



Celebrating Achievement

The Exceptional Work of
UK Medical Schools and Students

Foreword

The Medical Schools Council is the representative body for the UK's 33 medical schools. It works to ensure that the UK and indeed the world benefit from the contributions of the hugely talented teams of doctors, student doctors and colleagues who are working in medical schools to improve patients' lives.

We have previously presented an overview of the impact that research conducted in the UK's medical schools, universities and hospitals has had over the past 150 years¹. This report describes and celebrates some of the current work that medical schools and their medical students undertake.

The publication of *Tomorrow's Doctors* by the General Medical Council in 1993 marked a watershed in the way medical students are taught in the UK. The emphasis shifted dramatically from the mere gaining of knowledge to a learning process that promoted the ability to evaluate data and the development of key skills, especially around interactions with patients and colleagues. Medical schools embraced the recommendations, and those in subsequent versions of *Tomorrow's Doctors*, with the result that UK medical education is now 'a cause for celebration'².

In this report we highlight medical schools' innovations in five crucial areas: **medical education**, the programmes, initiatives and curricula which shape our medical graduates; **delivering benefits to the local community**, the connections our medical schools have with their surroundings and the experience this brings to our students; **values-based selection and widening participation in medicine**, the methods by which we aim to have a medical workforce as diverse as the population it cares for; **global and population health**, the far-reaching links of learning

and cooperation with organisations both around the world and at home in the UK; and **inspiring the clinical academic medical researchers of the future**, the people and activities which are making young people aware of the excitement that clinical academia holds and what it means to the UK as a whole.

Healthcare is a very rapidly moving field and the NHS is facing both financial pressures and rising numbers of patients who are elderly and who have complex chronic conditions. These changes mean that our graduates will have to be more flexible in their subsequent training, and we need to ensure that the transition from undergraduate to postgraduate education is seamless. Medical schools are also conscious of the need for an even greater emphasis on public health in order to prevent disease. Finally we have embarked on work to ensure the fairest possible access to medical school for aspiring doctors. We look forward to meeting these challenges, thus retaining the confidence that patients and the public have in the medical profession.



Professor Tony Weetman
Chair, Medical Schools Council

1. 'Improving Lives: 150 of Medical School Achievements', Medical Schools Council, 2008: www.medschools.ac.uk/Publications/Documents/Medical_Schools_150_years.pdf
2. 'The State of Medical Education and Practice in the UK', General Medical Council, 2012: www.gmc-uk.org/The_state_of_medical_education_and_practice_in_the_UK_2012_0912.pdf_49843330.pdf

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Medical education

Medical education is more than a curriculum. The experience of working through a medical degree, from the jitters and excitement of receiving those first impressions of medical knowledge to the growing of confidence as these impressions are by enormous effort made into a complex understanding of the human body, all for the jitters and excitement to begin again with graduation and the prospect of really practising – this experience is more than a list of subjects explained in certain ways on certain dates.

The UK's medical schools deliver the most current and comprehensive medical knowledge while at the same time framing it within a broader sense of the doctor's life and the clinical environment. From induction to graduation this is made possible through inspirational teachers, innovative methods and unique opportunities which together broaden the student's mind incalculably from what it once was.

This initial section of Celebrating Achievement will detail some of the many ways in which UK medical schools are consistently raising the bar in medical education, through new technologies, international exchanges, learning programmes and apprenticeships, by developing new roles for clinical and academic staff, and of course this section will also highlight some of the amazing student-led projects and individual achievements which have come as a result of this world-leading work.

University of Aberdeen School of Medicine and Dentistry

Exceptional student: Susan MacFadyen



Susan MacFadyen (third from the right), receives her Quincentenary Medal from Lord Provost Peter Stephen in 2008 at the Aberdeen City Council Town House.

Susan MacFadyen completed her first degree, Bachelor of Science (Hons) in pharmacy, at the Robert Gordon University in June 1988, graduating with first-class Honours. She then completed a Postgraduate Diploma in Prescribing Sciences (receiving a Distinction) and a Certificate in Supplementary Prescribing (also at the Robert Gordon University) in 2004, having worked as one of the first qualified prescribing pharmacists in a General Practice (Forres Health Centre) in the interim. Her application to study medicine as a mature student at the University of Aberdeen in 2005 was accepted and she went on to become one of the most hard working and successful students ever in the school. Dr MacFadyen achieved an unprecedented CAS 20 out of 20 in ten of her 20 'degree' exams and eight additional marks of 18 or 19 enabling her to graduate with Honours in 2010. She also won the Lizars Medal, Durno Prize and Chanock Medal, McWillie Prize, George Thompson Bursary, Ann Helen McKay Prize, Munday & Venn Prize, second-year Community Course, Russell Prize, Scott Prize in Medical Microbiology, Lockhart Bequest Prize, Munday & Venn Prize in Medicine, Sheila McLennan Prize in General Practice, Strachan Bursary in Medicine & Therapeutics, Sir David Baird Proxime Accessit Prize in Medicine, Louise Tomory Prize for the Most Distinguished Female Graduate in Medicine, MacQuibban Prize in Surgery, Scatterty Prize in Preventive Medicine, and the School of Medicine & Dentistry Medal for Excellence.

In addition to her impressive list of academic achievements, Susan was the mother of two young school-age children during her undergraduate career

and commuted by train every week day from Elgin, a round trip of three hours, to enable her to return to her family in the evenings. She was awarded the 2008 Aberdeen Quincentenary Prize in Science, Engineering and Medicine in recognition of her achievement. She set up a voluntary Clinical Skills study group with her fellow students and was a very popular member of her year. Being an undergraduate when she reached 40, Dr MacFadyen commenced a completely new career accompanied by enormous personal challenges but made a phenomenal success of it. She is currently completing Foundation year 2 in a less than full-time post.

Barts and The London School of Medicine and Dentistry, Queen Mary, University of London

The Prehospital Care Programme



At some point in their careers, many doctors will have to deal with a medical emergency outside of the hospital environment. However, prehospital care is an often neglected part of the medical undergraduate curriculum.

At Barts and The London School of Medicine and Dentistry a then second-year medical student, Emma Lightbody (now Dr), recognised this niche in the undergraduate curriculum and proposed the idea of a Prehospital Care Programme (PCP).

The PCP was developed with the help of senior figures within the medical school, London's Air Ambulance (LAA) and the London Ambulance Service (LAS) and was launched as a pilot programme in 2007.

Students, who are selected after a rigorous application process, are enrolled between years 2 and 5 of their MBBS course and undertake full shifts with mentors from both the LAS and LAA. Working to a set of learning objects, they complete a specially designed Student Report Form (SRF) for each case they observe and, alongside their shift-based work, they undertake a variety of written assignments and attend Academic Forums, Clinical Governance Days and LAA team meetings.



The PCP offers an opportunity for increased patient contact, one-to-one teaching and inter-professional team-working. It

promotes communication and clinical skills practice and allows students to familiarise themselves with common medical equipment. Furthermore, it encourages students to formulate differential diagnoses, to recognise medical emergencies, to understand appropriate treatments and to practise developing management plans. Essentially, it gives our future doctors insights and understandings which will enable them to offer not only better-quality prehospital care but also better in-hospital care.

Interest in the programme from students, mentors and other medical schools has increased exponentially since it began, and the PCP, along with those involved in setting it up, have received numerous awards. As a result of this interest the very first National PCP Conference was held in January 2013.

University of Bristol Medical School

Arts-based inquiry in medical education



Arts-based inquiry is a new field within medical education, and aims to expand the concept of medical humanities taking students beyond being consumers of the artistic creations of others to producing their own creative-reflective texts. Arts-based inquiry can be described as 'the... making of artistic expressions... as a primary way of understanding and examining experience'¹. Although medical humanities work has been in development since the 1970s in the USA and the 1990s in the UK, student engagement in arts-based inquiry, especially in relation to clinical reflection or practice development, has few examples in the literature of medical student engagement with the creative process through the arts.

At the University of Bristol Dr Louise Younie introduced arts-based inquiry into a student-selected component (SSC) in 2004 and into the year 1 GP attachment in 2005. Her Masters and doctoral research in the field relating to these two courses respectively revealed, for example, the potential for collaborative and transformative learning (developing more integrative and inclusive beliefs), as well as the enhancement of interpersonal understanding through student engagement with lived experiences and the patient and student voice, thereby potentially developing both narrative humility and reflexivity.

...We learn to see beyond clubbing and splinter haemorrhages to the story behind their withered hands, to the person and all their history.
(Georgina Maguire, 2011)

Complementary to depersonalised clinical knowledge acquisition, students enhance their learning from practice (practice-based learning) through personal-creative knowledge production relating to their experiences.

It [the creative piece] made me consider the patient more deeply as I had to think of how to display their issues visually.

I think the creative piece made me think more deeply about the patient's emotions.

A great variety of both aesthetic and reflective texts are produced which engage narrative, poetry, visual and performing arts as well as music.

Doctors can become so focused on what is going on inside the biomedical human body that they can't hear what is going on inside the person. A Doctor can spend all day listening to the heart of a patient, but not for a minute listen to the patient's heart. (Tom Cassidy, 2011, creative arts SSC)

Of the two shown here, the creative piece on the right (by Libby Wilson, 2010) was produced on year 1 GP placement regarding a patient diagnosed with cancer. The family requested to have a copy of this work, which also now hangs on display in the GP surgery, conveying the student perspective with the wider patient population. It also won joint first prize at the Institute of Medical Ethics (2012).

References

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University of Cambridge School of Clinical Medicine

The Clinical Supervisor programme



A medical student and clinical supervisor working together at Addenbrooke's Hospital, Cambridge.

The clinical encounter lies at the heart of medical education. Access to patients in a range of clinical environments with observed interaction and feedback is essential to student learning and 'bedside teaching', which remains a cornerstone of their education. We have met the challenges associated with delivery of this type of teaching by enlarging and enhancing our Clinical Supervisor programme, a joint undertaking between the Clinical School and the Cambridge Colleges. Clinical Supervisors are junior doctors working in medical and surgical specialties or undertaking clinical research and at any given time there are up to 100 junior doctors involved. Their responsibilities are four-fold, encompassing teaching and learning, assessment, pastoral support and professional mentoring. Following an induction programme, each one supervises a group of five to eight clinical students for up to three years and in any one year each will undertake approximately 40 hours of small group clinical teaching at either Cambridge University Hospitals NHS Trust (Addenbrooke's Hospital) or a regional partner NHS Trust. All clinical supervisors have an annual appraisal of their teaching when feedback from students and faculty is reviewed

The Clinical Supervisor programme is supported by a staff development programme accredited by the Higher Education Academy (HEA) and identified by the General Medical Council as an example of good practice in the supplementary guidance to *Tomorrow's Doctors 2009*. This structured programme provides training and assessment for all clinical supervisors

in educational methodology and leads to Associate Fellowship of the HEA upon satisfactory completion. Thus the Clinical Supervisor programme ensures our students receive regular, ongoing clinical teaching, academic and pastoral support, and our junior doctors receive a basic teaching qualification. Many are motivated to follow this up with further professional development in medical education.

Cardiff University School of Medicine

The Harmonisation Project



Dr Steve Riley and Dr Tom Yapp.

The opportunity to align the principles and practice of medical education across undergraduate and postgraduate medicine in Wales has led to the creation of the Harmonisation Project, which seeks to smooth the transition from student to doctor and benefit patient care. It blends experiential learning with the four main outcome themes of science, safety, scholarship and service.

The benefits of learning through and from the community of practice are well documented and form the cornerstone of student assistantships. Our students are embedded within clinical teams, with a defined role to support medical and nursing colleagues, and with this role they also assume responsibility for their patients. The concept of 'MyPractice' has been developed to enable students to

recognise these roles and responsibilities, both within their clinical practice and their learning. Students are required to meet twice per week in facilitated small groups. One student will present a clinical case that they have encountered and together the students will develop three learning outcomes (one each from science, practice and professionalism) which they will research and feed back to the group at the next session. This process encourages the development of a patient-centred lifelong learning culture.

