



*Medical Schools:
Delivering the Doctors
of the Future*

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Secretary of State's Foreword to "Medical Schools: Delivering the Doctors of the Future"



I welcome this report from the Chief Medical Officer on the current state of undergraduate medical education in England.

As a Government, we have recognised that the NHS needed massive investment. The increased funding that we announced in 2002 will result in a real terms doubling of expenditure under this administration by 2007/08. As part of this investment, we recognised that the workforce is the NHS's greatest asset, and that investment was needed not just in workforce numbers, but in the quality of education and training too. So we have doubled NHS investment in education and training since 1997, rising from £1.7 billion in 1996/97 to £3.4 billion in 2003/04.

Our investment has already resulted in a 32% increase in Consultant numbers since September 1997, and we have more GPs in the NHS than ever before. In the last five years, as this report illustrates, we have invested in the largest ever expansion of medical schools since the NHS was established, to serve the future doctors which the NHS will need. But numbers alone are not enough; we need doctors who understand how to respond to patient choice, work effectively in teams and use their professional skills in the optimum way for their patients.

Therefore, in line with the investment made by the Government, we have looked to our partners to be equally radical in the sphere of education. This review sets out how Medical Schools and the General Medical Council have risen to the challenge. As well as implementing innovative new ways of teaching, new and established medical schools have launched initiatives that reach out into the community to recruit a wider range of students into the profession. We welcome these developments, which are absolutely in line with the wider Government aim that everyone should be enabled to reach their full potential.

I want to commend what has been achieved so far – but we need to make much more progress, this is only the springboard for continued effort. We need to build on the investment of money, time and educational expertise to support the doctors of the future and their future patients.

A handwritten signature in black ink, which appears to read "John Reid". The signature is written in a cursive style with a long horizontal stroke at the end.

Secretary of State for Health

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1 Introduction

1.1 The challenge

*The NHS Plan*¹ set out a bold vision for investment in, and improvement of, the health service, in which patients' and local communities' needs and experiences drive the design and delivery of services. People increasingly want to make informed choices about how to be treated, where and by whom. Patient choice must become the norm in the NHS, not the exception. To deliver this vision, the Government made a step change in NHS funding in 2002. In his 2002 Budget, the Chancellor announced the largest sustained increase in funding of any five-year period in the history of the NHS. Over the years 2003–04 to 2007–08, these plans mean that expenditure on the NHS in England will increase on average by 7.3 per cent a year over and above inflation. However this will only deliver the requisite improvements and choices for patients if we invest in more staff working differently.

1.2 Working differently

People working in the NHS need to be able to put their patients centre stage, communicating effectively with them, their families and carers. They need to be able to appreciate and respond to the diversity of the population and to recognise and respect patients' rights. They need to be able to work well in teams and to establish good working relationships with other agencies. The NHS needs staff who are adaptable, self-reliant, resilient and able to cope well under pressure, and who can contribute to continuous service improvement by reflecting critically and creatively on their practice, and by being able to evaluate the services they deliver.

1.3 The expansion of medical education

As part of the increased Government investment in the NHS and Higher Education, the Government has increased the number of medical school places by over 2,150 (over 55%) since 1997. Four new medical schools have been created, and four new centres of medical education, three of whom are associated with established medical schools, have also been opened. In training the doctors of the future, England's 21 medical schools are key partners in the delivery of the Government's vision for the health service of the future.

But it is not just more doctors that we need: we need the doctors of the future to continue to put patients first, and to understand how their own professional practice affects the patient experience. Specifically, this means that from the start of their training, doctors, and all other health professionals, need to:

- develop early skills in communication with patients, carers and other staff
- be able to learn and work flexibly in multi-professional teams

¹ *The NHS Plan: a plan for investment, a plan for reform* Department of Health July 2000

- develop the skills of continuous learning, based on problems, which they can apply throughout their career, so that they can develop their practice in response to the rapid pace of change in technology and the knowledge base.

The establishment of new medical schools comes at a time when postgraduate medical education and training is itself undergoing major reform. The medical graduates of the future will emerge into a managed, structured, programme-based training system that will offer them a basic grounding in practical medicine and a far broader insight into the variety of careers open to them. They will be better equipped to take advantage of the opportunities available to them. This, too, sets medical schools a challenge to make sure that their graduates have the necessary knowledge, skills and attitudes to benefit from new, streamlined postgraduate programmes.

1.4 This report

The last of the new medical schools, a collaboration between Hull and York Universities, and another between Brighton and Sussex Universities, took their first intake of students last Autumn. It is therefore timely to take stock of how the country's universities have responded to the challenge set by the Government of training significantly more doctors to learn and work differently in the modern world.

2. Increased and More Diverse Recruitment

2.1 The planned expansion in medical school places

In 1997, the Medical Workforce Standing Advisory Committee (MWSAC)² reported that as a result of increasing demand and service changes the UK needed more doctors, and the annual intake of medical students should be increased by 1,000 as soon as possible. The Government accepted these recommendations and then announced a further expansion of up to 1,000 further medical school places in England in the NHS Plan, which was published in 2000.

Between 1999 and 2001, the Higher Education Funding Council for England (HEFCE) therefore allocated a total of 2,145 new medical school places to English Universities in four tranches as follows:

January 1999	141 places from September 1999 ³
June 1999	684 places
June 2000	287 places
March 2001	1,033 places

The medical schools phased their plans for expansion for the period autumn 1999 to autumn 2005, such that the planned intake of 5,894 in 2005 would be 57% above medical student recruitment in 1997. This is the largest increase in medical school places since the NHS was established.

The expanded places were allocated on a transparent and competitive basis. The Department of Health (DH) and the Higher Education Funding Council for England (HEFCE), as the two bodies which fund undergraduate medical education, established a Joint Implementation Group (JIG) to allocate the expanded places and were joined by the GMC for the NHS Plan exercise. All Higher Education Institutions (HEIs) were invited to submit proposals. Amongst the criteria in judging the proposals was the need to ensure that distribution of patterns of training of students effectively increased the home supply of doctors and met the needs of the populations which are served by the NHS.

