HHS Public Access

Author manuscript

Clin Microbiol Infect. Author manuscript; available in PMC 2022 August 18.

Joint ESCMID, FEMS, IDSA, ISID and SSI position paper on the fair handling of career breaks among physicians and scientists when assessing eligibility for early-career awards

Angela Huttner[1,*], **Alice Bricheux**[2], **Carianne J.M. Buurmeijer-van Dijk**[3], **Matthew Harvey**[3], **Alison Holmes**[4], **Britta Lassmann**[5], **Valéry Lavergne**[6,7], **Alexandra Mailles**[8], **Marc Mendelson**[9], **Nicolas Muller**[10], **Maurizio Sanguinetti**[11], **Cynthia Sears**[12], **Chrysanthi Skevaki**[13], **Uzma Syed**[14], **Salandra Thomas**[15], **European Society of Clinical Microbiology and Infectious Diseases, Federation of European Microbiological Societies, Infectious Disease Society of America, International Society for Infectious Diseases, Swiss Society for Infectious Diseases**[16]

[1]Division of Infectious Diseases, Geneva University Hospitals, Geneva, Switzerland

[2]Internal Medicine, Geneva University Hospitals, Geneva, Switzerland

[3]The Federation of European Microbiological Societies, Delft, the Netherlands

[4]Department of Infectious Disease, Imperial College, London, UK

[5]International Society for Infectious Diseases, Brookline, MA, USA

[6]Research Centre, Centre Intégré Universitaire de Santé et de Services Sociaux du Nord-de-l'île-de-Montréal, Hôpital du Sacré-Coeur de Montréal, University of Montreal, Montreal, Quebec, Canada

[7]Department of Clinical Affairs & Practice Guidelines, Infectious Disease Society of America, Arlington, VA, USA

[8]Santé Publique France, Direction des maladies infectieuses, Saint Maurice, France

[9]Division of Infectious Diseases & HIV Medicine, University of Cape Town, South Africa

[10]Division of Infectious Diseases, Zurich University Hospital, Zurich, Switzerland

[11]Department of Laboratory Sciences and Infectious Diseases, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy

[*]Corresponding author. Angela Huttner, Division of Infectious Diseases, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1205, Geneva, Switzerland, angela.huttner@hcuge.ch (A. Huttner).

Author contributions and description of the developing group

AHu of the ESCMID Parity Commission wrote the plan for the project and the first draft of the position paper. AB (ESCMID) conducted the survey and compiled its results. THS (IDSA) created the infographic. AB, CJMBD (FEMS), MH (FEMS), AHo (ISID), BL (ISID), VL (IDSA), AM (ESCMID), MM (ISID), NM (SSI), MS (ESCMID), CSe (IDSA), CSk (ESCMID), US (IDSA), ST (IDSA) and THS (IDSA) provided input on the recommendations and critical review of the paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cmi.2021.01.029.

[12]Johns Hopkins University School of Medicine, Division of Infectious Diseases, Baltimore, MD, USA

[13]Institute of Laboratory Medicine, Universities of Giessen and Marburg Lung Center (UGMLC), Philipps University Marburg, German Centre for Lung Research (DZL), Marburg, Germany

[14]South Shore Infectious Diseases and Travel Medicine Consultants & Antibiotic Infusion Center, Bayshore, NY, USA

[15]Infectious Disease Society of America, Arlington, VA, USA

[16]Division of Infectious Diseases, Department of Medicine, Icahn School of Medicine at Mount Sinai, New York, NY, USA

Abstract

Background: Though women increasingly make up the majority of medical-school and other science graduates, they remain a minority in academic biomedical settings, where they are less likely to hold leadership positions or be awarded research funding. A major factor is the career breaks that women disproportionately take to see to familial duties. They experience a related, but overlooked, hurdle upon their return: they are often too old to be eligible for ‘early-career researcher’ grants and ‘career-development’ awards, which are stepping stones to leadership positions in many institutions and which determine the demographics of their hierarchies for decades to come. Though age limits are imposed to protect young applicants from more experienced seniors, they have an unintended side effect of excluding returning workers, still disproportionately women, from the running.

Methods: In this joint effort by the European Society of Clinical Microbiology and Infectious Diseases, the Federation of European Microbiological Societies, the Infectious Disease Society of America, the International Society for Infectious Diseases and the Swiss Society for Infectious Diseases, we invited all European Congress of Clinical Microbiology and Infectious Diseases-affiliated medical societies and funding bodies to participate in a survey on current ‘early-career’ application restrictions and measures taken to provide protections for career breaks.

