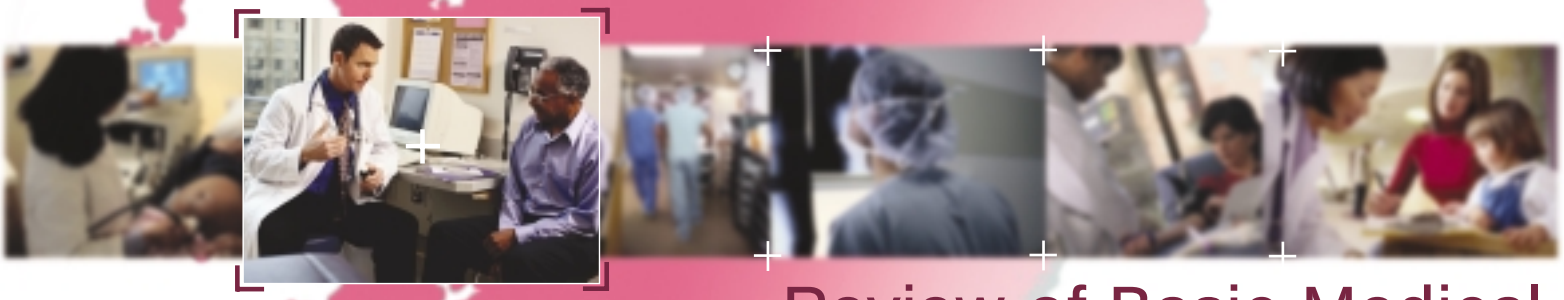

Review of Basic Medical Education in Scotland

Report and conclusions – June 2004

SCOTTISH EXECUTIVE

REVIEW OF BASIC MEDICAL EDUCATION IN SCOTLAND

Sir Kenneth Calman and Michael Paulson-Ellis

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Review of Basic Medical Education in Scotland

A Report Commissioned by the Scottish Executive

Undertaken by
Professor Sir Kenneth Calman and
Mr Michael Paulson-Ellis

Date June 2004

'Properly planned and carefully conducted medical education is the essential foundation of a comprehensive health service.'
(Report of the Inter-Departmental Committee on Medical Schools (the Goodenough Report) 1944, para.18.)

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CONTENTS

Summary of recommendations

1) Additional medical student numbers

- **The Scottish Executive makes it possible for SHEFC to fund an additional 100 places per annum in Scottish medical schools at the full rate applied to all such places; but that SHEFC and the universities jointly agree mechanisms by which these places be specifically restricted 1) to schemes and courses that increase the diversity of Scottish medical students, including but not limited to access schemes, foundation year course(s) and accelerated four-year course(s) for graduate entrants, and 2) to students likely to be committed in the long term to the Scottish NHS. (Paragraph 75)**
- **The Scottish Executive makes it possible for SHEFC to fund one or more Scottish medical school(s) to enable them to provide clinical education for St Andrews' students under arrangements for amalgamation or partnership agreed by the universities in question and by SHEFC. (Paragraph 75)**
- **Implementation of the additional funded student places be phased, with a first phase providing 50 new places per annum, and up to 50 places for the clinical education of St Andrews' students and kept under review over the next two-three years in the light of the development of workforce planning information; and that student numbers in the Scottish medical schools (as increased by our recommendations) be further addressed thereafter in the light of that work. (Paragraph 77)**
- **The Scottish Executive and SHEFC take special account of the position of medical education in their review of the effects on Scottish higher education of changes in the funding regime in England. (Paragraph 81)**
- **Additional funding be provided to the universities to cover the additional costs of establishing and maintaining schemes and courses that increase the numbers and diversity of Scottish medical students and the Enterprise, Transport and Lifelong Learning Department & the Health Department jointly consider whether these funds are a proper charge on the higher education or the health workforce budgets. (Paragraph 82)**

2) Admission to the Scottish medical schools

- **The Scottish medical schools establish a single body to ensure and enable greater diversity of students, to review the relationships between secondary and further education in Scotland and entry to medical school, to lead the development of new selection instruments, and to integrate the processing of applications while leaving the final decision to individual schools. (Paragraph 96)**
- **The Scottish medical schools individually and collectively seek to increase the proportion of applicants and entrants domiciled in Scotland. (Paragraph 75)**

3) Collaboration between the Scottish medical schools

- **The universities establish a Board for Medical Education in Scotland, responsible to them for:**
  - **Strategic overview of collaboration between the medical schools**
  - **Setting and monitoring the objectives of subsidiary bodies responsible for collaboration in individual areas, including inter alia admissions, medical education, clinical skills training, and research**
  - **Collaboration and interaction with other organisations with a stake in medical education, including the Scottish Executive Health and Enterprise, Transport and Lifelong Learning Departments and NHS Scotland (including NHS Education for Scotland)**
  - **Promoting Scottish basic medical education as an entity. (Paragraph 115)**
- **The universities create a single Scottish Centre for Basic Medical Education, to lead development and facilitate and encourage collaboration in curriculum and assessment matters and new uses of technology, and to form a base for enhanced research in medical education, including research into and development of the admission process. (Paragraph 102)**
- **The universities seek to create more specialist medical education posts. (Paragraph 102)**
- **The universities and NHSScotland work collaboratively to ensure the most efficient and effective use of Clinical Skills Centres. (Paragraph 105)**
- **The universities collaboratively develop structured relationships for the provision of clinical education in networks centred on each medical school and including the principal 'teaching hospital(s)', District General Hospitals (DGHs), primary care settings and if possible other community medicine settings. (Paragraph 107)**
- **The universities establish structured relationships to support collaboration between medical schools and those responsible for education of other groups of health professionals. (Paragraph 120)**

4) Other action by NHSScotland and the Health Department

- **Health Department/NHSScotland workforce planning arrangements develop their work on the demand for, and supply of, doctors and on doctors career patterns. (Paragraph 89)**
- **These workforce planning arrangements work in conjunction with the universities, SHEFC, ETLLD, and UCAS to secure systematic information on application and entry to and graduation from medical schools. (Paragraph 89)**
- **NHSScotland radically change ACT funding so that it is transparent and follows students. (Paragraph 111)**
- **NHSScotland ensure that full weight is given to medical education issues in consultant and GP contracts and in staff management arrangements for university and NHS staff working in those areas. (Paragraph 121)**
- **The Health Department establishes a review of the links between undergraduate medical education and the undergraduate education of other health professionals. (Paragraph 120)**

Background and terms of reference

1. This review derives from *Future Practice – A Review of the Scottish Medical Workforce*, published in July 2002. We refer to this report throughout this review as the 'first Temple report' as it was chaired by Professor Sir John Temple, Immediate Past President of the Royal College of Surgeons of Edinburgh. The first Temple report included recommendations to '*Explore increased output from Scotland's medical schools by: quantifying the case for further increase; providing for mature entry and improved social diversity; and enabling some or all of St Andrews graduates to complete their clinical training in Scotland' and to 'Review student support systems to facilitate wider access to medicine: particularly for mature students.*' In its response, also published in July 2002, the Scottish Executive stated that it had decided to establish a short-life Working Group to address these topics, with the exception of student support systems. We were invited to form this Group.

2. Our terms of reference are:

   In light of the recommendations in the July 2002 Report *Future Practice – A Review of the Scottish Medical Workforce* and the *Response of the Scottish Executive* thereto, to:

   – review aspects underpinning the provision of basic medical education in Scotland, including in particular access to it, the number of student places, its role in improving the health of the people of Scotland, and its contribution to the support and development of the NHS in Scotland; and to make recommendations to the Scottish Executive.

   The review will take account of:

   – the commitment in *Our National Health – A plan for action; a plan for change* to consider the possibility of fast-track graduate-entry medical degree courses in Scotland; and the recommendations in the GMC Report *Tomorrow's Doctors*.

   Our recommendations to the Scottish Executive are made through both the Health Department (HD) and the Enterprise, Transport and Lifelong Learning Department (ETLLD).

The context of our review

3. We wish to state clearly at the outset that our primary objective in addressing our terms of reference is to improve the health and health care of the people of Scotland. As the Chief Medical Officer says in his annual report, Health in Scotland 2001, *'Scotland's health is crucially important. However, it lags behind other Western European countries and many areas of the rest of the UK. Scotland has the potential to be a much healthier nation. It has been held back by deprivation and inequality on a substantial scale... Improvements in health have been achieved but have yet to be shared equally by all members of society. Scotland is keeping track with health improvements in the rest of the UK and Western Europe, but to date remains consistently behind. Scotland has not yet achieved the additional health gains necessary to close the gap and catch up with comparable European countries. This requires widespread appreciation of the importance of health to Scotland's social, cultural and economic well-being, and the expertise, capacity and determination across society to make a difference.'*

4. The Scottish population is in long-term decline. Recent reports by the Registrar General for Scotland make it clear that the population has fallen by some 2% since 1981, and will continue to do so. Since 1997 and for the first time, deaths have exceeded births, and this is compounded by continuing net outward migration, albeit at a much lower level than in the past. Scotland is the only part of the UK facing a decline in population (and the only part of the EU other than Germany). Not only is the population decreasing, it is also getting older, with decreases by 2021 in all age groups up to age 44, and increases in all above that. An older population means more ill health, with smaller cohorts of younger people from which to recruit medical students and to staff health services.

5. The decreasing population is increasingly concentrated in the central belt; yet Scotland continues to have a population in widely dispersed remote and rural areas that need the same high standards of health care. This has implications not only for the organisation of that provision but also for the training of future doctors.

6. Scottish higher education, including the medical schools, has a long and distinguished history. Through its education and research HE plays a major part in the life of Scotland. Its historically significant place in Scottish society means that it also makes a major contribution to the Scottish economy, in particular by drawing many, mostly young people from the rest of the UK and EU and from overseas to its institutions. The Scottish Executive is committed to maintaining the position of Scottish higher education and research, and recognises that it forms an important part of the UK system as a whole.

7. Scotland has more medical students per head of population than the rest of the UK. As a result it has not so far participated in the substantial increase in medical student numbers now under way in the rest of the UK.

8. We are convinced that medical education is best located within universities. Undergraduate medical education in the UK first evolved in various types of institution but became concentrated in universities. The reasons for this are easy to appreciate if one considers modern medical curricula. These require an exceptionally broad range of subjects to be taught by experts from disciplines frequently based outside medical schools. Thus, university science departments for example, contribute teaching in genetics, microbiology and pharmacology. Similarly, university departments in the humanities and social sciences are drawn upon to provide expert input to teaching in subjects such as sociology, anthropology, philosophy and ethics, and geographical factors in health care.

9. We are also sure that medical education should take place in institutions that undertake research. Doctors who qualified more than a few years ago will be acutely aware of the truth of the dictum 'today's research is tomorrow's practice'. Medical students' ability to assimilate research findings into their post qualification practice is clearly enhanced if they were aware of such research as an undergraduate. More importantly, personal research through special study modules and intercalated degrees is of clear benefit in providing students with the critical abilities needed to assess evidence, an essential pre-requisite for the highly desired culture of evidence-based medicine. Finally, research-rich environments are crucial for stimulating the enthusiasm of the 10% of doctors who go on to careers in clinical academic medicine, playing a crucial role in medical teaching, training, research and change leadership.