Four two-week bookended learning blocks, interspersed between eight-week clinical assistantships, are designed to provide interactive discussion around the more difficult aspects of clinical decision-making and clinical management. The 'Changing Practice' block introduces service improvement methodology, empowering students to make changes to patient care and report them back to the year group. Within the 'Science in Practice' block students are facilitated to revisit science-based themes and transform them into translational medicine activities, encouraging development of evidence-based medicine approaches. The 'Preparing for Practice' and 'Practise to Practice' blocks develop the competencies required in the Foundation Programme, thus preparing students for their forthcoming career.

The Cardiff student-led MCQ project

Students value formative questions to help in developing their knowledge. However, most trainers inevitably direct their question-writing energies towards summative assessments, leaving only second-best questions for formative purposes. Students who organise themselves to write their own questions can build a much-needed resource of formative items, derive valuable learning through peer discussion, and also develop valuable insights into the subtleties of question-writing.

This work began as a senior clinical project for two year 4 students (2011–2012). It has now resulted in student-led question-writing groups in years 3 to 5 as well as a growing resource of more than 150 formative single best answer (SBA) items, of proven

high quality, available on Learning Central. After initial training on standard practice in constructing question items, the lead students invited fellow students to write question items adhering to the Cardiff Style Guide. The questions were then discussed and refined at student-led question-writing groups. The next step involved inviting other students to take a test of 40 SBA items, assessing each item's performance with psychometrician help, to allow the amendment of any poorly performing items before publishing them on Learning Central.



A student-led question-writing group.

The two student originators, now in year 5, have obtained grant funding to continue and extend their work, harnessing new talent and enthusiasm from all years of the course. They will continue in a facilitating role as Foundation year 1s in 2013–2014, enhancing learning for participating students in Cardiff and, more importantly, building a large, unique and open-access resource for all students in the UK and beyond.

University of Dundee School of Medicine

Anna King's revelation – trainee doctor's move to translational medicine

Anna King had never associated scientific research with training to become a doctor. That is, until a revelation in year 3 of her Dundee medical degree.

'We were offered the opportunity to work in a lab as an alternative to clinical student-selected component choices,' she explains. 'Intrigued, I decided to give it a go. It was a fantastic experience, not only fascinating but also really great fun.'



Enthused, within a few months Anna applied to study for a BMSc in pharmacology, which her lab supervisor fully endorsed and encouraged.

Anna reflects on the two healthcare pathways. On one hand, the medical curriculum covers a vast range of topics, all necessary to qualify as a clinical doctor in the front line of patient care. Research, on the other hand, demands in-depth and intimate knowledge of a subject. 'I thrived on this – and what I learned about neurotransmitters during my BMSc became even more thrilling when I made personal discoveries of my own in the lab.'

Mentored along the way by the Dundee Clinical Academic Track (DCAT), Anna finds pursuing a career in research alongside medicine an exciting prospect that she hopes to continue by way of an academic foundation post in 2014.

'I am looking forward to this and have my mind set on a PhD programme in the not too distant future,' says Anna. 'I am also keen to pass on the research bug to my peers through the Dundee Medical Research Society, a group that myself and a few fellow students set up over the past two years.'

University of Edinburgh School of Clinical Sciences

Exceptional student-led publications

Professor Harry Campbell has supervised Edinburgh medical student projects as part of intercalated BSc degrees or options projects during the fourth-year student-selected component (SSC4) of the undergraduate curriculum. The students have shown a remarkable level of commitment, ability and achievement.



www.jogh.org

Over the past five years this work has resulted in 31 peer-reviewed publications in international journals with students generally as the lead authors. This has included publications in high-impact journals such as *The Lancet* and *Lancet Infectious Diseases*. Shanya Sivakumaran (currently year 4) was the first author on an original article on pleiotropy published in the *American Journal of Human Genetics*, which is now attracting a large number of citations. Several students have presented at international conferences, such as Tom Roberts and Prasad Velu at a conference on bacterial infections in New Delhi in 2012 based on the findings in their publication *Epidemiology and aetiology of maternal parasitic infections in low- and middle-income countries*. Some students have presented findings in person to senior officials of international agencies, such as Donald Waters (currently year 4) who gave presentations to WHO staff in Geneva and to the Head of Health at UNICEF at their research centre in Florence in 2012. He is continuing to help in the development of a new tool to enable UNICEF to adopt a new approach to child health planning.

Medical students have formed the University of Edinburgh Global Health Society which now runs the Journal of Global Health from Edinburgh. The journal has published two volumes and has achieved international recognition as shown by it now being indexed on Pubmed. It will have a provisional impact factor in early 2014.

University of Glasgow School of Medicine

Podcasting and iTunes U



Glasgow Medical School has pioneered the production and use of podcasting to help medical students learn clinical skills. This popular technology allows the uploading and downloading of audio and video files on multiple platforms and provides interactive educational tools that can be used as part of a blended curriculum. Medical students were involved in producing the podcasts that included teaching on nasogastric intubation, venous cannulation, intramuscular injection, venepuncture, arterial blood gases, handwashing, electrocardiogram and female and male urinary catheterisation. The podcasts are stored on the students' virtual online learning environment and also on the University of Glasgow iTunes U site. People from all over the world have been accessing the podcasts on iTunes U and over 30,000 people accessed them between May and November 2012. During the first ten days when the podcasts appeared on iTunes U, one podcast was top of the worldwide collections section in Medicine and Health and nine out of the top ten were Glasgow's

clinical skills podcasts. The photograph shows the podcast being made with one of our students demonstrating the skill.

Hull York Medical School

A fully integrated approach to clinical learning



The Hull York Medical School (HYMS) demonstrates the potential advantages in having general practitioners central to the development and provision of undergraduate medical education. The original curriculum development group for HYMS was co-chaired by the then University of Hull's Professor of Primary Care, Peter Champion, together with Professor Ian Russell, a non-medical Honorary Fellow of the Royal College of General Practitioners.

An emphasis on a balance across clinical experiences including community and primary, secondary and tertiary care was central to the HYMS ethos. General practitioners were equal partners with their hospital

colleagues as university and clinical teaching was developed. A majority of early clinical tutors and problem-based learning tutors are GPs, and GPs are represented across all curriculum committees (including taking a lead in the early clinical years).

Overall, 30% of the clinical placements for HYMS students are in community or primary care settings (mainly in general practice). This time includes a half-day on alternate weeks in year 1, a whole day on alternate weeks in year 2, attachment to a range of GP practices throughout years 3 and 4, and an eight-week rotation in general practice in year 5. Students do not just learn about general practice in these placements, but in early years learn the art of medicine including communication and consultation skills, and in later years learn general clinical medicine and surgery, taught by GPs and other members of the extended healthcare team. In addition, many of our student-selected components, allowing study of a particular educational or research area in greater depth, are provided by our GP teachers in generalist, primary care topics.

Having 30% of the curriculum delivered by GPs is exceptional: most other schools in the UK have less than 20% delivered in primary care, according to surveys conducted by the Society for Academic Primary Care. The Deputy Dean (Education), David Pearson, is a GP, and the ongoing curriculum review is seeking to strengthen the contribution to education of our community-based clinical tutors with a more clearly defined primary care curriculum and more research to inform teaching in this area.

Almost certainly as a result of this emphasis on a fully integrated clinical approach with strong general practice representation, HYMS has the highest proportion of graduates expressing a preference for general practice as a career of all schools in the UK in 2010, at 65%¹. Across the area, 20% of those on GP training schemes are now HYMS graduates, and our cohort of students from the first 2003 intake is currently securing roles as GP principals in local practices.

References

1. Lambert T, Goldacre M. 'Trends in doctors' early career choices for general practice in the UK: longitudinal questionnaire surveys', *BJGP*, 2011; 61(588): e397-403. doi: 10.3399/bjgp11X583173

University of Leicester Medical School

Patient involvement in medical education



Patients train to take on leadership teaching roles: summer 2012.

Leicester Medical School has developed education in partnership with patients since 1995. Our early experiences validated the impact on student learning of patients prepared to share their stories and offer insights into the lived experience of health and social care. Recently, action research cycles brought together patients, educators and students in the creation of an inter-professional learning event, known as the Listening Workshop, designed to improve communication for safe practice. Over 700 students annually participate in this learning. The research has confirmed two leadership roles for patients in this teaching: 'Co-tutor', to teach with a faculty member; and 'Mentor', to support new patients wishing to become involved in teaching. 14 patients were trained for these new roles in the summer of 2012 and we are now in the process of establishing employment structures for them (see Figure 1). Following these initiatives the medical school will launch a new Patient Unit in 2013. Ongoing research will consider the impact for all stakeholders and the outcomes for students.

University of Liverpool School of Medicine

Developing trust and professional critical self-awareness – the final-year clinical apprenticeship

Trust is at the heart of the professional approach to medicine. Developing a professional approach and integrating clinical and personal skills is the aim of the final-year clinical apprenticeship where we believe it is important that students can take control of their own learning and instil the professional responsibility that this brings. Reflective practice and critical self-awareness are central to demonstrating fitness to practise and a safe readiness for Foundation training.



Professor Richard D Griffiths.

Using a portfolio of cases and a Professional Education and Training Appraisal (PETA) process we link outcomes based on what the student can do and is able to demonstrate and reflect upon. 'Final' examinations are held at the end of year 4 and regulate entry into year 5. An appraisal process adapts students to postgraduate learning skills and helps identify and support any weaker students over the course of the year, as they prepare for practice. For each seven-week clinical attachment an initial meeting sets the agreed learning agenda, the middle meeting appraises the progress and the final meeting is an expert assessment of achievement by the consultant or GP supervisor on a one to one basis. As patient safety is of uppermost importance, students have to show progress also in developing a personal formulary and demonstrate a range of prescribing and practical skills. The cases allow discussion on how the students apply their knowledge to analyse and evaluate a case so identifying risk, and best practice. Case reports require that the students reflect on what they have learned and how this has altered their understanding, establishing the future learning required to give them a professional critical self-awareness. They

learn to understand what they do not know and therefore what they need to know. This is the core for developing trust and patient safety.

Palliative care attachment within the medical undergraduate programme at Liverpool University



The palliative care attachment is part of the year 4 MBChB programme at the University of Liverpool. It is based on the learning outcomes laid out in *Tomorrow's Doctors 2009* which are specifically pertinent to end of life care. Over 260 students every year are divided into six cohorts for a four-week attachment in one of seven local hospices. Prior to the attachment the students are expected to prepare by undertaking Preparatory Knowledge Tasks (PKTs). The tasks have been designed by clinicians and draw upon learning outcomes from earlier in the undergraduate programme, including holistic assessment; symptom management; safe prescribing, palliative care emergencies; multidisciplinary team-working; communication; recognising dying; death verification and certification. The attachment begins with all students attending a study day introducing them to specialist palliative care. Each hospice provides students with the opportunity to gain clinical experience on the hospice wards, in the outpatient and day care settings, an opportunity to meet with all members of the multidisciplinary team in the hospice and also allows them to spend time with the specialist palliative care teams in the acute hospital and community setting. Students are expected to undertake patient clerking, master practical skills such as setting up syringe drivers and to be involved in key clinical experiences (KCEs). The KCEs for palliative care include: assessment of patients;

awareness of commencing and completing a Liverpool Care Pathway for the Dying Patient; contribution to an ethics presentation; completing death certificates and cremation forms; communication skills; opioid prescribing and prophylactic prescribing of drugs for a dying patient.

Students who have completed the attachment evaluate their experience as being positive and effective in preparing them to care for patients who are reaching the end of their lives.

There is also research evidence to support this as a longitudinal assessment was used to establish the impact of the palliative care attachment as part of a PhD study. Using validated theoretical models, psychometric assessment instruments were designed, tested and applied pre and post training, and again towards the end of the students' first year in qualified clinical practice. The results, published in *Medical Education* and *Palliative Medicine*, show that the attachment significantly improves students' belief in their ability to provide appropriate care, and also improves their attitudes towards engaging in care. The impact of the palliative care attachment has not only been demonstrated locally but has also been recognised nationally in Parliamentary debate by an MP who stated:

Liverpool Medical School requires all its students to undertake one month's training... in a hospice during their fourth year. Such good practice should surely be a core component nationwide¹.

References

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University of Manchester School of Medicine

Manchester mobile e-learning project



Medical students in the twenty-first century have grown up with the internet, and the use of electronic resources is not just an adjunct to modern living but an essential. In Manchester the focus on problem-based learning in our first two

years teaches students critical thinking, a key skill in the internet-enabled world.