As a result:

- almost all of the existing medical schools received extra places;
- four new medical schools were established;
- four new centres of medical education have been developed, three of which were in collaboration with existing medical schools; and
- there has been a major development of graduate-entry 4-year courses.

² *Planning the Medical Workforce* Medical Workforce Standing Advisory Committee: Third Report December 1997

³ These were in addition to the excess students the HEIs were already recruiting above the previous target.

2.1.1 New medical schools

- University of East Anglia, Norwich (UEA).
- Peninsula Medical School (a collaboration between the Universities of Exeter and Plymouth).
- Brighton and Sussex Medical School (a collaboration between Universities of Brighton and Sussex).
- Hull York Medical School (a collaboration between the Universities of Hull and York).

2.1.2 New centres of medical education associated with existing medical schools

- University of Durham, Queens Campus, Stockton (in collaboration with University of Newcastle) where students study the first two years of the University of Newcastle curriculum before being integrated with the rest of the year group in Newcastle.
- University of Keele (in collaboration with the University of Manchester). Students currently study at Keele for the University of Manchester degree, and some Manchester students transfer to Keele for years 3–5 of their course.
- University of Warwick (in collaboration with University of Leicester).
- University of Nottingham Medical School at Derby, where the medical school is being established in very close collaboration with the Southern Derbyshire Acute Hospitals NHS Trust.

2.2 Delivery of the overall plans

The latest data supplied by HEFCE shows that in autumn 2003 6,030 students (which includes students from overseas) entered medical school in England, which means the target of 5,894 has been delivered and exceeded two years earlier than planned. Indeed, since the expansion in medical school places in 1999, over 5,500 more students have entered medical school in England than would otherwise have been the case: evidence of our investment in the NHS for the future.

2.2.1 Graduate entry courses

It is worth noting here that there is a rising interest in graduates from other courses in a career in medicine. In 2003/04 there were 622 entrants to 4-year courses for graduates in England which exceeded the planned number of 558 by 64 (11.5%) and the 2005/06 target of 593 by 29 (4.9%). This is discussed in more detail below.

2.3 Rising applications: medicine continues to be popular as a career

The Government's investment in medical school expansion, alongside the national NHS recruitment campaign, has resulted in a welcome increase in applications to medical school (Table 1). As at 12 January 2004, there were 15,013 UK applicants to enter medicine in autumn 2004. This is 19.7% more than at the same date last year, and is 76.5% more than the total number of applicants to enter medicine in autumn 2000. There is clearly a welcome and very healthy interest in medicine as a career.

Table 1: UK applicants and accepted applicants for medicine 1999 to 2004¹

Year of Entry	Number of applicants	Number of accepted Applicants	Ratio of Applicants to Accepted Applicants
1999	8996	4871	1.8: 1
2000	8506	5229	1.6: 1
2001	8563	5675	1.5: 1
2002	10071	6287	1.6: 1
2003	12728	6953	1.8: 1
2004	15013 ²		

Source: UCAS Department of Research and Statistics

Notes

1 These figures include those graduates who have applied to undergraduate medical degrees through UCAS.

2 As at 15 January 2004.

Having established that we have been successful in stimulating the expansion of medical schools, two other questions remain: are we managing to attract people from a wider range of social backgrounds into medicine, and what are they learning and how?

2.4 Different kinds of students: widening access to medicine

Successive reports, including the Bristol Royal Infirmary Inquiry⁴ have emphasised the need to attract medical students from a broader range of social backgrounds. The trend over recent years has been for a strong representation of women and most ethnic minority groups in medical school admissions, but certain sections of society need a good deal of encouragement to consider a career in Medicine. In assessing bids to expand medical school places, the DH/HEFCE Joint Implementation Group looked at the extent to which medical schools' plans for student recruitment, including their admissions policies, addressed the need to increase successful applications from students from social backgrounds currently under-represented in medicine. This section summarises the statistical data on applications and admissions to medical school.

2.4.1 Applicants to medical school

Accurately identifying trends in the social background of medical school applicants and entrants is not easy, as the classifications used by UCAS to denote socio-economic background changed in 2002, preventing direct comparison of data for 2002 and 2003 with the preceding years.

Tables 2 and 3 show the social class of UK applicants to UK medical schools. Data are not available separately for English medical schools. It is important to note that the proportion of applicants whose social class was recorded by UCAS as "not known" has risen from 4.6% of applicants in 1994 to 11.4% of applicants in 2001. This means that care needs to be taken in interpreting the data in terms of the proportion of applicants from different social backgrounds. Among applicants for whom data on social background are available⁵, the proportion from the three least wealthy social classes remained broadly the same at approximately 15% between 1994 and 2001, compared with 38.5% in the general population. There is clearly a lot of work to do to increase medical school applications from students who have not traditionally gone into medicine.

⁴ Recommendation 78.

⁵ i.e. excluding from the total those whose social class was not known.

Table 2: Socio-economic background of all UK Applicants to Medicine

Social class	1994		1999		2001	
	No	% of total	No	% of total	No	% of total
Professional	3555	34.1%	2978	33.1%	2788	32.6%
Intermediate	3954	38.0%	3167	35.2%	2989	34.9%
Skilled non-Manual	883	8.5%	778	8.6%	711	8.3%
Skilled Manual	950	9.1%	730	8.1%	684	8.0%
Partly Skilled	504	4.8%	405	4.5%	346	4.0%
Unskilled	111	1.1%	77	0.9%	73	0.9%
Not Known	459	4.4%	861	9.6%	972	11.4%
Total	10,416		8,996		8,563	

Source: Universities and Colleges Admissions Service Department of Research and Statistics

Table 3: Socio-economic background of all UK Applicants to Medicine

Socio-economic classifications	2002		2003	
	entry	% of total	entry	% of total
Higher managerial and professional occupations	3690	36.6	4342	34.1
Intermediate occupations	1006	10.0	1194	9.4
Lower managerial and professional occupations	2535	25.2	3239	25.4
Lower supervisory and technical occupations	176	1.7	275	2.2
Routine occupations	240	2.4	269	2.1
Semi-Routine occupations	652	6.5	760	6.0
Small employers and own account workers	418	4.2	499	3.9
Unknown	1354	13.4	2150	16.9
Total	10071		12728	

