

ignite



WARWICK MEDICAL SCHOOL MAGAZINE

Life of a medical educator

Dr James Gill discusses
his experiences

Life, health and wealth in slums

Until now a neglected
research topic

Obesity: the new tobacco?

We consider
the evidence

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Foreword

Welcome to the first edition of our Warwick Medical School (WMS) magazine. We've called it Ignite, meaning to stimulate or provoke. Through our work we spark debate, fuel ambition and incite innovation. We are proud of our people and achievements and we look forward to sharing with you some of our stories that reflect our passion for teaching, learning and discovery.

Established in 2000, we're a young, modern medical school based in one of the UK's leading universities, with some of the brightest minds working with us.

Our education provision boasts the largest graduate entry only MB ChB programme in the country producing excellent doctors, many of whom go on to become GPs.

We also deliver a wide range of postgraduate education

programmes both at Masters level and short CPD events focusing on keeping healthcare professionals up-to-date with the latest techniques, information and guidance so they are well equipped to provide the best care they can for their patients. One of our many teaching strengths is the number of academics we have who are still working in their chosen clinical speciality alongside their teaching commitments. This ensures that they bring up-to-date knowledge and experience as well as first-rate teaching skills to our students.

Our research is excellent due to the calibre of our researchers working across the fields of Biomedical Sciences, Health Sciences and Clinical Trials. The university's rich research environment and our regional, national and international partnerships enable us to carry out ground breaking, impactful work.

We hope you enjoy finding out more about us. If you would like further information on any aspect of WMS please don't hesitate to contact us.



Dr James Gill, Warwick MB ChB,
Graduate and Visiting Academic,
Warwick Medical School

The life of a medical educator

DON'T READ THIS ARTICLE!

It doesn't contain any quick fixes or bright ideas about how to revolutionise medicine. It doesn't have a catchy sales pitch about improving patient care in the next 10 days. What this article does do is set out how the team at Warwick Medical School will impact on medicine, and the health of our country, in the next five to 10 years. So, readers with a short-term attention span should stop here.

When I attended Warwick Medical School, a lot of weight was given to an NHS document called *Tomorrow's Doctors*. I engaged with it in the same way then, that I do with China now. I recognise China exists, it has a role to play in our future and where students get into difficulties in relation to professionalism having working knowledge of this document is increasingly important, but it didn't really have any real impact on me. Then my focus was medicine and getting the grades.

One of my constant gripes as a medical school student, was a lack of cold hard facts. A focus seemed to be placed towards the concept and the principles of medicine, rather than the actual didactic teaching of the science. This irked me, especially when I came across other medical school students who seemed to have more raw knowledge than myself.

What I had failed to grasp, was that Warwick was not providing me with an encyclopaedia of medicine. Instead, Warwick was providing me with the toolkit to build my own encyclopaedia and be able to update it on-the-fly. Literally they were building doctors for all the tomorrows not just for the medicine I would need in the next one to two years' time!

Sometimes as a medic you encounter the actions of another doctor that seem outdated, or outmoded. Often that can be as a result of this encyclopaedic thinking. "I have the knowledge. *I know stuff*. I'm good to go." But this is very much static thinking. Some of the very best doctors I know frequently say "I don't know". To many people that might seem a slightly frightening concept, certainly if that was the end of the sentence. When teaching at Warwick, I like to say "I don't know" quite regularly, but with the caveat of "I will find out" following shortly after. This approach comes from the original teaching I had at Warwick, a focus on process rather than straightforward facts. I am happy to keep learning, and I'm happy to adjust my lectures and my approach to my patients as I encounter new information and challenge all concepts. In turn, I hope to empower my students to be happy to develop their lifelong learning skills, to realise the shifting sands around them and to have the personal skills and resilience to navigate through these.

Although in fact all doctors do keep up-to-date, it is a simple requirement of appraisal. However, by combining that mandated work with teaching, the value of that update is magnified. The changes that you make to your own knowledge base as an educator when you encounter new information does not merely benefit yourself and your patients, but also the students who work with you. There is no better way to cement your own new knowledge than teaching it to others.

Our health service is not perfect. It is a system with flaws and failings. But at its core is a strong group of dedicated individuals, who work by applying new science and medicine as they are able. If I put into practice one new learning point or medical intervention during my day-to-day interactions I may benefit a handful of patients across the year.