In 2010 we took the decision that the future of medicine was almost certainly going to rely on the massive e-repository of knowledge offered by the internet and that Manchester students would be trained through problem-based learning in critical thinking and analysis. Being brought up in an e-enabled environment, they are extremely well placed to handle the wealth of medical information, some of it less than perfectly evidence-based, which is available on the internet. We therefore embarked on the 'Manchester mobile e-learning project'.



This became known as the 'Manchester iPad project', the school having decided that the Apple-based platform, the power of the iPad, and the breadth and depth of material available on the iTunes web site, made the iPad the most attractive device for hosting our initiative.

Our year 4 students piloted the use of the wifi-enabled iPad. The results were dramatic. We provided resources but the students proved so computer-literate that they were soon identifying great apps to enhance their learning experience. They shared this knowledge with one another and the more 'linked in' members of the cohort were soon running online and face to face teaching sessions for their colleagues on the educational uses and value of the iPad.

From the school's perspective the introduction of the iPads has revolutionised our interaction with our students. Timetabling, or at least informing students of the timetable, has always been a challenge given the large number of students on our programmes and on disparate placements. Our systems have enabled the simple creation of calendar feeds to the iPads. Students are free to use whichever calendar app they desire but have found the real-time availability of timetable information to be invaluable.

Student involvement in developing resources



The medical school recently started using proprietary software for the production of customised forms that can be distributed from a central server. The first such form facilitates the real-time collection of feedback from students on placement. This can then be submitted following educational appraisal and signed off at the completion of a clinical placement. Work is ongoing to collect placement evaluation, workplace-based assessments and portfolio data using the iPad as well as the development of a skills portfolio. We are also planning on converting our six programme handbooks into a single easily searched electronic resource using iBooks Author.

The most satisfying aspect of the past two years has been the engagement by students in the project so

that the educational resources have been tailored by a partnership between the students and the school. There have been several requests for bespoke app development and the best of these ideas will be considered for future implementation.

Over the last two years several core medical books have been evaluated and content provided to students in electronic format. This has massive implications for the selection and procurement of library resources in the future and will be key to meeting the needs of our students off campus.

The school has created a bespoke website to encourage sharing of knowledge and resources among students and the aim is to give editorial control and management over to the student body in the future. We have also initiated the development of two new intercalated degrees that have come directly out of this partnership with our students and their recognition of the power of mobile e-medicine as an educational tool.

University of Oxford Medical Sciences Division

Elective student programme

Oxford University and the Oxford University Hospitals NHS Trust have established a medical student exchange scheme between the John Radcliffe Hospital in Oxford and Shantou University Medical College (SUMC), Shantou, southeast China.

The students integrate with the Oxford undergraduate medical students on the wards and lecture theatres as part of the general medical attachment within the John Radcliffe.

Students are selected on their clinical and communication skills in English by Dr Frieda Law in SUMC in consultation with Dr Brian Angus, Clinical Tutor in Medicine.



The students have thoroughly enjoyed their experiences and are quick to grasp some of the differences between medicine in Oxford and in China, as illustrated by the quotes below:

Two months study in Oxford is a short time, but the memory is everlasting and I know this experience will benefit me in my career as a doctor.

Thanks to the programme, we had a full exposure to diverse cultures and interactions with various people. The experience in the UK has left an indelible imprint on my life.

I understand that any health system has pros and cons and what we have to do is to weigh out the advantages and disadvantages, and not simply copy a system.

Treatment is more about restoring the peace of mind than about producing a cure. As an intern and future doctor, I intend to hold this attitude when facing every patient, wherever I go.

This experience will surely become a precious and unforgettable part in my life.

Oxford University also has a research base in Shantou at the Shantou-Oxford Clinical Research Unit, addressing issues of respiratory infections, hand, foot and mouth disease and drug resistance, supported by the Li Ka-Shing Foundation.

Peninsula College of Medicine and Dentistry

Following the success of the Peninsula College of Medicine and Dentistry, its founding institutions, the University of Exeter and Plymouth University, have developed two separate medical schools: the University of Exeter Medical School and Plymouth University Peninsula Schools of Medicine and Dentistry. The following entry relates to work established under Peninsula College of Medicine and Dentistry, and continued by the two new schools.

High-quality simulations



Allowing medical students to simulate real-life scenarios in a safe, controlled environment is key to helping them develop their skills to the highest level. Today, students can interact with simulated mannequins who can communicate like a real patient, allowing them to make the necessary mistakes needed to advance their learning. It creates a rounded, problem-based approach to learning, which establishes graduates as effective doctors early on in their careers.

The Peninsula College for Medicine and Dentistry has an ongoing tradition of high-quality simulations to provide students with realistic scenarios. This work is being continued by the University of Exeter Medical School and the Plymouth University Peninsula Schools of Medicine and Dentistry. Trainers work with small groups of students and operate the dummies, giving the 'patients' a voice, as well as changing conditions such as heart

rate and blood pressure. The sessions are videoed and assessed to give feedback on areas including situation awareness, teamwork, task-management and decision-making. This form of training is highly rated by students and clinicians, and goes beyond equipping doctors with medical knowledge in order to ensure they develop a rounded base of skills needed to work effectively as part of a team.

University of Sheffield School of Medicine

Student feedback, assistantship and appraisal

Students are encouraged to seek feedback from as many sources as possible, including the Patients as Educators. The medical school now provides fast and comprehensive feedback using a number of routes. Electronic feedback of a student's performance in summative assessments is managed through a 'traffic light' system showing students individually their strengths and weaknesses for each aspect of an assessment. Students receive such feedback within a few days of the results being published and this information is accompanied by specific details on how performance may be enhanced. In addition, format feedback is provided to students on a bi-weekly basis as part of their integrated learning activities; this enables students to monitor their own progress throughout the year.



Sheffield School of Medicine.

The student assistantship was introduced in 2012 and enables students after finals examinations to undertake a six-week clinical attachment where they become fully integrated into a clinical team. Wherever possible this attachment is with the clinical team that the student will be joining as a Foundation year 1 doctor the following August. Evaluation of the Student Assistantship showed that it has resulted in significant improvement in students' preparedness to undertake the role on Foundation year 1. Assessment of students during the assistantship was through the Team Assessment of Behaviours (TAB) as used in the Foundation years and has proven to be a good way of ensuring students are reminded of the professional behaviours required of doctors.

Students undertake a detailed appraisal with their personal academic tutor twice a year from the time they join the MBChB course. To a large extent the appraisal programme mimics appraisals undertaken by doctors and provides students with academic and pastoral support, helps to set learning and personal development objectives as well as determining how a student is progressing in a range of domains. These appraisals are in addition to the support given to students by other routes such as by their teachers and by those managing the course.

University College London Medical School

A centre of excellence for undergraduate curricula and assessment research

UCL Medical School launched a new undergraduate curriculum in 2012 aimed at preparing our graduates for contemporary practice and focusing on the needs of today's and tomorrow's patients. We aim to create graduates who are scientifically literate, clinically competent and able to thrive in contemporary practice.

We aim to do this by providing learning opportunities in a wide range of health and social care venues, focusing on important health priorities such as the social determinants of health and mental health and by including patient-centred encounters with patients through a 'patient pathways' approach.



As an integral part of our curriculum vision, robust and fair assessment of learning and assessment for learning are central to delivering high-quality medical education. UCL Medical School is a centre of excellence for assessment practice, policy and research. Our research work focuses on selection into medical school and postgraduate and specialist training. The design of robust assessment instruments looks at factors contributing to success in assessments and doctors in difficulty. Our faculty has been involved in the design, delivery and implementation of several well-respected UK and international examinations, including the MRCP examination, the GMC Professional and Linguistic Assessments Board (PLAB) and the GMC Fitness to Practise assessments.

We are one of the pioneer sites adopting an authentic professional portfolio of learning in the undergraduate years (the NHS ePortfolio) which will help to create a seamless record of achievement throughout our students' careers.

2

Delivering benefits to the local community

Hospitals are vital parts of the communities in which they sit. A central purpose of medical schools is of course to produce excellent doctors for these hospitals, so it is therefore important for the schools to equally become parts of their local areas. Medical students may then learn at an early stage that, as well as being bound by the rigours of science, medicine is also a human activity with fundamental social implications.

The diversity of the communities around the UK's medical schools is as broad as the diversity of the UK itself. Some

schools are situated in inner-city areas while others are in deeply rural surroundings or on campuses – and of course such differentiations do not draw any stark or easily observable line between affluence and relative poverty. These things can emerge in different ways in different places and so it is important that our medical schools are able to tailor their community involvement according to the needs of their surroundings. Again this mirrors the way hospitals interact with their communities and so it works as valuable preparation for the students' futures.

This section will explore how UK medical students engage with their communities from pre-school level through initiatives such as Teddy Bear Hospital and to secondary school pupils through others such as Sexpression; it will show the student-run charity organisations which are doing so much good and it will give examples of how engagement with patients is increasingly being sought with the aim of improving the care they receive.

University of Birmingham College of Medical and Dental Sciences

Resuscitation for Medical Disciplines (RMD) in the community



The RMD Committee, Teachers and Assessors 2012–2013.

In 2012 the RMD committee, supported by the Dean, Professor Paul Stewart, successfully made an application to the British Heart Foundation (BHF) for funding to diffuse the teaching model into the community setting. RMD have secured approximately £17,000 of funding to work alongside the BHF in the delivery of HeartStart teaching. This will occur within the university's network of A2B schools (these are schools in deprived areas of the West Midlands with which the university works in its widening participation scheme), and will provide an additional opportunity for basic life support teachers to provide a widening participation remit on behalf of the university. The RMD committee has also successfully forged a new and innovative training partnership with the West Midlands Fire Service.

Also in 2012, RMD began a programme of teaching basic life support and automated external defibrillation (BLS/AED) to prospective students and their parents at the College of Medical and Dental Sciences open days. Over 400 people were trained in

two days. In 2013 it is planned that RMD will become involved in the university's Community Days, when the local community is invited to visit the university, to enable them to learn BLS/AED as part of their visit.

In 2012 one of the fourth-year medical students suffered a cardiac arrest at a social event. Thanks to two of his friends, one medical and one dental student, having been trained in BLS they ensured that when the ambulance arrived he could be defibrillated.

Brighton and Sussex Medical School

Helping the homeless



Left to right: Leila Powell, Project Support and year 1 medical student; Dr Chris Sargeant, GP Lead, Pathway Homeless Team Trial; Penny Johnson, Nurse Practitioner.

The Pathway Homeless Research Trial in Brighton is a project looking at the effect of a GP-led Homeless Team monitoring the care and discharge of homeless people admitted to the hospital. It has now recruited over 50 patients. The Pathway organisation, which introduced and supports the initiative, was awarded

the Health Service Journal Award for Patient-Centred Care, raising the profile of this new way of working. In Brighton this involves joint working on the wards between Dr Chris Sargeant, a GP with experience in homeless people's healthcare and Senior Clinical Lecturer at Brighton and Sussex Medical School (BSMS), and Penny Johnson, an experienced Nurse Practitioner. There is a further BSMS link as Leila Powell, who provides part-time project support, is also a year 1 BSMS medical student.

As a result of this work a new special study component for year 3 BSMS medical students, 'Healthcare of Homeless People – mission impossible?' has been launched and the first students are now busy seeing patients, visiting community services and researching the health needs of homeless people in the Brighton area.

University of Cambridge School of Clinical Medicine

Clinical and communication skills teaching

The School of Clinical Medicine in Cambridge has a long history of innovation in communication skills teaching. Our comprehensive theme of Clinical Communication Skills (CCS) offers a unique educational experience in which communication skills are taught together with clinical medicine. Deliberate links are made between learning in a range of clinical specialties and the increasingly complex and challenging communication situations that they present. In the final three years of the course, students receive 22 three-hour small-group sessions working with trained and simulated patients across a range of subject themes.