Source: Universities and Colleges Admissions Service Department of Research and Statistics

2.4.2 Applicants accepted by medical schools

Tables 4 and 5 show the social class of students whose applications to medical school were accepted. The data similarly show an increase in the number of students whose social class was categorised as “not known”. In 2001, 12.5% of all accepted medical school applicants whose social class was known were from the three poorer social classes, compared with 11.2% in 1994. There has been marginal progress in terms of increasing the proportion of medical students from poorer backgrounds from 11.2% to 12.5%, and the absolute number of medical students from poorer backgrounds has increased. However, we need to see a lot more effort and progress on this issue, as medical school applicants from poorer backgrounds continue to be less likely to be accepted than their more affluent peers.

As part of the Government strategy to widen access to higher education as a whole, the Department for Education and Skills (DfES) has analysed social factors in applications to higher education, and in successful entrants⁶. Their analysis indicates that aspirations at an early stage are a key factor in people’s achievements, and it is with this in mind that DH and HEFCE will be funding joint pilots on widening participation.

Table 4: Socio-economic background of all UK Accepted Applicants to Medicine

Social class	1994 entry	% of total	1999 entry	% of total	2001 entry	% of total
Professional	1,802	41.3%	1,875	38.5%	2053	36.2%
Intermediate	1,672	38.3%	1,756	36.1%	2037	35.9%
Skilled non-Manual	305	7.0%	399	8.2%	439	7.7%
Skilled Manual	296	6.8%	336	6.9%	406	7.2%
Partly Skilled	146	3.3%	182	3.7%	204	3.6%
Unskilled	33	0.8%	19	0.4%	36	0.6%
Not known	109	2.5%	304	6.2%	500	8.8%
Total	4,363		4,871		5,675	

Source: Universities and Colleges Admissions Service Department of Research and Statistics

Table 5: Socio-economic background of all UK Accepted Applicants to Medicine 2002 & 2003

Socio-economic classifications	2002 entry	% of total	2003 entry	% of total
Higher managerial and professional occupations	2606	41.5	2727	39.2
Intermediate occupations	646	10.3	643	9.2
Lower managerial and professional occupations	1569	25.0	1770	25.5
Lower supervisory and technical occupations	102	1.6	144	2.0
Routine occupations	122	1.9	129	1.9
Semi-Routine occupations	335	5.3	374	5.4
Small employers and own account workers	245	3.9	289	4.2
Unknown	662	10.5	877	12.6
Total	6287		6953	

Source: Universities and Colleges Admissions Service Department of Research and Statistics

2.5 Initiatives to promote wider access to medicine

Mindful of the need to make much greater progress in widening the social background of our future doctors, medical schools have developed a variety of initiatives. These range from four year courses for graduate entrants from other disciplines, to the development of new foundation years and Foundation Degrees, and projects reaching out to local communities which have tended not to apply for medicine and the other health professions.

2.5.1 Fast track graduate programmes

The development of “fast track” four year medical courses for graduates of other subjects has been a key feature of the medical school expansion, building on the precedent set by St George’s and Leicester/Warwick, which had both obtained GMC approval for graduate entry programmes by 1999. Such courses have been the norm in the United States for over a century, and they have become common in Canada and Australia over the last ten to fifteen years.

The MWSAC report in 1997⁷ saw scope for “developing graduate entry schemes, both to allow faster production of doctors than traditional courses (a “once-off” effect) and to broaden the field from which

7 *Planning the Medical Workforce* Medical Workforce Standing Advisory Committee: Third Report December 1997

doctors are recruited”⁸. The second phase of the expansion, stemming from the NHS Plan, stimulated existing medical schools to innovate in curriculum delivery and led to a large increase in graduate-entry, four-year programmes.

Graduate entry courses are currently offered – or about to commence – at Birmingham, Bristol, Cambridge, Leicester/Warwick, Liverpool, Newcastle, Nottingham, Oxford, Barts and The London (QMW), St George’s Hospital Medical School and Southampton. There are now 11 such graduate entry programmes in England alone, four of which will consider graduates in any discipline. In autumn 2003, 622 graduates were admitted to these courses.

The total duration of undergraduate medical courses is constrained by Article 23 of European Council Directive 93/16, which states that basic medical training must comprise “at least a six-year course or 5,500 hours of theoretical and practical instruction given in a university or under the supervision of a university”. Graduate programmes generally achieve this by having much longer terms than conventional medical degrees and by radically changing the basic science (rather than clinical) components of their existing courses, on the assumption that graduates will be able to assimilate the basic science more quickly.

The increasing popularity of medicine amongst graduates of other disciplines is evident in the demand for such courses. For 2003 entry to medical school, there were 3,346 UK applicants with a UK degree (of whom 1,303 were accepted), compared with 879 applicants for 1994 entry (of whom 281 were accepted).

In some cases, medical schools (e.g. St George’s, London) have developed basic science first degree programmes which are seen as a potential platform for graduate entry to medical school.

2.5.2 Foundation degrees

St George’s Medical School has developed a new two-year Foundation Degree (FD) in Health and Medical Science, as a joint project with Kingston University. The FD is delivered largely as distance learning, and is targeted at people already working in the health service. For instance, 15 ambulance personnel were recruited onto the course.

2.5.3 Widening Participation projects

Several medical schools have developed an innovative range of projects to promote interest in, and applications to, medicine from a broader social base.

Several medical schools have residential and non-residential summer schools, road shows with local schools, and more sustained community outreach initiatives which aim to kindle and sustain interest in medicine amongst young people aged 13–16.

In this section, we present some case studies which show how medical schools are responding positively to the need to widen access to medicine.