When teaching at Warwick, I like to say "I don't know" quite regularly, but with the caveat of "I will find out" following shortly after.

As an educator, if I take that same new information into the medical school and integrate it into an open culture of growth, knowledge acquisition, and respect for the statement "I don't know" when in conjunction with the response "I will find out", I will have a much greater fulcrum to improve patient care. By communicating that information to 20-30 future doctors, they in turn will take that learning, and apply it to their patients, having an impact on more patients than I could hope to alone. Plus, in time, those same doctors, if science and information changes, will similarly adjust their thinking and their interventions for patients. As they have been taught to question change and hopefully they will return as educators themselves, to similarly transmit their new learning points to students and impact patients they will never come into direct contact with.

This brings me back to my point about a lack of speedy change. Educators at Warwick think not of tomorrow's doctors, but of the next *generation* of doctors, and crucially how they think. A lecture on climate change and impacts on health, may not immediately be a topic to charge the hearts of students. But when they are graduated doctors, they may be able to shift the whole world, just slightly, through the changes in attitude to environment impact on healthcare.

As a doctor, you intrinsically want to help people. One to one, this can be rewarding, but is relatively inefficient. As a clinical educator, you are able to empower the next generation of doctors to be better, *think* more critically, and have a greater impact than any other action you can perform on your own.

As a doctor, if you truly want to help patients, then there is no more effective strategy than to teach. But be under no illusion, it's certainly not a quick fix for the healthcare of today, but might just lead to the fix for the healthcare of tomorrow – you never know!



Will you join the club?

Dr Greg Moorlock,
Senior Teaching Fellow,
Warwick Medical School

Anyone in the UK, of any age, can sign the Organ Donor Register, and give permission for their organs and tissue to be donated after death. How you register your wishes depends on where you live: in Northern Ireland and England, one must sign a register to opt in, while Wales currently operates an opt out system, and Scotland plans to follow suit.

More than 23 million people are registered as potential organ donors across the UK, but that is still not enough. Every day patients are dying while they wait for a transplant.

In light of this, a rival system called Organ Tree was recently launched, which has raised significant concerns among transplant experts.

Organ Tree works very differently from the standard register. When you join Organ Tree, you pay a small registration fee – it is free to sign the organ donor register – and can join as a donor or a recipient. If you join as a donor, and die in a way that allows you to become an organ donor, Organ Tree claims that your organs will be offered to other members registered as recipients. These recipients are

expected to compensate a donor's chosen beneficiary by an agreed amount. Organ Tree is essentially an organ donation club, designed to benefit its members.

Choosing recipients

This approach immediately throws up two controversial ethical and legal issues: directed donation, and payment for donation.

Following a case in 1998, when a donor's relatives requested that his organs were given only to white recipients, there has been a general ban on deceased donors choosing their recipients in the UK. Only in a very narrow range of circumstances can exceptions to this be considered, for instance, when someone dies with a family member on the waiting list.

It seems unlikely that the service offered by Organ Tree would fall into this permitted category. It is a fundamental aspect of deceased donation that organs are allocated according to clinical need, which accords with broader National Health Service (NHS) principles about access to treatment. So, it is difficult to see how a private organ donation club could hope to match their donors with their recipients, given that the organ retrieval and transplantation would be undertaken within the NHS.

Reimbursing donors

Organ Tree's website states that "a nominated beneficiary is eligible to be reimbursed to help offset funeral costs." The recipient of the donated organs is expected to make this payment.

 **23 million**
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Although it has been suggested that the NHS meeting funeral costs might be ethically acceptable, this is not something that currently occurs. And it is especially not something that organ recipients are expected, or permitted, to do.

In addition, the Human Tissue Authority, which regulates the use of human tissues and organs, cautions that anyone attempting to enter into a financial arrangement regarding organ donation is likely to be breaking the law. Although the payment may be described by Organ Tree as "reimbursement," the donor's family would pay funeral costs if a donation did not go ahead, so it is challenging to view it as anything other than an incentive.

A two-tier system

The transplantation system in the UK is a remarkable communal response to medical need, where the selfless generosity of individuals saves or extends the lives of patients who are often in desperate situations.