The CCS theme was established to address the patient's needs in the modern world, emphasising patient autonomy and shared decision-making. The theme is evidence-based and constructed on extensive research into patient-doctor communication

from many diverse disciplines. Learning modules address the major issues of medical interviewing and in the later years of the course, CCS sessions have increasing emphasis on communicating with relatives, interpreters and other healthcare professionals, facilitating the transition from medical student to junior doctor. Particular care has been taken to involve members of the local community in the design and delivery of students' learning. We have collaborated with the Papworth Trust, a leading disability charity, and FLACK, a local social enterprise and charity for the homeless, involving members of the community in CCS delivery.



Year 4 medical students working with an actor and facilitator. Online audiovisual recording is used for experiential learning of clinical communication skills.

We work closely with the local interpreter service to provide learning modules on cultural diversity and interpreted medical interviews. In our lecture series 'The Patient's Voice', patients from the local community talk to students as equals or as experts about their experience of a particular health condition, how society reacts to their problems and what they require from their doctors. Students also meet voluntary organisations and complementary practitioners in order to help them understand healthcare outside traditional provision.

University of Exeter Medical School

The TR14ers project shows remarkable results



Most European populations are more 'healthy' now than they have ever been, however, inequalities in health are still widening. Yet in one deprived area of Cornwall, an innovative dance project is having remarkable results.

The project arose from the Connecting Communities Programme (C2) developed by researchers and practitioners from the Health Complexity Group who are based at the University of Exeter. They researched the formation of resident-led multi-agency partnerships, which transformed the communities in two of the most deprived wards in England. The C2 Programme works with service providers and residents to address the social factors involved in determining health, and to transform the way in which related services are provided.

Camborne police officers were among the first to attend the C2 course, hoping it would offer new ways to address high levels of youth antisocial behaviour. It encouraged them to ask 'what's it like to live around here?', and they quickly realised there was nothing for children and young people to do. Police worked with a choreographer to set up a dance workshop which proved an instant hit, with 100 young people attending the first session. The TR14ers was created, and since then over 1,000 children and young people have participated in the workshops and the troupe has performed at the NHS Live Awards, for the Royal Gala and been awarded the Queens Award for Voluntary Service. Asthma rates have dropped by

25%, while educational attainment has increased, and the police estimate that the TR14ers have diverted ten young people a year from being labelled as persistent young offenders. The most striking outcome is the sense of pride and self-esteem the young people have developed. Several now work with the Health Complexity Group, supporting the delivery of C2 and other research the Group is undertaking.

Keele University School of Medicine

Keele Community First Responders



Keele Community First Responders (CFR) group was founded in 2008 by a group of eight medical students from Keele University. Volunteers respond to life-threatening 999 calls as agents of the ambulance service prior to the arrival of further resources. The team covers the university campus, Keele village and surrounding locality. The group has grown to form a team of 20 qualified volunteers. CFRs aim to provide a minimum cover of 400 hours a month on a shift basis. The scheme is entirely funded by donations and is kindly supported by the university which provides on-call accommodation.

The team is currently made up of students and members of the community who bring a range of experiences to benefit the cause. 2012 has seen a major transition within the group, with the recruitment of many new responders and the purchasing of a brand-new rapid response vehicle.

The CFR scheme has been a tremendous success and is held in high regard by the local community. Students enjoy the opportunity to be part of the community in which they are working and studying.
www.keelecfr.org.uk

King's College London School of Medicine at Guy's, King's College and St Thomas' Hospitals

Hands Up for Health



Hands Up for Health students at St Thomas' Hospital.

This innovative programme uses simulation in all its forms to teach young people from Lambeth and Southwark about healthcare. The programme uses a wide variety of simulation techniques including high-fidelity human-patient manikins, laproscopic surgery simulators, birthing simulators, patient actors and clinical skills trainers. It is a two-day programme with an initial day within each school and a follow-up day within the simulation centre. The students do tasks from suturing up to and including managing clinical scenarios as a team.

It has three aims:

1. To inform and encourage students who may otherwise not consider the wide variety of careers that are available within healthcare, from paramedics to surgeons, midwives and cardiac physiologists
2. To teach health skills in areas such as trauma, sexually transmitted disease and drugs and alcohol
3. To teach life skills such as effective communication and teamwork in order to increase their social skills and employability

The programme primarily focuses on pupils from unselected state schools in Lambeth and Southwark but also includes students from pupil referral units and young people from the Prince's Trust.

It is delivered by a wide variety of volunteers from all healthcare environments, including students from

the medical and nursing colleges. Those students from the widening participation programme have been particularly active, acting as important role models to the school pupils.

University of Leicester Medical School

The Health in the Community module

Leicester is one of the UK's most diverse cities, with an ethnic majority comprising mainly of Asian citizens and new arrivals from Africa and Europe. The opportunity to work with inner city populations continues to allow our medical students to learn with, from and about many different communities in order to appreciate their different perspectives on healthcare. Within a module entitled 'Health in the Community', students are placed to learn within many of these diverse communities. This often stimulates further engagement and proactive work with individuals and organisations. For example, in 2011 medical students ran a half marathon to raise funds for a local disabled girl whom they came into contact with through the Health in the Community programme.



Leicester medical students ran a half marathon to raise funds for an electric wheelchair for Umaymah Dakri, then ten years old, who suffers from spina bifida.

Medical students have entered into partnerships with academics to steer curriculum content on globalisation, recently helping to make small films for learning on the struggles of new arrivals within our healthcare system.

University of Nottingham Medical School

Marrow

Marrow is a Nottingham medical student group that works to support the life-saving work of the pioneering Anthony Nolan charity through organising a fund-raising run for all Nottingham University students. They seek to sign people up to join the Anthony Nolan register by running donor-recruitment events, and in addition they undertake fundraising events to contribute to the running costs of Anthony Nolan. In the last year they raised over £13,000 for this.



The project was set up in 1998 by a group of student doctors from the university following the death of their friend from leukaemia. The work has been recognised by the World Health Organisation Federation for Medical Students with Marrow taking first place awards for the last two years.

Teddy Bear Hospital



The Teddy Bear Hospital society runs two clinics each week in local schools and local Brownies and Rainbows groups where they teach children about doctors and health.

They have a list of 561 members which will comprise undergraduate medical students and other students. From these they select volunteers to run each clinic,

with approximately 100 students volunteering for clinics in 2012. Local schools recently visited include Haydn Primary and Nursery School, Rosslyn Park Primary and Nursery School and St Edmund Campion School.



University of Oxford Medical Sciences Division

A new academically led stroke service for Oxfordshire



Acute Vascular Imaging Centre, John Radcliffe Hospital, Oxford.

Oxford University and the Oxford University Hospitals NHS Trust have established a new academically led stroke service at the John Radcliffe Hospital in Oxford. This new service enables 24/7 response to acute myocardial infarction and acute stroke for all patients in Oxfordshire. Moreover, it provides regional leadership through the Cardiovascular Clinical Network, which covers both cardiac and stroke services, in South Central England. This includes a pioneering day case 'treat and return' service for referring hospitals for Percutaneous Coronary Intervention, and support for telemedicine in acute stroke.

With the development of a new Acute Vascular Imaging Centre in close proximity to the Emergency Department and the Heart Centre at the John Radcliffe Hospital, the clinical activity is now coupled with increasing research activity. The university investigators bring internationally leading expertise in the development and application of imaging for characterisation of cardiovascular disease and stroke and for assessment of response to treatment. An integrated programme of applied clinical research draws on exceptional local expertise and strong collaborations, and will further benefit from developments in Oxford as a Regional Heart Attack Centre and Comprehensive Stroke Centre.

Plymouth University Peninsula Schools of Medicine and Dentistry

Making a difference in the community

In January 2013, the Plymouth University Peninsula Schools of Medicine and Dentistry (PUPSMD) announced the opening of a new venture set in the heart of Devonport in Plymouth, the most deprived neighbourhood in the city and one of the most deprived in England. Life expectancy at birth in Devonport is 72.4 years, compared to 86.6 in other neighbourhoods. Mortality rates from cardiovascular disease and cancer are high, and engagement with medical care is poor, as shown by very high use of emergency services and DNA ('did not attend') rates at planned appointments.



Primary school students in Devonport. Child nutrition and obesity are projects that will be studied by our students.

The new Devonport Academic Health Centre has been set up to make a difference. It is a joint venture between the University of Plymouth and Plymouth Community Healthcare to provide primary care and community services in the city. PUPSMD clinical academic staff both provide care and teach in the new centre. Medical students, together with

dental, nursing and other healthcare students, now divide their time between the safety of the award-winning medical school buildings and the more edgy environment of Devonport.

Here they not only have fantastic opportunities to learn clinical care of complex patients, but are provided with opportunities to get involved and make a difference. Whether it is helping in the healthy-eating cafe, proactively finding and treating people at risk of heart disease, or working with services at the centre for the homeless, those on probation and with substance abuse problems – students get stuck in and help.

This is a new venture for our new medical school and it has strong and practical support from our parent university. Medical students can now work with students from many other disciplines in activities to make a difference for the most needy and vulnerable of our population.

Queen's University Belfast School of Medicine, Dentistry and Biomedical Sciences

Patients as Partners

In 2006, Queen's University Belfast launched the Patients as Partners initiative. This is a 'simulated patient' programme which brings interested members of the public into medical education to 'simulate' or act as a patient. This programme has transformed the way we structure and develop assessments, such as Objective Structured Clinical Examinations, as well as teaching sessions throughout each of the five years of the course. Using various techniques and equipment, the Patients as Partners have been instrumental in helping to develop realistic clinical scenarios for students. These can range from applying makeup to recreate an artificial bruise or scar, applying temporary skin tattoos of various skin lesions, and hybrid simulation, which could for example be a

simulated patient being attached to an artificial arm and allowing the student to practise taking a blood sample. These techniques allow students to develop not only their technical skills but also their non-technical skills. Such an approach helps our students to have optimal preparation for clinical practice in order to provide excellent, patient-centred healthcare.



Makeup applied to simulate an artificial bruise.



Temporary skin tattoo used to simulate malignant melanoma.

On an annual basis, we undertake recruitment and training and now have over 100 members contributing to the programme. More recently, we have now trained all of our Patients as Partners with regard to providing student feedback. This is a very positive change as we now have the input of the 'patient' in relation to how the student doctor builds rapport and communicates with the patient. This assists learners and provides much needed feedback for development. Equally, the Patients as Partners are further engaged in the process and feel more valued. The Patients as Partners also have an input into selection of our medical students by contributing to the interview process and in so doing give the public perspective to the selection of tomorrow's doctors.

The student-selected component programme



Awards evening – NI Health Minister Edwin Poots with student.

The student-selected component (SSC) programme at Queen's University Belfast offers over 150 modules across a wide range of disciplines, all fulfilling the outcomes for SSCs outlined in *Tomorrow's Doctors 2009*. The programme has provided exciting and relevant opportunities to a large number of students, who gain awareness of a wide range of health issues and interact with the local community in a meaningful and mutually beneficial way.

Students acquire unique experiences and perspectives of their local population, with communication forming an integral part of these SSCs. For example, students deliver health promotion, first-aid teaching and mental health workshops to children and young adults. In addition, the programme offers students the opportunity to work alongside adult groups in the community, including individuals with hearing impairment, alcohol dependency, or significant issues related to poverty. SSCs that focus on holistic medicine and counselling are also delivered with many of the teachers coming from the community sector. Other SSCs are designed to foster interest in and prepare students to work in a global healthcare arena as many of our students subsequently choose to undertake summer work and electives in developing countries. These SSCs provide an insight into multicultural medicine, language skills, global health, and specific healthcare systems outside the NHS.



'Arts in Health' performance work.

The SSC programme has featured a number of these modules on local television and radio, and many have won institutional teaching awards or national awards. Participation in the SSCs has also resulted in an array of publications and presentations from both staff and students.

In summary, via its SSC Programme, Queen's not only offers significant opportunities to students to make an important contribution to their local communities but also assists the students to prepare for future challenges and developments in medicine.

University of Sheffield School of Medicine

Patients as Educators



Opening of the Clinical Skills Centre at Samuel Fox House, March 2013. The scissors are a replica of the surgical scissors that would have been used at the time of the medical school's founding in 1828.

The Clinical Skills Centre provides the base for the Patients as Educators Programme. These volunteer patients, all of whom have been trained and numbering over 850, are a key part of the teaching and learning of clinical, interpersonal and professional skills and attributes. The patients also contribute to assessments, both formative and summative.