2.5.3.1 Peninsula Medical School

Peninsula Medical School has a strong commitment to widening participation in medicine, in every sense. This is evidenced by:

- A selection strategy designed to give a level playing field to candidates, and to select the kind of people who will make caring doctors. The school sets a minimum academic requirement, which is set at a high standard because of the popularity of the course. All applicants reaching this standard then take part in a structured interview designed to reveal attributes such as co-operativeness, empathy and insight. At this point, everyone has an equal chance. The resulting intake is much more diverse than usual.
- A project where medical students visit schools and school students visit the medical school to experience what it is like to study medicine, to encourage them to consider a career as a doctor no matter what their background.

Case studies:

Charles showed determination in re-sitting his A levels after working in various settings after school, and is now performing superbly both in his studies at medical school and also as a leading light in organising charity events for the benefit of others.

David had a background of working in the Health Service as an Allied Health Professional (an orthotist), and came to the view that he too could be a doctor. David is also performing extremely well.

2.5.3.2 St George's Hospital Medical School

St George's Hospital Medical School (SGHMS) has introduced three new degree courses to widen participation:

- The Graduate Entry Programme accepts graduates of any discipline, with an exam for non-scientists which tests scientific aptitude and communication skills. The annual intake is now 70 students, and the course is over-subscribed.
- A new BSc in Biomedical Sciences with an emphasis on science in relation to medicine and research methodology began in 1999. It now has 35 students.
- A new two year Foundation degree in Health and Medical Science (joint project with Kingston University), targeting students already working in the health professions and delivered largely by distance learning. 15 ambulance personnel have applied for the course.

Other Widening Participation projects:

- Foundation year for Medicine (joint project with Kingston University), launched in 2003 with 16 students. Entry level is GCSE with 3 years work experience and evidence of ability from the workplace. The course comprises 1 year of science and a clinical/communications skills module. Successful students progress to year 1 of the MBBS;
- Since 2002, SGHMS has run Summer Schools, currently 3 per year, residential and non-residential, aimed at ages 14 through 16;
- A SGHMS innovation, the Experiments Road Show, visits local schools and runs whole class activities for ages 13-16 (for example, constructing a prosthetic finger).
- A CD for schools which dispels myths about who does medicine and health care; and

- Responsive admissions policy taking educational opportunity into account and providing interview training.

Case studies:

Mr AD is a 29 year old student of West Indian origin who has been resident in the UK for 12 years. He gained 8 GCSEs aged 16, then left school and went into unskilled work until he was 20. He gained a Diploma in Mental Health Nursing in 1998, and worked as a nurse in various mental health services. He took A Level evening classes at Further Education college and was admitted to the Foundation year in September 2003. He is a good student with clear passes in Sciences and high ratings in clinical skills sessions, and is expected to be a good entrant into Year 1 MBBS in September 2004.

Mr MS is a 37 year old student who left school with 7 CSEs at 16 and worked as an engraver for 10 years. After spending 2 years as a care worker for people with severe learning disabilities, he trained as a paramedic in the ambulance service, where he worked from 1994 to 2003. He achieved Instructor's qualification, and paramedic teaching qualification. His performance at interview was excellent – mature and thoughtful – and he has been offered a place on the Foundation Course to begin September 2004.

2.5.3.3 University of Southampton

The School of Medicine at the University of Southampton launched its Widening Access to Medicine scheme in December 2000 with the aim of addressing the under-representation of Social Classes III, IV and V in the medical profession. A new route into medicine, the 'Level 0' Medicine course has been created, providing 20 places in 2002 and thirty places in 2003. Students who pass the Level 0 Medicine course are guaranteed a place on the BM course. Over time, this will change the student profile of the medical school. 89% of the first cohort progressed successfully onto the BM course in 2003.

Key features of Southampton's scheme:

- Screening criteria which determines that students belong to the target group
- Flexible entry requirements including A level equivalents, retakes and Access courses
- An Outreach Worker to liaise with schools and colleges, arrange outreach activities to encourage pupils to consider a career in medicine, and provide advice, guidance and support for applicants to Level 0 Medicine.

Case studies:



David: "I found out about Level 0 from my college and was over the moon when I got a place. I'd been interested in a medical career since I was a child.

It's not always been easy but the Level 0 Medicine course is an excellent bridge to a BM. It's given me a much better understanding of the role of doctors and other medical professionals. I liked the practical elements of the course, where you learn things that you can then apply. I feel totally prepared for BM5.

I've wanted to get into Medicine for as long as I can remember. I have always enjoyed the anatomy and physiology aspects, plus growing up with my disabled father and 95 year old grandmother gave me a real appreciation of the caring side.

I had my heart set on Medical school, and when I performed well in my GCSEs I thought I was really on track. But I struggled when I reached A-Level, as my schooling just hadn't prepared me for how much work would be involved at college. Also it was difficult as I had nobody in my close or even distant family that had ever been to college to study A-Levels, and so I had no ideas of what to expect. The day I received my A-Level results I thought I had lost the opportunity to go into Medicine forever.

Fortunately, my teachers knew about the Widening Access to Medicine scheme, and I was able to contact the Outreach Worker, who was very helpful and told me all of the academic as well as non-academic criteria to access the course. I think I matched nearly every one of the screening criteria. I met with her before my interview and we discussed my options and talked about the interview process; the application process was made so much easier with the Outreach Worker so happy to offer advice and support. I couldn't believe it the day I was accepted; I had the chance to prove to my teachers, my parents, peers and myself that I was capable of becoming a doctor.

By the end of the Level 0 Medicine course, I felt so much more confident knowing that I had successfully completed the year. The support from my teachers and my own determination got me through the course, as well as the financial support which I really appreciated. I am pleased to be on the right track once more, and I feel really lucky to have been offered this second chance to become a doctor."



Nadia: "I did A Levels in Maths, Biology and Chemistry, and an AS in Physics and I was so happy to get a place on the Level 0 Medicine. It took a couple of weeks after the course started before it really sank in.

I'm really pleased I've done the course, and have met medical students from other years who have said we were really lucky to have covered so many areas. During the Level 0 year I had placements in hospitals and GP surgeries.

