

<p><b>Institution: University College London</b></p> <hr/> <p><b>Unit of Assessment: 25 - Education</b></p> <hr/> <p><b>a. Context</b></p> <p>UCL Medical School (UCLMS) is a division in the Faculty of Medical Sciences, the largest of four faculties in the School of Life and Medical Science, itself the predominant research grouping at UCL. UCLMS provides the educational leadership and infrastructure for about 2100 medical undergraduate and 85 postgraduate students, and employs 8.5 WTE category A academic staff. Our principal NHS hospital partners are University College London Hospital, the Royal Free Hospital, and the Whittington Foundation Trust. We also work with eight District General Hospitals, nine Mental Health providers and around 317 primary care organisations to provide world-class medical education and training. We are a founder member of UCL Partners (UCLP), an accredited Academic Health Science Network, and in 2013 formed a strategic alliance with the Institute of Education (IoE). The interdisciplinary Academic Centre for Medical Education (ACME), established in 2002, is UCLMS' research unit. ACME provides leadership for those engaged in medical education research along with their other roles in education and scholarship.</p> <p>Key impacts of our research include: improving assessment procedures governing the selection of tomorrow's doctors (McManus); reducing social barriers to medicine and increasing the diversity of the medical workforce (Boynton, Dacre, Woolf); informing NHS workforce planning (Dacre); and improving the assessment of medical professional competence. By providing evidence that influences policy and educational practice, our research has impacts on patients, doctors, the NHS, medical educators, local communities and schools. Non-academic beneficiaries include professional bodies responsible for the education, training, regulation and governance of doctors. In the UK, these particularly include Medical Royal Colleges (MRCs), the Academy of Medical Royal Colleges (AoMRC), the General Medical Council (GMC), the General Pharmaceutical Council, the National Clinical Assessment Service (NCAS), and the Department of Health (DoH). International beneficiaries include the National Board of Medical Examiners (NBME) and educational professionals in some 30 countries.</p> <hr/> <p><b>b. Approach to impact</b></p> <p>Conducting <b>commissioned work</b> allows us to respond directly to the specific needs of national and international professional practitioners and is crucial to our capacity to <b>inform and improve clinical policy and practice</b>. Our research into selection assessments for medical schools (McManus) highlighted serious flaws in psychometric assessments, which do not correlate well with performance at medical school and may disadvantage women. A high-profile BMJ (2005) critique about the use of aptitude tests in selection led to McManus being commissioned by UKCAT (£10K) to analyse prospective validity data from 4,811 entrants to 12 medical schools over three years (<i>BMC Medicine</i> 2013). The GMC, which regulates all doctors practising in the UK to ensure that only those fit to practise remain on the List of Registered Medical Practitioners (LRMP), also regularly commissions our research, renewing a 5-year £2.9M contract in 2009. Building on McManus' research, Dacre and Sturrock (<i>Academic Medicine</i> 2009) developed novel assessments to inform judgements about whether an individual doctor referred to the GMC for performance should remain on the LRMP. Adapted versions of these new assessments are now used by NCAS in the NHS and international agencies (NBME). Since 2008, 155 validation assessment events involving 2413 medical volunteers and 1016 assessors, and 383 tests of competence have taken place. The latter have resulted in 22 suspensions from the LRMP, 82 erasures/relinquishing of registration and 85 registrations with conditions.</p> <p>Following this research we now <b>provide strategic and practical expertise</b> in question writing and standard setting for the Medical Schools Council (MSC) Assessment Alliance; the National Shared Exam Questions for the MBBS project; and the MSC prescribing skills assessment. We also have a £12K contract to implement Situational Judgment Tests for UK medical graduates. Our research on the assessments of medical competence has informed changes in the format of the Membership of the Royal College of General Practitioners (MRCP) examination, a worldwide and world-renowned postgraduate examination taken by approximately 24,000 candidates each year at 32 international centres, with a yearly income in excess of £11million. More specifically, the research informed the introduction of 12 new speciality certificate assessments and of communication and consultation skills testing. Dacre and McManus' evidence further underpinned</p>
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the Royal College of Physician's (RCP) decision to routinely monitor, publish and research ethnicity data and provide support for BME Doctors (UCL25-MCM). The MRCP now uses software developed by McManus and Dacre (*BMC Medicine* 2013) to assess bias on the grounds of race or sex in its clinical examiners, and thereby to improve examiner training, particularly in terms of cultural awareness, helping to elucidate the relationship between ethnicity and exam performance in both this and other Royal Colleges. McManus's *Acinonyx* software, which is freely available from the author, has been nationally (RCP and Royal College of Paediatricians and Child Health) and internationally to detect exam cheating. Three resulting referrals to the GMC have led to doctors been formally sanctioned. Additional policy impacts include the influence of our research on GMC policy (*State of Medical Education and Practice* 2011, 2012) and in the current investigation into international medical graduate failure rates in the MRCP exam. The use of significant research findings and tools developed through our research to produce these and other **practical resources** for assessment practitioners is an important part of our approach to impact. Further examples include our development of a co-authored resource book, "How to assess students and trainees healthcare" (Griffin 2013), and the GALS Screen (Dacre), a locomotor system screening examination (*Annals of Rheumatic Diseases* 2000) now used in all UK medical schools and currently totalling 180,000 hits on *Google*. We have, ourselves, invested £420,000 in **infrastructure to support assessment**, including an assessment facility set up in September 2011. 150 doctors have so far taken their membership exams in this facility, which transforms medical assessments by standardising human and procedural variables to improve reliability.