Recommendations: The following simple consensus recommendations are geared to funding bodies, academic societies and other organizations for the fair handling of eligibility for early-career awards:

1. Apply a professional, not physiological, age limit to applicants.
2. State clearly in the award announcement that career breaks will be factored into applicants’ evaluations such that:
    - *Time absent is time extended:* for every full-time equivalent of career break taken, the same full-time equivalent will be extended to the professional age limit.
    - *Opportunity costs will also be taken into account:* people who take career breaks risk additional opportunity costs, with work that they did before the career break often being forgotten or poorly documented, particularly in bibliometric accounting. Although there is no standardized metric to measure

additional opportunity costs, organizations should (a) keep in mind their existence when judging applicants' submissions, and (b) note clearly in the award announcement that opportunity costs of career breaks are also taken into account.

3. State clearly that further considerations can be undertaken, using more individualized criteria that are specific to the applicant population and the award in question.

The working group welcomes feedback so that these recommendations can be improved and updated as needed.

Keywords

Awards; Career breaks; Diversity; Gender balance; Medicine Science

Context

Though gender balance in the biomedical sciences is being achieved at the student level in some countries [1], women professionals remain a minority in academic biomedical settings, where they are significantly less likely to hold leadership positions or be granted research funding [2,3]. Reasons for the imbalance are manifold, as there are several points of exit from the 'leaky pipeline'. A major factor is the career breaks that young parents, still disproportionately women, take to tend to familial duties [4–6]. Women's reproductive years coincide with the time of professional 'sorting' in which the next generation's leaders are being selected from the crop. Those who take career breaks, i.e., either a complete absence or a reduction to part-time work, return physiologically older but remain professionally young. They may struggle to find a point of re-entry into the full-time workplace; when they do, available positions tend to be adjunctive and generally lower-level [7]. It should also be noted that even those who do not take breaks struggle to juggle family responsibilities with professional development at a critical career stage, typically with the result of reduced academic productivity.

Those who do succeed in returning from career breaks may wish to apply for 'early-career researcher' grants or 'career-development' awards, distinctions that are often stepping stones to tenured, leadership positions in many institutions, determining therewith the demographics of those institutions' hierarchies for decades to come [8]. Not surprisingly, these awards often come with either literal or functional age maximums: typically, an applicant must be 40 years old or younger, or must have recently completed training. These limits are not imposed with any deliberate attempt to exclude; their purpose is to protect young professionals from unfair competition from more experienced seniors.

However, an unfortunate side effect is the exclusion of 'old-young' returning workers, a disproportionate number of whom are women. Age limits constitute an embedded, structural impediment on the road to gender balance. Many women will have already aged out of eligibility for these awards upon their return. Alternatively, they may return before reaching the age maximum, but their *curricula vitae* are likely to be substantially thinner at the time of application: women continue to rank behind men in number and impact of published

articles [9], largely because of those part-time and full-time career breaks [5], but also because of continued unequal sharing of family responsibilities during this critical career stage [10]. As a result they will be functionally disadvantaged, as medical and scientific funding organizations emphasize bibliometric statistics in their applicant evaluations [11].

In this joint effort by the European Society of Clinical Microbiology and Infectious Diseases (ESCMID), the Federation of European Microbiological Societies (FEMS), the Infectious Disease Society of America (IDSA), the International Society for Infectious Diseases (ISID) and the Swiss Society for Infectious Diseases (SSI), we have compiled and characterized current 'early-researcher' application restrictions and the measures taken, if any, by awarding institutions to provide protections for career breaks. On the basis of these findings, we provide simple consensus recommendations to funding bodies, academic societies and other organizations for the fair handling of eligibility for early-career and career-development awards.

Methods

An invitation to participate in an internet-based survey was sent by e-mail to all societies and funding bodies officially affiliated with ESCMID and offering grants and/or awards. The survey consisted of 23 questions, both multiple-choice and open-ended. A €25 Amazon gift certificate was offered for fully completing the survey (further details are available in the online Appendix - methods).

All organizations contacted for the survey were also invited to participate in a working group to develop this position paper. Discussions were conducted by means of teleconference and thereafter by e-mail communication with threads including all working-group members. Differences were resolved by discussion and consensus was reached by majority agreement of proposed recommendations.

Survey findings

Of the 50 organizations contacted, 14 provided direct responses, and two additional organizations posted sufficient information online. Most organizations impose either fixed or functional age limits (see Table S1 and [12]). Only two responding organizations had taken measures to address career breaks and improve gender balance in the determination of eligibility of award applicants. Awardee-level data were rarely published (see Table S2 and [12]).

Recommendations for the fair handling of eligibility for early-career awards

The working group has developed the following consensus recommendations for societies and other organizations wishing to remove this unintended but significant impediment in their award-conferral process. These recommendations are summarized in a downloadable infographic (Fig. 1).