10. The clinical academics who are the key staff in medical schools have a uniquely wide-ranging role. They educate students and undertake biomedical and clinical research. They play an important part in the NHS directly by holding consultant and other posts in which they deliver clinical services to patients (to a much greater extent in Scotland than in England). Many of them are leaders in their professions and in health services in general. Although these roles are demanding, and often subject to severely conflicting pressures, we strongly endorse this way of working. We believe that the benefits to patients, to students and to the development of knowledge and procedures are very great. Recruitment to these demanding posts is not easy, and it is important that the NHS ensures that career patterns with appropriate training and experience are maintained.

11. The five Scottish medical schools have distinctive as well as distinguished histories. In recent years they have however collaborated constructively in many aspects of their work. We welcome this and say a good deal about it in our report. It should be noted that the five schools are not fully homogeneous. Aberdeen, Dundee, Edinburgh and Glasgow provide full five-year courses for a medical degree, with the possibility of an additional ('intercalated') year for a BSc/BMedSci degree. St Andrews currently provides a degree in Medical Science in three years, or four years for honours; this is followed by the clinical part of a medical degree at another university, most frequently Manchester. The position of St Andrews is changing and is discussed more fully elsewhere in this report.

12. Our terms of reference require us to consider basic medical education. This term normally includes the one postgraduate year which future doctors must complete before achieving registration as a doctor (in a Pre Registration House Officer post). We have, however, not dealt with the PRHO year in this report, as arrangements for it are being considered elsewhere as part of an overall review of postgraduate training.

The review process

13. In early November 2002 we circulated information about the review and an open invitation to contribute to it. This circulation resulted in a wide range of submissions from representative bodies, from individual NHS and university institutions and organisations, and from individuals. We are grateful to all those who took the trouble to write to us. We also arranged meetings with a number of representative bodies and NHS and university institutions and organisations, which proved most helpful and informative. A full list of the submissions and meetings is included in Appendix C.

14. We held a Workshop on 8 May 2003, to provide a further opportunity for those who had already responded to restate and hopefully agree key action points in four areas we had identified as central to our work. These were: Entry routes and selection processes; Curriculum and assessment of outcomes; Increased student numbers; and Organisation. Some 50 colleagues attended the Workshop. We found the outcomes most helpful, and are grateful to all those who attended, and especially to those university colleagues who introduced and recorded the sessions.

15. As will be clear from the paragraphs above setting out the context of our review, there are wide range of issues bearing on it. There have been many reports and other publications which touch on them, and we have benefited from our reading of them. A full list of those we have consulted is at Appendix D.

16. We have undertaken this review in parallel with the work of another short-life Working Group established following the first Temple report. This is also led by Sir John Temple, and is reviewing medical career structures in Scotland. We have been kept in touch with this review, and refer to it in our report as the second Temple report.

17. We have also undertaken this review in parallel with the previously established and ongoing work set up by the NHSScotland Standing Committee on Resource Allocation to review funding of the Additional Cost of (undergraduate) Teaching (ACT), led by Sir John Arbuthnott. We have also been kept in touch with this work, and say more about this important topic elsewhere in our report.

18. In order to inform our review we found it necessary to examine data beyond that available in published sources. In particular we sought to profile applicants and entrants to the five Scottish medical schools, to establish the destination of graduates from the four clinical schools, and to understand more about students in the upper years of secondary education in Scotland. We were also supplied with detailed information about student numbers in the medical schools and about the admissions process, and had access to information on medical careers prepared for the second Temple report. We are very grateful to all those who provided and analysed information and data for us. Fuller details are set out in Appendix B.

Medical student numbers – the background

Medical student numbers and the NHS

19. We made it clear at the start of this report that a fundamental reason for the Scottish Executive to invest resources in the Scottish medical schools is to improve the health and the health care of the Scottish people. One way in which this is achieved is through their output of medical graduates, who then go on to one year of further training within the NHS prior to registration as professionally qualified doctors, followed by further education and training while in post.

20. This postgraduate education and training is under review at present, and is dealt with the in the second Temple report. For our purposes it is sufficient to note that the further training period covers a number of years before there emerges a fully trained doctor able to practice independently in general practice, hospital medicine, public health, and a range of other settings. Thus a period of at least ten years elapses between entry to medical school and final achievement of fully trained doctor status; taking account of the selection period prior to entry, and to varying training routes and timetables after graduation, this may be as high as 15 years.

21. It will thus be clear that there is no straightforward relationship between medical student numbers and the supply of fully trained doctors, and that changes in the former will only affect the latter in the medium and long term, and not in the short term. Nevertheless our terms of reference ask us to consider student numbers in the context of the NHS in Scotland, and we have therefore sought guidance on the future need for fully trained doctors in both the shorter and the longer term.

The Wanless report

22. The most recent and compelling statements about future need appear in *Securing our Future Health: Taking a Longer Term view*, the final Wanless report of April 2002. This report deals with health needs over a 20-year period, and covers the whole of the UK, although data comes mainly from England and has been extrapolated to Scotland. It defines (ch 2) a broad vision of a high-quality health service in 2022 meeting rising public and patient expectations, creates (ch 3) three scenarios (defined as *'solid progress'*, *'slow uptake'* and *'fully engaged'*) to establish the resources required to deliver these services, and projects (ch 5) the funding and workforce implications. It makes it clear that *'for each of the three scenarios... the UK will need to devote a substantially larger share of its national income to health than it does today'*. The projections of workforce needs take account of the nature of the likely additional activity, and assume changes in individual productivity through the impact of the Working Time Directive (limiting hours to a maximum of 48 per week) and a fall in average length of stay for in-patient admissions (with the benefits of investment in ICT counter-balanced by an increase in time spent on clinical governance). It concludes (5.46) *'overall under the three scenarios the health care workforce might need to increase by almost 300,000 over the 20 years. The rates of increase are not uniform across the different staff groups. For illustration, the solid progress scenario increases the demand for different groups within the health care workforce as follows:'* and suggests an increase of 62,000 doctors, compared with about 90,000 at present in post, a rise of nearly 70%. Further (5.47) *'there is very little overall difference in either the number or mix of staff required between the different scenarios. Under each scenario workforce demand grows the fastest over the second half of this decade'*. A particular aspect of the projections is (5.48) *'all three scenarios project a substantial increase in primary care activity. Without any other changes and assuming the continuation of current working practices, this leads to a doubling in the demand for GPs, from almost 26,000 in 2000 to more than 55,000 by 2020 in the solid progress scenario'*.

23. The Wanless report then goes on to assess the effect on supply of the additions to medical school numbers in the rest of the UK already in progress and due to be completed by 2005. These amount to nearly 2200 places on top of the 1997 baseline of rather under 3900, an increase of just over 50% (figures derived from first Temple report, Table 1). The conclusion is that in spite of these additions, (5.51) *'the gap in the number of doctors starts to emerge before the end of this decade*

and is estimated to be around 25,000 after 20 years'. The report discusses the effect on these figures of potential skill mix changes, in particular the development of the roles of Nurse Practitioners and Healthcare Assistants, and concludes (5.55) *'so although skill mix change could make a major contribution to eliminating any potential skills mismatch over the 20 years, the workforce model implies that there will also need to be an increase in the number of doctors and nurses over that already planned'*. It does not quantify the potential reduction in the figure of 25,000 that would result from skill mix changes.

24. It should be noted that all the figures quoted above from the Wanless report are Whole Time Equivalents (WTEs). Given points made below on the effects of the change in gender balance in the medical profession and in attitudes to the work/life balance, it is likely that the ratio of WTEs to headcounts will decrease. Medical schools of course produce whole individuals forming part of the headcount figure, and a decrease in the ratio implies production of a higher headcount figure than the WTE one. A recent RCGP document *Primary Care Workforce – An Update for the New Millennium* estimates that there is a need to train 150 individuals to produce 100 WTE doctors.

25. The Wanless report also makes it clear that its detailed work on the workforce projections has been limited to England. It says (5.43) *'although the broad trends are likely to be similar in the other countries within the UK, they may find it helpful to undertake a similar, more detailed analysis of the workforce implications of additional investment at the rates set out in this review'*.

Work in Scotland

26. The Scottish Executive has already put in place new arrangements for such workforce planning in Scotland, as the following quotations from ch 6 of Partnership for Care, the 2003 Health White Paper, show. Under the heading *Workforce Planning and Development* it says (para 3) *'Failure to get the shape of the workforce right in the past has resulted in shortages in certain specialities today. We are already developing a more strategic and coherent approach to workforce planning for NHSScotland, making sure we have the right people with the right skills in the right place at the right time. This means taking a holistic approach which integrates workforce planning, service planning, redesign, education and training, recruitment and retention, role development, modernised pay systems and the impact of applying safe limits to working hours'*. And (para 4) *'Our approach to workforce planning and development... will enable us to plan how many doctors, nurses, pharmacists, Allied Health Professionals and ancillary staff are required to deliver responsive and sustainable services 3, 5 and 10 years into the future'*. And (para 6) *'To build capacity to develop the workforce at local, regional and national level we will: 1) support the development of expertise in workforce planning and development in each NHS Board area, making it a central strand of redesign; 2) appoint Regional Workforce Coordinators for the North, East and West of Scotland to work closely with those responsible for regional service planning; and 3) provide overall direction and leadership for workforce development through a National Workforce Committee'*.

27. These new arrangements are still being developed, but one early contribution to such planning is the first Temple report. A detailed discussion of how doctors train and work, now and in the future, underpins its projections of medical staff numbers in Scotland up to 2020. We note in particular the intention to move towards a specialist delivered service. Although, as the report notes, in 1997 Scotland had 2.4 doctors per 1000 population, compared with 1.9 for the UK as a whole, the projections (again in WTEs) still rise from a 2000/01 baseline of around 11,600 to around 16,300, 18,400 or 20,600 by 2020, under varying scenarios described as *Low, Medium* and *High*. The increase in percentage terms is between 41% and 78%, with annual increases between 2.1% and 3.9% for consultants and 1% and 2% for GPs (paragraphs 77-78 and Table 3). These increases, in particular those for GPs, are beyond existing long term-trends.

28. The first Temple report takes account of developing changes in the gender balance of doctors in favour of female doctors (some 60% of recent entrants to Scottish medical schools are female, and this proportion has been increasing for several years now). It also notes moves towards a better quality of life for doctors and their families, together with trends to earlier retirement. It goes on to discuss ways in which the supply of doctors to meet the increase in demand can be met by improving recruitment practice, promoting Scottish medical careers, maximising retention of doctors within the system (including retaining some service from those retiring early), and giving specific support to doctors in remote and rural areas and to doctors from overseas.

29. The report also emphasises the importance of further development of medical workforce planning which can continually test and update the assumptions on which it is based.

30. Notwithstanding these uncertainties, and taking note of the problems of relating actual student numbers to the future demand for staff outlined above, the report (paragraph 79) states that the projected increases *'clearly imply a substantial expansion in the number of students in medical schools. This implication must be viewed in the broader UK and labour market context. Student intake to the Scottish institutions is an important element in the supply equation for NHSScotland'*. It does however also correctly state that *'the impact on student numbers in Scottish medical schools will be influenced by assumptions made about where medical graduates choose to work, by the scope for meeting demand through doctors from EU and other countries coming to work in Scotland, etc.'*.