One essential role they play is in the giving of immediate feedback to the students during clinical sessions. In addition to their roles in teaching they play an essential part in helping us understand the patient perspective in curriculum development and what we need to do to enhance course outcomes with particular reference to interpersonal and consultation skills.

University of Southampton Faculty of Medicine

Medical students get involved with good causes

The University of Southampton encourages medical students to get involved with community projects in the UK and around the world. The following are just some of the activities.

Students interested in global health and health equality work with the group Medsin which uses education, advocacy and community action to tackle these issues.



A Southampton medical student at Teddy Bear Hospital.

Teddy Bear Hospital helps reduce young children's fear of medical matters through workshops on the paediatric wards at the Southampton General Hospital and elsewhere. They also hold workshops to promote safe, healthy lifestyles.

Students involved with Marrow recruit fellow students to the national bone marrow register. This is the student branch of the blood cancer charity, the Anthony Nolan Trust.

Volunteers at Southampton Sexpression teach sexual health education at a number of local schools. This gives pupils the chance to discuss personal matters and seek advice in an open non-judgemental environment.

St George's, University of London

Students in the community



Members of the StAR project.

St George's students are committed, alongside their studies, to making a positive influence on the local disadvantaged communities during their time at St George's. Two such projects our students have set up and run are Student Action for Refugees (StAR – working with local refugees) and Spectrum (working with disabled children). Both have been recognised and awarded locally and nationally. The work of StAR has resulted in the establishment of a new national charity, the Klevis Kola Foundation, named after one of the original refugee children.

www.kleviskola.org

Swansea University College of Medicine

Rural and Remote Health in Medical Education (RRHIME)

A recent innovation in the graduate entry medicine programme at Swansea University has been the establishment of a track dedicated to rural and remote health. The aim of the track is to increase the recruitment and retention of doctors in rural areas throughout the world, but particularly in Wales. The educational literature in this area demonstrates that a prolonged and deep exposure to rural and remote medicine while in medical school increases the recruitment, and retention, of doctors to these areas.



RRHIME serves communities in rural Wales.

Crucially, students who choose to pursue the track follow the same curriculum as their colleagues and achieve the same outcomes as a traditional Bachelor of Medicine, Bachelor of Surgery (MBBCh), but wherever possible the track focuses on rural and remote health and the outcomes are achieved in that environment. Thus RRHIME-track students spend a great deal of clinical placement time in rural areas, and much of their student-selected component is focused in this area. At the end of the track they are able to make a decision based upon abundant experience about whether a career in rural and remote medicine is something they wish to pursue further. If they choose not to, then they will not have been disadvantaged in any way.

We are hopeful that the RRHIME track will make a difference to the recruitment of doctors to areas that are traditionally underserved, while providing an outstanding student experience for those who choose to pursue it.

University College London Medical School

Public engagement through film projects and visiting schools



Public engagement is central to medical education at UCL. Staff and students participate in a wide range of activities to involve the general public in the education of our future doctors and to contribute to the health and education of our community.

Some of our most successful faculty-led projects emerged from Reel Health Stories, a short-film competition that asked the general public, especially those living close to UCL Medical School's Archway Campus, to submit five-minute films portraying their experiences of health and sickness. The aim was to involve the local community in medical education and to provide a rich resource that gives our medical students insight into patients' lives. Another successful project was Birdshot Day, working in partnership with Moorfields NHS Trust to encourage a two-way learning process between patients with visual problems and healthcare professionals in a setting in which both groups feel supported, respected and understood.

UCL medical students also enthusiastically run a number of projects that involve students as teachers in secondary schools, including Sexpression, which is targeted at improving understanding in sexual health, and Open Minds, which is aimed at raising awareness of mental health issues.

3

Values-based selection and widening participation in medicine

In the complex social environments of today's healthcare, the central pillars of medical knowledge will count for little if not set on a foundation of good communication and moral reasoning. Methods of selection now consider candidates more deeply than before and the culture is changing to recognise that it takes more than good A-Level grades to make a great medical student.

Equally, the UK's broad and varying population requires a profession of doctors which is up to the task of recognising these needs. Our doctors are only as diverse in knowledge and experience as the UK's medical students, who in turn are only as diverse as those applicants selected from across the country to begin a course in medicine. Ensuring that the selection process is sensitive to the hindrances which many young people's backgrounds will create is essential to UK medicine's capacity to innovate and its capacity to care.

This section demonstrates a range of new selection methods, with particular emphasis on the initiative for widening participation in medicine. The aspiration-raising activities and selection methods shown here will be hugely influential to the future of UK medicine and healthcare.

Barts and The London School of Medicine and Dentistry, Queen Mary, University of London

The Student Assisted Medical and Dental Applicants Society (SAMDA)

The Student Assisted Medical and Dental Applicants Society (SAMDA) was founded in 2000 by Dr Abdul Kamali, who was at the time a medical student at Barts and The London. Due to the lack of support and guidance at secondary school when applying to medical school, Dr Kamali decided to initiate a society aimed at helping East London sixth-formers who may be disadvantaged because of their social background. The student-led committee he established aims to promote medicine and dentistry as potential careers for students, especially to under-privileged sixth-form students.



SAMDA's other goals include ensuring that students have access to sources of information and advice regarding medical school, and to empower students to be proactive in their education and decision-making. SAMDA works with 12 different sixth-forms and colleges in the boroughs of Tower Hamlets, Newham, and Redbridge. All students from these institutions who are interested in applying for medicine or dentistry are invited to join SAMDA's weekly meetings where they can get support on UCAS application processes; it additionally holds events such as CPR training, information sessions with doctors and clinicians, and trips to the Medical Simulation Centre.

SAMDA also works to create opportunities to discuss the students' futures in higher education and medical and dental careers in an open, non-judgemental way, which allows students to realistically envision their own futures. Having such accessible resources and support has subsequently increased students' interest in and likelihood of applying to dentistry or medical school.

Brighton and Sussex Medical School

The BrightMed scheme

BrightMed, the widening participation programme run at Brighton and Sussex Medical School (BSMS), was highlighted as an example of good practice in the document Fair Access to Professional Careers, written by Alan Milburn, the independent reviewer of social mobility and child poverty, and published in May 2012.

In the BrightMed scheme, students are recruited in year 8 and begin the programme in year 9. Year 9 and 10 students each have six activity days during the academic year, year 11 students four days and year 12 students five days plus a week-long residential programme. Since 2006, 643 students have been recruited onto the programme and BrightMed is currently working with 248 students.

BrightMed is delivered by a mix of academic faculty, clinicians and students, with teaching focusing on six themes running throughout each year group: being a doctor/medical student; applying to study medicine; ethics; clinical skills; the human body; personal development. To date all students (with only one exception) who have applied to study medicine and have met academic criteria have had at least one interview. Of those, 70% have received offers. All state secondary schools in Sussex are contacted each year and asked to nominate able pupils. Criteria for selection include: first generation into higher education; social-economic background; school performance; residential postcode.



BrightMed Compact is an intensive three-day event for year 12 students who have not joined BrightMed, and it features key elements of BrightMed. The BrightMed Road Show is delivered using the same sessions but takes place over three days in several towns outside of Sussex. Its goal is to reach out to students who do not have immediate access to a medical school. Of the 14 students who took part in the 2010 BrightMed London Road Show, 13 received interviews for medicine and 12 had offers.

BSMS also supports and advises BrightWAMS, a student-led initiative that works with local primary schools in aiming to raise interest in science and health, as well as raising aspirations to study medicine or attend higher education.

University of Bristol Medical School

Summer schools for widening participation



Certain backgrounds mean that a successful application to medical school is even tougher than usual, so for the past two years Bristol University has run widening participation summer schools at Gloucestershire Royal Hospital and The Great Western Hospital in Swindon. We have accepted up to 20 year 12 students from local schools in each hospital, providing up to a week of clinical experiences and practical help with applications and interviews. The Summer Schools have been led by Clinical Teaching Fellows using the expertise and skills they have gained over the past year. We have also been lucky enough to have contributions from many of the staff from across the health professions in Gloucester and Swindon to make these truly invaluable experiences.

July 2013 will see three summer schools, based in Gloucester, Swindon and Bristol. We will be putting into practice all we have learned over the past two years, and are currently working with schools and colleges to find the most suitable candidates.

University of Glasgow School of Medicine

Reach Scotland (Access to the High-Demand Professions) Programme (West)

Glasgow University Medical School is committed to widening participation, particularly to students from less privileged backgrounds. From 2004–2009, Glasgow was the lead institution for the Working in Health Access Network (WHAN) and Working in Health Access Programme (WHAP). Since 2010, Glasgow has facilitated the Reach Scotland (Access to the High Demand Professions) Programme in the West of Scotland, working with 92 targeted secondary schools on or below the national average Higher Education progression rate.



The medical school has worked jointly with the university widening participation team to build a comprehensive programme engaging S4–S6 pupils who are interested in a career in medicine.

Particular emphasis is placed on pupils residing in the 40% most deprived Scottish postcodes according to the Scottish Index of Multiple Deprivation (MD40 applicants).

Staff from the medical school have created an academic course for pupils to follow, which includes tasks and case studies to be completed during both school and on-campus sessions in S4 and S5. Medical School staff and medical students facilitate sessions on-campus and during an S5–S6 summer school week which includes lectures, seminars and workshops. Support is also provided towards the UCAS application, UKCAT and interview process. Successful participants receive a student profile which is used by medical school admissions to make adjusted offers of entry.

Admission targets for MD40 applicants were negotiated with the Scottish Funding Council (SFC) for 2013 entry. A rise from the 2007–2009 baseline of 12% to 17% in 2013 was set by the university. However, this target was exceeded in 2012 after the first full roll-out year of the programme. 22.3% of our Scottish students were admitted from MD40 applicants in 2012.

Imperial College London Faculty of Medicine

Outreach at Imperial



We take an integrated approach to widening participation, combining the expertise of the Imperial Outreach Office, faculty staff and students, and clinical colleagues in Chelsea and Westminster Hospital. The Imperial Outreach Office has strong links with secondary schools in areas of socio-economic deprivation. Pupils potentially interested in medicine as a career are linked by the Outreach Office with e-mentors recruited from the existing medical student body, helping them to learn more about the realities of studying medicine in a friendly and confidential way. Their teachers identify those likely to achieve A-grades in their science A-levels and they are invited to apply for a place at our annual summer school. Here members of staff deliver a series of carefully selected practical activities linked to a set of purpose-written clinical problems. Medical student mentors support small groups of participants throughout the week, raising aspiration, dispelling misconceptions

and, most importantly, building confidence. Consultant-led work experience at the Chelsea and Westminster Hospital follows the summer school, providing further insight to medicine as a career.

Supporting the School's endeavours is the student-led School of Medicine Vision Society, which aims to widen participation in medicine. The society, founded in 2007 and has grown year upon year to now host two annual medical school admission conferences catering in total for 450 pupils from state schools.



The senior conference takes place in September and is intended for year 13 students due to submit their UCAS applications in October. Students have the opportunity to attend lectures by eminent doctors giving outreach students an insight into medicine at each stage of the career ladder. As such the day involves intensive application-focused activities including an individual mock interview for each student, BMAT/UKCAT tutorial, ethics and interview tips tutorial, individual personal statement feedback and a mock exam.

The Junior Conference, which takes place each October, aims to inspire and motivate students in years 10 to 12 who are considering a career in medicine. Pupils hear from professionals at the front line of medicine and partake in fun interactive practical sessions run by Imperial medical students to learn basic clinical skills such as sphygmomanometry, venepuncture and laparoscopic surgical skills on the latest laparoscopic trainer.

In addition to the conferences, the Vision Roadshow programme conducts numerous smaller events

throughout the year, sending enthusiastic medical student volunteers to conduct tutorials, assemblies and workshops for educational charities and local non-selective state schools.

King's College London School of Medicine at Guy's, King's College and St Thomas' Hospitals

The Extended Medical Degree Programme at King's College London

Since 2001, King's has offered a six-year Extended Medical Degree Programme (EMDP). The ethos of the programme is to level the educational playing field, enabling students with academic potential who may not have achieved the A-level grades required by conventional medical degree programmes to study medicine.



EMDP students at the annual prize-giving, June 2012.