Define ‘career break’ at the outset

Organizations should clearly define the concept of career break on their websites. For this working group, the basic tenets are as follow:

- A career break can be taken by anyone regardless of gender
- The purpose(s) of a career break are not limited to child-rearing or other familial duties (e.g. the break may be due to illness), but should be summarized by the applicant during the application process
- The term ‘young investigator’ should be avoided in favour of ‘early-career investigator’, so removing the implicit message that physiological age is a necessary criterion

Organizations may wish to further specify criteria for their definition; all criteria and their rationale should be clearly stated and displayed on the website and in other material announcing the award.

Define a professional (non-physiological) age limit taking into account career break durations

Organizations have three obvious choices. They can impose no limits at all on eligibility. This approach would achieve the inclusion of returning professionals, but it would also allow unfair competition from more senior professionals, again placing returning (and all other) junior professionals at a disadvantage. Alternatively, they could apply a physiological age limit but promise case-by-case reviews by a designated team for those over the limit. This approach is reasonable, but it may allow subjectivity into the decision-making process. Further, most societies and other organizations do not have the resources for consistent, sufficiently in-depth evaluations of individual cases.

Finally, organizations can apply a professional (non-physiological) age limit with extensions for the time during which the applicant was on leave or at reduced activity. This option was considered the most reasonable, equitable and practicable, and is therefore recommended by the group. We propose the following as a loose guide.

1. Apply a professional age limit, typically 5–10 years after the completion of specialty training, PhD or MD completion.
2. State clearly in the award announcement that career breaks will be factored in, such that the age limit can be extended:
    - Time absent is time extended:
        - At a minimum, the amount of time taken for the career break should be added as an extension to the professional age limit (e.g. if a PhD was completed seven years before submission but the applicant was on a full-time career break for three of those years, the PhD should be considered to have been completed only four ‘professional’ years before submission).
    - Opportunity costs will also be taken into account:

- The working group acknowledges that people who take career breaks risk additional opportunity costs, with work that they did just before the career break often being forgotten or poorly documented, particularly in bibliometric accounting (e.g. they may have conducted early work on a project, but their names may not have made it into the publication because they were absent at the time of manuscript writing). Although there is no standardized metric to measure additional opportunity costs, organizations should (a) keep in mind their existence when judging applicants' submissions, and (b) note clearly in the award announcement that opportunity costs of career breaks are also taken into account.
- Consider inviting applicants to submit documentation of contribution to a research project even if their names did not appear on its publications.

3. State clearly in the award announcement that in addition to the principles above, further considerations can be undertaken. Case-by-case reviews are discouraged, however, as these have the potential to introduce bias without an equitable and transparent selection process. Should further review be required, it is recommended that the awarding society develop further criteria that are specific to its applicant population and/or the award in question.

Ensure diversity within the award selection committeed—and within the organization

As much as possible, the makeup of the selection committee should be diverse in terms of gender, ethnicity, geographic location and level of professional achievement. Often, only very established investigators are asked to serve, and many of them may not fully appreciate the challenges that face early-career workers; for career-development awards, some more senior judges may focus mainly on the science of proposed projects while failing to take into account long-term career potential.

In addition, it is recommended that, apart from award conferrals, all societies and other funding bodies create, if they have not already done so, a sustainable commission (e.g. an Equity Task Force or Parity Commission) to ensure continued gender, ethnic, and geographic/regional balance in all aspects of the organization.

Implement a system to collect and analyse applicant and awardee data

It is imperative that granting organizations have systems in place to collect and analyse applicant and awardee demographic data including gender. Tracking of such data over time allows a better understanding of the reach of a grant or award programme, and will help to ensure high-quality proposals regardless of age or career interruptions.

Conclusion

It is the hope of this working group that this guideline will help to remove an unintended yet potentially harmful structural barrier to the advancement in medicine and science of women and others choosing temporary career breaks for familial or other duties. The group notes that restrictions to early-career awards are only one manifestation of the problem of career breaks; addressing them is only one among other needed strategies. The group further notes that these recommendations allow a certain amount of latitude in their implementation; this is an intended result, as different organizations may have different award structures and candidate profiles. The group welcomes feedback from all organizations so that these recommendations can be improved and updated as needed.

Transparency declaration

CSk receives consultancy and research funding from Hycor Biomedical, Bencard Allergie and Thermo Fisher Scientific and Mead Johnson Nutrition (MJN). All other authors declare no conflict of interest.

Updating

ESCMID's Parity Commission will be in charge of updating this position paper; updates will occur based on feedback from society and affiliate-society members.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

The group wishes to acknowledge interview partner Dr Simona Isler of the Swiss National Science Foundation for her insights and advice, Dr Eli Perencevich of the University of Iowa Health Care for the observation that sparked the project, and Dr Luigi Maddaluno of the ESCMID office for continuous administrative support.

