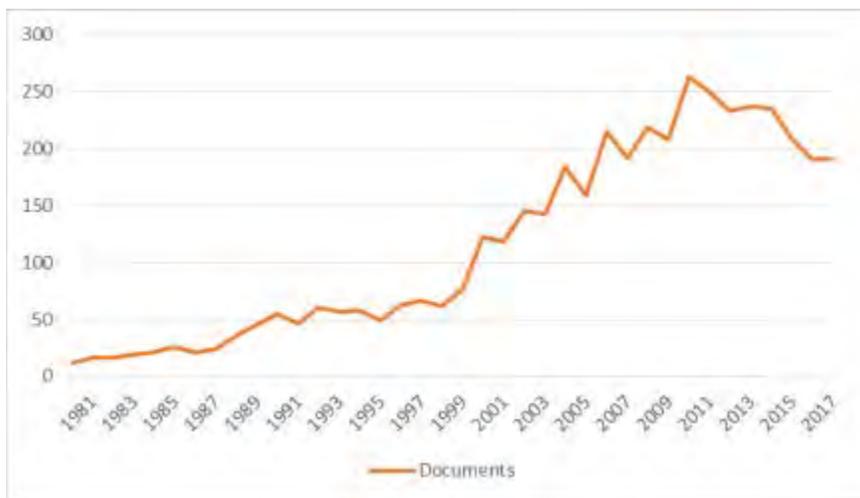


Figure 1. Publications by year (1980-2017) containing the keyword 'paratuberculosis' (<https://www.scopus.com>)

Upcoming events

- The 15th ICP will be held Dublin, Ireland in 2020
- The [30th World Buiatrics Congress](#) will be held in Sapporo, Japan from 28 Aug – 1 Sept 2018. The Scientific program will cover issues on cattle health and reproduction. Topics will include a wide range of production diseases, major infectious diseases, calves and new-born diseases, tropical epidemiology, public health and food security and other animal health and management problems.
- The [6th European Veterinary Immunology Workshop](#) (EVIW) will be held from 5-7 September 2018 in Utrecht, the Netherlands. Plenary and concurrent session topics include: Innate immunity, Adaptive immunity, Infection and immunity, Vaccination, Clinical immunology, Allergy, Mucosal immunology and the microbiome in relation to immune responses
- An International Symposium and Workshop on [Principles and dynamics governing transmission of mycobacterial infection](#) will be held at Wageningen University, The Netherlands from 22-24 May 2018. It is organized jointly between Wageningen University, Cornell University and the University of Edinburgh.
The Symposium (day 1) is intended for researchers with an interest in the ecology, molecular biology, epidemiology, and economics linked to the monitoring and control of mycobacterial disease. The Workshop (day 2+3) is intended for epidemiologists, modellers and researchers in general, who need to incorporate phylogeny in the analysis of mycobacterial disease spread.

Recent publications

Acharya, K. R., N. K. Dhand, R. J. Whittington and K. M. Plain (2017). [Culture-Independent Identification of Mycobacterium avium Subspecies paratuberculosis in Ovine Tissues: Comparison with Bacterial Culture and Histopathological Lesions](#). Front Vet Sci 4: 232.

Bo, M., G. L. Erre, M. Niegowska, M. Piras, L. Taras, M. G. Longu, G. Passiu and L. A. Sechi (2018). [Interferon regulatory factor 5 is a potential target of autoimmune response triggered by Epstein-barr virus and Mycobacterium avium subsp. paratuberculosis in rheumatoid arthritis: investigating a mechanism of molecular mimicry](#). Clin Exp Rheumatol.

Byrne, A. W., J. Graham, C. Brown, A. Donaghy, M. Guelbenzu-Gonzalo, J. McNair, R. Skuce, A. Allen and S. McDowell (2017). [Bovine tuberculosis visible lesions in cattle culled during herd breakdowns: the effects of individual characteristics, trade movement and co-infection](#). BMC Vet Res 13(1): 400.