31. We have been kept informed of work done for the second Temple report. The patterns of movements between grades during the training process are very complex, and involve considerable movement into and out of mainstream posts within NHS Scotland, which in sum means that Scotland is a net exporter of doctors. The outcome is that around 65% of current consultants and 80% of current GPs in Scotland are graduates of the Scottish medical schools, although the figures are a little lower for those with shorter service to date. We say more about these graduates later in our report. There is also clear evidence of increasing difficulty in filling medical posts in NHSScotland, with vacancies for both consultants and GPs rising and very small shortlists for vacant posts. Thus, the service faces increasing difficulty in recruiting to its current posts at a time when it is seeking to expand its manpower. The second Temple report recommends moves towards the provision of service by fully-trained doctors (rather than relying in part on doctors in training) and major revisions to training programmes after graduation. It emphasises the continuing need for linked workforce planning and service redesign, to meet the needs of the public in a sustainable way, to take account of the pressures of changing employment practices and to improve recruitment and retention of doctors. As a consequence it urges upward revision of the planned numbers of both hospital and community based consultants and general practitioners beyond those assumed in the first Temple report, as well as work to retain in Scotland more of the doctors trained here.

32. **There is little doubt from the evidence set out above that Scotland needs more doctors both now and for the foreseeable future. The discussion that needs to take place is how best to achieve this increase. There are four possible mechanisms and it is likely that all will be required.**

- **An increase in the number of medical students. This can only be effective in the longer term and is the subject of this report.**
- **Improvements in postgraduate training to ensure better retention of doctors in Scotland. This might be effective in the short term.**
- **Changes in the terms and conditions of consultants and general practitioners both to retain them and to slow down the process of early retirement and the loss of significant experience and expertise. Again this could result in short term improvements.**
- **The encouragement of doctors from other countries to come and work in Scotland.**

Our brief is to consider the implications for medical student numbers, but the other mechanisms are just as relevant.

Medical student numbers – the current experience

Current medical student numbers

33. Student numbers in medical schools throughout the UK are specified by the respective HE Funding Councils, which are responsible for providing the bulk of the resources to the universities to teach the students. It should be noted that medicine is one of a small number of undergraduate subjects where numbers in individual disciplines are specified in this way (the others are dentistry, veterinary medicine and teacher training). In 2001/02 the Scottish Higher Education Funding Council (SHEFC) specified intake targets in the five schools amounting in total to 900 places. No more than 7.5% of these places (66 in 2001/02) may be used for students paying overseas fees – the remainder are funded by the Funding Council for home fee students, which include students from the rest of the EU. The result is a total of some 3900 funded student places for medicine in the five schools, around 1750 in the less expensive first two 'preclinical' years and 2150 in the more expensive last three 'clinical' years. These figures have not changed in recent years and remain in place.

34. Tables 1 and 2 (see Appendix A) detail some key aspects of student numbers in the Scottish medical schools in 2001/02. They show the home domicile and gender of students entering and graduating in that year. It will be seen that rather over half the students (51% of the entrants and 56% of the graduates) are domiciled in Scotland, with the other half divided approximately 3:1:1 between domiciles in England (which in this respect includes Wales), Northern Ireland, and overseas (including the rest of the EU). 60% of the entrants and 55% of the graduates are female, figures similar to medical schools throughout the UK. Other noteworthy features are the numbers of students from Northern Ireland, large relative to its population given the existence of a medical school in Belfast, and the number of Scottish students in English universities, especially Newcastle, comprising nearly 10% of all Scottish domiciled students entering medical school.

35. Prior to the expansion of medical school places in the rest of the UK, places in Scottish schools were some 18% of the UK total. By the time that expansion is completed, that figure will have reduced to around 12%. The Scottish population is rather under 9% of the UK total, so it will be seen that Scotland has always had a share of medical school student numbers disproportionate to its population, a situation that will still be the case after the expansion in the rest of the UK. One result of this is that the Scottish schools educate many students from the UK outwith Scotland. As Table 1 shows, 38% of the 2001/02 entrants came from this source (of which 10% come from Northern Ireland). This is true of university places in Scotland generally, and arises from the long-term historical situation in which Scotland has placed greater emphasis on HE than the rest of the UK. We have already pointed out the extent to which Scottish HE is part of the wider UK system, the contribution that this makes to the Scottish economy and the support of the Scottish Executive for this position.

36. Scottish domiciled applicants formed around 6% of the total applicants to all UK medical schools in 2001/02 (7% of home applicants), but about 8.5% of entrants (9% of home entrants). **It will thus be seen that the proportion of Scottish domiciled entrants is no higher than the Scottish population proportion despite the higher proportion of Scottish medical school places. Furthermore unless there is an increase in Scottish domiciled entrants the expansion in the rest of the UK will mean that the figure will fall to around 7%, markedly below the Scottish population proportion.**

37. We note above that rather over half the entrant (51%) and graduating (56%) students in 2001/02 were domiciled in Scotland. Information on the numbers in the third and fourth years of the courses in that year indicates that the proportion of graduating students in the immediate future will be nearer 50%. These figures naturally vary year by year, but it is a reasonable generalisation to say that 1 in 2 of the graduates of the Scottish medical schools are domiciled in Scotland. There is some evidence

that this proportion has declined in recent years – analysis of the MCRG data described in Appendix B shows that some 60+% of the 1988 graduates from the four Scottish schools who responded in 1999 were domiciled in Scotland at entry. Another study (*An analysis of trends in applications to medical schools* – see appendix D) records a 13% reduction in entrants with SQA Highers between 1996 and 2000. Part of the decline arises from an increase in the number of students from the rest of the EU and from overseas.

Graduates from the medical schools

38. Information enabling one to track the careers of graduates of the Scottish medical schools is not routinely available. We have, however, analysed the MCRG data described in Appendix B, restricting the figures to those which show the position of doctors five or more years after graduation. The three cohorts show consistent patterns – about 2 in 3 of those Glasgow graduates who continued to make returns are working in Scotland, rather over half of Aberdeen graduates, around half of Edinburgh graduates and rather under 2 in 5 Dundee graduates. (We deal with St Andrews in a separate section of the report). Overall rather over 1 in 2 of the graduates of Scottish medical schools (including those from overseas) were working in Scotland. The original cohorts of course vary in size between universities. We have analysed the 1999 working position of the 1988 graduating cohort, since with a 72% response rate it provides the best information. 95 Glasgow graduates who responded are working in Scotland in 1999, with 71 from Edinburgh, 40 from Aberdeen and 25 from Dundee. These 231 graduates are 55% of the 418 in the survey who graduated from those schools. A negligible number of those Scottish domiciled students who trained outside Scotland were working in Scotland. However, and most significantly for our present purposes, 69% of the graduates who were Scottish domiciled when they entered medical school were working in Scotland, but only 31% of those who were domiciled elsewhere. **Thus, graduates in the 1988 cohort who were domiciled in Scotland at entry are 2.25 times more likely to be working in Scotland 11 years later than those domiciled elsewhere.**

39. NHS figures are consistent with this pattern. The count of consultants employed in NHSScotland in 2002 mentioned earlier shows some 30% trained in Glasgow, 20% in Edinburgh, 10% in Aberdeen, 5% in Dundee, 25% in the rest of the UK (including 5% in Manchester, many of whom will have started in St Andrews) and 10% in the EU or overseas. The equivalent figures for GP principals in Scotland are some 35% from Glasgow, 20% from Edinburgh, 15% from Aberdeen, 10% from Dundee, 15% from the rest of the UK (again with 5% from Manchester) and 5% from the EU or overseas.

Implications

40. **We draw a number of conclusions from these figures. *First*, the Scottish medical schools generally, and Scottish domiciled students within them in particular, are very important to NHSScotland. We believe that it is right that with funding provided by the Scottish Executive the needs of NHSScotland should be taken into account by the schools, and that serious consideration should therefore be given to increasing the proportion of Scottish domiciled students in the schools. *Secondly*, both NHSScotland and the Scottish medical schools are part of wider UK and international networks. However, while entry to the medical schools is widely spread, this is less true of the labour market for doctors in Scotland. *Thirdly*, workforce planning decisions can only have partial effects, since aggregate student intake and later career patterns are the sum of a large number of individual decisions.** However, before making recommendations about student numbers we pursue issues of the diversity of medical students and of the place of St Andrews in Scottish medical education.

Increasing the diversity of medical students

Widening the range of applicants

41. Widening access to higher education has been a national (UK and Scottish) objective for a number of years, and our terms of reference ask us to consider this issue for basic medical education.

42. SHEFC publishes university-wide benchmarks (performance indicators or PIs) for the proportion of students both from social/economic classes IIIm to V and from state schools. For the five universities with medical schools the benchmark and actual figures in 2002 are shown in Table 3.

43. These PIs do not require every part of a university to achieve the benchmark figure. It is, however, worth noting that only 10% of Scottish domiciled entrants to medicine in the five schools whose social class data are known were from social/economic classes IIIm to V in 2001, compared with university benchmarks ranging from 19% to 24%. This is in line with experience throughout the UK. It is sometimes believed that this low figure is a product of the selection process, but analysis of applications shows that this is not so since 11% of applicants were from the same classes. Our analysis of UCAS data shows that the proportion of Scottish domiciled applicants to Scottish medical schools who are successful is above 80%, and that this figure does not vary significantly by social class. The implication is that the remaining 20% will either not have met the entry criteria set by the Scottish universities, or will have failed for reasons other than their academic qualifications. Thus, there is at present only a very small or even non-existent pool of applicants beyond those accepted.

44. It is important to examine the nature of the Scottish school leaving cohort in terms of school types and qualifications achieved. Medical schools set demanding (in terms of SQA Higher grades) and restrictive (in terms of subjects to be included and year of achievement) entry requirements. Our analysis of successful candidates in the 2002 SQA Higher examinations shows that these restrictions mean that only some 1300 S5 candidates from publicly funded schools and 400 from independent schools in Scotland meet the requirements of Dundee and St Andrews, representing only 2-3% of the total S5 roll in publicly-funded schools and some 10% of that in independent schools. The figures for Aberdeen and Edinburgh which require higher grades are 900 and 300. The most demanding requirements are those of Glasgow, with higher grades and a requirement for Higher Biology; only 440 and 180 of the candidates respectively are available. These pools need to be compared with the entry figures in Table 1. They represent of course the best qualified candidates in Scottish schools with science qualifications, so that all other science and technology (and indeed other) degree courses will also be seeking to recruit these potential students. Our analysis of UCAS applications for entry to the medical schools in 2002 shows that there were 738 with Scottish domiciles. An unknown number of these will be independent school candidates sitting A levels rather than Highers, but the conclusion must be that the medical schools are already attracting applications from around half the best qualified S5 candidates.

45. One particular restriction applied by the medical schools is that five Highers be sat in S5. We understand that many secondary schools cannot meet this requirement. If S5 and S6 results are taken together the publicly- funded school pool increases by nearly 40% to 1800 for the less demanding qualification and the independent school one by 12.5% to 450. The increase is partly due to more candidates from the original schools, but also to some from extra schools which did not feature in the original analysis. However, under both scenarios, there are a small number of candidates from a wide range of schools. It is very likely that the list of schools will vary year-on-year depending on the ability and choices of candidates. Although the numbers do increase substantially, it is not possible to say with any certainty that widening entry requirements will consistently widen the range of schools. Removing subject restrictions but retaining grade demands produces maximum pools of 3300 and 850, but would almost certainly require many students taking a preliminary year (of the kind available in Edinburgh) to bring their scientific knowledge up to the requisite level.