I am sure if you picked out a group of children and asked them what they wanted to be when they grow up, many would say a doctor. However in reality only one or two would actually go on to become a doctor. For many, the dream fizzles out as a result of the individual being unable to fulfil their potential due to lack of the resources and guidance that would enable them to reach their highest ability. I almost became one of these children until I heard about Level 0 Medicine.

When my family migrated from Zimbabwe to England it felt as though I was one step closer to achieving this dream, as there were more educational opportunities here than back home. However, I soon discovered how competitive getting a place to study medicine would be and had to face the possibility of postponing my dream.

When I heard about Level 0 Medicine, I was very excited and after the interview I kept my fingers crossed and waited an agonising week to learn my fate. I was overjoyed when I heard I had got the place and couldn't wait to start the course.

The support I received was amazing and helped me quickly adapt to the new environment. There were my tutors who took an interest in my progress and with whom I could voice any concerns I had regarding my work. I also had a health professional mentor who was there to provide pastoral support and who has been a motivation for my career in medicine ahead. Then there was the support I received from my peers in the form of the student families scheme and finally there was the support I received from my classmates with whom I quickly found similarities in our academic backgrounds and determination to pursue medical careers.

I learnt a lot during the Level 0 Medicine year and feel in good stead for the years ahead. The course has been both challenging and interesting and has left me eager to advance my studies in this engaging course. I am sure that all of us have found that Level 0 Medicine has been immensely helpful and it has made us more confident about proceeding to BM5."



Abi: "I had always wanted to do medicine, but because I'd done a BTEC I didn't think I could get into medical school.

I found out about Widening Access to Medicine course through a college lecturer and it was fantastic news when I found out I'd got in. The course has been brilliant and I've really enjoyed my placements. Level 0 has prepared me so well for BM5."

2.5.3.4 Guy's, King's And St Thomas' Medical School

The Guy's, King's and St Thomas's Extended Medical Degree Programme is an innovative widening participation initiative that allows students with academic potential who have not achieved the AAB at A level that is required by conventional medical schools, to study medicine. It is a six-year degree course open to students living and studying in inner London boroughs. Overall, the majority of these students come from social classes III, IV and V, as opposed to conventional medical students, the majority of whom come from classes I and II. In contrast to students on the conventional five-year programme, the students on the 6-year programme broadly reflect the ethnic diversity of the population found in inner London.

This course differs from the conventional programme in the method of selection and the course structure. Applicants sit a test which profiles cognitive reasoning skills and personality type. Most of the applicants are subsequently invited for an extended interview. The result of the interview, together with an additional, detailed reference from the candidate's school or college, assists the school in deciding whether or not to make the candidate an offer. A level results are considered in the context of the overall performance of their school.

Another difference is the pace at which the subjects are covered (and examined) in the first three years and the level of the extra academic and pastoral support that the students receive.

The programme began in 2001 with 9 students in the first year, expanded in 2002 to 20 students, and expanded further in 2003 to 28 students. By 2007, they aim to have 50 students in each of the first three years.

Case study:

Mary was born in Nigeria and came to the UK when she was 18 months old. When her parents had to return to Nigeria a year later, Mary was put into foster care. When Mary was six, her mother and father returned to the UK and she went to live with her parents in Southwark. She attended a local Catholic girls' secondary school, gaining 11 GCSEs with B and C grades, and then went on to do A levels in Psychology, Biology and Chemistry, gaining BCC, respectively, at a large sixth form college in Lewisham.

Mary's parents both work in a hospital, as a porter and a nurse, so Mary has been exposed to the healthcare sector for a large part of her life. She always wanted to work with children and chose medicine because, as she said in her UCAS form,

“I know the importance not only of being cared for, but also of caring for others”.

Her A level predictions of BBB were not good enough, however, for Mary to be considered for a place on a conventional medical course, so she was advised to apply for the Extended Medical Degree programme and was accepted. Having passed her first year, Mary is now doing very well in her second year, and, at the moment, plans to specialise in child psychiatry.

“The extended programme has given me an opportunity that no other course or university could have. Not only do I have the chance to become a doctor, and I will, but I get to do it with the support and help, not only from a varied array of tutors, but also from my peers with whom I am very close. The fact that I am here at King’s is still quite unbelievable after having been told by teachers to give up on my dream! The extended programme allows people like myself, who have the qualities that make a good doctor, get the opportunities to study hard and realise their goals.”

2.5.3.5 Sheffield Medical School Outreach and Access to Medicine Programme

The University of Sheffield’s medical school was awarded 20 additional places on the MBChB degree in 2000 to be filled by local students from backgrounds that are currently under-represented in the medical profession. As a result, Sheffield’s Outreach and Access to Medicine Scheme (SOAMS) was launched in 2001 in order to support such students who have an interest in medicine or science.

A programme of activities aimed at raising awareness, aspirations and levels of achievement was devised which includes:

- Phase One (Y9-11): visits to an interactive science centre including lab sessions, Young Life Saver training and community work placements.
- Phase Two (Y12-13): medical careers conference, residential summer school, UCAS advice and guidance and hospital based work placements.

There are currently 300 local students on the scheme who have the ability to become good doctors, but who would not normally have considered this as a serious option.

Case study:

Helena joined SOAMS in 2001/2 after being selected by Chesterfield College during Y12 as a suitable candidate for the scheme. Helena comes from a small mining village in Derbyshire from a family who had had no previous exposure to Higher Education. She proved a highly committed and enthusiastic student who displayed immense determination throughout her time on SOAMS. At the awards ceremony held at the end of Y13 Helena’s parents said that she would not have made it to medical school if she had not been on SOAMS. Now in her first year studying medicine at the University of Sheffield Helena is still slightly overwhelmed by the experience:

“I can’t quite believe that I am actually here! It means a lot to be given the chance to prove myself and my abilities”.

2.5.3.6 University of Durham, Queen’s Campus, Stockton

One way of furthering the provision of medicine in socio-economically deprived areas such as parts of Teesside is recruiting students, through a widening access process, from deprived areas, who will be more likely to practice in those areas in the future.

