

Migration Advisory Committee call for evidence: the social and economic impact of international students— Cancer Research UK response (January 2018)

In 2016/17, Cancer Research UK (CRUK) spent £432 million on research in institutes, hospitals and universities across the UK. Our research covers all aspects of cancer and this is achieved through the work of over 4,000 scientists, students, doctors and nurses. Research into new and more effective ways to prevent, diagnose and treat cancer is at the heart of our plan to see 3 in 4 people survive their cancer for 10 years or more by 2034. It is crucial that the UK maintains its excellent science base and that we can continue to attract global scientific talent at each stage of their career.

We welcome the focus on access to scientific talent in the Government's Life Sciences Industrial Strategy and Brexit Science paper. Research fundamentally improves the nation's health and, as such, delivers savings to Government¹ by reducing the incidence of disease or limiting its impact. The success of the Industrial Strategy will be dependent on having a migration system that enables the UK to attract, recruit and retain global scientific talent at all levels—including international students. The UK currently ranks second in the world for the quality of our research institutions and a diverse, talented international research community contributes to this².

The flow of talent globally is an essential part of a thriving research environment. Nearly half of the UK active researcher population is transitory—that is, they have stayed in the UK for less than two years, or temporarily stayed outside for a similar period³. These researchers are, on average, the most productive and associated with high field-weighted citation impact.

CRUK welcomes the opportunity to respond to this consultation. Our position emphasises the following key point: international students play a key role in our life-saving research. We have answered the questions where we can provide expertise. We endorse the recommendations in the Russell Group response for international postgraduate and undergraduate students.

We engaged our research community in March and April 2017 to understand their motivations for coming to the UK. This included an online survey with more than 600 respondents and interviews with the research workforce (including international students) as well as those responsible for their recruitment processes⁴. Our case studies have been compiled from the CRUK Cambridge Institute, one of CRUK's core funded institutes. These case studies demonstrate the importance of international students to our research and reflect the work done by our funded international students across the UK.

We want to reiterate our intention to work with the MAC during the reviews of both EEA workers and international students. We would be happy to engage with our research community on any issues that might arise or develop any further evidence which may help with your review.

The importance of international students to CRUK's research

Our response focuses on the funded postgraduate community, specifically, Doctor of Philosophy (PhD) students. Our current annual spend on studentships is around £20 million (5% of our annual

¹ An analysis of the fiscal impact of medical research, January 2018, can be found here: <https://wellcome.ac.uk/sites/default/files/whats-it-worth-musculoskeletal-disease-research-januar-2018.pdf>

² World Economic Forum, Global Competitiveness report 2014-15

³ Elsevier, International Comparative Performance of the UK Research Base 2016
https://www.elsevier.com/_data/assets/pdf_file/0018/507321/ELS-BEIS-Web.pdf

⁴ The survey was sent to our funded research workforce in March 2017 and we had responses from both UK and non-UK nationals at all professional levels including PhD and Masters students. We captured information about their key considerations when relocating and information about their status in the UK

research spend)^{5,6}, supporting the research of over 500 students⁷ across the UK. Reflecting the need for global talent and mirroring the UK’s wider PhD population⁸, half of all PhD students who receive funding from CRUK are from outside the UK⁹.

As well as UK talent, the UK benefits from recruiting talented postgraduate students who have received specialist training from centres abroad. Such recruitment is particularly important and it is sometimes necessary in areas of science where the UK has a national skills shortage such as in computational biology and big data¹⁰.

Questions

1) What impact does the payment of migrant student fees to the educational provider have?

In 2014/15, international students paid an estimated £4.8bn in tuition fees to universities, accounting for 13% of total university income¹¹. International student fees allow universities to maintain their current spending on infrastructure and high-quality teaching. Universities also benefit from charity investment, such as CRUK, through paying stipends for PhD students. CRUK funds PhD students in 5 core institutes and 20 universities across the UK—see figure 1. The 20 universities provide infrastructure to our PhD students, enabling them to undertake vital research into cancer.