The Extended Medical Degree Programme was conceived by Sir Cyril Chantler, former Vice-Principal of King's (1998–2000). Cyril visited a local primary school in Southwark and was impressed by the bright and motivated pupils he met, but was disheartened to learn from their teachers that these children would have very little hope of achieving the A-levels needed to gain a place on a medical degree because of the kinds of schools they would attend.

The programme is open to students from eligible non-selective state schools or sixth form colleges in Greater

London, Kent or Medway. It targets schools whose A-level results are below the national average, and King's Outreach for Medicine office offers a year-long programme of events and activities to help applicants prepare realistic and confident applications to medical school. A contextualised approach is used to select applicants for interview, with A-level and GCSE grades and extra-curricular activities all considered in the light of the applicant's educational background and schools' performance. Once admitted to the programme, EMDP students are taught alongside their peers on the standard degree and assessed to the same rigorous standards throughout.

Since 2001, nearly 500 students have been admitted to the programme, with students from the first cohort graduating in 2007. The majority of EMDP students are first in their family to attend university, and many are from low-income families. Consequently, the EMDP has been successful in removing some of the educational barriers to highly selective courses in higher education, and in diversifying the socio-economic profile of the medical profession. Its affiliated outreach programme continues to inspire able and bright young people who may never have thought of pursuing a career in medicine to work towards that goal. So far, over 100 students from non-selective state schools who wouldn't otherwise have been able to gain a place on a medical degree have graduated from the EMDP and are now working as doctors in the UK.

Former course director, Dr Pamela Garlick, says that 'The initiative came from a desire to create better links with the local communities around King's and raise the aspirations of the pupils in local schools. We believe that doctors should come from all sectors of society, not just the privileged.'

University of East Anglia Norwich Medical School

Medical Aspirations



Medical Aspirations is a three-day residential scheme organised by the Norwich Medical School (NMS) and the Gifted and Talented team at the University of East Anglia

(UEA). It is designed to provide gifted students from disadvantaged educational and/or social backgrounds the encouragement, knowledge and support to apply to medical school. It is open to all state school pupils in Norfolk who meet certain academic and social criteria. Data collected from our 2012 cohort show that 96% of attendees had no experience of higher education in their immediate family; half lived in the two lowest youth higher education participation postcode quintiles; 60% attended an Outreach priority school; and over half provided evidence of a family income of less than £25,000 a year. The students were also selected on academic merit, having achieved top GCSE grades the previous year, and were predicted excellent A-level grades.

Medical Aspirations is an intensive three-day programme that provides information on medical careers and training routes, alongside advice and guidance on the application process. Activities include academic taster sessions, shadowing current students, application advice, a visit to the local hospital and evening social activities.

For the three years from 2011 Medical Aspirations has a bursary scheme attached to it. Attendees who successfully gain a place on our five-year MBBS course at UEA receive a bursary to cover between 50% and 100% of the cost of their medical school fees (depending on the number of eligible students). The bursary fund and the running costs of the residential course have been kindly donated by an alumnus of the university. All Medical Aspirations students who apply to UEA are guaranteed an interview, and of the approximately 80 students who have experienced the programme seven students are now enrolled on our MBBS course.

Peninsula College of Medicine and Dentistry

Following the success of the Peninsula College of Medicine and Dentistry (PCMD), its founding institutions, the University of Exeter and Plymouth University, have developed two separate medical schools: the University of Exeter Medical School and Plymouth University Peninsula Schools of Medicine and Dentistry. The following entry relates to work established under PCMD, and continued by the two new schools.

School Science Events



Despite wide diversity within science, perceived barriers still exist in terms of career access. The Schools Science Events that are run in the medical schools in the South West are a project which seeks to dispel those myths, to show young people in year 9 that science is a realistic career prospect, regardless of background.

Now in its eighth year, the project was originally set up under the Peninsula College for Medicine and Dentistry and will be continued by both the University of Exeter Medical School (UEMS) and Plymouth University Peninsula Schools of Medicine and Dentistry (PUPSMD). The concept is led by biomedical scientists, and serves the South West. It sees scientists open the doors of their laboratories so that visiting schools and community groups can participate in hands-on demonstrations and hear engaging talks which make it clear that science represents an exciting career path.



The project seeks to show the diversity of scientists themselves, and illustrate that factors such as age, gender, ethnicity and background are not barriers to a career in science. Typical activities have included experiencing DNA extraction from bananas, cell culture, fluorescent microscopy, and learning about fruit fly genetics.

St George's, University of London

Widening participation for all backgrounds, social and academic

St George's, University of London, has pioneered the use of an adjusted-criteria admissions policy for medicine, offering an interview to applicants with lower A-level predictions than the standard offer of three As if they are at least 60% better than their school average. The scheme is open to students from schools whose A-level average is CDD equivalent or below.

The scheme was introduced in 2003, and research confirms that in the first-year final exams the average mark achieved by students on the scheme was comparable to marks achieved by those accepted with the standard offer of AAB or above. We are currently considering applying a similar adjusted criteria process to GCSEs.



St George's was the first medical school in the UK to introduce for graduates of all disciplines an accelerated four-year graduate entry programme in medicine. This widened participation in medical training to arts and humanities graduates. The graduate group quickly catches up with its science graduate peers, qualifies with the same grades, and achieves significant success in postgraduate training, proving that it is possible to study medicine from any academic background. Since its inception in 2000, other UK institutions have followed St George's lead.

University of Warwick Medical School

The Assessment Centre

In conjunction with Queen Mary, University of London, Warwick has pioneered an 'assessment centre' for the selection of medical students. This uses an approach that has been in place in industry for some time and that is increasingly being used in postgraduate medical education.



Following shortlisting based upon the UCAS form, academic performance and the UKCAT score, candidates attend the assessment centre. Here they undertake three tasks. These tasks are designed to assess seven competencies which were drawn up in consultation between the Medical Schools Council and the Department of Health. Each task is designed to address more than one competency so that a comprehensive assessment of each student in each of the seven areas under scrutiny can be undertaken. Assessors comprise a combination of university staff, NHS staff and members of the public, all of whom receive specific training to undertake the assessments required. Assessors score applicants and the scores are used to rank candidates.

The assessment centre has now been running for six years and feedback indicates that the process is valued both by assessors and by those being assessed.

4

Global and population health

As medical schools engage in work on the localised, community level, so too must they address health in its broadest and most far-reaching terms. They are active in the development of new clinical methods, medications and technologies which all have huge benefits to populations both in the UK and across the world.

There is now a growing sense that global health as a discipline or body of understanding can inform the teaching of medicine at a curricular level. Links are being established with organisations from Gambia to Bangladesh, these links having moved on from the older top-down relationships to instead develop methods of working mutually with local organisations and in ways that are sensitive to the given environment. This makes UK medicine more receptive to what can be learned from the

outside and in the longer term improves the perception that those in 'developing' regions have of both UK medicine and the UK in general.

This section will showcase how medical schools continue to innovate in global and population health, with their students making valuable contributions in research and clinical work while gaining valuable firsthand knowledge themselves – both at home and abroad.

University of Birmingham College of Medical and Dental Sciences

Publishing experience in global health

We have a strong track record of students undertaking and publishing work in the area of global health. Primarily these students are those electing to take an intercalated degree in international health, but also some students who are taking elective periods.

This includes, but is not limited to, work from Uganda, Kenya, Zambia and Bolivia, and explores management and prevention of infectious disease, and health awareness and access issues.

Students are supported to in all aspects of publication and encouraged to publish in journals with open-access policies to ensure results are available at the local level.



Student conducting research in Muhoroni, Kenya.

We have forged research links with a small missionary hospital serving a rural population in Muhoroni, Kenya which two to four students visit annually to conduct research which is identified as of direct value to the hospital (the Dunn paper below being one such example). Not only do students liaise with staff to identify projects of value but staff employed at the hospital have fed back on how much they have learned from the student visits about the research process. Similar research collaborations have been achieved to enable students to contribute to population health

within the UK with recent work being undertaken across a range of hospital and community sites. Projects have engaged a diverse range of the UK population including new mothers, older adults, individuals living with mental illness and recent immigrants to the UK with an equally strong publication record.

Some exemplar publications

1. Abouyannis M, Menten J, Kiragga A, Lynen L, Robertson G, Castelnuovo B, Manabe YC, Reynolds S and Roberts L. 'Development and validation of systems for rational use of viral load testing in adults receiving first-line ART in sub-Saharan Africa', *AIDS*, 2011; 25: 1627–1635
2. Dunn A, Haque S and Innes M. Rural Kenyan men's awareness of danger signs of obstetric complications', *Pan African Medical Journal*, 2011: 10:39
3. Saunders M, Small A, Dedicoat M, Roberts L. 'The development and validation of a risk score for household infestation by *Triatoma infestans*, a Bolivian vector of Chagas disease', *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 2012: 106(11); 677–682
4. Chatt C and Roberts LM. 'Barriers to Healthcare Access in Rural Zambia', *African Journal of Health Sciences*, 2010; 17 (3–4): 15–25

University of Dundee School of Medicine

Responsible Electives: hands-on learning and contributing

Dundee Medical School has developed a new approach to student electives, creating a 'responsible electives' initiative in collaboration with hospitals in resource-poor communities and two development charities, The Elective Network and Challenges Worldwide.



Dundee is at the forefront in creating such 'not for profit' or 'fair trade' elective options in developing regions, with a thorough approach that focuses on pre-departure readiness, schooling on conduct and cultural sensitivities as well as guidance on how to contribute effectively to the host unit. Students are encouraged to think broadly about healthcare provision in different environments. The plan is to expand the Responsible Electives programme year by year.

www.responsibleelectives.org

University of Edinburgh School of Clinical Sciences

The Apex expeditions



The first Apex high-altitude research expedition to Bolivia was led by a team of medical students at the University of Edinburgh in 2001. They transported 25 volunteers and a BBC film crew to a mountain laboratory in the Andean wilderness where they successfully

conducted a range of physiological experiments on the effects of high altitude. The expedition was the subject of a half-hour BBC *Tomorrow's World*

documentary, a Radio 4 documentary and numerous articles in the national press. Since then the same team, still based at the University of Edinburgh, has conducted two further successful expeditions to Bolivia in 2003 and 2011, and to Kilimanjaro in 2009, leading to a total of 15 peer-reviewed papers in scientific journals.

They and their collaborators in Bolivia also provided medical support for the cyclist Chris Hoy during a world record attempt in La Paz, Bolivia in 2007, and they run a popular public information website that receives around 1,500 individual visitors each day.

www.altitude.org

University of Exeter Medical School

The European Centre for Environment and Human Health

As changing social and economic landscapes mount increasing pressure on our natural environment, understanding the links between the environment and human health and wellbeing has never been more important.

To further knowledge in this area, the University of Exeter Medical School's European Centre for Environment and Human Health is bringing together world-class researchers with a focus on the interconnections between the environment and health. Launched on the university's Truro campus in May 2011, with support from the European Regional Development Fund and European Social Fund, the centre is tackling the health implications posed by a range of environmental threats, from climate change and chemical pollutants, to antibiotic resistance.

Importantly, the centre's academics are also exploring the numerous benefits to health and wellbeing that time spent in the natural environment can offer, with recent studies finding improved health for populations that live closer to the coast, and quantifying the impact of urban green space on mental wellbeing.



In order to tackle complex and wide-ranging problems effectively, the centre is comprised of experts from disciplines as diverse as microbiology and psychology. The team incorporates both qualitative and quantitative research methods and uses science, the arts, humanities and other disciplines to ensure that its scientific evidence is developed in a truly interdisciplinary fashion.

The centre has already produced crucial research that provides evidence for the importance of the natural environment to health and wellbeing, with its staff also serving as experts on national and international advisory bodies, including the World Health Organisation. Through collaborative studies, PhD projects, forums and other mechanisms, the centre is working closely with business, government, and the third sector. In one ongoing example, academics are working with a team from the UK Met Office to understand the health effects of sunlight exposure. Collaborations such as this are a key part of the centre's remit, ensuring that findings have relevance to the local economy and application at a national and international level.

Moreover, centre staff are thinking big. Already working closely with leading research centres in Europe, North America, India, and China, their research is increasingly supported by national research councils, major charities, international businesses and national governments.