- Corbett, C. S., H. W. Barkema and J. De Buck (2018). [Quantifying fecal shedding of *Mycobacterium avium* ssp. paratuberculosis from calves after experimental infection and exposure](#). J Dairy Sci 101(2): 1478-1487.
- de Silva, K., K. Plain, A. Purdie, D. Begg and R. Whittington (2018). [Defining resilience to mycobacterial disease: Characteristics of survivors of ovine paratuberculosis](#). Vet Immunol Immunopathol 195: 56-64.
- Eraghi, V., A. Derakhshandeh, A. Hosseini and A. Motamedi-Borojeni (2017). [In silico design and expression of a novel fusion protein of HBHA and high antigenic region of FAP-P of *Mycobacterium avium* subsp. paratuberculosis in *Pichia pastoris*](#). Mol Biol Res Commun 6(4): 161-168.
- Fechner, K., J. Schafer, P. Munster, K. Ternes, S. Doring, I. Volkel, F. J. Kaup and C. P. Czerny (2017). [Detection of mycobacterium avium subspecies paratuberculosis in rock hyraxes \(*procavia capensis*\) imported from South Africa](#). J Zoo Wildl Med 48(4): 1086-1094.
- Fecteau, M. E. (2018). [Paratuberculosis in Cattle](#). Vet Clin North Am Food Anim Pract 34(1): 209-222.
- Fox, N. J., G. L. Caldow, H. Liebeschuetz, K. Stevenson and M. R. Hutchings (2018). [Counterintuitive increase in observed *Mycobacterium avium* subspecies paratuberculosis prevalence in sympatric rabbits following the introduction of paratuberculosis control measures in cattle](#). Vet Rec. doi: 10.1136/vr.104638
- Ganareal, T., M. M. Balbin, J. J. Monserate, J. R. Salazar and C. N. Mingala (2018). [Gold nanoparticle-based probes for the colorimetric detection of *Mycobacterium avium* subspecies paratuberculosis DNA](#). Biochem Biophys Res Commun 496(3): 988-997.
- Gavin, W. G., C. A. Porter, N. Hawkins, M. J. Schofield and J. M. Pollock (2018). [Johne's disease: a successful eradication programme in a dairy goat herd](#). Vet Rec. doi: 10.1136/vr.104507
- Gonec, T., I. Malik, J. Csollei, J. Jampilek, J. Stolarikova, I. Solovic, P. Mikus, S. Keltosova, P. Kollar, J. O'Mahony and A. Coffey (2017). [Synthesis and In Vitro Antimycobacterial Activity of Novel N-Arylpiperazines Containing an Ethane-1,2-diyl Connecting Chain](#). Molecules 22(12).
- Guimin, Z., W. Hongmei, H. Peili, H. Chengqiang and H. Hongbin (2017). [Rapid and visual detection of *Mycobacterium avium* subsp. paratuberculosis by recombinase polymerase amplification combined with a lateral flow dipstick](#). J Vet Sci.
- Hussain, T., D. Zhao, S. Z. A. Shah, J. Wang, R. Yue, Y. Liao, N. Sabir, L. Yang and X. Zhou (2017). [MicroRNA 27a-3p Regulates Antimicrobial Responses of Murine Macrophages Infected by *Mycobacterium avium* subspecies paratuberculosis by Targeting Interleukin-10 and TGF-beta-Activated Protein Kinase 1 Binding Protein 2](#). Front Immunol 8: 1915.
- Karuppusamy, S., L. Mutharia, D. Kelton, N. Karrow and G. Kirby (2018). [Identification of antigenic proteins from *Mycobacterium avium* subspecies paratuberculosis cell envelope by comparative proteomic analysis](#). Microbiology.
- Katoch, S., S. Dohru, M. Sharma, V. Vashist, R. Chahota, P. Dhar, A. Thakur and S. Verma (2017). [Seroprevalence of viral and bacterial diseases among the bovines in Himachal Pradesh, India](#). Vet World 10(12): 1421-1426.