We strongly encourage staff **partnership with clinicians** and involvement in **professional advisory boards and committees**, and one in three staff work as NHS clinicians. Dacre chairs the MRCP Management Board, the Joint Assessment and Training committee, and the Specialty Specific Examination Steering Group; she is also a member of the Federation of the Medical Royal Colleges Committee, the RCPs Examination Research Committee, and the International Strategy Committee, and was Academic Vice President of the RCP. She was Chair of the GMC Education and Training Committee and is on the Whittington Health Trust Board. MRCP leadership has also been used as the basis for our development of **strategic international partnerships** (via the Federation of Medical Royal Colleges) with 30 overseas organisations that hold parts of the MRCP examination in Bahrain, Bangladesh, Barbados, Egypt, Ghana, Hong Kong, India, Iraq, Jamaica, Jordan, Kuwait, Libya, Malaysia, Malta, Myanmar, Nepal, Omar, Pakistan, Qatar, Saudi Arabia, Singapore, Saddam, Trinidad and UAE. This close **integration with professional practice** provides a vital channel for the transfer of research insights informing policy and practice. We further promote this channel through the **exchange of skilled people and knowledge**. Throughout the REF period, the RCP has funded Dacre and McManus' involvement in research and major reform of the MRCP, backfilling UCLMS £51,500 per annum. Dacre led a **collaborative research** project with £60,000 awarded to the RCP, highlighting important changes in the working patterns and preferred medical specialisms of women entering medicine. The report, *Women and Medicine: The Future* (2009), revealed a lack of women leaders, and highlighted the need for better careers and advice workforce planning. These findings were disseminated through the Women's Medical Federation, GMC, and NHS careers advice sites, as well as the national press, and the report catalysed significant **policy discussion debate and decision-making**. National DoH policy on workforce planning has subsequently changed; MRCs and the GMC now include careers advice; and the Centre for Workforce Intelligence now monitors and models career trends. The report also fed into the Chief Medical Officer's 2009 investigation into Women in Medicine. We provided further **expert advice** in November 2012, when Dacre gave evidence to Parliament at the Business, Innovation and Skills Inquiry into women in the workplace. Her contribution was acknowledged in 2012 by the award to her of the Women in the City *Woman of Achievement Award* for Medicine and Healthcare, and in 2013 by her inclusion on the Health Service Journal's inaugural list of 50 inspirational women in healthcare. Within the Unit itself, we are committed to supporting women's engagement in impact-generating activity: strong female academic leads mentor colleagues via regular one-to-one meetings focussing on career planning and encouraging their use of centralised support systems such as UCL maternity sabbaticals.