Keele University School of Medicine

Ludlow Rural Campus

In 2008, the School of Medicine commissioned Dr John Wynn-Jones and the Institute of Rural Health to scope the potential for establishing a rural campus in South Shropshire. The team identified 15 practices interested in taking undergraduate medical students. They also highlighted the crucial importance of local shared accommodation to avoid what would inevitably be either substantial travel times and costs or social isolation for students.



The Ludlow Conference Centre (LCC) was identified as a potential partner. With the support of the West Midlands Strategic Health

Authority (SHA) an agreement (initially for seven years) was reached with the LCC to provide accommodation for 11 medical students on General Practice placements in South Shropshire, North Herefordshire and Powys.

We have up to 44 students living and learning in Ludlow each year in what we believe is the first UK rural medical school campus. By 2014, 44% of our graduates will have spent four or 15 weeks working in the rural campus. We believe the rural campus makes a unique contribution to medical education, providing our students with the chance to live and learn in a rural community and to experience the challenges and rewards of rural healthcare.

University of Leeds School of Medicine

A curriculum of global health awareness



Kate Thornton – community tourism in Tanzania.

The School of Medicine at Leeds aims to produce outstanding graduates who will use their talents, education and professionalism to improve the health of people and reduce inequalities, in the UK and beyond. This is achieved in part through our student education strategy which is framed within the values of 'social accountability'. The strategy identifies the obligation to ensure 'education, research and service activities address the priority health concerns of the community, the region, or nation they have a mandate to serve'. The strategy and action plan were agreed after wide and extensive consultation within and outside the school, including close collaboration with the student body, NHS partners and representatives from NHS users and carers.

This approach to global and public health provides multiple opportunities for students and staff to engage with the underpinning principles of social accountability. Global health, public health and sustainable healthcare have been mapped across the curriculum, identifying for staff, curricular developers and students how these are embedded within the programme. The range of learning and teaching methods employed allows students, staff and the community to participate in the diversity of exposure, through both core curricular elements¹ (including approximately 50 students per year on local community-based student-selected components and 30 on International Health intercalated programmes) and the final-year electives².



Eileen Wedge – Interview in Dhaka Bangladesh.

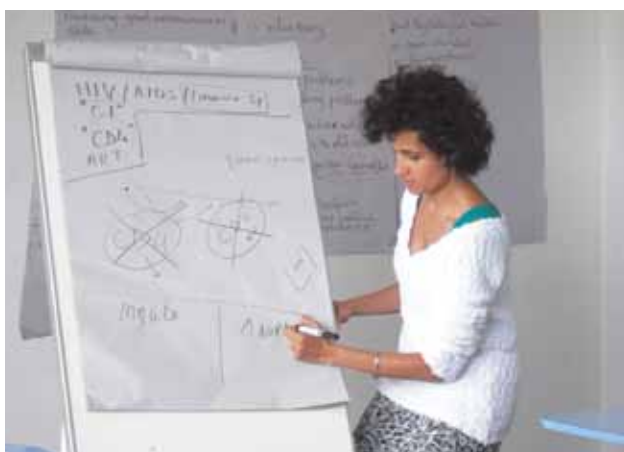
Extracurricular activities are supported through student societies including MedSin and MedSoc, by academics at Leeds, the Nuffield Centre for International Health Development and the Sustainable Health Research Education Group. Students are able to utilise the mapping to evidence their achievements through the electronic portfolio and thus their fitness to practise in a global health environment.

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London School of Hygiene and Tropical Medicine

Burden of HIV infection and HIV-associated morbidity in Zimbabwean adolescents – Dr Rashida Ferrand, PhD student



Dr Rashida Ferrand.

This study showed long-standing HIV infection to be the single most important cause of hospital admission and death in adolescence in Harare, and a common cause of acute primary care consultation. Study methods included clinical research, a country-wide postal survey of HIV care clinics in Zimbabwe to obtain estimates of numbers of older children in HIV care, statistical projections from collaborative work with the WHO and UNAIDS, and a primary school HIV prevalence survey. The body of work is compellingly consistent, with each finding supporting the starting hypothesis – that long-term survival with untreated HIV is much more common than previously appreciated, with long-term survivors now reaching adolescence in high numbers. It was estimated that 2–3% of all ten-year-olds in Southern African countries are living with HIV acquired in infancy, with most cases still undiagnosed despite frequent primary care consultations and obvious manifestations such as severe stunting, and little to suggest any route other than mother-to-child transmission in the vast majority of cases.

HIV testing and care policies for older children and adolescents in Zimbabwe have already changed in response to these findings, with international policies following suit to recognise that early diagnosis needs to be pursued proactively, due to the high risk of untreatable complications otherwise. During the course of Dr Ferrand's PhD, international opinion has swung from disbelief to recognition that this is an important and growing public health problem. Dr Ferrand played an active part in that change by engaging policy-makers as well as by doing high-quality field work and publishing results promptly.

Are intravaginal practices a risk factor for HIV acquisition?: an in-depth exploration of highly prevalent behaviours among women at high risk of HIV infection in Tanzania and Uganda – Dr Suzanna Francis, PhD student



Dr Suzanna Francis.

This research investigated the frequency and types of intra-vaginal practices (for example vaginal washing) and the association of these practices with HIV and reproductive tract infections. The potential public health importance of such practices has only come to light in recent years. Some of these practices are very common in many parts of Africa, and there is increasing evidence of complex associations with HIV, bacterial vaginosis and other reproductive tract infections. The research was nested within a cohort study in Kampala, Uganda and Northern Tanzania of vulnerable women working in sex work, bar work or

other occupations that put them at high risk of HIV and other sexually transmitted infections. It included a quantitative survey to characterise these practices and investigate their association with HIV and other infections; a sub-study in which women completed detailed vaginal practice diaries over a period of several weeks; and a highly challenging inflammation sub-study in which women were followed up three times a week for four weeks to carry out assays of cytokines and other markers of inflammation, and to investigate temporal variations in these markers and their correlation with vaginal practices. Associated qualitative studies were also conducted to explore reasons underlying these practices.

This is an unusually detailed, comprehensive and original programme of work for a PhD. The effective combination of epidemiological, qualitative and basic science methods is especially impressive.

Newcastle University Medical School

Newcastle University Medicine Malaysia (NUMed)



Invited by the Malaysian government to open a branch campus with the aim of delivering a high-quality course benchmarked to UK standards, NUMed successfully completed its first year of operations in 2012 and currently has four cohorts of students working towards the award of the Newcastle MBBS degree. Student numbers on the state-of-the-art

campus have increased rapidly from 20 in August 2011 to over 200 in January 2013. This has been achieved by starting the first two cohorts in the UK with subsequent cohorts undertaking the entire programme in Malaysia. The venture is being led by secondees from Newcastle with extensive experience of delivering the undergraduate programme in the UK. The aim of NUMed is to deliver an equivalent experience to the UK.

Clinical placements take place in government hospitals and clinics where students are supervised by NUMed's clinical academics, who also contribute to the delivery of patient care. The success of this strategy has been recognised both by external examiners and by the GMC who, following their quality assurance visit, concluded in their report that 'The programme is progressing appropriately and is well staffed. Students evaluate their experience highly.'

The next academic year of 2013–2014 will be particularly exciting, with the start of NUMed's second undergraduate programme, Biomedical Science, and the graduation of the first cohort of students on the MBBS programme.

University of East Anglia Norwich Medical School

Sustainable Healthcare Education Network

With climate change already undermining the health of disadvantaged groups in the UK and abroad, the NHS is being called upon to lead the way in carbon reduction and transformation to a resilient, health-promoting health system. Medical education is central to shaping a sustainable future for health, and HEFCE, the HEA, Royal Colleges and the NHS have called on universities to ensure that medical graduates are 'sustainability-literate' and able to build on the health co-benefits of carbon reduction policies.

The Sustainable Healthcare Education (SHE) Network consists of medical academics, practitioners and students from a dozen UK medical schools. At the

request of the GMC, and with funding from HEA, the network is developing priority learning outcomes for undergraduate and postgraduate training. A consultation process ran until April 2013 to scrutinise, challenge and refine learning objectives by leaders from all UK medical schools, postgraduate deaneries and medical Royal Colleges.



Norwich Medical School co-directs the project, collaborating internally with our internationally renowned School of

Environmental Sciences, as well as externally with partner medical schools and the Centre for Sustainable Healthcare.

Plymouth University Peninsula Schools of Medicine and Dentistry

Global and population health: making it real

Clinical academics from Plymouth University Peninsula Schools of Medicine and Dentistry (PUPSMD) attended a meeting at which an eclectic mix of surgeons, physicians, GPs, other clinicians, students and a few business people discussed global health. This was not an academic discussion but rather the practical planning of projects in Kenya and Sierra Leone for which both staff and students have raised money, obtained equipment and paid regular visits. Discussion focused on how to further widen opportunities for our medical students to get involved.

Currently PUPSMD runs special study units on global health and tropical medicine that are linked to student elective opportunities in both countries. Students also accompany teams that go out regularly to provide surgical care to these projects and others with which we have links. The principle here is for our curriculum in population and global health to be as experiential as possible.



Masanga hospital in Sierra Leone was originally founded as a leprosy hospital and the disease is still prevalent in the community.

For those who do not travel abroad, or study international health as an intercalated degree (and we encourage this) there remain many opportunities to actively learn about population health in our own community. The medical school, with strong support from its parent university, has opened an academic health centre in Devonport, a historic but now very deprived area of Plymouth. Here students can learn firsthand how living conditions and life opportunities (Sir Michael Marmot's 'social determinants of health') influence morbidity and mortality. They are encouraged to get actively involved in projects that make a difference. Educationally this is supported by a dedicated e-learning environment on population health that uses blogs, wikis and easily downloadable information to emphasise the common links between health and environment, including what is increasingly known as 'ecological public health'.

University of St Andrews School of Medicine

Strengthening links with Blantyre, Malawi

The School of Medicine at St Andrews has been involved in helping the College of Medicine in Blantyre, Malawi for several years in learning and teaching matters. We are expanding our work there to focus on making a difference on the ground to improve healthcare delivery and outcomes.

The school has been awarded a second follow-up grant from the Scottish Government International Development Fund (SGIDF) on 'Enhancing Healthcare Training' in which the school will now extend the curriculum review and support that it gave to the undergraduate medical programme at the College of Medicine in Blantyre, Malawi to all of its allied

healthcare professionals' degree programmes. This project will allow the College of Medicine to maximise the effectiveness of its limited staff and teaching resources to all of its degree programmes and even introduce new ones to expand the biomedical science training in Malawi. This project involves curriculum planning and delivery through pedagogic and learning technology (LT) support from the School of Medicine at St Andrews. This project involves staff and students from St Andrews going to the College of Medicine in Blantyre and working on the ground with staff there.



In addition to the curriculum and LT project the school has embarked on a new venture following a significant donation for a Global Health Implementation (GHI) initiative to support the establishment of a Chair and other supplementary posts in GHI. The main purpose of this initiative is to produce change on the ground by looking at ways of researching and implementing policies, procedures and interventions that will improve healthcare outcomes in Malawi. The initial focus will be on maternal and child health with improved obstetrics training of medical and clinical officers an obvious first step. This GHI initiative will result in joint appointments of staff between St Andrews and Malawi, and so we will in effect have a St Andrews office in the College of Medicine, Blantyre. The school already has a significant research presence in Africa with clinical trials involving the management of tuberculosis.

Swansea University College of Medicine

Swansea Gambia Link (SGL)

In training our medical students, we recognise that health in the UK is increasingly influenced by diseases and health issues that operate at the global level. Health professionals need a better understanding of pandemic diseases and health problems specific to returned travellers, migrants, refugees and asylum seekers. The development of health services provided by the NHS needs to be informed by innovative ways of delivering healthcare in low-resource settings. Equally, health professionals working in developing countries can benefit greatly from observation of NHS practice.



Building on the well-established student-led exchange programme that supports informal, two-way exchange visits early in medical training, the SGL facilitates the two-way exchange of both staff and students between the medical school and hospitals in Swansea and the Gambia. From 2011, 20 of each year's cohort of Swansea medical students have had the opportunity to spend two weeks of the programmed clinical placements during years 2 and 3 in the Gambia.