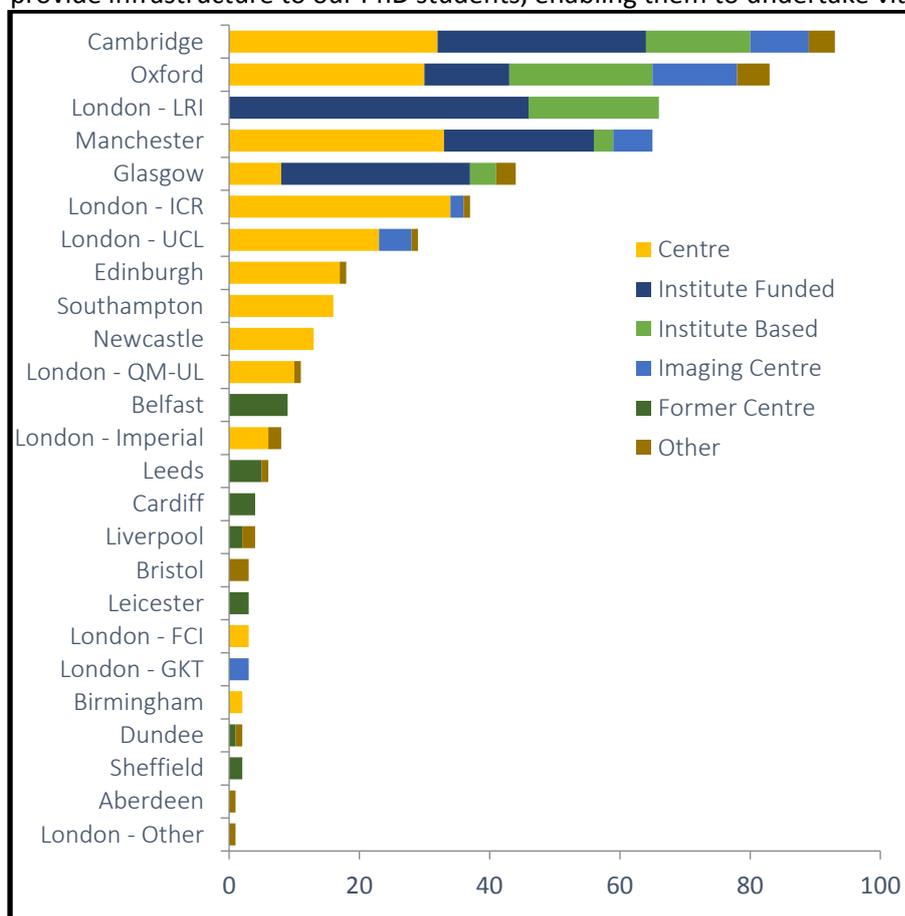


Figure 1- number of Cancer Research UK funded postgraduate students

⁵ Based on actual awards in addition to estimations based on cost guidance given to Institutes and Imaging Centres for student spend

⁶ Funding for students come through grant awards, centre training accounts and our core 5 institutes

⁷ In 2016/17, we funded 425 students and have just recruited a further 116, but are yet to collect the details of these students

⁸ According to Royal Society data, accessible here <https://royalsociety.org/topics-policy/projects/international-researcher-mobility/>

⁹ Based on the proportion of students who answered the question on nationality in our recent survey. Students filled in a survey, which contained a non-mandatory question on nationality. November 2017. More than one-third of our PhD students are from the EEA and 15% of our PhD students are from outside of the EEA.

¹⁰ ‘Bio-informatician’ and ‘informatician’ are included on the Shortage Occupation List, valid from 6 April 2015

¹¹ According to the 2015/16 HESA student finance record

Do migrant students help support employment in educational institutions?

We do not collect this data for the students we fund. For an analysis of the effect of international students on employment, we suggest reviewing the Russell Group's response.

How much money do migrant students spend in the national, regional and local economy and what is the impact of this?