Widening access initiatives:

- Community placement scheme: students are placed for a full calendar year working on a regular basis with one of a large range of health and social care providers on Teesside. The aim of the exercise is to give students first-hand knowledge and practical experience of the organisations involved and the communities they serve. The community placement experience gives students valuable exposure to non-clinical aspects of health and social care, and enables them to develop skills such as teamworking, communication and ethical awareness that will benefit them in their future careers.
- Raising aspirations: this project includes interactive careers days, student visits to schools, the development of teaching resource packs to show how science is applied in health care, and arranging work experience in medicine.
- The Foundation Programme supports and promotes mature, non-traditional student entry. Now in its seventh year, the modular course was designed specifically for mature students who wish to take up degree level study and forms the first year (Year 0) of an integrated degree programme. The Programme has proved to be very successful; for the three cohorts who have graduated so far, these students have performed as well as the rest of the students. A small number of students have been successful in gaining a place to study medicine, which has led to the exploration of links between the Foundation and the new Medical Programme based at Queen's Campus. This new development would augment the widening participation being carried out in schools for younger students, providing a route in for students who at 25 and older would bring important life skills to medicine.

Case studies:

Susan: "I enrolled onto an Access Course at Teesside Tertiary College in September 2000 when my daughter was just a week old. I then went on to complete it in May 2001. In February 2001 I also started employment with the NHS as a health care assistant, to gain the relevant health care experience. During the summer of 2001, I decided to visit Stockton campus of the University of Durham and spoke to Professor Hamilton about studying medicine. He advised me to enrol onto the Foundation Course to get the relevant qualifications necessary to be accepted onto Phase 1 Medicine which included chemistry, biochemistry and biology with pass grades of 70% and over. I completed my Foundation Course, achieved the grades and was accepted onto medicine by selection interview. I then started Phase 1 Medicine in September 2002. I am now almost at the end of my second year and feeling quite proud of myself.

I am a single parent, my daughter is 3½ years old and I have a house to run and still have to work part-time on a weekly basis as an health care assistant. My parents are working class people and have never been able to help me financially. I have times when I feel completely exhausted and have been ill on a couple of occasions but the staff on the course are very supportive. I don't regret my decision about doing medicine, but instead I'll carry on working hard and look forward to my and my daughter's future together once I become a doctor."

Dawn: "I'm 27 years old and studying first year medicine at Durham University. My journey here has been (and still is) an interesting one. I left school at 16, not really knowing what I wanted to do. My GCSEs weren't bad, but they weren't brilliant either. French and German were my best subjects so I studied them at A level ... badly!"

I worked in a nursing home during the summer vacation, which believe it or not I enjoyed. At the time, I thought about training as a nurse, but ended up leaving college (with no A levels), and found employment, first in a shop, then in a clothing factory. It didn't take long for me to become bored, so I went back to a nursing home while I was waiting to be called up to join the Royal Navy as a medic. At this point, the thought of becoming a doctor did cross my mind but I thought I wasn't smart enough. A year later, I joined up to start my 13 months training. It was intense, but I loved it!

I started to mention my interest in medicine to some of the doctors that I met. They gave me very positive feedback, and a colleague (who is now in his second year at Liverpool) gave me information about an 'Access to Medicine' course. It involved a year studying A level standard sciences, but only the bits relevant to medicine! I worked hard, got the grades I needed to gain a place at Durham University and here I am. Despite the odds being stacked against me, I did it!"

Sharon: "My name is Sharon, I am a 41 year old mother of three and a first year medical student at the University of Durham in Stockton. 'Why medicine and why now?' I hear you ask, a question that has been examined both by others and myself several times in the past two years. The answer is opportunity.

I have for many years (more than I care to remember) had a fascination with medicine. I left school at the age of sixteen to take up a position with the Department of Pathology at my local hospital. After passing my HNC I specialised in Haematology and continued to work in this field for a twelve years, giving me a great insight into the scientific basis of disease.

However, at 28, I left the laboratory service and set up a 60-place day nursery and after school care facility. Being in charge of 35 staff and over 150 children was a new challenge, which I found incredibly rewarding. Here I learnt about child development, family relationships, business and personnel management. The business was a huge success, so much so, that in 1999 we sold to a large nursery chain.

So in the new millennium I decided to return into the medical field, but having been told several years earlier that I was too old to enter medicine at 30, I decided to do a degree at Teesside University in Sports Therapy. However, whilst attending University I learned of a new progressive and innovative medical course at Durham, Queens Campus. After attending an open day where the course was outlined, my interest in Medicine was reaffirmed. I applied the following year but unfortunately my application was not successful. Undeterred by this initial rejection I reapplied the following year and was offered a place pending a 2.1 pass in my degree. I was successful in obtaining a first class honours and the rest, as they say, is history. Although people are often surprised that at 41 I am studying for such an intense course, at my age, I know I have the enthusiasm, motivation and interest to complete the course. One interesting advantage is the support I receive from one of my fellow year one peers ... my daughter!"

3 Innovation in Students' Learning

The publication by the General Medical Council (GMC) of *Tomorrow's Doctors* in 1993 stimulated a decade of innovation in undergraduate medical education, which the GMC itself has actively encouraged. Medical schools took the opportunity to break down the distinction between “pre-clinical” and “clinical” subjects, and integrated their teaching across this divide to make it more relevant to students and patients' experience of health and illness. Some embraced radical new methods of teaching, which have sometimes been met with disdain within the profession, such as problem-based learning (PBL) which enhances students' abilities to challenge accepted practice and to embrace and lead change.

In the mid-1990s Manchester was the first UK medical school to introduce a PBL-based curriculum, closely followed by Liverpool and Glasgow. Most medical schools now have curricula which integrate learning around body systems and, through early clinical experience, provide a practical, patient-centred context for learning.