46. **We conclude from this analysis that the Scottish medical schools need to give more attention to the realities of secondary education in Scotland in order to increase the proportion of Scottish domiciled students in the schools and thus the number of doctors in Scotland.** They should for example consider removing the restriction that five Highers must be obtained in a single sitting, and lowering the academic minima in terms of Highers for entry to the selection process. Moves such as these will achieve the desirable objective of increasing the numbers of Scottish applicants and will widen the range of Scottish schools from which they come.

47. However, by itself this will only have a limited effect on social/economic class diversity, and further widening will need to be secured in other ways. The problem, as is well known to those involved in encouraging wider access to universities, is to increase the diversity of applications. All universities devote considerable energy to participation in schemes such as the Lothian-wide Lothian Equal Access Programme for Schools (LEAPS), the Glasgow-based Greater Opportunity of Access & Learning with Schools (GOALS), the Edinburgh University Pathways to the Professions, and Summer Schools such as the Aberdeen Summer School for Access Programme.

48. **Four means of widening access suggest themselves:**

    1) an intensification of existing initiatives;

    2) new initiatives to work directly with schools in disadvantaged areas to identify potential candidates early in their school careers, followed by active mentoring and encouragement of them including opportunities to observe doctors in practice in different settings;

    3) the development of foundation courses to bring able students with potential up to an appropriate standard. There are already some courses of this kind, and all the schools are anxious to develop them. There should be discussion about the possibility of a Scotland-wide programme, locally delivered. Such courses might also be organised jointly with other science based and/or health professional undergraduate courses; and

    4) building collaborative links with FE colleges. Many 'Access to HE' courses and non-degree HE courses in Scotland take place in FE colleges. The medical schools should look to articulation with the FE sector by exploring the extent to which existing courses in FE colleges provide a basis for entry and whether appropriate new courses might be developed. It may well also be that FE colleges would be the most appropriate location for foundation courses.

49. We note with considerable interest that in England the Department of Health and the Higher Education Funding Council for England (HEFCE) have recently announced new funding in support of widening participation in medicine and healthcare courses.

50. We discuss and make recommendations about arrangements for joint action on admissions by the medical schools in later paragraphs.

Diversity through graduate entry

51. Another source of diversity in medical students is graduate entrants. The Scottish medical schools already admit a noticeable number of graduates to their standard courses. 86, or 9.5% of the 909 entrants in 2001/02 shown in Table 1 already had a first degree, of whom 75 had one from a British university. Entry requirements for these students are demanding, usually at least a 2.1 degree, with additional school level science qualifications if the degree is not relevant. Places are limited, so as not to displace school leaver applicants, and since demand is high, acceptance rates are low. Such limited evidence as is available on the social class of graduate entrants indicates that it is not much different from that of school leaver entrants, which is perhaps not surprising given the difficulties of student support during a second first degree.

52. We believe that graduate entrants contribute to diversity in a different way. **Diversity is not just about widening participation and entry from those from disadvantaged backgrounds. It should also include those with greater maturity, different experiences, different motivations, and from other disciplines. This has an important effect on the profession and on the learning process.**

53. Our terms of reference require us to consider the possibility of fast-track graduate-entry medical degree courses in Scotland. Two views have been expressed to us about such courses. The first is that accelerated four-year courses only contribute additional graduates to the pool in the single year of their first output, that there are already a good number of graduates on five-year courses and that separate distinctive courses are expensive to mount; therefore there is no reason to invest in them. The second is that the shorter course is attractive to a wider range of graduates, and is a good use of resources by virtue being shorter; therefore they should be invested in. The second view has prevailed in England, where there has been a considerable development of such courses as part of the expansion of medical school numbers. The proportion of UK domiciled applicants with first degrees rose from 10% for the 1997 entry to 19% for the 2002 entry. In 2003 more than one in five of the 14,000 applicants to medicine through UCAS are for accelerated four-year courses, even though in October 2002 only some 270, or 4% of the total entrants, entered these courses (the number of available places will have risen to some 550 by 2005). Only some 100 of the 2003 applicants are resident in Scotland, reflecting the non-availability of such courses here.

54. The first Temple report (para 112) described such courses as *'mature entry'* and suggested that entrants could come *'from general education backgrounds, relevant first degrees in the life sciences, or other health professions with appropriate recognition for prior learning'*. It remains an open question whether such a course should be open to candidates with any graduate qualification or equivalent professional background or experience, or whether evidence of relevant science knowledge is required. As the Temple report implies, it may well be possible for special account to be taken of students who have successfully completed degrees in other health professional subjects; amongst those will be some who have first come into higher education by 'access' routes. We know that more than one Scottish medical school is in principle interested in mounting a four-year course, and believe that this question should be left for decision by the university that does eventually offer the course.

55. It is important that there is clarity about the funding of a course restricted to graduate entry. The places on existing courses occupied by graduates are funded by SHEFC on exactly the same basis as those for school leaver entrants (although the students pay their own tuition fees, since they are not eligible for support from the Student Awards Agency for Scotland (SAAS)). The Funding Council has assured us that such funding is also available to universities for places on courses specifically designed for graduate entrants, provided that the places are included in the overall number of funded places and the tuition fee levels are the standard home fees. In some other disciplines with such courses (in law and veterinary medicine for example) students are required by universities to pay full cost fees, and consequently no funding is provided by the Funding Council.

56. There are, however, issues about the support of students on second first degrees. Student support arrangements were specifically ruled to be outside our terms of reference. We would only comment that if our recommendation of a graduate entry course is accepted, student support arrangements (including arrangements for the payment of tuition fees) will need to be reviewed to ensure that entrants from a wide range of backgrounds are not prevented from taking this course for financial reasons, and that the use of Health Department bursaries, analogous to those already paid to medical students in their fifth and later year, may be necessary.

57. **As we have said, we do regard graduate entrants as contributing to diversity, and we believe that diversity is further enhanced by the opportunity to apply to an accelerated four-year course. Given the evidence of demand in England, we conclude that there should be one such course created in Scotland. The precise nature of the course should be decided following further consideration of experience in England to date.**

Diversity through overseas students

58. As we indicated in para 33 no more than 7.5% of the total number of students specified by the Funding Council may be used for students from overseas (other than the EU). These students pay full fees, and no Funding Council funding or any student support is available for them. The 7.5% quota was established throughout the UK a number of years ago, before the expansion of medical school places, and was originally imposed to ensure that overseas students did not overstretch NHS resources during clinical placements and in subsequent postgraduate training. There were some 800 applicants for the 67 places in Scotland filled in 2002. Universities often prefer to accept students from countries where medical training is either unavailable or restricted.

59. In the light of the continuing fall in the Scottish population described in para 4, the First Minister has recently urged that Scotland should welcome those seeking to settle and work here, and in particular that overseas students in Scottish colleges and universities should be encouraged to stay on after they graduate. We have therefore considered whether overseas student places, perhaps increased from the present levels, might be seen as a contribution to increasing the number of doctors in Scotland. We have reservations about this. Firstly, admission priority would need to be given to students prepared to stay in Scotland, rather than as at present being a contribution to training doctors worldwide. We would regret this. We also think it would be short-sighted, as Scotland would no longer be establishing long-term relationships with medical practice in a wide range of countries. Secondly it is not clear whether it is possible to identify in advance students who intend to make their career in Scotland, given the long period of basic and postgraduate medical education. However we recognise that the Scottish Executive is giving significant priority to this general policy, and has established a group to realise its key aims, including retaining graduates, under the umbrella title of *Fresh Talent*. The Scottish Executive group and the Health Department may therefore wish to pursue this issue.

The place of St Andrews in basic medical education in Scotland

St Andrews – the background

60. St Andrews differs from the other four Scottish schools and indeed from all other medical schools in the UK. It currently admits students to a three-year general degree in Medical Science, with the possibility of a further year for an honours degree. On graduation students need to transfer elsewhere for a further three years of clinical studies. The great majority of St Andrews' graduates transfer to Manchester under a long-standing structured arrangement between the two universities.

61. A pattern of this kind used to be familiar in British medical education. The distinction between preclinical and clinical studies was marked within most medical schools, and transfer between institutions was not unusual –
e.g. Cambridge graduates transferring to the free-standing medical schools within London teaching hospitals. However, subsequent development has seen the incorporation of separate clinical medical schools, especially in London, into university institutions, and the development of full courses including clinical education in all universities. All the new medical schools established in England in recent years combine both elements. Most importantly, the development of new curricula following the publication of *Tomorrow's Doctors* has ensured that integration of 'preclinical' (or more properly science based) and clinical studies throughout the curriculum is now the norm.

62. The first Temple report describes St Andrews students as *'moving out of the Scottish system'* and says *'if this arrangement were to be modified additional numbers of potential doctors could be retained in Scotland.'* It is also noteworthy that in comparing the Scottish and English systems it includes St Andrews student numbers within England.

63. Given this situation, we have been asked to give special consideration to the future provision of medical education in St Andrews – the 'St Andrews question', as we understand the position to be known.

The St Andrews question

64. We have had helpful and constructive discussions with representatives of St Andrews. We put to them seven possible scenarios for the future, including retention of the present arrangements, development into a full medical school, transfer of funding for the medical student places in St Andrews to the other four schools, amalgamation with one of the other schools, and arranging for St Andrews graduates to undertake their clinical studies in one or more of the Scottish schools.

65. It is important to recognise that St Andrews is introducing significant change to its course in 2004. The course will become a three year one leading to an honours degree in Medical Science. It will remain strongly science based, but will include an increased level of clinical work, especially in primary care. This has been planned collaboratively with the NHS in Fife, with the support of both Edinburgh and Dundee universities. The total period of training will thus be six years, the same as that of the substantial minority of students in the other schools who intercalate a year to gain a BSc degree as well as a medical one. A number of English medical schools (eg Oxford, Imperial, Cambridge) run similarly structured courses. St Andrews is continuing to invest in its medical school and is appointing staff with clinical involvement.

66. We have sought to explore the long-term career location of St Andrews students. The University has told us that it has evidence that 30% of its former students graduating from Manchester return to Scotland. However, the cohort studies described in Appendix B indicate that for cohorts five or more years from graduation 23% to 27% of those who continued to make returns were located in Scotland (with the exception of the 2001 position of 1996 graduates). Analysis by the Health Department of doctors graduating from Manchester indicates lower figures. The yield to Scotland has thus been no more than one in four of St Andrews graduates. Not surprisingly this is a lower figure than for the other four Scottish schools.

67. In considering the position we have taken into account the following points:

- The St Andrews curriculum is, and will continue to be, distinctive in its emphasis on a sound scientific base as a precursor to clinical studies. Such distinctiveness should be retained in the interests of national diversity in medical education.
- The St Andrews curriculum could be said to be out of line with current medical education practice. However, clinical experience is being enhanced, and its inclusion is currently planned with Manchester and could be with other universities.
- St Andrews has been relatively less successful in attracting undergraduate students. Its basic academic requirements are at the lower end of the (admittedly limited) spectrum.
- With a relatively small intake, and a curriculum covering the full range of the medical sciences and some elements of medical practice, it is doubtful whether St Andrews has attained a critical mass.
- St Andrews location in the east of Scotland, along with three of the other four schools, and its location away from major centres of population (other than Dundee), means that any attempt to increase clinical involvement towards a full medical school will be difficult.
- A number of St Andrews graduates already join later years of the Edinburgh course. Both universities would be happy to develop this link.
- Both St Andrews and Manchester are happy with the current arrangements and wish them to continue.
- The NW of England has a larger population than Scotland but no more medical school places. Retaining St Andrews students in Scotland would disrupt English allocation of student numbers.
- Assuming that one in four of St Andrews/Manchester graduates return to the Scottish NHS, this is a reasonable financial deal for Scotland, since the most expensive part of the education falls on English HE/NHS funding.
- Only around half of St Andrews students are of Scottish domicile. The move to Manchester for clinical training, and thus the likelihood of retention within the English NHS, brings into question the provision of Scottish Executive funding. It can, however, be argued that the SHEFC should have a UK-wide mission.