We do not record the spending patterns of the students we fund. However, research shows that every £1 invested in cancer-related research by the taxpayer and charities returns around 27p to the UK economy each year^{12, 13, 14}. This includes research done by international students.

How do migrant students affect the educational opportunities available to UK students?

The universities and institutes in which we support students advertise for PhD roles based on what the research project needs to advance. Educational opportunities in the field of cancer research therefore exist based on the need for outcomes which can positively impact cancer patients. Applications are open to all, regardless of nationality, and PhD students are selected solely on merit. This process has led to a mix of nationalities being recruited, with half our PhD students from the UK and the other half from outside the UK.

To what extent does the demand from migrant students for UK education dictate the supply of that educational provision and the impact of this on UK students?

International PhD students working on cancer research have a positive impact on UK students in the same field. The demand from international students for UK education makes the UK a desirable place to work for global scientific talent. This means the expertise available to UK students, both postgraduate and undergraduate, is of high quality—reflected by the fact the UK ranks second in the world for the quality of our scientific research institutions¹⁵.

What are the broader labour market impacts of students transferring from Tier 4 to Tier 2, including on net migration and on shortage occupations?

We invest in international PhD researchers in the UK and there should be opportunities for them to continue to work and develop expertise in the UK to ensure we continue to have a thriving research environment. Case study 1 demonstrates the international talent we have recruited in areas of skill shortage. We believe it would be detrimental to the UK research environment if we lost this talent.

Case study 1 – Tony Wu

Tony Wu is a PhD student at the Cancer Research UK Cambridge Institute. He is a US citizen and has a Tier 4 student visa. After studying an undergraduate degree in Biology and Psychology at the University of Kansas, he completed a master's degree in Social Policy.

He currently employs statistical analysis in a systems biology context to identify the contribution of tumour microenvironments in pancreatic cancer progression and metastasis. Using various programming languages and platforms, he works in an area of which there is a UK skills shortage. Tony receives funding from Cancer Research UK to cover his tuition and expenses, as well as a £19,000 stipend.

Once his degree finishes, he would like to find a job in an academic research institution or in the pharmaceutical industry where he can utilise his statistical background. Ensuring that international students like Tony Wu can stay in the UK is essential for a flourishing research community.

¹² Health Economics Research Group (Brunel University), RAND Europe, and King's Policy Institute, medical Research: What's it Worth? Estimating the economic benefits of cancer-related research in the UK, 2014

¹³ <http://kcl.ac.uk/sspp/policy-institute/publications/SpilloversFinal.pdf>

¹⁴ <https://wellcome.ac.uk/sites/default/files/whats-it-worth-musculoskeletal-disease-research-januar-2018.pdf>

¹⁵ World Economic Forum, Global Competitiveness report 2014-15

Whether, and to what extent, migrant students enter the labour market when they graduate and what types of post-study work they do?

We do not currently collect post-study work data for our funded students. However, it is essential for CRUK that we can retain our talented international students following their studies. Retaining our international students ensures a training pipeline and a highly skilled UK research community.

2) The MAC would like to receive evidence about what stakeholders think would happen in the event of there no longer being a demand from migrant students for UK education.

Half of Cancer Research UK funded PhD students are from outside of the UK. Retaining a mix of UK and international talent is key to having a world class research base. If migrant students no longer demanded UK education, we anticipate there would be a significant negative impact on our research – both in the short and long term. The competitiveness of the UK's medical research sector would fall, affecting the quality of our research. As case study 2 demonstrates, keeping a mix of UK and international talent is key to having a world class research base.

Case study 2 – The Cancer Research UK Cambridge Institute

The Cancer Research UK Cambridge Institute is a joint venture between Cancer Research UK and the University of Cambridge. Opening in 2007, the Institute has excellent state-of-the-art facilities. Research ranges from basic cancer biology and computational biology through to translational research and clinical application.