It is not a perfect system, and does not meet the needs of everyone, but the introduction of additional private systems seems unlikely to improve anything. Some have suggested that systems that prioritise registered donors might offer advantages, by giving people an additional reason to become a donor. Such a system exists in Israel and, until recently, an organisation called LifeSharers ran a similar service in the United States. In the UK,

however, these would fall foul of NHS principles by allocating resources according to factors other than clinical need.

Organ Tree is different again, however. Rather than accessing the club by displaying a willingness to help others – which anyone can do – to receive a transplant through Organ Tree one must be able to pay the donor's family. So, recipients could buy preferential access to transplantation, which runs completely contrary to the ethos that underpins organ donation in the UK.

Is it worth it?

If organisations like Organ Tree resulted in many more people agreeing to donate, then some compromise of ethos may be justifiable: the organ donation system is after all intended to save lives, not just to promote selfless giving. But it seems more likely, given the current legal and policy restrictions, that this kind of transplant club will just confuse the situation, and lead to some people not joining the official organ register.

Attempts to increase the number of organ donors should be encouraged only if they are likely to be effective, and are ethically and legally acceptable. Given the issues described above, and advice issued by the Human Tissue Authority, clubs such as Organ Tree are unlikely to meet any of these criteria.

If you would like to become an organ donor, the best advice remains as it has for some time: join the real organ donor register, and discuss your wishes with your family.

Dr Helen Atherton,
Assistant Professor,
Warwick Medical School

The changing face of communication in primary care

Rarely a week goes by without a headline about how NHS general practice is in trouble. Too few GPs, too few appointments, not enough funding. GPs leaving the workforce. Patients living longer and getting sicker.

Suggested solutions to the crisis facing primary care service arise from different sources, be these policy based or commercial. Numerous amongst these solutions are the use of digital tools for consulting with patients, designed in an attempt to manage the demand for appointments and GP time, as it is easy to assume that digital equals efficient. But is this the case? As a researcher specialising in this area, I have observed over several years the tentative introduction of alternatives to a face-to-face consultation in general practice.

Use of the telephone for consulting with patients is now mainstream, email much less so, due to its unstructured nature. Video consults have potential, but rarely make it into day-to-day practice due to the logistics of setting up and running a service. Spotting a gap in how we might utilise digital tools for consultation purposes, several companies have designed what they variably call an online or e-consult, allowing patients to have an interface with the practice without calling their practice or doing battle with a receptionist. These tools offer practices a ready-made interface between themselves and the patient, removing the directness of a telephone or video call.

You may have heard of some of the market leaders when looking to book your own appointments with your GP; *e-consult*, *AskMyGP* and *Emis Health Online Triage* are three of the main providers, and they serve several NHS practices, providing an interface for patients that means not having to telephone in for an appointment. Generally, this involves logging on and writing

AS FEW AS
10 patients
per month are using online
consultation in some practices

a message for the GP, often answering questions about symptoms and checking boxes to indicate which services you need, though this varies according to which software is in place. A message then goes to the general practice, and they call the patient back, deciding whether to deal with the query over the telephone or book the patient in for a face-to-face consultation. The GP has the information provided by the patient, plus their medical record and uses this to 'triage' the patient, making a decision about whether they need to be seen, and how urgently. It also means that patients who need repeat prescriptions or have requests of an administrative nature can have their query separated out and addressed.

On the face of it, this approach gives patients more choice and an accessible route to communicating with the GP that can be used 24/7 (though a response comes only in office hours). As yet not too much is known about what patients think, but the independent research that has been conducted tells us that it is good for some patients, and not so good for others, who perhaps do not like to communicate online, or cannot. No surprises there, and expected for any kind of digital tool, which relies on users being able to get online and feel confident in doing so, excluding those who do not

use the internet or may not feel comfortable doing so for health reasons- even if they are usually online regularly.

More telling is that uptake by patients of these tools is so far low, with reports of as few as 10 patients a month using them in some practices. If usage remains so low it is unlikely to have any meaningful impact in managing patient demand, and raises questions about whether it is a route that patients actually want. There is also the question about how it impacts on the GP and the practice. If administrative staff are collecting patient enquiries each morning, distributing these to GPs, then the GPs are responding by telephone before possibly consulting again with the patient (should they need to be seen face-to-face) then this becomes a complex process. Early findings by researchers indicate that this leads to increased rather than reduced workload, especially where the process is not well managed. This is not a problem in itself if the rationale is to provide services that offer happy patients an additional route of access, but if the rationale is as a way to help a busy practice reduce their workload then the value might be harder to ascertain.