- Any changes that reduced or eliminated the flow of clinical students to Manchester would have significant effects on that university and on its contribution to the NHS in the NW of England. The student numbers and resources currently consumed by St Andrews graduates (up to 100 per annum) in the three clinical years would presumably not be lost to Manchester but would need to be spread over the full five years, resulting in a smaller overall student body and graduate output. It would fall to the HEFCE to allocate any additional places to restore the position.

St Andrews – the future

68. In considering our approach to the St Andrews question we have paid particular attention to the transfer to Manchester for clinical studies. Our aims are:

    - To incorporate St Andrews more fully within Scottish medical education
    - To ensure that Scottish domiciled students can complete all their education in Scotland
    - To enable non-Scottish domiciled students to complete all their education in Scotland.

69. **Our key conclusion is that St Andrews should withdraw from its link with Manchester as the primary provider of clinical studies for its graduates, and ensure that the majority of its students are trained within Scotland.** Depending on the arrangements made to achieve this, it might be appropriate for a proportion of its graduates to continue to train in Manchester, since this would retain the investment in the existing link, diminish disruption in Manchester, and could benefit students with non-Scottish domiciles.

70. We believe that this would increase the proportion of St Andrews graduates who work in Scotland. As we set out above, the current intake of around 100 produces up to 25 doctors in Scotland. If we assume that 25 continue to train in Manchester and do not return to Scotland, this will mean 75 students, mostly of Scottish domicile, completing their training in Scotland. We estimate that this will result in some 40-50 doctors in Scotland, a gain of between 15 and 25 every year. The cost will be the cost of some 75 students for the clinical years.

71. If this change can be achieved, we would not support the withdrawal of student numbers from St Andrews, since this would involve the loss of a distinctive approach and of St Andrews investment in medical education, and the termination of a long tradition of medical education. However, we do not believe that St Andrews can ever become a full medical school. We doubt whether Scotland can afford or the Scottish NHS needs investment in a fifth full medical school unless there is a very substantial increase in student numbers. Its location in the east also creates very substantial practical difficulties. St Andrews agrees with this assessment.

72. There are two ways of achieving our aims

    - The first is the amalgamation of medical education in St Andrews with that in Dundee. There are links between the two universities already, including the recent establishment of a joint Social Dimensions of Health Institute. Research links of this kind are different from the creation of a fully-integrated curriculum, but St Andrews and Dundee already have experience of jointly-run and awarded degrees, based in their two separate, reasonably convenient but not contiguous sites. It is noteworthy in this context that many of the newly-created degrees in England are based in two universities, in many cases more widely separated than Dundee and St Andrews. The increase in clinical activity implicit in such amalgamation would also require careful and Scotland-wide collaborative management. An alternative is amalgamation with another Scottish university. The physical distance between St Andrews and any university other than Dundee and the lack of existing links would increase difficulties.

- The second is partnership, with retention of an undergraduate curriculum and numbers in St Andrews, and transfer into one or more of the four Scottish schools for clinical study. Such transfer already takes place at the margin, especially to Edinburgh, and that university at least would welcome more St Andrews students. This change could be phased in over a number of years, to ease the resulting problems in Manchester.

73. There should not be an assumption that all future students entering St Andrews should undertake a six year course. Discussions about amalgamation or partnership will need to review the distribution of study between the institutions involved and to consider whether a total of six years (as for a medical and an intercalated science degree in the other schools) should be available to none, some or all of the students. Any new arrangements would of course require GMC approval.

74. We do not believe it is necessary for us to decide between these two routes to our objectives at present. **It will be much better for St Andrews to consider its position in the light of our report, and to discuss possibilities with all its potential partners, before they jointly put forward proposals to SHEFC so that a decision can be made on the way forward.**

Medical student numbers in the future

Additional medical student numbers

75. **We have already stated our belief that NHSScotland does need more doctors, and that the scale of the problem is so great that contributions to meeting it must come through a number of routes.** Those highlighted by the first Temple report, and described in para 28 above are very important, and have the potential to produce results in the short to medium term. **We believe that the status quo is not an option for medical education in Scotland. Increasing the supply of doctors through increasing the number of medical students in Scotland, in particular those with Scottish domiciles, is necessary and important, recognising that it will have an effect in the longer term. We have also emphasised our belief that more can and should be done to increase the diversity of Scottish medical students. Our recommendations link these two beliefs. We also believe that St Andrews should be incorporated fully within Scottish medical education, and that the Scottish medical schools should seek to increase the proportion of applicants and entrants domiciled in Scotland.** In the light of the discussion in the preceding sections, **we recommend that:**

- **The Scottish Executive makes it possible for SHEFC to fund an additional 100 places per annum in Scottish medical schools at the full rate applied to all such places; but that SHEFC and the universities jointly agree mechanisms by which these places be specifically restricted 1) to schemes and courses that increase the diversity of Scottish medical students, including but not limited to access schemes, foundation year course(s) and accelerated four-year course(s) for graduate entrants, and 2) to students likely to be committed in the long term to the Scottish NHS.**

- **The Scottish Executive make it possible for SHEFC to fund one or more Scottish medical school(s) to enable them to provide clinical education for St Andrews students under arrangements for amalgamation or partnership agreed by the universities in question and by SHEFC.**

- **The Scottish medical schools individually and collectively seek to increase the proportion of applicants and entrants domiciled in Scotland.**

76. **The current graduating output of the Scottish medical schools is around 800** (see Table 2 in Appendix A) **and implementation of our recommendations will increase it to between 950 and 1000, an increase of 20% to 25%. Predicting the future careers of these graduates is not straightforward, but based on the evidence described above, we estimate that this investment will provide Scotland with around 100 additional doctors a year to add to the 450 Scottish medical graduates from each year who work in Scotland, also an increase of 20% to 25%.** We assume that up to 75 of these will come from the 100 new places and up to 25 from training St Andrews graduates in Scotland, together with those who result from the increased proportion of Scottish domiciled students in the medical schools.

77. **These increases in the number of medical graduates and consequently of doctors working in Scotland are substantial. Implementation of the new places and of the retention of St Andrews students in Scotland should both be phased. We envisage a first phase providing 50 new places per annum, and up to 50 places for the clinical education of St Andrews students.** We recommend below the further development of workforce planning and the full participation by the universities in that. Creation of the remainder of the funded places we recommend should be reviewed in the light both of that information and of the success of the medical schools generally in admitting more Scottish domiciled students. This review should be undertaken by the Board for Medical Education in Scotland that we propose later in this report.

We also believe that this should not be the end of the process of reviewing student numbers. It may become clear from workforce planning work that even more medical student places are required to ensure an adequate supply of doctors for NHS Scotland. **We therefore recommend that:**

- **Implementation of the additional funded student places be phased, with a first phase providing 50 new places per annum, and up to 50 places for the clinical education of St Andrews students, and kept under review over the next two-three years in the light of the development of workforce planning information; and that student numbers in the Scottish medical schools (as increased by our recommendations) be further addressed thereafter in the light of that work.**

Capacity in the universities and the NHS

78. We have discussed increased student numbers with all the universities, and are satisfied that capacity exists for a limited increase. There may in some cases be limitations arising from physical constraints, which could only be overcome by capital expenditure. We believe however that these are matters to be addressed during any implementation phase, about which we say more below.

79. We have also discussed NHS capacity for an increase in clinical training. We deal with this also in more detail below, but again we are satisfied that capacity exists, especially through greater use of clinical skills training centres and, for patient-focused activities, a wider range of NHS settings.

Funding of student places

80. Throughout our discussions, we have made it clear that any expansion of student places must be funded by the Funding Council at no less than the full current rate, and that there is no place for marginal cost expansion.

81. The universities have pointed out to us that medical student places in Scotland continue to be funded by SHEFC at a lower rate (even after recent increases) than those in England funded by the HEFCE. Perhaps more importantly, Scottish medical schools are very concerned about the possible effects of proposed changes in English HE funding policy, including the ability of universities to charge so-called 'top up' fees. If implemented, this could leave Scottish medical schools with a much greater resource disadvantage to their English colleagues; at the same time they may find themselves facing much higher demand from well qualified English domiciled students seeking to avoid the higher fees, but with little or no intention of making a long-term commitment to Scotland. These issues are of course not unique to medical education, and affect HE generally in Scotland. They are however potentially more severe in their effect on medical education, because of its high cost (to the state and the student), and because of the detailed control of student numbers. **We recommend that:**

- **The Scottish Executive and SHEFC take special account of the position of medical education in their review of the effects on Scottish higher education of changes in the funding regime in England.**

82. We have already commented on the existing levels of support for access work. This work is resource demanding, and is in part supported by earmarked grants from SHEFC funds held for this purpose. If Scottish medical schools are to expand their work, additional resource will be necessary beyond the funding of the places themselves. We noted above the recent allocation of such funding in England. **We recommend that:**

    - **Additional funding be provided to the universities to cover the additional costs of establishing and maintaining schemes and courses that increase the numbers and diversity of Scottish medical students; and that the ETLLD & the Health Department jointly consider whether these funds are a proper charge on the higher education or the health workforce budgets.**

83. There is one further significant funding issue which relates to NHS funding of the costs incurred through student clinical placements, known as Additional Cost of Teaching or ACT. We deal with this in para 111 below, but wish to emphasise at this point that this is a funding issue that needs to be addressed not only in respect of additional student numbers but more importantly also in respect of existing students.

Implementation

84. In order to allocate the additional funded places, SHEFC will first have to agree, in consultation with universities, the detailed restrictions and conditions for the additional places, so that they meet the specific objectives of our recommendations. In doing so account will need to be taken of their relationship to existing places that may be occupied by 'access' students. We hope that some arrangement can be entered into by which the additional places are ring-fenced from existing places in medicine. We do, however, recognise the need for entry to university to be non-discriminatory. Thereafter universities should be invited, singly or in association, to propose for funding schemes and courses which meet those conditions. In doing this they will have to provide evidence of physical capacity, or of any additional resources needed to acquire that capacity, and to indicate how clinical training will be provided, including how any additional demands on the NHS will be met. When allocating the additional medical school places in England, the DfES and DOH acted jointly to set up a bidding system, run over a number of years. We do not envisage such a complex scheme for a relatively small expansion (of some 11% of entrant numbers) for a limited group of universities on a phased basis, and believe that it is quite likely that the Scottish medical schools will be able to agree a distribution among themselves. They will for example need in any case to decide whether a foundation year programme should be available in one or multiple locations, while individual university capacity to expand may be physically constrained. We see this process as one further avenue for extending collaborative working between the schools.

85. The SEHD and SHEFC will need to discuss the implications of the transfer of the clinical education of St Andrews students to Scotland for the funding of medical school places in England with the DoH and HEFCE.