The Institute is world-leading and continues to produce exemplary research. For example, hyperpolarised carbon-13 spectroscopic imaging, a technique that can increase the sensitivity of MRI by more than 10,000 times, will soon undergo patient trials. Similarly, the METABRIC project used expertise from many Cambridge Institute staff and collaborators world-wide to generate a new classification of 2,000 breast cancers with clinical follow-up.

The Institute has 61 graduate students, playing pivotal roles in the continuing success of research programmes. Approximately one third of graduate students at the Institute are from the UK, with two thirds coming from outside of the UK. In 2017, the Institute took on 11 new graduate students—10 are from outside of the UK.

Short-term impacts

We fund a range of talented UK students, but there are simply not enough with the right skills to fill all advertised PhD studentships in the shorter term. Case study 3 is an example of an international student bringing skills it would otherwise have been difficult to recruit from the UK pool of talent.

University income would also likely fall by a minimum of 13% —the proportion of all UK university income arising from international students' tuition fees. We fund students at 20 universities across the UK and PhD researchers rely on universities being able to maintain current infrastructure. This may be threatened by a 13% fall in income.

Case study 3 – Jiazheng Wang

Jiazheng Wang is a Chinese PhD student who has a Tier 4 visa to study at the Cancer Research UK Cambridge Institute. He studied a BSc in Electrical Engineering at North China Electric Power University, before completing an MSc in Electrical Engineering at the University of Maryland, focusing on MRI imaging and restructuring.

His studies have attempted to develop techniques to make fast and high-resolution images for molecular imaging through hyperpolarised MRI. This work aims to help the early diagnosis of cancer and to detect early evidence of treatment response. Research Group Leader Professor Kevin Brindle says it is 'very unlikely' that he could have recruited a PhD student with this background from the UK and that Jiazheng's contribution to his lab has been 'invaluable'.

Jiazheng's wife came to the UK on a dependent's visa for the first 2 years of his studies. If she had not been granted this visa, he would not have come to the UK to study.

Long-term impacts

The competitiveness of the UK's medical research sector depends on being able to recruit global scientific talent. Narrowing the pool of PhD candidates that universities can select from will limit the UK's competitive advantage in the research sector. A less competitive research sector would inhibit the Government's ambitions for the Life Sciences, as set out in the Life Sciences Industrial Strategy. In the long term, the UK's lack of competitive edge may lead to the relocation of both the UK and international research workforce who seek access to the best global science. A lack of international demand for UK education will have negative consequences for the UK's science and research sector.

While we do not record the nationality of failed applicants for our PhD funding to support this view, the case studies demonstrate this point. Some of our international PhD students work directly in areas listed on the shortage occupation list¹⁶. Without the ability to recruit from the best students available from across the globe, we would also expect research to decline in standards and in the long term, postdoctoral and senior researchers to relocate.

3) As per the commission from the government set out above, the MAC would also like to have evidence about the impact of migrant students depending on the institution and/or subject being studied – do different subjects and different institutions generate different impacts?

We fund international students from a range of academic backgrounds, including shortage occupation areas such as computational biology. These backgrounds include, but are not limited to: Biological Sciences, Sciences allied to Medicine, Epidemiology, Public Health, Physical Science, Social Sciences, Mathematics and Engineering. Students are recruited based solely on merit. Each student's work is reflective of a need in a research project and are therefore equally as valuable as each other.

In 2016/17, we supported PhD students at 5 core institutes and 20 Universities. Cancer Research UK funds high quality research. Irrespective of the institution or research question, migrant PhD students have continually contributed to our life-saving research. Reflecting the impact PhD students have on cancer research, this year Cancer Research UK recruited a further 116 PhD students^{17,18}.

For more information, please contact Ben Moore, Campaigning Officer, email: ben.moore@cancer.org.uk or tel: 020 3469 5055.

¹⁶ See case study 1: Tony Wu

¹⁷We are collating data on the nationalities of these students and will be happy to provide this data to the MAC when it becomes available

¹⁸ http://www.cancerresearchuk.org/sites/default/files/cruk_annual_report_2016-17.pdf