- Kim, W. S., J. S. Kim, M. K. Shin and S. J. Shin (2018). [A novel Th1-type T-cell immunity-biasing effect of malate dehydrogenase derived from *Mycobacterium avium* subspecies paratuberculosis via the activation of dendritic cells](#). Cytokine 104: 14-22.
- Li, L., B. Wagner, H. Freer, M. Schilling, J. P. Bannantine, J. J. Campo, R. Katani, Y. T. Grohn, J. Radzio-Basu and V. Kapur (2017). [Early detection of *Mycobacterium avium* subsp. paratuberculosis infection in cattle with multiplex-bead based immunoassays](#). PLoS One 12(12): e0189783.
- Machado, G., K. Kanankege, V. Schumann, S. Wells, A. Perez and J. Alvarez (2018). [Identifying individual animal factors associated with *Mycobacterium avium* subsp. paratuberculosis \(MAP\) milk ELISA positivity in dairy cattle in the Midwest region of the United States](#). BMC Vet Res 14(1): 28.
- Meyer, A., K. Bond, S. Van Winden, M. Green and J. Guitian (2018). [A probabilistic approach to the interpretation of milk antibody results for diagnosis of Johne's disease in dairy cattle](#). Prev Vet Med 150: 30-37.
- O'Brien, L. M., C. G. McAloon, L. D. Stewart, S. A. J. Strain and I. R. Grant (2017). [Diagnostic potential of the peptide-mediated magnetic separation \(PMS\)-phage assay and PMS-culture to detect *Mycobacterium avium* subsp. paratuberculosis in bovine milk samples](#). Transbound Emerg Dis. doi: 10.1111/tbed.12794
- Pavic, K., I. Perkovic, S. Pospisilova, M. Machado, D. Fontinha, M. Prudencio, J. Jampilek, A. Coffey, L. Endersen, H. Rimac and B. Zorc (2018). [Primaquine hybrids as promising antimycobacterial and antimalarial agents](#). Eur J Med Chem 143: 769-779.
- Pierce, E. S. (2018). [Could *Mycobacterium avium* subspecies paratuberculosis cause Crohn's disease, ulcerative colitis...and colorectal cancer?](#) Infect Agent Cancer 13: 1.
- Sajiki, Y., S. Konnai, T. Okagawa, A. Nishimori, N. Maekawa, S. Goto, R. Ikebuchi, R. Nagata, S. Kawaji, Y. Kagawa, S. Yamada, Y. Kato, C. Nakajima, Y. Suzuki, S. Murata, Y. Mori and K. Ohashi (2018). [Prostaglandin E2 induction suppresses the Th1 immune responses in cattle with Johne's disease](#). Infect Immun. doi: 10.1128/IAI.00910-17
- Samba-Louaka, A., E. Robino, T. Cochard, M. Branger, V. Delafont, W. Aucher, W. Wambeke, J. P. Bannantine, F. Biet and Y. Hechard (2018). [Environmental *Mycobacterium avium* subsp. paratuberculosis Hosted by Free-Living Amoebae](#). Front Cell Infect Microbiol 8: 28.
- Sharp, R. C., S. A. Beg and S. A. Naser (2018). [Polymorphisms in Protein Tyrosine Phosphatase Non-receptor Type 2 and 22 \(PTPN2/22\) Are Linked to Hyper-Proliferative T-Cells and Susceptibility to Mycobacteria in Rheumatoid Arthritis](#). Front Cell Infect Microbiol 8: 11.
- Yamamoto, T., K. Murai, Y. Hayama, S. Kobayashi, R. Nagata, S. Kawaji, M. Osaki, S. I. Sakakibara and T. Tsutsui (2018). [Evaluation of fecal shedding and antibody response in dairy cattle infected with paratuberculosis using national surveillance data in Japan](#). Prev Vet Med 149: 38-46.

Ten Simple Rules to Achieve Conference Speaker Gender Balance

Jennifer L. Martin*

Institute for Molecular Bioscience, University of Queensland, Brisbane, Australia

Recently, the quantum molecular science world was in uproar [1,2]. The preliminary list of approximately 25 speakers for the International Congress of Quantum Chemistry (ICQC) was published online, with no women speakers listed. One reaction to this list was to set up a petition to “condemn gender-biased discriminatory practices of which ICQC-2015 is the most recent example” [3]. This resulted in an apology and a new speaker list with six women speakers [4].