Funding

This project was supported by the Parity Commission of the European Society of Clinical Microbiology and Infectious Diseases.

References

[1]. Allen I Women doctors and their careers: what now? BMJ 2005;331:569–72. [PubMed: 16150771]

[2]. Penny M, Jeffries R, Grant J, Davies SC. Women and academic medicine: a review of the evidence on female representation. J R Soc Med 2014;107: 259–63. [PubMed: 24739380]

[3]. Manne-Goehler J, Krakower D, Marcelin J, Salles A, Del Rio C, Stead W. Peering through the glass ceiling: a mixed methods study of faculty perceptions of gender barriers to academic advancement in infectious diseases. J Infect Dis 2020;222:S528–34. [PubMed: 32926743]

[4]. Williams WM, Ceci SJ. When scientists choose motherhood: a single factor goes a long way in explaining the dearth of women in math-intensive fields. How can we address it? Am Sci 2012;100:138–45. [PubMed: 24596430]

[5]. Cech EA, Blair-Loy M. The changing career trajectories of new parents in STEM. Proc Natl Acad Sci U S A 2019;116:4182–7. [PubMed: 30782835]

[6]. Rickard K, Crowther A. The slower track: 2015 Women in the STEM professions survey report ISSN 1834–6545. Professionals Australia; 2015 (Online). Available from: http://www.professionalsaustralia.org.au/professional-women/wp-content/uploads/sites/48/2014/03/Gender-segregation-in-the-STEM-professions-submission.pdf.

[7]. Eztkowitz H, Ranga M. Gender dynamics in science and technology: from the 'leaky pipeline' to the 'vanish box'. Cahiers économiques de Bruxelles 2011: 131–47.

[8]. Gilsdorf JR, Zimmer SM. Remembering and enhancing the impact of women in infectious diseases. J Infect Dis 2020;222:S543–9. [PubMed: 32926739]

[9]. Archambault E, Vignola-Gagne E, Côté G, Lariviére V, Gingras Y. Benchmarking the scientific output in the social science and humanities: the limits of existing database. Scientometrics 2006;68:329–42.

[10]. Viglione G Are women publishing less during the pandemic? Here's what the data say. Available from: https://www.nature.com/articles/d41586-020-01294-9.

[11]. Cabezas-Clavijo A, Robinson-Garcia N, Escabias M, Jimenez-Contreras E. Reviewers' ratings and bibliometric indicators: hand in hand when assessing over research proposals? PLoS One 2013;8:e68258. [PubMed: 23840840]

[12]. Bricheux A, Mailles A, Sanguinetti M, Skevaki C, Huttner A. Career breaks in medicine and early-career grants: missing the bus? European Congress on Clinical Microbiology and Infectious Diseases. Amsterdam, Netherlands: Abstract P0679; 2019.

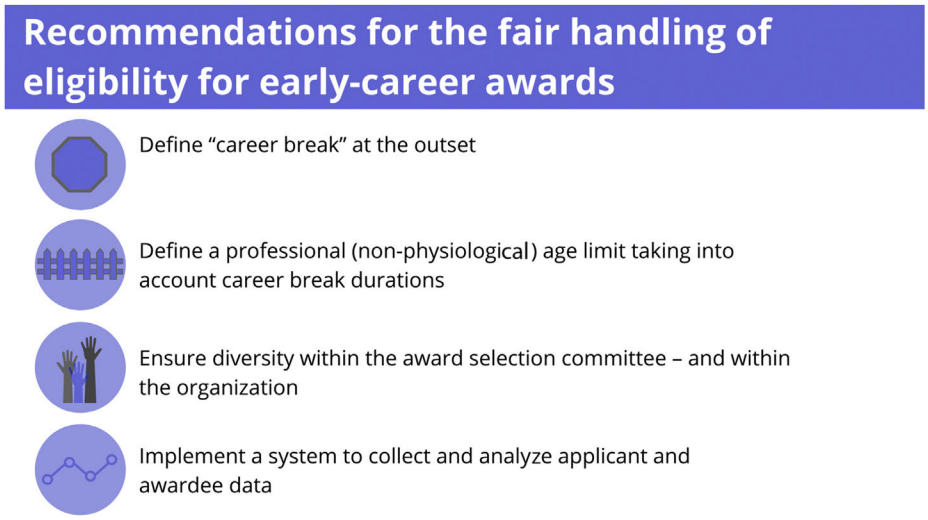

Fig. 1.

Infographic displaying inter-society recommendations for the fair handling of career breaks among physicians and scientists when assessing eligibility for early-career awards.