

## Enquiry into equity of the STEM workforce – Call for Evidence

### Details:

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### Summary

Physics and Engineering in Medicine is a sector of STEM that consists of Healthcare Scientists (primarily employed by the NHS), healthcare devices industry and academics in physics and biomedical engineering.

Whilst the gender balance in the sector is better than average compared to other physical sciences in STEM, people from minority ethnic communities are underrepresented. One of the main reasons for this is that most jobs in the area are post-degree level which means that the pool of candidates available for employment has already been shaped by the UK's educational inequalities. Thus, a lack of equal opportunities, a segregated school system along income lines and inconsistent science teaching from primary school onwards means a constant reduction of diversity by the time physics and engineering degrees are awarded.

### Key recommendations

1. In general the starting point has to be reducing inequalities throughout the education system starting at primary school level. Providing good quality science teaching from diverse science teaching staff will lead to a greater uptake of science at A-levels. Subsequently this will lead to a more diverse range of science graduates and therefore improve diversity in STEM.
2. More specifically in Healthcare Science: It is an attractive employment area with many more applicants than training places – but the selection processes need to be evaluated.

### Specific enquiry questions:

1. ***What are the demographics of STEM workers in your organisation or sector? Are there gaps in the quality of evidence, monitoring or reporting***

More detailed data is available but not directly to us. As the majority of medical physicists and clinical engineers are employed in the NHS, the NHS Electronic Staff Records should give accurate information about protected characteristics in different areas of the healthcare science workforce.

From our perspective (a diversity membership survey with 20% response rate) we can report:

- Gender equality higher than in other areas of STEM with inequalities only becoming more pronounced at increasingly senior levels  
our overall membership has 38% women, 50% at Trainee level (compared to 27% women in STEM)
- Ethnicity in our membership is not representative of the general population and in STEM (only 7.4% of IPEM membership identified as from one of the Black or Minority Ethnic groups (compared to 12% overall in STEM)
- Individuals with disabilities are under represented in our membership when compared to the general population and STEM overall.  
5% of respondents said that they had a disability (11% in STEM, 14% workforce)

- Sexual orientation appears to be similar to general population (93% )  
89% reported being heterosexual (compared to 93% overall population)
- Socioeconomic background similar to other UCAS applicants in STEM: 50% of members have degree level educated parents

**2. Where is there inequity across the different protected characteristics and how are different communities impacted across different STEM disciplines or sector/subsectors, types of organisation (e.g. private, public, non-profit), type of STEM activity (e.g. academic research, education, engagement, commercial, funding), job levels and/or qualification.**

See question 4. Much of the inequity in our area is due to inherent educational inequities. The national recruitment and training processes for our profession, as well as much of the work required once trained, favours non-disabled candidates.

**3. Where are there evidenced inclusive behaviours and policies within different organisations, subsectors, sectors and countries on: Recruitment; and/or Retention**

The current recruitment practices for NHS Clinical Scientists could be made more inclusive: . The system is highly structured and benefits certain groups. It does not allow opportunities for part time training and often requires frequent changes in location meaning that it is very unsuitable for:

- People with caring responsibilities
- People with disabilities needing adjustments
- Females from minority communities, for whom moving around and living without family is not culturally acceptable.

**4. Are there policies or activities undertaken by the UK Government, or its agencies, that advance or inhibit equity and inclusive cultures within the STEM workforce?**

Our sector traditionally requires a first degree in a physics or engineering subject. At this level (ie when they consider a career in medical physics and engineering) the inequalities that are due to UK inherent educational inequity (for example due to poor schooling, poor science teaching, national structural inequalities, school segregation along income lines and meritocracy) have already influenced the characteristics of potential candidates. Government policies that have shaped the education system over many years have inadvertently inhibited diversity in STEM as well.

There are some activities that have helped advancing equity – although again some maybe inadvertently - for example:

1. Funding of the Royal Academy of Engineering which, amongst many other non EDI related work, provides very useful tools, meetings, training and guidance for engineering organisations to improve their diversity and inclusion
2. The Higher Education and Research Act 2017 places a statutory duty on the Office for Students (OfS) to “have regard to the need to promote equality of opportunity in connection with access to and participation in higher education”. There are, however no set targets in terms of numbers but universities have an obligation to develop a widening participation plan and recruit more students from disadvantaged backgrounds.
3. The apprenticeship schemes might help widen access and therefore diversity

**5. *Where could policy change or sector action lead to addressing the equity of opportunity within the UK's STEM workforce?***

This is a very complicated question: All the different initiatives and advertising campaigns are not ultimately effective if the very basic system remains as unequal as it is. Equality needs to start at the very bottom level and be inherent in the national structure and culture: Better schooling with better science provision; a more diverse teaching workforce; less income inequality; more role models of minority ethnic scientists and other underrepresented groups.

One policy which would raise the importance of science in all schools would be to consider a broader "Baccalaureate" rather than narrowly focused A-levels which could ensure at least one science subject (and maths) is included – together with several other subjects. This would trigger more and better science teaching and provision and ensure children are not streamed into one direction early on.

**6. *What are the impacts of COVID-19 on equity for STEM workers (including job and income security, contract type etc) in the short- and medium-term? Which communities, groups, organisations or sectors are being most impacted?***

Covid had little negative impact in our sector as most of them work as key workers in the NHS, healthcare industry and universities. They are relatively well paid and have high job security.

In many ways Covid has actually strengthened the position of Healthcare Science within the wider NHS community and national working parties for clinical engineering and radiotherapy have been formed.

**7. *What are the implications and opportunities of new policies and employer action in the next 5-10 years following COVID-19 and Brexit? What will the future impacts be for communities, groups, organisations or sectors?***

Relatively little impact in our sector as most of them work as key workers in the NHS, healthcare industry and universities. They are relatively well paid and have high job security.

Brexit:

There are job shortages in certain areas of the profession which have, in the past, been filled with overseas applicants. This might be more difficult to continue after Brexit.

Covid:

The raised profile of healthcare science in the NHS along with the Richard's report makes it likely that Healthcare Science will be a priority for funding of new posts in the future to increase the capacity and sustainability of the workforce.

**ENDS**