Sadly though, this is not an isolated incident: men-only invited conference speaker lists are all too common [5].

How can we get gender balance right? To begin with, it's worth reminding ourselves why gender balance is important.

First, it's critical for the future of science that young women and men can see real evidence that scientists can succeed regardless of gender. So, if we are going to encourage women into careers in science we need also to provide role models for them to aspire to. We need to show that being a woman and being a successful scientist are not mutually exclusive. One way of doing that is to give women scientists a platform to present their research. If we don't address gender balance in speaker programs, we will continue to normalise a gendered stereotype of scientific leadership. Then when crunch time comes, women will continue to leave in far greater numbers than men [6–9] in part because they see no path ahead for themselves. And that means scientific research potentially loses half of its brightest talent.

Moreover, a speaking invitation contributes enormously to the profile of a researcher. By extending more invitations to women and other under-represented sections of the academic community, we provide a boost to their visibility and their track record. This will help them to progress by raising their national and international profile and help support their applications for grants, academic positions, and fellowships.

Finally, conferences and symposia are great ways of generating new collaborations, new ideas, and new directions in science. If we keep inviting the same people, and the same types of people, over and over again,

we limit the diversity of thought and, potentially, the opportunities for innovation.

So, here are ten simple rules to achieve conference speaker gender balance.

Rule 1: Collect the Data

Count the number of women and men attending a conference, or the number of women and men who have membership of a professional society, or the number of women and men who are employed or studying at a University department. If the same conference/seminar series has been running for a number of years, averaged data could be used (over the past five years, for example). When running a conference for the first time or collecting information about society membership, make sure to include gender as one of the questions to allow this base rate to be generated. Use the information to determine the gender balance of the conference, seminar series, or department. Of course, this may change over time, so it's worth checking every few years.

Rule 2: Develop a Speaker Policy

A speaker policy captures what the committee is trying to achieve for its members and audience when putting together the speaker program. It can also help the committee measure outcome. A policy may state, for example, that the conference committee wants to achieve a gender balance of speakers that roughly reflects

that of its audience. Depending on the conference or meeting, the policy might include scientific diversity, geographical distribution, ethnicity, and level of seniority in the speaker policy. If you are not sure what a conference policy looks like, check examples written by others, such as the Lorne Proteins conference [10] or the Crystal29 conference [11]. The policy can be quite simple and, yet, still effective. Data from Rule 1 above will feed into and perhaps help modify the policy, but a policy should be developed immediately. An anti-harassment statement should also be included in the conference policy [12].

Rule 3: Make the Policy Visible

It's no use having a policy if no one knows about it. Make it visible. Put it online for everyone to see. Make a direct link to it on the conference or symposia website and put it on your Facebook page. Provide it to the organising committee, the program committee, the society executive, and the departmental research committee. Send it to the chairs of the sessions, send it to the invited speakers. Make sure everyone knows right from the start that the conference committee is serious about getting gender balance right. Don't make gender balance an afterthought.

Rule 4: Establish a Balanced and Informed Program Committee

If the conference program committee is not diverse, then neither will be the speaker

Citation: Martin JL (2014) Ten Simple Rules to Achieve Conference Speaker Gender Balance. *PLoS Comput Biol* 10(11): e1003903. doi:10.1371/journal.pcbi.1003903

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Editor: Philip E. Bourne, National Institutes of Health, United States of America

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Competing Interests: This article is about achieving gender balance at conferences, because women are often underrepresented in invited speaker lists. I am a woman, and so could be considered to have a conflict of interest.

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list. When I've asked male members of conference organising committees, or men in the audience, about poor gender balance or even good gender balance, they invariably tell me they don't notice the gender balance one way or the other. So to avoid the potential issue of gender blindness, make sure that those inviting and selecting the speakers (the program committee or symposia chairs) are familiar with the conference policy and that the program committee itself is diverse, informed, and gender balanced [13].