The publication of the revised *Tomorrow's Doctors* in 2002 restated the GMC's commitment to see medical education modernised to meet the needs of a patient-focused health service, and also required clear supervisory structures for oversight of the curriculum. Whilst retaining the strengths of the first edition and its emphasis on attitudes as well as knowledge and skills; early clinical experience; a curiosity-driven and problem-based approach to learning rather than the acquisition of factual knowledge; communication skills and public health perspectives, the 2002 version moved to competency (rather than experience) based requirements for learning outcomes.

The Government and the General Medical Council both expect innovation to continue and will continue to work together constructively to achieve this.

3.1 Communication skills

One of the key requirements of *Tomorrow's Doctors* was that communications skills teaching should be embedded in the curriculum: a message reinforced by the Department of Health. This has been one of the most striking developments in medical education over the last decade, with communication skills being taught and assessed throughout the course.

Communication skills are critical to good practice across all the health professions. In October 2003, a statement of Guiding Principles relating to communication skills in pre-registration and undergraduate education for Healthcare Professionals was jointly agreed and published by the Department of Health and the health regulatory bodies including the GMC and Universities UK. This joint commitment to the key importance of communication skills training is good news for patients, students and all the health professions.

3.2 Interprofessional learning

Successive Inquiries (Climbie; Bristol) into dreadful human tragedies resulting from poor co-ordination and communication between different services and professions have emphasised the need for improved team working across agencies and professions. It is crucial that students learn the importance of developing these skills and competencies from the outset of their training.

Some schools have successfully introduced learning across professionals and disciplines. At St. George's Hospital Medical School, London, medical students learn with students from other professions in the first year Common Foundation Programme. The Department of Health, working with Universities and NHS Workforce Development Confederations (WDCs), invested almost £3m in four leading edge sites in interprofessional learning between 2001 and 2003:

- Southampton and Portsmouth
- Sheffield and Sheffield Hallam
- King's College London, Greenwich and South Bank
- Newcastle upon Tyne, Northumbria and Teeside

The lessons from these sites are being shared nationally and many other locally funded programmes are in place. All Strategic Health Authorities/Workforce Directorates received funds for 2003/4 to stimulate interprofessional learning, and they will be looking to develop current programmes or break new ground over the next few years.

3.3 Promoting innovation in teaching and learning

Tomorrow's Doctors sets out clearly what all doctors need to have learnt before they can be registered. By emphasising what is necessary, the GMC has enabled medical schools to reduce significantly the amount of formal teaching and didactic learning in their curricula, and to encourage self-directed and curiosity-driven learning. This change has occurred widely across both the established and the new medical schools. For instance, the University of Oxford has refined the core syllabus in order to eliminate redundant or duplicated material, resulting in a 44% reduction in core information in the Biochemistry course and 10% in the Morphology, Reproduction and Development module.

3.4 Quality assurance of learning in medical schools

A new GMC quality assurance process is being piloted at three Universities: Aberdeen, Birmingham and Liverpool. The new process not only provides assurance about the effectiveness of the existing courses, but also encourages Medical Schools to develop ideas in response to changes in their wider community. Of particular importance are issues relating to: patient-centred care; promoting equality and valuing diversity; interprofessional learning; and the need to equip doctors to work in an environment of continued social, scientific and institutional change.

There is significant lay involvement in the GMC teams visiting medical schools, with lay people comprising part of every visiting team.

3.5 Promoting public health perspectives

The Government is concerned to raise public awareness of key issues affecting their health, and the GMC has reinforced this with specific educational recommendations. Medical schools have made encouraging advances in this important area, for example at Cambridge, Leicester, Guy's, King's and St. Thomas's and Newcastle. The University of Birmingham deserves particular mention for their plans to place students in the more deprived areas of the region, and to involve them in considering the health needs of the local population.

3.6 Learning from peers

The Royal Free/University College London School of Medicine is experimenting with student-led teaching. A number of final year students have been trained to teach basic clinical skills to first year students, which has been well received by both parties.

3.7 Learning from patients

Life Cycle is a continuous module of the curriculum at The University of Durham at Stockton that offers some of the best examples of learning from patients, from their carers and from the health professionals on whom they depend. At all times the learning is centred upon what patients have to say about their experience, and they and their carers talk quite openly to the class as a whole, or in some cases where there are several patients, to smaller groups. Through the two years commencing with conception, the Life Cycle is followed through to its end, and students meet:

- A young boy with Down's Syndrome who comes with his mother who relives the experience of the screening tests.
- An adolescent with severe spina bifida talks with the class about his experience. He is accompanied by an educational support carer to help him cope in mainstream school with the minor learning deficits from hydrocephalus.
- A family in which the mother is expecting a baby.
- A patient with a long term health problem: looking at the impact on family life, and how health management is co-ordinated in the home setting.

3.8 Encouraging student curiosity and research

The GMC has rightly insisted on the importance of developing students' research skills. This has led to the introduction of special study modules (SSMs). Imperial College School of Medicine took this further and embedded a compulsory intercalated year in their undergraduate programme. Many others, such as Nottingham, Southampton and the new medical school at Brighton/Sussex have dedicated major sections of their curricula to encourage student research.

3.9 Preparation for the modern world

Many Medical Schools have stimulated other innovations to prepare doctors for work in the modern world. The University of Manchester offers European Studies Options, which allows a small number of students to study a European language and undertake clinical attachments abroad, while final-year students at the University of Oxford can mentor and assist in the training of Year 4 students commencing their clinical studies during the SSM in Medical Education. They learn to become educators and understand the importance of this in their development as doctors.

3.10 Future curricular innovation

The mainspring for innovation comes from within the Medical Schools and the wider educational and health world. For instance, the CMO and GMC are discussing ways in which undergraduate programmes can instil in students the ethos of continuous improvement of services and of their own practice. The increasingly complex professional world in which students will train as junior doctors and subsequently work demands individuals committed to evaluating and improving their performance throughout their professional lives. We are confident that the GMC will drive forward further innovation in basic medical education.

4 Conclusion: Developing Doctors for the Health Service of the Future

A decade of innovation in medical education, culminating in our bold investment in the expansion of medical schools, and the commitment and enthusiasm of our higher education partners in delivering that expansion, will ensure that we have many more doctors in the future.