We have much more work to do in unpicking exactly why uptake is currently low, and whether these tools can realistically help general practice in appropriately managing demand. In a busy, time poor, financially challenged NHS potential solutions are attractive, but as consulting with a GP is different for each patient and each problem, we should be mindful that one stop solutions are hard to reach.



Life, health and wealth in slums

Professor Richard Lilford, Professor of Public Health and Peter Chilton, Research Fellow, Warwick Medical School


Over the last 50 years there has been massive growth in the urban areas of low and middle income countries, leading to slums sprawling across, and dominating, cities such as Mumbai, Nairobi and Mexico City. It is estimated that 881 million people live in slums in the developing world, and this is predicted to increase to 2 billion by 2030.

Slum health is a neglected topic in the literature, and there hasn't been much published research carried out on slum health issues. In general, slums are not identified as distinct areas (for example in national censuses), and therefore health outcomes are subsumed in urban averages. This is inadequate because people in slums experience neighbourhood effects (such as environmental risks from poor sanitation, social risks from crime rates, exposure to geographic hazards like flooding or subsidence, and institutional stigma), which amplify health hazards. Many people who live in poverty do not live in slums, and not all who live in slums are poor. But the shared environment in slums also has an upside; due to population density, a large number of people can collectively benefit from interventions, such as improved sanitation, at a low cost per person. It is also important to note that interventions that work in non-slums do not always successfully transfer to a slum context (for example, pit latrines are inappropriate in a crowded slum setting). We therefore need to identify and study slums as spatial entities in the data systems (such as national censuses) that drive research and policy.

While there is a paucity of research into slum health, the available evidence-base suggests that the immediate health issues facing people in slums are contaminated water supplies; poor sanitation; lack of drainage; accumulation of rubbish; and reservoirs of disease - in a crowded environment these predispose people to infectious diseases and recurrent diarrhoea. Often, people in slums have

only the bare minimum money needed to survive, with nothing left over. This means that if they fall ill and are unable to work, they are likely to quickly fall into extreme poverty, leading to worsening health, and in turn poverty traps and extreme inequality. Children living in slums are particularly vulnerable. They are more susceptible to infections, many of which have long-term consequences, including stunting and impaired cognitive development. There are also more generic determinants of health for people living in slums, including job insecurity, risk of fires, exposure to extreme weather, lack of tenure, poor transport networks, and stigmatisation.

Although we do not understand enough about the health vulnerabilities of people living in slums, nor the effects that interventions targeted at slums could have, there are still improvements that can be recommended. Such improvements include general policies, such as provision of security of tenure, civil rights, and law enforcement; and specific interventions, such as upgrading the physical environment and infrastructure (clean water, sewage systems, home improvements, lighting, etc.), educational interventions, and improving access to health protection. Regarding the health of children, interventions could include improving uptake of vaccination; promotion of breastfeeding, nutrition, clean water, and sanitation; and improving home safety to afford protection against burns and inhalation of toxins.


2 billion
people estimated to be living in slums in the developing world by 2030



However, there is a need to ensure that the people who live in slums, and the organisations that represent them, have an active role in the prioritisation, design, implementation and evaluation of interventions. For example, by working in partnership with local communities to find out which types of water and sanitation quality improvement installations are suitable for different types of slum environments.

There is a need to raise the profile of slum health and welfare, and now is the time to revisit the Urban Agenda to emphasise slum health, slum upgrading and strengthening capacities of urban governments to work with people in slums to act on these.

A surprising killer

What medical condition is responsible for more deaths per year than breast cancer, road traffic accidents, MRSA and HIV/AIDS combined?

You may be surprised to know that it is venous thromboembolism (VTE), blood clots, usually starting in the legs (Deep Vein Thrombosis, DVT) and then breaking off and lodging in the lungs (Pulmonary embolism, PE). Whilst not always fatal, it is estimated that 60,000 deaths per year occur in the UK as a result of VTE. Of these just under half are thought to be due to being admitted to hospital, so called Hospital Acquired Thrombosis (HAT). There have been great efforts over the last 10 years to try and reduce these deaths, and other associated morbidity such as post-thrombotic syndrome and pulmonary hypertension, through thorough risk assessment and appropriate treatment for all patients admitted to hospital. In this instance prevention is much better than the treatment.

