The Association of Medical Research Charities (AMRC) is a membership organisation of the leading medical and health charities funding research in the UK. We represent 135 medical research charities including the Wellcome Trust, Cancer Research UK and the British Heart Foundation. In 2015, AMRC member charities:

- invested over **£1.4 billion of research funding in the UK** - more than either the Medical Research Council or National Institute for Health Research;
- made **capital investments of £129 million** in the UK;
- contributed to the knowledge economy by funding the **salaries of over 15,000 researchers** in the UK; and
- recruited **190,000 people to charity-funded clinical trials**.

This response seeks to sign-post specific points highlighted by a number of AMRC member charities as well as over-arching points in related areas. Other organisations will highlight further broad skills gaps which we have not listed due to short response time.

**Medical research charities invest in skills**

Medical research charities invest in people and the development of skills by funding PhD studentships. In 2015 AMRC member charities funded over 1500 active PhD grants, worth just under £200 million.

Many medical research charities fund responding to patient demand/need and as such commonly invest in research in areas of unmet need where there can be limited other sources of funding available. Charities also often fund high risk early research and research into rare diseases.

**Specific skills gaps identified by medical research charities**

- Bioinformatics and cellular molecular pathology were areas of key importance highlighted.
- Public health was also suggested as a gap, particularly in the field of dementia research since the idea that dementia has a modifiable risk element is fairly new.
- There is a need for more scientists and clinicians to be trained in the analysis and application of ‘big data’; ranging from the use of ‘omics’ data (genomics [epigenetics], proteomics, metabolomics) in precision medicine to population-based studies.
- Academic pathology – it is a concern that at a time when the ability to analyse histopathology samples at the molecular level has never been more powerful, that we have a dearth of academic clinical pathologists able to develop and apply the new technologies for developing novel approaches to diagnosis and prognosis.
- There is a particular deficit in early research training support/fellowships and also a specific training deficit for trainees who want to do research in a clinical training programme to come out-of-programme to do a post-grad degree.
- There is a lack of structure to support advanced researchers in areas such as statistics, biobanks and managing research teams (outside the main academic centres).
- In order for the potential of research within the NHS to be maximised, NHS staff should also be encouraged to take part in research and use its findings. Research knowledge and use of evidence should be included in basic training for all NHS staff.
Examples of approaches from medical research charities to identify & address skills gaps

Alzheimer’s Society

- Alzheimer’s Society has recently undertaken work with RAND Europe to look at skills gaps, producing the report - Mapping the UK’s Dementia Research Landscape and Workforce Capacity.
- The study identified that in biomedical research there was a shortage of tenured lectureship opportunities, and the ‘academic pyramid’ is very steep with over 70% of dementia PhD graduates leaving the field within 4 years.
- The study also found that there is also a critical lack of people from care and clinical professions focusing on dementia research, which is likely to stifle innovation and progress in these sectors.
- As a result Alzheimer’s Society launched its Dementia Research Leaders programme, that as well as providing funding for PhD students and Fellows, supports professional development through our mentorship programme and training webinars.

Kidney Research UK

- Kidney Research UK worked alongside professional associations, NHS England and clinical research networks to develop the UK’s first comprehensive Renal Research Strategy.
- Much of the preparation for the strategy involved horizon scanning and recognition of the fact that research capacity in renal must be increased.
- Key gaps identified include:
  - The preserving and nurturing of laboratory science
  - Developing research skills amongst nurses, AHPs and clinicians, Improving support and training for non-clinical scientists in academia
  - Cross-disciplinary and collaborative research.

Alzheimer’s Research UK

- In order to protect against future skills gaps, Alzheimer’s Research UK has developed public engagement and outreach resources to engage the younger generation with dementia and scientific research.
- Dementia Explained, is a website for younger people to find out more about dementia. The charity is also providing books about dementia for children and engaging young people at science festivals.
- Alzheimer’s Research UK has also worked with the National Schools Partnership to produce Brain Box, a set of curriculum linked resources for year 7-9 (11-14 years old) science classes. The packs provide a framework for an engaging classroom project that, as well as increasing understanding of dementia, they hope will enthuse students with science and inspire the next generation of dementia researchers.

Linkage with the Life Sciences Industrial Strategy

One of the key themes of the forthcoming Government Life Sciences Industrial Strategy is the UK’s science base. The skills pipeline is a key aspect of the science base and as such it is important that any initiatives or work to addresses the skills landscape in the UK is joined up with the Government’s focus on industrial strategy and policy.

The diversity and interdependency of the UK’s funding base – charities, philanthropists, venture, public sector and the life sciences industries is a differentiating strength in the UK. In order for the Strategy to fulfil its potential, it is important that it reflects this unique ecosystem. Charities must be integral part of the Life Sciences Industrial Strategy.
**Investing in skills: the Apprenticeship Levy**

Government have committed to investing in human capital and the development of skills via introduction of the Apprenticeship Levy. Judicious implementation of new apprenticeships policies and schemes could be a key means to address the UK’s STEM skills gaps and future pipeline.

Medical research charities are committed to investing in skills. However we are concerned that a number of overarching challenges may prevent medical research charities from making the most of the levy and contributing to the realisation of the Government’s goals.

The Apprenticeship Levy will be introduced from 6 April 2017, payable at a rate of 0.5% of an organisation’s pay-bill. All employers with a pay-bill in excess of £3 million will be affected. We anticipate that a number of AMRC’s larger members will be affected.

A number of practical steps could be taken to enable medical research charities to successfully implement the levy:

- 94% of AMRC member charity funded research takes place in UK universities and hospitals; being able to transfer Levy contributions to fund research apprenticeships in these organisations would allow medical research charities to further their charitable objectives and contribute effectively to skills development.

- As such, the current 10% limit on the levy funds that can be transferred from one organisation to another should be raised to allow medical research charities to more fully utilise their contributions within universities and other research partners.

- Medical research charities typically invest in skills by funding PhD studentships; the development of level 8 (PhD level) apprenticeship standards would maximise the potential of levy funds.

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