Numerous projects involving both staff and students are also facilitated by the SGL, including ophthalmology, pathology, diabetic foot and, more recently, the development of capacity in clinical skills training.

5

Inspiring the clinical academic medical researchers of the future

UK medical schools have always been vibrant hubs of research. Many of the most important discoveries in the history of medicine have occurred through the rigorous, creative and forward-thinking environments of our schools' research facilities and, where occurring elsewhere, through people who are nonetheless products of these environments.

From Edward Jenner's discovery of an inoculation for smallpox (coining today's use of the word 'vaccine') and Alexander Fleming's identification of penicillin (history's most

productive failure to do the washing up), to Crick and Watson's first accurate description of DNA's double-helical structure and Steptoe and Edwards' first successful in vitro fertilisation of a human embryo – UK medicine has and will continue to be at the forefront of medical knowledge. The international standing of the UK's biotechnology sector and its increasingly central position in the nation's economy, for example, attests to the quality and value of the research undertaken here.

In order for the immense young talent that the UK holds to reach its potential in this regard there must be a broad and exciting selection of studentships, programmes, science-orientated curricula, schemes and grants which are able to inspire this talent.

This final section demonstrates how our medical students are being shown what is available to them as clinical academic researchers, and the myriad ways in which this path can help them make a positive difference to the health of those around them.

University of Aberdeen School of Medicine and Dentistry

The Aberdeen Summer Research Studentship (ASRS) scheme



This scheme was introduced for first- and second-year medical students to capture the enthusiasm and raw talent they possess at an early stage. The studentships are for eight weeks and are designed to introduce the students to clinical academia with the aim of showing them why research is essential for the delivery of better healthcare. The scheme combines clinical exposure to a specialty with research/education or teaching experience (a small research project is integral to the scheme).

It is an old-style apprenticeship that allows the students to engage in worthwhile activity that: (i) expands their horizons and inspires their enthusiasm for medicine, research and teaching, (ii) provides them with a good chance to obtain output (for example presentations, abstracts and papers) that could help them later in their careers (for example applying for academic foundation jobs, ST jobs, and beyond), and (iii) creates a positive atmosphere in the wards and among other clinicians. The desire here is to instil a positive experience and sow the seeds for the pursuit of excellence in medicine. We have run this scheme for the past three years and it has proven very popular with the students and the staff alike. Through the scheme we have been able to identify some outstanding future stars who have continued their engagement with academic medicine.

Hull York Medical School

World-leading research facilities

Our goal is to address major challenges in health for the benefit of society. We conduct internationally competitive research, focused on key areas along the continuum of medical and healthcare research. Our work is organised into the centres, each of which conducts world-class research in an important niche area. Research at HYMS is interdisciplinary, spanning traditional subject boundaries and reaching out into other departments within the universities of Hull and York. For instance, anatomists work with medical engineers, immunologists with computer scientists. This approach provides a vibrant atmosphere, maximising the opportunities for innovative medical research.

Researchers at HYMS are tackling the challenges posed by cancer. A new academic centre is being created jointly between HYMS and the Department of Biological Sciences at the University of Hull. The Centre of Cancer Studies will bring together expertise in imaging, anti-cancer therapies, immunology and neuroimmunology to improve the prognosis and quality of life for people with cancer.



A researcher working in a sterile cabinet at the Centre for Immunology and Infection. Photograph by John Houlihan.

Meanwhile, new Yorkshire Cancer Research funding of £750,000 won by Professors Una Macleod and Miriam Johnson will allow study of the inequalities experienced by cancer patients – from the moment they first speak to their doctor, through to early diagnosis, prompt treatment and ongoing care. This is

the first health services-related work programme to be funded by Yorkshire Cancer Research.

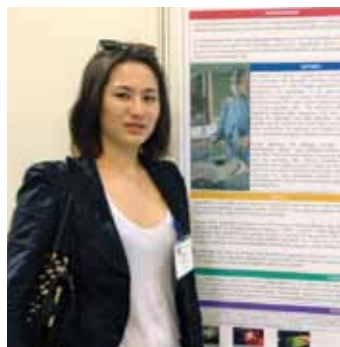
Researchers at the Centre for Immunology and Infection are working on viable alternatives to animal testing. Autoimmune and inflammatory diseases have a major impact on health across the world – but developing new treatments for these conditions currently involves testing on rodent models. Now a major grant from the National Centre for the Replacement, Refinement and Reduction of Animals in Research is enabling HYMS researchers to pioneer a new technology called ‘artificial human lymph nodes’. If successful, their work will pave the way for replicating human immune responses in a test tube, which should speed up the process of discovering new drugs as well as reducing or ruling out the need to use animals in future trials.

This text first appeared in the HYMS *Research Highlights 2012* leaflet.

Imperial College London Faculty of Medicine

Exceptional Student: Gabriella Yongue

An example of success in Imperial’s compulsory BSc year is Gabriella Yongue’s (BSc Surgery and Anaesthesia) project investigating prefrontal cortex activity during intra-operative decision-making using near infra-red spectroscopy (NIRS), which has fuelled her interest in clinical academic research. She has carried out the project herself from start to finish, being guided by her supervisor Daniel Leff. It has opened excellent opportunities for her: giving an oral presentation at the Society of Academic Research and Surgery’s annual meeting as well as travelling to Beijing to present her work as a poster at the international conference for the Organisation for Human Brain Mapping. She is currently preparing her work to be published and eager to start another project in the same field.



Gabriella Yongue.

There are several examples of students who have had first-author publications either published, in press or in review, following their BSc projects in respiratory medicine over the last two to three years.

University of Leeds School of Medicine

HealthWatch prize for student, Jonathan Batty



Jonathan Batty receives HealthWatch prize from broadcaster Nick Ross.

Jonathan Batty, fourth-year medical student, has been awarded first prize and a cheque for £500 in the UK-wide HealthWatch competition in which students are invited to show their skills in assessing research protocols.

Presenting the prizes was journalist and broadcaster Nick Ross who at the awards ceremony held at The Medical Society of London in October said: ‘There is an astonishing level of health misinformation around. These students have shown that where it comes to evaluating information, they really are the pick of the bunch!’

HealthWatch is a UK medical charity which promotes the proper scientific testing of all types of medical treatments, from orthodox to complementary and alternative medicine. Nick Ross is president of HealthWatch. Open annually to nursing and medical students from across the UK, the competition is part of HealthWatch's campaign to create awareness with the general public and the media that well-designed clinical trials are the best way of producing effective treatments.

The competition, which this year was sponsored by the Medico-Legal Society, requires entrants to read and critique four protocols for hypothetical clinical trials. This year the research topics included a herbal treatment for menopausal symptoms; glucosamine treatment for osteo-arthritis in the knee; the use of emollients with topical steroids in childhood atopic dermatitis; and breathing exercises in asthma.

Jonathan's prize-winning entry critically appraised the quality of the protocols, providing well-explained reasons why he thought the results of each trial would or would not stand up in the scientific community.

Jonathan, who in 2011 completed a BSc in Clinical Sciences, funded by Heart Research UK, and who intends to pursue a career in academic medicine, acknowledges the contribution of the school in his success. He says: 'This award is a reflection of the excellent quality of critical appraisal teaching that I have received.'

HealthWatch committee member and organiser of the competition Walli Bounds, herself a clinical research co-ordinator at the Margaret Pyke Centre (University College London), said: 'This year we had a record number of entrants from all over the UK, and the standard of the entries was extremely high. Jonathan's entry included well-articulated, sound explanations. He is a credit to Leeds School of Medicine.'

www.leeds.ac.uk/medicine/alumni
www.healthwatch-uk.org

This piece originally appeared in *Medicine Matters*, the alumni magazine of Leeds School of Medical, Issue 36, February 2013.

Newcastle University Medical School

Exceptional student: Alexander Finlayson



Alexander Finlayson at the BMJ Group Awards 2012.

Stimulated and inspired by his experiences on an intercalating year in research as a medical student, Newcastle graduate Alexander Finlayson has gone on to become an Academic Clinical Fellow and BMJ Junior Doctor of the Year 2012.

Dr Finlayson won the award for his 'varying and impressive' work across clinical medicine, including his most notable achievement, *MedicineAfrica*.

The programme was initially set up in Somalia and it aims to offer medical students and doctors in the country the chance to receive expert health education and advice, with weekly live case-based education in small groups from faculties across the UK, with follow-up mentoring. Dr Finlayson says:

MedicineAfrica is supporting isolated healthcare workers in low- and middle-income countries using NHS workers' expertise and using their experience to offer the support for people where there is no natural career path in difficult circumstances.

The programme has been successful and has now incorporated the African countries Tanzania and Ghana, as well as spreading into Asia in Palestine. 'We are on the cusp of global universal health,' he continues, 'almost in a similar position to the NHS in 1947 in the UK.'

On top of the work he does with MedicineAfrica, Dr Finlayson also works with Indox, a charity set up by leading oncologists and scientists to support the advancement of anti-cancer medicines.

University of Southampton Faculty of Medicine

LifeLab



LifeLab is an innovative, cross-community educational intervention that develops, delivers and evaluates a number of educational programmes tailored to school students (11-18) that demonstrate the importance of diet, development and impact on Lifelong Health across a number of areas (cardiovascular, diabetes, osteoporosis) based on our world-leading research. By engaging children with the science that shows how lifestyle choices at an early age can affect health and future children's health, we hope to empower them to make healthier choices and reduce their risk of developing chronic diseases later in life.

The LifeLab work module, comprises pre and post-visit lessons to be delivered in school, interspersed with a day at LifeLab for:

- Hands-on practical activities to embed messages about maternal and childhood nutritional influences
- Opportunities to experience modern science to inspire students with the excitement of research and future career possibilities
- Opportunities to talk with research scientists, in a "Meet the Scientist" session to explore or challenge their views of scientists

- The approach enhances rather than replaces the school experience, enabling students to appreciate the relevance of modern science and aims to inspire them with the excitement of research and the possibilities for future careers

The feedback from the schools has been hugely positive, and after attending the LifeLab activities, students have demonstrated a significantly improved awareness that nutrition during early development can affect future health, and that lifestyles of both parents can affect the health of their children.

Funding from the EPSRC, enabled us with a relatively small budget to produce educational resources for use in schools directly based on the research being carried out in the Faculty of Medicine and to run the LifeLab day for a limited number of students.

This text originally appears on the Southampton Medical School website.

University of St Andrews School of Medicine

Independent research

The concept of inspiring the medical academics of the future was one of the key precepts in the design of our new curriculum. All St Andrews medical students undertake a BSc Honours degree as part of the core medical programme before continuing on to our five clinical school partners. This means that they all undertake an independent Honours research project as part of their degree. To fully benefit from this independent research opportunity the school has designed and implemented a scientific research skills matrix of activities and tasks that will support the acquisition of seven core research skills and attributes identified as being important to medical graduates by a study carried out by this school for the Quality Assurance Agency (QAA) Scotland. This skills matrix is embedded throughout the three years of the degree programme at St Andrews and is regularly reviewed to make sure it is fit for purpose. An end-of cycle evaluation asks the students how well they

feel these seven core skills and attributes have been developed during their degree programme.



As we believe that the ability to undertake research projects is an effective way to inspire the medical researchers of the future, the school has a formal summer research studentship programme for research projects both in St Andrews and abroad (for example in Edmonton, Alberta and Melbourne Medical School).

The medical student body is encouraged and supported in its organisation of specialist medical societies. The Surgical Society organises national research conferences inviting distinguished researchers to present papers.

University of Warwick Medical School

The Medicine Quarterly

Four students from Warwick established the journal *Medicine Quarterly* in their spare time with the aim of creating a teaching resource free to medical students and junior doctors across the country.

The site was set up by the students entirely on their own; the only support from the school was advice from some senior academics on what they had found in the past to be helpful for students as they went through medical courses.

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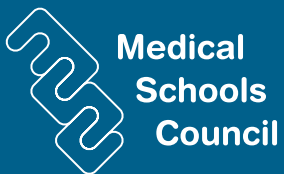
MedQuarterly.



These students graduated in 2012 and have continued to develop the website as they have moved on to the next stage of their training. Very rapidly this website has established itself as a significant contributor to student learning nationally and internationally. It now has three components – a learning database, a question bank and an interactive anatomy application. www.medquarterly.co.uk

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