86. We are sure that the additional numbers, including clinical study for St Andrews graduates, can be accommodated within the existing medical schools. However, any larger expansion either now or in the future might well, depending on its size, imply the need for new arrangements. These might involve a completely new school, or satellite arrangements between existing schools and other organisations, which might be existing outlying campuses, other universities or colleges, or teaching units created on NHS sites. If larger expansion were contemplated, there would be some advantage in such arrangements, which would usefully increase the geographical diversity of medical education in Scotland, to the advantage of associated NHS hospitals and other bodies.

More workforce planning

87. As we have said, we do not believe that our recommendations for increased student numbers should be seen as the end of the matter. Although the work reported in the second Temple report is a useful start, **more work needs to be done by the newly established workforce planning arrangements in NHSScotland to further its understanding the flows and career patterns both of qualified doctors and of medical students**. Too little is currently known by planners about the patterns of postgraduate training and career post choice, and about the relationship of these to the prior characteristics of the individuals such as long-term family domicile, choice of medical school, and choice of posts in the PRHO year. They need information not only about doctors in training and in post, but also about the medical students who will become those doctors in the future.

88. We hope and anticipate that after say, two years' development of the information base, it will be possible to achieve a clearer understanding of the patterns. However we add the caveat that the long run experience of the difficulties of detailed manpower planning (as it used to be called) means that precise tools may never be achieved. We also believe that a similar approach is likely to be necessary to understand the dynamics of recruitment to other staff groups in the NHS, especially other health professionals. Workforce planners will thus need to make doubtless difficult decisions about the priority to give to work on different staff groups.

89. **We recommend that**

- **Health Department/NHSScotland workforce planning arrangements develop their work on the demand for and supply of doctors and on doctors career patterns.**

- **These workforce planning arrangements work in conjunction with the universities, SHEFC, ETLLD and UCAS to secure systematic information on application and entry to, and graduation from, medical schools.**

90. One further issue arising from expansion of student places is its effect on subsequent postgraduate training, including in particular the PRHO year and any successors to it. Two strongly diverse opinions have been put to us. The first is that there should be as many PRHO places as there are graduates (and indeed that the current numbers should be expanded so that this is achieved with current student numbers), so that every graduate of a Scottish medical school can commence her or his training in Scotland, thus increasing the opportunity to NHSScotland to retain them in the long term. The second is that there is already a considerable imbalance between training and substantive posts in NHSScotland to the disadvantage of the latter; any available NHS funds should be concentrated on increasing consultant and GP principal posts, not on yet further increase in training posts. Implementation of the Government's programme for *Modernising Medical Careers* which includes a two-year foundation programme immediately following graduation will mean that this issue will need to be resolved. These issues are outside our terms of reference, and must be decided within the Health Department workforce planning arrangements. However, it is important the position is clarified, so that universities can advise potential students about their prospects after graduation. Those responsible for the PRHO year and its successor should, however, note the numbers of Scottish domiciled students in the University of Newcastle and seek to provide training opportunities for them within Scotland.

The selection and entry process to medical school

91. All the Scottish universities take the admissions task very seriously, and have developed various and different mechanisms for looking beyond mainstream academic achievement to assess potential. Most of the universities use carefully structured interviews. Edinburgh does not normally interview, and uses a scoring system, where two selectors independently assess both academic potential and non-academic qualities. The latter cover personal qualities, the extent of career exploration, and achievement in non-academic activities. The interview schedules used by other universities will cover the same ground. (It is worth noting that Edinburgh University has recently decided to adopt versions of its scoring system on a university wide basis, as the key tool in its effort to widen the diversity of its undergraduate entrants).

92. We have been particularly impressed with the Glasgow-led project which is exploring the value of psychometric testing in the admissions process. All the applicants to Scottish medical schools for entry in 2001 and 2002 who are resident in Scotland were invited to sit a battery of assessments. These included a problem-solving component, an assessment of moral and ethical reasoning, and questions exploring particular personality traits that might be important in a doctor of the future. The assessments have not been used in the selection process, but it is expected that the results of this research will be a new selection instrument specifically aimed at assessing potential. There is also the possibility that a version of this instrument could be used at an earlier stage in students' school careers to assess their suitability for medicine.

93. Such tools are widely used in Australia, and are currently coming into use elsewhere in the UK. The Universities of Oxford and Cambridge and UCL, for example, are administering a Biomedical Admissions Test, developed to measure critical thinking rather than knowledge, to applicants for entry in 2004. The Australian-based Graduate Australian Medical School Admissions Test (GAMSAT) is now used for entry to the accelerated four-year graduate entry courses in England.

94. We have already indicated the extent to which all the universities devote considerable time and energy to encouraging wider access. The emphasis we have placed on increasing the diversity of medical students and the proportion of Scottish domiciled applicants and entrants, and our recommendation on the allocation of additional student numbers in support of this process, will require further increases in the already considerable resources that are devoted to the entry process, both by university staff and by their NHS partners. The key resource is that of trained staff time.

95. Our analysis of the UCAS applications for entry in 2002 shows that the 738 Scottish domiciled applicants made on average 3.1 applications to the five Scottish schools. The figures for other groups are 2.1 applications for the substantial number of applicants (432) from Northern Ireland, 1.5 for those from the rest of the EU and overseas and 1.2 for those from England and Wales. The implication is that the medical schools devote a considerable effort to assessing the same individuals, especially those from Scotland and Northern Ireland. Indeed one of our correspondents described the combined selection effort of the five schools as *'mainly acting to dictate not who enters medicine but rather only to which medical school they go'.*

96. We have already commented favourably on the extent of co-operation between the Scottish medical schools, and will do so again in other areas. **The decision to admit an individual student is a key element in the academic freedom of British HE institutions, and we do not wish to change this. However, the extent of overlapping selection activity, the development of new selection instruments, the extension of access activity and the need to review entry restrictions for Scottish school students and to take account of the needs of NHSScotland all point towards much greater joint activity, while the relatively small number of institutions and the Scottish dimension provide a unique opportunity. We therefore recommend that:**

- **The Scottish medical schools establish a single body to ensure and enable greater diversity of students, to review the relationships between secondary and further education in Scotland and entry to medical school, to lead the development of new selection instruments, and to integrate the processing of applications while leaving the final decision to individual schools.**

97. The composition and reporting arrangements for this body will need further discussion between the universities. We have already recommended (para 87) closer links so that the universities provide systematic information on applicants, entrants and graduates to the Health Department to improve workforce planning. The body we propose will be well placed to do this, and it should therefore involve close links with the Health Department and with NHSScotland. It must interact with other parts of the education system and will thus need links with other Scottish Executive departments, both Education and Enterprise, Transport and Lifelong Learning, and with both the HE and FE Funding Councils. Entry to medical school is of considerable public interest, and the new body will need to ensure that new arrangements and procedures are transparent. We recognise that developing such a body, and deciding what it should do collectively and what should be done locally on its behalf, will be a demanding task. Nevertheless **we believe that a collaborative approach to the search for greater diversity will pay dividends, and that it has the potential to play an important part in promoting medical careers in the Scottish NHS.**

The medical curriculum

98. The General Medical Council first published *Tomorrow's Doctors* in 1993. This version of its guidance to medical schools on curricula signalled a significant change. The emphasis moved from gaining knowledge to a learning process that includes the ability to evaluate data as well as to develop skills to interact with patients and colleagues. Following this all medical schools introduced new curricula. We have been particularly impressed by the radical new integrated curricula introduced by the four full Scottish medical schools, and in the substantial changes in teaching and learning that have resulted, including problem and task-based learning. Curricular innovation has continued, and more will be needed following the publication in 2002 of a revised edition of *Tomorrow's Doctors*. Although all now integrate scientific, clinical and skills education and training, each has distinctive features, thus ensuring a range of approaches across the schools. There has been and continues to be considerable collaboration between the schools in curricular development, with a standing body (the Scottish Deans Medical Curriculum Group) keeping issues under review. The Group has been responsible for an agreed statement of learning outcomes in *The Scottish Doctor*. We welcome and commend this.

99. There has been considerable joint work between the schools in developing assessments that support curricula and allow students to prove that they have achieved the curricular outcomes. We welcome this, especially moves towards the development of outcome-based assessment common to the Scottish schools in *The Scottish Doctor 2*. Among other things, this will assist links with the needs and expectations of those responsible for immediate postgraduate education in the PRHO year and any successors to it.

100. There has been considerable investment in and development of ICT based learning technologies. We have been kept informed of the development of the International Virtual Medical School (IVIMEDS), an international partnership led by Dundee which aims to become a leader in technology assisted teaching and learning on campus and at a distance, and welcome this as a contribution to the development of widely available high-quality learning units, and to the enterprise activities of Scottish universities.

101. The delivery of healthcare is increasingly a team activity, and consequently inter-professional education has become more important. By this we mean appropriate opportunities, tested by research into outcomes, for medical students to work and learn with students of other health and social care professions. This is more straightforward where such education takes place within the same university, although even then there are often attitudinal and practical problems to be overcome. Where this is not the case, we believe that medical schools should form structured relationships with other institutions to facilitate joint working. We have noted the arrangements in Aberdeen where the University and The Robert Gordon University are cooperating through a virtual Faculty of Health Sciences with this aim. We believe that such joint working will become more important as new professional groups, such as Nurse Practitioners or Physician Assistants, emerge as envisaged in the Wanless report. We make recommendations on this topic in a later paragraph.

Research and development in medical education

102. Notwithstanding all these commendable developments, education in medical schools is seriously squeezed between NHS demands for contribution to service and the university funding system priority given to research achievement. Thirty five years ago the Royal Commission on Medical Education (*the Todd Report*) said: *'We have had to accept, for our purposes, the virtual absence of systematic factual information about the practical processes of medical teaching in Britain and their effectiveness; we have recommended that provision be made for proper study of the aims and methods of medical teachers, as part of a substantial research effort in medical education in coming years'* (p20). Although much activity has taken place since that negative statement, **we believe that medical education continues to deserve and require a higher profile, and in particular that the existing degree of commitment to joint activity in Scotland is an excellent basis for further development. This would provide a unique opportunity for Scottish medicine and would ensure Scotland's international role in medical education. We therefore recommend that:**

    - **The universities create a single Scottish Centre for Basic Medical Education, to lead development and facilitate and encourage collaboration in curriculum and assessment matters and new uses of technology, and to form a base for enhanced research in medical education, including research into and development of the admission process.**

    - **The universities seek to create more specialist medical education posts.**

103. Such a Centre need not necessarily have a single location, and could operate virtually; it is, however, vital that it has dedicated and if possible full-time leadership. One further role should be co-ordination of the education of medical teachers in Scotland. It could also contribute to the research into the medical student population needed by NHS workforce planners. We are aware that funding of medical education research in particular is problematic, and note that medical education does not feature explicitly in the Funding Councils' Research Assessment Exercise. We believe however that the Centre will be better based to secure such funds through its ongoing involvement in development and implementation. We say more about funding below.

104. NHS Education for Scotland (NES) is responsible for education and research in the other health professions and indeed is part funder (with SHEFC) of the Glasgow based admissions research project. It will be important to ensure appropriate alignment between NES and the Scottish Centre for Basic Medical Education.