Given the innovations which have been introduced into the undergraduate medical curriculum, our doctors of the future will be well placed to respond to the choices of patients from a diverse range of backgrounds, and will be working well in multi-professional teams to deliver continuous service improvement.

However, there is still a lot of work to do, to ensure that the doctors of the future are more representative of the populations whom they serve. This means that medical schools and their NHS partners need to put more effort into working with young people in their local communities who have not traditionally thought of medicine as a career. We need these young people's aspirations and interest in medicine as a career to be raised responsibly and realistically, with sound support given to those who have the potential to become the doctors of the future.

We applaud the efforts of those in our medical schools who have responded so positively to the challenge of the biggest ever increase in medical student numbers since the NHS was founded. Now, the challenge is to ensure that those expanded opportunities to pursue medicine as a career are accessible to young people of all backgrounds who have the potential. This report has highlighted several examples of good practice: these kinds of initiatives need to become much more part of the mainstream medical school approach to recruiting our doctors of the future.

Annex: Developments in the New Medical Schools

University of East Anglia Medical School (UEA)

In September 2002 UEA admitted its first cohort of 110 students and this number will increase to 130 by September 2004. Almost two-thirds of the intake were mature students. This was repeated for the 2003 intake. The first cohort of medical students is scheduled to graduate in the summer of 2007.

The five-year undergraduate medical programme is based around an extended and modified version of the Clinical Presentation curriculum, which was pioneered by the University of Calgary. This approach allows students to engage in elements of problem-based learning while ensuring that there is systematic and efficient coverage of core knowledge.

Students spend around one-third of their time in Years 1 to 5 gaining clinical experience in East Anglia's general practices. The School regards this experience as one of the most distinctive features of the curriculum.

The School of Health at UEA (including the Medical School) has received funding from the Workforce Development Confederation to establish a Centre for Interprofessional Practice. The Centre has piloted a study of interprofessional 'buddy groups' which have worked together on a case study with the objective of producing a joint presentation examining interprofessional working centred on the case. This study, involving students from all the health-related courses at UEA, has proved successful. The Deans of the Schools of Health have agreed on the basis of this evidence to incorporate the 'buddy group' system as a formal, compulsory part of all the Year 1 curricula from the next academic year. The outcome will be again be a student presentation; successful completion of the presentation will be a necessary part of the medical student's portfolio.

Peninsula Medical School (PMS)

PMS admitted their first cohort of 127 students in October 2002. The School plans to move to a steady state intake of 167 from 2003/2004. 21% of the first intake were mature entrants and 39% graduate entrants.

The programme is a systems based course designed around three phases that address the core themes of life sciences, clinical skills, professional development and public health. Problem-based learning (PBL) is one of the different ways used to deliver learning, as small groups of students engage with clinical problems to in order to enhance their self-directed learning skills.

PMS has adopted a Widening Participation Strategy that involves work with local schools in order to target people from non-traditional backgrounds who might not have previously considered a career in medicine.

Hull/York Medical School (HYMS)

HYMS admitted their first cohort of students in autumn 2003. They admitted 135 students: 68 at the Hull campus and 67 at York campus.

The HYMS curriculum is systems-based. It encompasses seven different overall themes, six body systems and a range of training outcomes covered through a strand of problem-based learning.

In common with the other three new schools HYMS is keen to give its students early opportunities for clinical experience. This begins in Year 1 with half-day attachments within a small group every week. Half the attachments are in hospitals and half in general practice or other community settings.

HYMS is developing a Widening Participation programme and have invited secondary school teachers to participate in interview panels. They are also developing an outreach programme for local schools and an access to medicine course.

Brighton/Sussex Medical School (BSMS)

BSMS admitted their first cohort of 135 students in autumn 2003.

BSMS is delivering a modified version of the undergraduate curriculum originally developed by the University of Southampton. The BSMS programme is an integrated and systems based course with co-ordinated patient contact beginning in the first term. Emphasis is placed throughout the programme on:

- the importance of the scientific foundation of medicine;
- the development of critical evaluation and research skills;
- the practice of evidence-based medicine; and
- interprofessional education (commendably, students have contact with other health professionals from the outset of the undergraduate programme).

Acknowledgements

The Department of Health gratefully acknowledges the help of the following people and their organisations in preparing this report:

Professor Peter Rubin, General Medical Council and Council of Heads of Medical Schools

David Skinner, Head of Regulation and Policy, General Medical Council

Professor Ian Lauder, Dean of the Leicester Warwick Medical Schools, University of Leicester, and Treasurer, Council of Heads of Medical Schools

Professor John Hamilton, Academic Director, Phase 1 Medicine, University of Durham, Queen's Campus, Stockton

Dr Chris Stephens, Director of Education and Deputy Head of School, School of Medicine, University of Southampton

Professor Sam Leinster, Dean, School of Medicine, Health Policy and Practice, University of East Anglia

Professor John E Tooke, Dean, Peninsula Medical School

Professor John McLoughlin, Peninsula Medical School

Sheffield Medical School Outreach and Access to Medicine Programme

Professor Tony Weetman, Dean, School of Medicine, The University of Sheffield

Vicky Hargest, Education Liaison Officer (SOAMS), Outreach and Access Section, Student Recruitment and Admissions, The University of Sheffield

Rachel Jones, Universities and Colleges Admissions Service (UCAS)

Professor Sir Graeme Catto, Dean, Guy's, King's and St Thomas' School of Medicine, Vice Principal, King's College London

Gavin Brown, Schools Liaison and Project Co-ordinator, Access to Medicine Programme and Dr Pamela Garlick, Senior Lecturer and Director of Access to Medicine Programme Guy's, King's and St Thomas' Medical School

John Rees, Chairman of Medical Education Committee, Guy's, King's and St Thomas' School of Medicine

Professor Michael J G Farthing, Principal, St George's Hospital Medical School

The Department would also like to thank students who were happy to be interviewed and provide their personal accounts.



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35010 1p 500 Mar 04 (CWP)

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