Until the last 10 years the only options for both prevention and treatment of VTE, was heparin and warfarin. More recently, new agents have been developed which can aid in both the prevention and treatment of VTE. These agents are collectively known as Direct Oral Anticoagulants (DOACs), and there are four available for the treatment of VTE: Dabigatran, Rivaroxaban, Apixaban and Edoxaban.

The traditional treatment for VTE has been combined treatment with heparin and warfarin for around seven days followed by three to six months of continuous warfarin therapy. The prolonged treatment with warfarin requires regular and frequent blood tests (INR) to ensure the correct dose is given. The DOACs provide an alternative to warfarin and can in some cases avoid the use of heparin injections also. The new agents have demonstrated in large clinical trials that they are at least as effective as the traditional treatment in terms of preventing the reoccurrence of VTE, whilst also being at least as safe in terms of bleeding. This comes with the benefits of fixed dosing, which means that there is no longer any need for INR testing with these therapies. Whilst some monitoring of renal function is required, the treatment is much simpler for the patient.

The development of DOACs also means that patients need to have much less contact with hospitals. Whereas previously patients may have required hospital admission for up to seven days to stabilise the warfarin dose, patients can be treated at home with the only contact with hospital being for some form of scan to confirm the diagnosis.

60,000 

estimated deaths per year occur in the UK as a result of VTE

So, whilst nothing changed for 60 years, the advent of four DOACs and the implementation of preventative strategies within hospitals, means it should now be possible to both reduce the numbers of patients suffering from VTE and to make treatments much better for those unfortunate enough to suffer one. Whilst we will never eradicate VTE altogether, it is important to build on the advances in both prevention and treatment of VTE to improve the patient experience.



Professor David Fitzmaurice,
Course Director, Anticoagulation,
Warwick Medical School

Obesity: the new tobacco?

Dr Wendy Robertson, Course Director,
Masters Public Health (MPH),
The University of Warwick

In England, we have seen a massive decline in the prevalence of cigarette smoking amongst adults - from 45% in 1974 to 15.5% in 2016 - due to a highly successful tobacco control programme. In contrast, over a similar period, obesity (defined as a BMI > 30 kg/m²) has increased amongst adults in England from 7% in 1980, 15% in 1993 to 27% in 2015. The National Child Measurement Programme also shows that a third of 10-11 year olds in England are also currently overweight or obese. Obesity has been dubbed the 'new tobacco', requiring a similar approach used for tobacco to tackle it.

Obesity is linked to an increased risk of Type 2 Diabetes, coronary heart disease, stroke, and some cancers (such as breast cancer and bowel cancer). Obesity in childhood also increases the risk of bullying, poor psychological wellbeing and poorer quality of life.

1/3 

of 10 - 11 year olds in England are currently overweight or obese

The Foresight Report on Tackling Obesity in 2007 identified a number of key determinants of being overweight and obesity: biology, growth patterns early in life, behaviours around eating and physical activity, activity and food environments, and broader economic and societal influences. Therefore, public health measures need to be multi-level and sustained, focused on prevention and management, targeting children and adults. Policy changes such as the widely reported introduction of a 'sugar tax' on high sugar drinks and the reformulation of food stuffs are needed urgently. Changing the environment to make healthy food choices and increased physical activity the easier option is crucial. Supportive programmes for weight management, either through face-to-face support or apps, also need to be one part of this overall strategy.

The evaluation of a 'whole systems' approach to tackle obesity is a current research imperative. Time will tell as to whether the obesity control programme can be as successful as the tobacco control programme.



Sam Brace-McDonnell,
Course Director, Advanced Clinical
Practice, The University of Warwick

New roles in the NHS and how WMS is helping to shape the future



Over the last decade there have been many drivers within the NHS to look at new ways of working and providing healthcare to the nation. The numbers of doctors and nurses have dramatically increased over the last few years and the productivity of the NHS continues to improve. However, alongside this the demand on these services and staff is ever rising. Health Education England (HEE) has set out to help the NHS implement the next steps in the Five Year Forward View by reviewing current frontline roles and opening up innovative new roles to attract the best people into the health service.

Advanced clinical practitioners (ACPs) come from a range of professional backgrounds such as nursing, pharmacy, paramedics, physiotherapy and occupational therapy. They are healthcare professionals educated to Masters level in Advanced Clinical Practice and have developed the skills and knowledge to allow them to take on expanded roles and scope of practice caring for patients.