Clinical education and training

105. Clinical skills training is naturally of fundamental importance for medical students. There has been considerable recent development of Clinical Skills Centres, where students, particularly those in their early years, can learn communication, examination and specific clinical skills within a non-threatening environment away from the pressures and anxieties of actual patient contact. A wide range of learning resources is available, such as a variety of mechanical and computerised models, basic examination equipment, and a bank of trained 'simulated patients'. We commend what universities have already provided and encourage further development. Universities have told us that they find the staffing of these facilities particularly difficult to support. We believe that arrangements where such facilities are shared with those providing health professional education and with those responsible for NHS staff training are most likely to achieve the critical mass of use to support adequate staffing. There may also be opportunities for collaboration between universities in providing the most expensive facilities. **We recommend that:**

    - **The universities and NHSScotland work collaboratively to ensure the most efficient and effective use of Clinical Skills Centres.**

106. Contact with real patients from the early years of the course is however and should remain fundamental to medical education. This already goes far beyond patients in 'teaching hospitals' and includes District General Hospital (DGH) and primary care settings. It is well known that the distribution of higher education places in Scotland does not mirror that of the population, with some concentration of places in the east and of population in the west. This is particularly marked in the case of medical education, with four of the five universities in the east and one in the west. This can be crudely quantified by relating the intake to medical schools to the population of the geographically related Health Boards. The figures (intake per 100,000 population) range from around 9 for Glasgow (including Forth Valley amongst its Boards) to around 25 for Edinburgh and Aberdeen, 30 for St Andrews and 40 for Dundee. These figures can be compared with around 12 for England as a whole once the expansion in medical school numbers has been completed. Given the existing investment in medical education we do not advocate large changes in intake figures to seek to equalise these figures, and we recognise that our recommendations about St Andrews may do little to change them. However, they are clearly one factor in deciding how to distribute the additional places that we recommend.

107. The medical schools already look for clinical education opportunities outside their immediate geographical area, but we think that expansion beyond the major teaching hospitals in the four cities has been on a rather haphazard and unstructured basis. We have already indicated that having discussed the issues with both academic and NHS staff there is ample capacity if properly organised, and if medical schools work with each other to maximise the use of facilities and ensure a rational and equitable distribution between them. **We therefore recommend that:**

    - **The universities collaboratively develop structured relationships for the provision of clinical education in networks centred on each medical school and including the principal 'teaching hospital(s)', DGHs, primary care settings and, if possible, other community medicine settings.**

108. The networks should cover as wide a range of settings as possible, including both remote and rural and deprived areas and primary care and community medicine, with the object of ensuring that all students experience many varieties of medical practice. Opportunities should be sought for the development of DGH based centres away from the four cities on the lines of the links between Aberdeen and Inverness. Glasgow and Dumfries and/or Lanarkshire, Edinburgh and Borders, Dundee and/or Edinburgh and Fife, and Edinburgh and/or Glasgow and the Forth Valley suggest themselves. Such DGH centres (and indeed other DGHs providing substantial clinical education) should be formally recognised by universities, as they already are in some places, with NHS staff holding honorary academic contracts and where appropriate a clinical academic post acting as a focus for educational activity. The use of the title University Hospital might also be considered. We believe that such formal recognition is likely to be of benefit not only to clinical education but also to the clinical services provided by the NHS.

109. In respect of remote and rural areas, we have been made aware of and are impressed by evidence from Australia of the benefits gained both by students and to health service staffing and provision in such areas from schemes that encourage or require students to undertake part of their training there. We believe that the creation of structured networks will assist in the development of such schemes in Scotland, which we think would be desirable.

110. The networks we recommend might be described as Managed Academic Networks, parallel to the managed clinical networks and regional workforce planning arrangements being developed by the NHS. In addition to collaborative planning between universities, they should also be one of the major topics covered by the structured arrangements between universities and the NHS that we advocate below. It may indeed be appropriate for them to be aligned with Workforce Development areas.

111. Proper funding of these networks is essential to their success, and this requires a radical change to the present Additional Cost of Teaching (ACT) process under which NHS resources are made available to those NHS organisations providing clinical training. We have discussed this issue with the group led by Sir John Arbuthnott which has been reviewing ACT funding, and have made it clear that whatever the past history ACT funding must in the future both be transparent and follow students. It must also ensure that provision is made for the real costs which arise from student placements, including those which at present fall on students themselves such as accommodation in remote locations, which although apparently trivial are nevertheless fundamental to their success. These radical changes are essential not only to the support of the additional student numbers that we recommend, but also to the wider use of available facilities we advocate for all students. **We recommend that:**

- **NHSScotland radically change ACT funding so that it is transparent and follows students.**

A Board for Medical Education in Scotland

112. Throughout this report we have commented favourably on the extent of beneficial collaboration achieved by the Scottish medical schools. We have recommended a major new departure in admissions and access activity. We look for increased collaboration in medical education, and in clinical skills training. We also believe that universities should consider collaboration in the provision of clinical academic posts in specialities where the demand in a single school may not justify provision.

113. Although strictly speaking medical research is outside our terms of reference, it is, as we made clear earlier, fully integrated into medical school activity, not least because most clinical academics have research commitments as well as service and education ones. The Scottish schools have a distinguished record in many areas of biomedical and clinical research, as is evidenced by the Funding Councils' Research Assessment Exercise. However the climate for such research is changing, with emphasis on larger teams working in large projects. None of the Scottish schools is large by UK or international standards. Securing research funding has long been a competitive activity between universities. We believe that the time has come for the Scottish schools to consider research areas where their collective interests may be better served by collaboration rather than competition. There are already several good examples of this, one of which is the Biobank initiative. The Scottish universities have recently committed themselves to this collaborative approach to research in other disciplines.

114. We considered the possibility of recommending the amalgamation of the Scottish schools into a single School. We understand that the received wisdom among the smaller American states is that a population of five million is necessary to provide adequate support for one medical school. However, as we have made clear, Scotland, for good historical reasons, already has excellent provision for medical education and research disproportionate to its population and focused on its universities and its four principal cities. There would be serious statutory and constitutional issues in seeking change, and a real risk of damage both to existing provision, and to the external perception of it. We have therefore concluded that the way forward is not amalgamation but the enhanced collaboration that we have already discussed.

115. The current arrangements for collaboration are essentially informal, arising from regular meetings of the Deans of the schools, including meetings with the Chief Medical Officer (CMO), and ad hoc bodies established by them. These have served the schools well, but we think that with the wide range of further collaborative activities that we recommend a much more structured approach is required. **We therefore recommend that:**

- **The universities establish a Board for Medical Education in Scotland, responsible to them for:**
  - **Strategic overview of collaboration between the medical schools.**
  - **Setting and monitoring the objectives of subsidiary bodies responsible for collaboration in individual areas, including *inter alia* admissions, medical education, clinical skills training, and research.**
  - **Collaboration and interaction with other organisations with a stake in medical education, including the Scottish Executive Health and Enterprise, Transport and Lifelong Learning Departments and NHSScotland (including NHS Education for Scotland).**
  - **Promoting Scottish basic medical education as an entity.**

116. Membership of the Board should include the Deans, and possibly other members, of the schools, together with representatives of other stakeholders (either as observers or as members – a matter for discussion between the parties). It may also be appropriate to find ways of representing the public interest. We believe it would be advantageous for the Chairmanship of the Board to be undertaken not by one of the Deans but by a distinguished figure associated with the universities, for example a lay member of a University Court or a current or former Vice-Principal, Principal or Vice-Chancellor. The Board will require dedicated staff, and on a practical basis it may be helpful to associate any such staff with the collective activities that we recommend. The universities might also consider associating such support either with the Council of Heads of Medical Schools or Universities Scotland, both of which are already established to undertake such roles.

117. We believe that the Board will be the right vehicle for monitoring the development of medical workforce planning information and for undertaking the continuing review of medical student numbers in Scotland that we advocate. Since it includes representatives both of the universities and of the other stakeholders in medical education, it is the right body to make recommendations to the Scottish Executive.

118. We envisage funding for the range of collaborative activities coming from a number of sources. The universities will need to invest their own funds. The activities would also be a highly appropriate use for funds retained by SHEFC for supporting collaboration, as recommended in the Scottish Executive's *A Framework for Higher Education in Scotland – the Higher Education Review: Phase Two* (2003). Some of them would also be an appropriate use of NHS Research and Development funds, and in so far as they foster links, of mainstream NHS funds. The Scottish Centre for Medical Education may also be of interest to trusts and foundations.

Collaboration between the universities and NHSScotland

119. The Board and its subsidiary bodies will substantially increase the already extensive collaboration between the universities and NHSScotland. There are, however, a number of other areas to which attention needs to be given.

120. We have emphasised above in the context of inter-professional education and clinical skills training the need for medical schools to establish structured relationships with those responsible for health professional education, whether in the same or in other universities. We also believe that a Scottish national overview of such collaboration would be beneficial. **We therefore recommend that:**

- **The universities establish structured relationships to support collaboration between medical schools and those responsible for education of other groups of health professionals.**

- **The Health Department establish a review of the links between undergraduate medical education and the undergraduate education of other health professionals.**

121. NHS staff play a key role in the delivery of the curriculum and in the supervision of clinical placements, just as clinical academics do in the delivery of service targets. With the pressure on them to achieve demanding service targets, there is a danger that this role will be marginalized. **We therefore recommend that:**

- **NHSScotland ensures that full weight is given to medical education issues in consultant and GP contracts and in staff management arrangements for university and NHS staff working in those areas.**

122. The staff management arrangements in particular were the subject of the Follett Report (*A Review of Appraisal, Disciplinary and Reporting Arrangements for Senior NHS and University Staff with Academic and Clinical Duties*), published in September 2001. Although commissioned formally by the Department of Health and the Department for Education and Skills we are pleased to note that its provisions are now being adopted in Scotland.

123. Appointments to clinical academic posts are becoming increasingly hard to make. It is important that the NHS recognises the need for specialist formation of future clinical academics in its postgraduate training programmes. There are examples of good practice such as Clinical Teaching Fellow posts in Aberdeen.

124. The Scottish medical schools are in a strong position from which to collaborate with the NHS to promote the highest possible quality of postgraduate training, which could serve as a magnet for UK medical graduates, increasing the chances that they choose to make their careers in Scotland. Postgraduate Deans have a university base which they can draw when organising training for young doctors, potentially providing opportunities for training in key generic skills such as research, teaching, health economics, change management, appraisal etc. Furthermore, dissolution of NHS Trusts and service re-design may well emphasise the key role of university medical schools as hubs of expertise for regionally distributed networks of care which in themselves also provide attractive opportunities for clinical training. Good training in Scottish medical schools should improve the recruitment and retention of trained clinicians.

125. A number of our proposals, in particular but not limited to those to do with clinical skills training, would benefit from the establishment of more formal bodies between individual schools and the NHS. The Follett Report dealt with this in some detail, and we strongly endorse its recommendations, especially the first two that *1) The key principle for NHS and University organisations involved in medical education and research should be 'joint working to integrate separate responsibilities',* and *2) University and NHS partnerships responsible for medical education and research should establish joint strategic planning bodies, with joint subsidiary bodies responsible* (inter alia) *for staff management policies and procedures for staff with academic and clinical duties.* We recognise that some universities have already taken such steps.

Conclusion

This report has emphasised the importance of the Scottish medical schools in improving the health of the people of Scotland, through clinical practice, teaching and research. It has noted the tremendous potential in Scotland to improve even further the existing collaboration between the medical schools and their distinctive Scottish approach. Several of our recommendations focus on strengthening such collaboration.

We identified early on in our review the need for more doctors in Scotland, but also that additional medical student numbers could only be part of the solution. Better workforce planning (already underway) and the improvements in postgraduate training and career development and management discussed in the second Temple Report are also needed. The additional numbers we recommend will increase the numbers of Scottish students and widen their diversity. We recommend a shortened graduate entry programme as one way of achieving this diversity. An increase in Scottish students will benefit the future staffing of the Scottish NHS. We also believe that student numbers should be re-visited in two or three years time when more data is available.