Rule 5: Report the Data

The next step is to see how well the conference, speaker series, or symposium meets its stated policy goals. To do this, calculate the percentage of women in the list of invited speakers. And do the same for the selected speakers. How do these numbers compare with the percentage of women in the audience? If the percentage of women speakers is consistently lower than that of the audience, then maybe it's time to overhaul the policy. Maybe the gender balance of the program committee needs to be changed. In any case, report the numbers on the website, on the same page as the policy. Comment on the data. For example, "Our stated policy is to achieve a gender balance of >40% women in our speaker list (50% of our delegates are women). Overall, 35% of our speakers were women. This is good, but we can do better." Ask for feedback.

To go one step further, you could establish a website to "crowdsource and collate the gender breakdown of conferences" [14] to identify and promote conferences that best support gender balance.

Rule 6: Build and Use Databases

Some people find it difficult to come up with names of women speakers, compared with men speakers. Some say there aren't enough senior or mid-career women in the field to get a balanced program. When I got this response last year after querying a proposed speaker list, I arranged to meet with the organiser to brainstorm a new list. We collected enough names in one afternoon to fill two or three conferences. The list of potential women could include younger, up-and-coming women who would benefit from the exposure.

It's also worthwhile looking through lists of women scientists that have been compiled to help conference organisers—see, for example [15–17]. This is by no means an exhaustive list of sites, so please add more. And if you can't find a list in your field, consider compiling one yourself.

Rule 7: Respond to Resistance

Expect to meet resistance. Most criticisms are easily addressed by establishing a dialogue with those who are critical about establishing a policy, and you can prepare in advance.

Some will say the most important thing is not diversity or the number of women speakers, the most important thing is having a high-quality program. "We only select the best speakers." Addressing gender balance is not inconsistent with a high-quality program. Perhaps point them to the implicit association site [18].

Similarly, some will say the most important thing is diversity of thought, not speaker diversity. Diversity in life experience equals diversity of thought. Again, having a gender-balanced program is not inconsistent with diversity of thought. On the flip side, inviting the same people over and over again does not address diversity of thought.

Some will say, yes let's have a policy, but let's not make it public because that makes it look like we've had a problem in the past and are now apologising for it. There is no point having a policy if no one knows about it. Put it online. See Rule 3.

Some will say that a policy isn't needed because gender balance is achieved already. Check the data. See Rule 1. Maybe gender balance is OK, but it's important to ensure that invisible inequities do not prevail.

Rule 8: Support Women at Meetings

Women often have primary caring responsibility for children. This can limit their ability to travel and to attend conferences. Professor Jonathan Eisen (UCD) has stated: "If you're going to spend money on an open bar instead of childcare...you should rethink what you're doing" [19]. Some universities are now offering travel support for partners or nannies to attendees who would otherwise not be able to accept conference speaking

invitations. Perhaps conferences could do the same. Ideas on why women don't accept invitations and how to support their attendance, such as providing a childcare center and avoiding gendered language, have been outlined [20].

Rule 9: Be Family-Friendly

In those cases where the conference is large enough, and the number of attendees bringing children is significant, it may be possible to provide a family room. This allows delegates with children to watch conference presentations via video link. Also consider carefully the social events to be scheduled at your conference. Make sure these are appropriate.

Rule 10: Take the Pledge

Finally, the most important and powerful step of all. When you are invited to help organise, attend, or speak at a conference, ask to see the conference speaker policy before you accept. If there isn't one, which is usually the case, offer to help draft one. You could also ask to see the list of invited speakers and if there isn't a reasonable gender balance, just say no. That's what a group of Scandinavian men have pledged: to say no thanks, when there are no/few women speakers [21].

You could also sign the online petition set up by Virginia Valian and Dan Sperber [22] in which "signatories commit to accepting talk invitations only from conferences that have made good-faith efforts to include women."

So, those are the ten simple rules.