HEE is working to deliver a single, nationally agreed definition for ACPs and a clear career pathway into and within the role. The advent of the apprenticeship route for ACPs is an exciting time and one that WMS are very much looking forward to embracing.

The training an ACP receives equips them with the skills to extend the scope of their practice regarding consultation, assessment, diagnosis and therapeutic interventions. Their understanding of altered physiology to effectively assess patients' health or ill health status is developed through academic work but predominantly in clinical practice under the guidance of a senior ACP or doctor. ACPs enhance capacity and capability within multi-professional teams by supporting existing and more established roles. They help to improve clinical continuity, provide more patient-focused care, enhance the multi-professional team and help to provide safe, accessible and high-quality care for patients.

Here at Warwick Medical School we have been educating ACPs for the last five years with our Masters in Advanced Clinical Practice programme. We have had students from all over the UK, and abroad, who are now employed in ACP roles in various different clinical specialties. The ACPs educated here have gone on to become senior clinicians in Emergency Medicine, Acute Medicine, Elderly Care and Paediatrics among many others. They are on the frontline delivering highly specialised and autonomous care to patients across the age and acuity spectrum. They are complementing and supporting existing healthcare teams in delivering care in the challenging NHS environment.

The student perspective

Thousands of students have studied with us over the years, here's what a couple of them think of their time at WMS.

I currently work full-time in a local authority Public Health Department. My background previously has been working within substance misuse treatment services, followed by a strategic planning and commissioning role within a local authority.

I joined the Public Health Department when public health moved from the NHS into local authorities, but at that time had no specific public health training or experience.

I chose Warwick over other universities as it has a good reputation. The course structure – week-long modules – works well with my full-time employment, and the university is within daily travelling distance. I have really enjoyed the modules. Whilst the course is academically rigorous, the content of the individual modules is very relevant to working within a public health department.

Week-long attendance at modules has been a great opportunity to immerse myself in the learning environment and spend time with fellow students. The modular structure allows students to build a programme of study that is personally/professionally of interest, and the core modules cover the necessary requirements of a public health specialist.

The biggest challenge is making sure I have organised my work arrangements to allow time for the attendance at Warwick and the

academic reading and assignments. Time management and project management skills are necessary to manage full-time work and part-time study. Don't underestimate the academic reading outside of the timetabled modules.

Coming from a very different professional background I believe the Masters in Public Health has made a 'public health specialist' of me. The skills and knowledge I have learnt I can apply to any public health role and this will give me a great flexibility in my future career.

I would recommend this course. Tutors offer a high standard of academic support and the flexibility of the modular course means the assignments can be made relevant to your day-to-day professional work.

Debra Cunningham, Part-time Masters student, Masters in Public Health (MPH)

The MSc in Endodontics at Warwick University is something unique that I had the privilege to experience. For students it is challenging... difficult at times, but also rewarding and a fantastic experience. The teaching team shows high professionalism, patience, dedication and passion. I would recommend it to anyone who wants to grow and develop their endodontic skills using the latest technologies and procedures.

Dr Asineta Ghiriti, MSc Endodontics Graduate 2017



Our courses

We offer courses at Postgraduate Award, Postgraduate Certificate, Postgraduate Diploma and full Masters level. We also offer a range of Continued Professional Development short courses. Our courses are available in the following areas:

- Advanced Clinical Practice
- Advanced Critical Care Practice
- Anticoagulation
- Diabetes
- Endodontic Practice
- Health Research
- Interdisciplinary Biomedical Research
- Medical Education
- Orthodontics
- Public Health

We also offer an accelerated, graduate entry only Bachelor of Medicine and Surgery (MB ChB).



The numbers say it all...

7th
in The Times
and The Sunday
Times Good
University
Guide 2017

8th

in The Guardian 2018
rankings and The
Complete University
Guide 2018

NO.1

most targeted university nationally
by the top 100 UK graduate
employers (The Graduate Market
in 2017, High Fliers Research Ltd)

7th
overall among UK
research universities in
the most recent Research
Excellence Framework

24th



in the world for our
reputation with employers
(QS World University
Rankings 2018)

17th

of the world's most international universities
(Times Higher Education), with postgraduates
joining us from over 190 countries

57th
Globally
(QS World Rankings 2018)

