Part one: Women in Science

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Part one: Women in Science - What is the Situation?

In the past several years, several prominent, successful female scientists have led ISEH, but that was not always the case. In the 45 years since its incorporation, ISEH has had 5 female presidents, all serving since 2003. This change reflects the slow, positive shift in society that has been at play for over a century. For many, your grandmother (or mother or great grandmother, depending on your generation) may have wished to have a career but instead was expected (and became) a housewife for her entire life. Her daughter (your sister, mother or grandmother) had a career (usually an “acceptable” female-oriented career, such as a nurse or a teacher) but was likely forced to resign when she had children. She may have had the option of returning to her career when the children were older but was denied the opportunity to take on a leadership position. Very few women became scientists; in fact, even in the mid 1900s if a woman enrolled in a science degree it was considered to be newsworthy. Those who did become scientists very rarely became a lab head, and even fewer were promoted to a professorial position. Times are changing, but change is slow to trickle up. In many countries, females currently account for over 50% of the undergraduate students in Science, Technology, Engineering, Mathematics and Medicine (STEMM) degrees. However, for over 20 years the proportions of female professors in the biomedical sciences have remained at less than 20%, and, in some countries, the statistics are even lower.

Why is this the case? Are women happily leaving research to pursue another career or decide to become a stay-at-home Mom when they have a family? Studies suggest the causes of the discrepancy of women starting in STEMM careers and those in leadership positions are complex and multifaceted, making it harder to remedy. For many female scientists, they leave as they feel they have no other option due to lack of appropriate support, irrespective of whether or not they have a family. In this series of blogs, we will address some of the key issues facing women in science. We encourage everyone to read these blogs as these issues affect us all. If you are a male, you will be affected either by loss of highly talented female staff from your lab now, or in the future, or by witnessing what happens to your friend or partner throughout their career. If you are a female and think that your career is going to be smooth and successful and that none of this will apply to you, good luck- you will need it! We hope that this series will benefit many and contribute towards improving the situation for women in science by starting a conversation exploring why there is still a problem retaining and promoting talented female scientists. Importantly, it is time to make a stand and prevent this from continuing to happen in the future. We are seeking your participation and feedback throughout this series, and encourage you all to be

proactive in helping to retain more women in research. **What is the situation for female researchers in your country?**

While the numbers of women undertaking undergraduate and postgraduate research in STEMM fields have increased significantly in the last 20 years, there is still a significant lack of retention of female researchers beyond the postdoctoral or Assistant Professor stage. The fate of these women in research is affected by a number of factors. Despite this rise of females in STEMM fields, many old school tenets remain. Women are often viewed as less capable, at times by both their male and female peers and sometimes plagued by their own lack of confidence. We cannot prevent these negative attitudes from happening, but we can reduce the extent at which it happens, with the hope that in the future women will be viewed and treated as equally as men in research. Gender equality issues adversely impact the workplace and productivity. In order to facilitate change there needs to be a pro-active approach by both males and females across all employment levels. Gender equality is not just about issues relating to having a family, although this definitely has a significant impact on the career development of the female researcher. When considering gender equality it is important to recognize that the loss of women in science results in a significant loss of expertise, talent and most importantly, investment in their training. Systems must be introduced to ensure retention of our best scientists, and this can only happen if we address the current gender imbalance that occurs in the STEMM fields. Be aware of the situation female STEMM researchers face in your own country- this is incredibly important and if you are a female, the earlier in your career that you are aware the better. Many countries have published statistics relating to the proportions of females in STEMM research spanning those pursuing undergraduate degrees all the way through to Professor positions. If this is lacking in your country you only need to look at the attendance at national conferences, or even in your own workplace, to estimate how many females vs. males are in your field. Pay attention to the proportions of junior vs. senior females and males- this will also indicate the chances of a female gaining a senior research position in your country. Talk to senior female researchers and ask them about their journey in research- has it been smooth, difficult, what did they do that helped them stay and be successful in research? In a future part of this series we will be asking some of our prominent senior female researchers, Professor Connie Eaves and Professor Thalia Papayannopoulou about their journeys, and we encourage you to submit questions to us to pass on to them to answer. Equally important, learn from the experiences of others who chose to leave a research career. While everyone has their own unique experience, there will be some common reasons that ultimately resulted in their decision. These factors are likely to be major obstacles that many female researchers will face, and awareness of these will help current female researchers to try and minimize the impact of these on their own research career. **Have a plan for your career**

Based on what you have learned, and regardless of whether you are a female or male, have a plan for your future so that your path is smoother than that of others. Recognize what you want to achieve and be realistic about your goals. Having a mentor (or mentors) who has experienced a similar career path to what you envision is highly recommended, and will be key in helping you to succeed in research. Have long-term and short-term plans- these will

likely be revised constantly, but will set the scene for your career development. Be aware of the boxes you need to tick in order to achieve your career goals. For example, if you are aiming to apply for a fellowship, plan well ahead and identify what criteria are needed to be fulfilled in order to obtain the fellowship so that you can satisfy those essentials and be as competitive as possible. If you are planning to have a family, be prepared as much as possible in advance because your career will be disrupted, and your publications and ability to accept invitations to present at conferences, etc., can be significantly reduced for a long period of time. To assist in forming career plans, our next session will discuss the qualities of a successful woman in science. In future sessions we will have the opportunity to learn from Connie and Thalia, in addition to hearing about experiences from some other women whose partners are also researchers in similar fields. We will have a session devoted to balancing your career with life. Finally, we will finish with suggestions on how to be proactive and improve the situation for women in research. We hope you enjoy this series and look forward to your participation.

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