One day, hopefully not too far away, I'd like to think we won't actually need conference speaker policies anymore. The process of selecting and supporting a broad, diverse, balanced list of high-quality speakers will be as automatic as flicking to the next slide on a PowerPoint presentation.

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References

1. Gibney E (17 Feb 2014) Chemists call for boycott over all male speaker line-up. Nature News Blog. Available: <http://blogs.nature.com/news/2014/02/chemists-call-for-boycott-over-all-male-speaker-line-up.html>. Accessed 20 June 2014.
2. Editorial (2014) Rethink your gender attitudes. *Nat Mater* 13: 427.
3. Krylov A (2014) Stop gender discrimination in science. Petition closed 18 March 2014. Available: <http://www.change.org/p/scientific-community-stop-gender-discrimination-in-science>. Accessed 20 June 2014.
4. Women in theoretical chemistry, material science and biochemistry (2014) The community protests gender discrimination at professional meetings. Available: Accessed 20 June 2014.
5. Eisen J (2014) Diversity in STEM. *The Tree of Life*. Available: Accessed 20 June 2014.
6. Handelsman J, Cantor E, Carnes M, Denton D, Fine E, et al. (2005) Careers in science. More women in science. *Science* 309: 1190–1191.
7. United States National Academy of Sciences (2007) *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. Washington DC: National Academies.
8. Pain E (11 Feb 2014) More action needed to retain women in science. Available: http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2014_02_11/caredit.a1400036. Accessed 20 June 2014.
9. Marchant T, Wallace M (2013) Sixteen years of change for Australian female academics: progress or segmentation? *Australian Universities Review* 55: 60–71.
10. Lorne Conference on Protein Structure and Function Organising Committee (2014) Conference policies. Available: <http://www.lorneproteins.org/policies/>. Accessed 20 June 2014.
11. Crystal29 Conference Organising Committee (2014) Conference policy. Available: <http://www.crystal29.com/conference-policy/>. Accessed 20 June 2014.
12. The Ada Initiative (2014) Anti-harassment work, including conference anti-harassment policy. Available: <https://adainitiative.org/what-we-do/conference-policies/>. Accessed 20 June 2014.
13. Casadevall A, Handelsman J (2014) The presence of female convenors correlates with a higher proportion of female speakers at scientific symposia. *mBio* 5: e00846–13.
14. Holt K (2014) Gender balance in scientific conferences (Australia). Available: <https://sites.google.com/site/aussiescience/>. Accessed 20 June 2014.
15. American Physical Society (2014) Women speakers list. Available: <http://www.aps.org/programs/women/speakers/>. Accessed 20 June 2014.
16. American Society of Cell Biology Women in Cell Biology Committee. Speaker referral service. Available: http://www.ascb.org/index.php?option=com_content&view=article&id=94&Itemid=147. Accessed 20 June 2014.
17. EMBO Women in Life Science (2013) WILS Database of Women in Science. Available: <http://www.embo.org/science-policy/women-in-science/wils-database-of-women-in-life-sciences>. Accessed 20 June 2014.
18. Project Implicit (2011) Project Implicit Social Attitudes. Available: <http://implicit.harvard.edu/>. Accessed 20 June 2014.
19. STEM Women Interview with Jonathan Eisen (26 Feb 2014) STEM women: How men can help. STEM Women. Available: <http://www.stemwomen.net/jonathan-eisen/>. Accessed 20 June 2014.
20. King T (23 Sept 2013) Women Speakers at Events. *TKingDoll Revolution*. Available: <http://www.tkingdoll.com/2013/09/women-speakers-at-events.html>. Accessed 20 June 2014.
21. Tackanej. Men say no, thanks. #TackaNej. Available: <http://tackanej.se/men-say-no-thanks/>. Accessed 20 June 2014.
22. For Gender Equity Team (25 Sept, 2012) Commitment to gender equity at scholarly conferences. Available: <http://www.gopetition.com/petitions/commitment-to-gender-equity-at-scholarly-conferences.html>. Accessed 20 June 2014.

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