We emphasise three further issues relevant to medical education. The first is the use of a wide range of settings within which learning can take place, including remote and rural areas. This will require increasing collaboration with NHSScotland. The second concerns inter-professional collaboration in learning, an important dimension for the young doctor. Finally we emphasise the need for research in medical education. Scotland is in an excellent position to take this forward and make a substantial national and international contribution in this area.

We are convinced that investment in these opportunities in medical education will enhance the NHS in Scotland and through it the health and health care of the Scottish people.

Appendix A

Table 1: Intake of students to Scottish medical schools 2001/02 – home domicile and gender

Institution	Scotland		England		Northern Ireland		Overseas (inc rest of EU)		Total		Female	Male
	%	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%	%
Aberdeen	***58***	**111**	***21***	**40**	***10***	**20**	***11***	**20**	***100***	**191**	***59***	***41***
Dundee	***55***	**86**	***21***	**32**	***12***	**18**	***12***	**19**	***100***	**155**	***58***	***42***
Edinburgh	***33***	**75**	***49***	**110**	***6***	**14**	***12***	**27**	***100***	**226**	***63***	***37***
Glasgow	***60***	**141**	***16***	**38**	***15***	**35**	***9***	**20**	***100***	**234**	***61***	***39***
St Andrews	***53***	**55**	***34***	**35**	***4***	**4**	***9***	**9**	***100***	**103**	***54***	***46***
TOTAL	***51***	**468**	***28***	**255**	***10***	**91**	***11***	**95**	***100***	**909**	***60***	***40***

Notes: 1) Gender distribution does not vary markedly by home domicile, except that Dundee has a higher and Edinburgh a lower proportion of female students from Scotland, and Glasgow a higher and Dundee a lower one from England, while all except Glasgow has a higher one from N. Ireland and all except Edinburgh (where it is higher) and Glasgow a lower one from overseas (but note that in the latter cases the numbers are small).

2) In addition 45 Scottish domiciled students entered English universities, including 20 at Newcastle.

Table 2: Medical degree graduates from Scottish medical schools 2001/02 – home domicile and gender

Institution	Scotland		England		Northern Ireland		Overseas (inc rest of EU)		Total		Female	Male
	%	Nos	%	Nos	%	Nos	%	Nos	%	Nos	%	%
Aberdeen	***72***	**116**	***11***	**18**	***7***	**12**	***10***	**16**	***100***	**162**	***54***	***46***
Dundee	***47***	**60**	***30***	**39**	***9***	**12**	***13***	**17**	***100***	**128**	***45***	***55***
Edinburgh	***32***	**77**	***52***	**124**	***7***	**17**	***8***	**20**	***100***	**238**	***56***	***44***
Glasgow	***72***	**194**	***14***	**38**	***6***	**15**	***8***	**22**	***100***	**269**	***60***	***40***
TOTAL	***56***	**447**	***27***	**219**	***7***	**56**	***9***	**75**	***100***	**797**	***55***	***45***

Notes: 1) Gender distribution does not vary markedly by home domicile, except that Aberdeen and Glasgow have lower proportions of female students from overseas and Edinburgh from N. Ireland, and Glasgow a higher one from Scotland.

2) In addition 66 Scottish domiciled students graduated from English universities, including 26 from Manchester (the majority having taken first degrees at St Andrews) and 18 from Newcastle.
Source: SHEFC

Table 3: SHEFC Performance Indicators 2002

Institution	Percentage social/economic class IIIm to V		Percentage state school	
	Actual	Benchmark	Actual	Benchmark
Aberdeen	23	24	79	84
Dundee	25	24	88	83
Edinburgh	13	19	63	77
Glasgow	21	21	85	81
St Andrews	15	20	58	78

Source: University of Edinburgh

Data

The following were our principal sources of information:

- Individual university medical schools on their student numbers and, in some cases, applications and entrants;
- SHEFC on medical student numbers in the Scottish universities;
- Dr Donald Thomson, Director of Admissions, University of Edinburgh medical school, on applicants and entrants to the five medical schools;
- A dataset specially commissioned from UCAS to enable us to profile applicants and entrants to the five medical schools individually and collectively for the 1997 and 2002 entry cohorts. This was analysed for us by Laura Johnston and Hugh McAloon of ETLLD and Julie Wilson of SEHD;
- A dataset specially commissioned from the Medical Careers Research Group of the Institute of Health Sciences, University of Oxford and supplied by Trevor Lambert, to enable us to establish the destination of those 1988, 1993 and 1996 graduates from the four clinical schools who responded to MCRG surveys in terms of country and type of medical or other work at appropriate points in their careers. This was analysed for us by Catriona Haddow of the Information and Statistics Division of the CSA;
- The SEED on the numbers of school students passing SQA Higher examinations in 2002 in relation to the entry qualifications of medical schools, provided and analysed for us by Emma Milburn; and
- The SEHD on medical career patterns, as provided to the second Temple Working Group.

Further information on the data and access to the individual datasets can be obtained from Scott Miller, SEHD, at scott.miller@scotland.gsi.gov.uk.

Appendix C

Individuals/institutions who assisted with this review

Short-life Working Group

The short-life Working Group undertaking this review comprised:

Professor Sir Kenneth Calman KCB DL FRSE, Vice-Chancellor and Warden, University of Durham

Michael Paulson-Ellis OBE, Registrar and Secretary, University of East Anglia, Norwich until September 1999

Membership of Steering Group

Dr Robin Cairncross, Senior Medical Officer, Scottish Executive Health Department

Mr Chris Graham, Head of Higher Education and Student Support Branch, Scottish Executive Enterprise, Transport and Lifelong Department

Mr Gavin Gray, Policy Officer, Scottish Executive Enterprise, Transport and Lifelong Learning Department

Ms Lucy Hunter, Head of Higher Education and Science Division, Scottish Executive Enterprise, Transport and Lifelong Learning Department

Mr Peter Lloyd, Policy Officer, Scottish Executive Enterprise, Transport and Lifelong Learning Department

Mr Scott Miller, Policy Officer, Scottish Executive Health Department

Dr John Rigg, Head of Funding for Learners Division, Scottish Executive Enterprise, Transport and Lifelong Learning Department

Mrs Rosemary Winter-Scott, Assistant Director for Learning, Development & Careers, Directorate of Human Resources, Scottish Executive Health Department

Meetings with organisations and individuals

British Medical Association Scotland (Bill O'Neill, Scottish Secretary, with representatives of Medical Academic Staff Committee and Medical Student Committee)

Deans of the Scottish Medical Schools (collectively)

General Medical Council (GMC) Education Committee (Professor Peter Rubin, Chairman)

NHS Education for Scotland (Graham Buckley, Chief Executive and representatives of Postgraduate Medical Deans and Directors of Postgraduate General Practice Education)

NHSScotland Standing Committee on Resource Allocation ACT Sub-Group

Scottish Executive Health Department Chief Medical Officer (Dr Mac Armstrong) **and Chief Nursing Officer** (members of staff)

Scottish Higher Education Funding Council (SHEFC) (Roger McClure, Chief Executive and members of staff)

Universities Scotland (David Caldwell, Director and members of staff)

University of Aberdeen Medical School (Professor Steve Logan, Dean and members of staff, with representatives of Grampian University Hospitals Trust)

University of Dundee (Sir Alan Langlands, Principal and Vice-Chancellor) (Professor David Levison, Dean of the Medical School and members of staff)

University of Edinburgh Medical School (Professor John Savill, Dean and members of staff)

University of Glasgow Medical School (Professor Michael Farthing, Dean and members of staff) **and North Glasgow University Hospitals NHS Trust** (Dr Bill Anderson, Medical Director and members of staff)

University of St Andrews (Dr Brian Lang, Principal and Vice-Chancellor, Professor Hugh MacDougall, Head of the Bute Medical School, and David Corner, Secretary and Registrar)

Professor Sir John Arbuthnott (Chairman of NHSScotland Standing Committee on Resource Allocation ACT Sub-Group, and Chairman of NHSScotland Greater Glasgow Health Board)

Professor Sir John Temple (Chairman of Scottish Executive Health Department Review of Medical Career Structures in Scotland)

Organisations and individuals making submissions

Universities:

Glasgow Caledonian University – Vice Principal and Pro Vice-Chancellor (Academic)
University of Aberdeen – Faculty of Medicine and Medical Sciences
University of Dundee – Faculty of Medicine, Dentistry and Nursing
University of Edinburgh – College of Medicine and Veterinary Medicine
University of Glasgow – Faculty of Medicine
University of Manchester – Vice-Chancellor
University of Paisley – School of Nursing and Midwifery
University of St Andrews – Principal and Vice-Chancellor
University of Stirling – University Secretary
University of Strathclyde – Principal

NHS bodies:

NHS Grampian – Chairman
NHS Grampian – Medical Director, Grampian Primary Care NHS Trust
NHS Greater Glasgow – Medical Director, Greater Glasgow Primary Care NHS Trust
NHS Greater Glasgow – Medical Director, North Glasgow University Hospitals NHS Trust
NHS Lothian – Medical Director, Lothian University Hospitals NHS Trust

Royal Colleges:

Royal College of General Practitioners (Scotland) – Deputy Chairman (Policy)
Royal College of Obstetricians and Gynaecologists – Chairman, Academic Committee
Royal College of Paediatrics and Child Health (Scotland)
Royal College of Physicians and Surgeons of Glasgow – President
Royal College of Physicians of Edinburgh – President
Faculty of Pharmaceutical Medicine – President

Other organisations:

British Medical Association – Scottish Secretary
National Union of Students Scotland – President
Remote and Rural Areas Resource Initiative (RARARI) – Director
Skill Scotland: National Bureau for Students with Disabilities – Director

Individuals:

Dr JM Eagles, Consultant Psychiatrist, Grampian Primary Care NHS Trust
Professor RM Harden, Centre for Medical Education, University of Dundee
Dr G Lowe, Consultant Dermatologist, Tayside University Hospitals NHS Trust
Dr C Lush, Consultant Haematologist, Highland Acute Hospitals NHS Trust
Professor Stuart Macpherson, Postgraduate Dean, South East Region, NHS Education for Scotland
Dr TA Mahmood, Clinical Director, Fife Acute Hospitals NHS Trust
Professor KM Melia, Professor of Nursing Studies, Department of Nursing Studies, University of Edinburgh
Professor DI Rowley, Head of Department, Department of Orthopaedic and Trauma Surgery, University of Dundee
Dr P Scott, Royal Alexandra Hospital, Paisley
Professor AD Struthers, Department of Clinical Pharmacology and Therapeutics, University of Dundee
Dr CA Wigderowitz, Senior Clinical Lecturer and Director of Research, Department of Orthopaedic and Trauma Surgery, University of Dundee
Kay Wilkie, Director of Learning and Teaching, School of Nursing and Midwifery, University of Dundee

Appendix D

Published material consulted

Future Practice: A Review of the Scottish Medical Workforce, Scottish Executive July 2002

Future Practice: A Review of the Scottish Medical Workforce: The Response of the Scottish Executive, Scottish Executive July 2002

Health in Scotland 2001: Report of the Chief Medical Officer, Scottish Executive 2002

Partnership for Care: Scotland's Health White Paper, Scottish Executive February 2003

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