The impact of our research is maximised through its use as the basis for our provision of comprehensive **national and international consultancy** services, knowledge transfer and **specialist professional development programmes** in medical education. McManus and Dacre are consulted regularly on the design of undergraduate and postgraduate examinations (UK

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MRCs) and are on the GMC's Working Party analysing PLAB, the primary assessment for non-EU/EEA doctors wishing to work in the UK. Our staff input to eight UK medical schools via external examination. We have responded to increasing demand for our consultancy services by establishing the **UCL Medical School Education Consultancy (MSEC)** in 2012, scaling up the transfer of expert advice to policy-makers and governmental, educational and third sector organisations to a global platform. We currently provide consultancy to 11 international beneficiaries in China, India, Singapore, Dubai, Myanmar (Burma), Saudi Arabia, and Sri Lanka on a range of projects involving the training and assessment of doctors.

We engage public audiences through **outreach and community engagement activities**. Since 2008 our well-established widening participation programme, based on Boynton's research, has provided mentoring for 500 pupils from 100 schools. 281 year 11/12 students have attended Summer School and at least 42 have entered medical school (UCL25-BOY). We also share key research insights with the public via **contributions to media discourse**. Dacre and Woolf have championed women's involvement in medicine in interviews on Radio 5 Live, Radio 4's Today Programme and Women's Hour (2010; 2011; 2013), and Dacre's research has featured in several national broadsheets. In 2013 Woolf was selected from over 2000 applicants for the BBC Expert Women's Training Day and subsequently appeared on BBC World TV, broadcast to 361million households worldwide. Boynton engages with and encourages public debate on health issues via her Daily Telegraph column, blog (long-listed for the Orwell Prize 2011) and Twitter account, which has >9000 followers. Woolf has raised awareness of the impacts of ethnicity on exam performance via a public lecture (with Richardson of the Open University 2011); BBC Asian Network interview and phone-in (2011); Press Association article (2011); and letters to the BMJ (2008; 2011).

### c. Strategy and plans

We aim to raise the profile and standards of medical education research – particularly in relation to assessment - by providing an evidence base where it did not previously exist. Maximising the future impacts of our work and improving our methods of capturing and evaluating those impacts is key to that goal. Academic project leads will be asked to **embed mechanisms for assessing impact into every new research project**, and to take a responsive approach to emergent impacts, including through dialogue with end users at the research design phase. We also plan to support the development of a more systematic approach to impact by capturing data about the effect of research on social and fiscal parameters; this will be coordinated by our new MSEC Business Manager. We will **strengthen and expand existing strategic partnerships and develop new ones**, focussing initially on enhancing the impact of existing partnerships with the IoE and UCL Partners and on developing a collaborative research strategy and applying for joint funding. In the longer term, we expect these alliances to deliver significant impacts on the quality of healthcare environments and produce translational research in health care education. **MSEC will be expanded and a business manager and a clinical training fellow (CTF) appointed**. We will develop a strategic plan with UCL Consultants Ltd (UCL's main consultancy services provider) to increase the international reach of our consultancy activities. We have identified opportunities to scale up our **public engagement activities**, particularly by capitalising on UCL Beacon grants to increase public engagement with and debate about our research findings, and by recruiting a CTF to support this. We plan to extend the reach of our impacts via increased use of IT, social media and professional networks. We will digitalise and disseminate educational events (seminar series, annual conference, public engagement) online to provide reusable, publically-accessible information resources. We will apply for Silver Athena SWAN status in November 2013 and support more staff to apply for the BBC Experts Women's Training days.

### d. Relationship to case studies

Our case studies exemplify approaches outlined above, highlighting our world-class research with real-world impacts on clinical practice through its use to **inform both government and medical advisory bodies' policy**. They show the capacity of our research to deliver benefits to a very wide range of stakeholders, from individual students (UCL25-BOY) to national (and international) organisations (UCL25-MCM). UCL25-MCM illustrates our approach to raising the public and political awareness about ethnicity and performance, whilst UCL25-BOY exemplifies our approach to working with communities and schools, in both cases reducing the social barriers to medicine. Both cases include examples of **knowledge exchange and our provision of expert advice**, and describe aspects of our work with policy-makers and practitioners to deliver research impact.