Medical Education in Ireland
A New Direction

Report of the Working Group on
Undergraduate Medical Education and Training

Foilsítear an leagan Gaeilge den tuarascáil seo ar an dlúth-dhiosca iniata.

The Irish language version of this report is published on the attached CD.

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Foreword–Tánaiste and Minister for Health and Children

I am happy to endorse the publication of the Report of the Working Group on Undergraduate Medical Education and Training. I would like to thank Professor Patrick Fottrell and the members of the Working Group for their work and commitment.

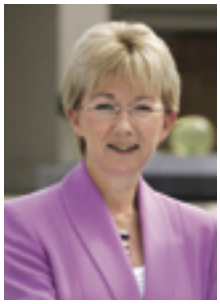
This Report reviews the current state of primary medical education in Ireland, and proposes a coherent reform programme addressing student intake numbers and entry mechanisms, educational programmes and curricula, teaching methods, clinical training, funding, oversight structures, and other issues relating to the organisation and delivery of undergraduate medical education and training.

This Report was commissioned jointly by my Department and the Department of Education and Science. A separate report by the Postgraduate Medical Education and Training (MET) Group, chaired by Dr Jane Buttimer, and published by my Department in tandem with this Report, focuses on postgraduate specialist training.

The publication of both reports, against a background of ongoing reform of health service structures, is well-timed to ensure the enhancement of medical education and training on an integrated basis across the continuum from undergraduate education to postgraduate specialist training and beyond.

Mary Harney, T.D.
Tánaiste and Minister for Health and Children

Foreword–Minister for Education and Science



I strongly welcome the publication of this Report of the Working Group on Undergraduate Medical Education and Training.

Ireland's health system is critically dependant on an adequate supply of quality medical graduates. It is essential in that regard that the quality of our undergraduate medical education and training keeps pace with international best practice and that, at a wider level, our system of higher education continues to respond to key national social and economic needs.

It is clear that controls on the number of places in our medical schools for Irish and EU students have required review for some time. It is also an important principle of entry to higher education that selection is based on fair, objective and transparent competitive measures.

The recommendations made in this Report are based on an extensive assessment of current and projected future health service needs. They involve far-reaching change and enhanced opportunity for students, with the development of both undergraduate and graduate entry modes and very significant increases in the number of medical places available to Irish students. The Group has developed an overall vision for quality in medical education to which all of us with responsibility for its delivery can now aspire.

The Working Group itself drew on broad representation from medical academia, higher education and health management, regulatory body, student and public interest representatives, as well as officials from the relevant State agencies and Government Departments. The vision for medical education that the Group has articulated is very much, therefore, a shared one. I want to thank all involved for their contributions. Particular credit is due to Professor Patrick Fottrell, as Chairman, for his leadership in guiding the work of the Group. I look forward to working with all of the relevant interests in now implementing the important reforms that lie ahead.

Mary Hanafin T.D.
Minister for Education and Science

Chairman's Introduction

The Working Group on Undergraduate Medical Education first met in November 2003. The Group was established by the Minister for Education and Science and the Minister for Health and Children in response to serious concerns regarding the quality of medical education in Ireland, the funding arrangements for medical education and the ability of the medical education system to increase the number of graduates in line with projected health service requirements.

All main stakeholders in medical education are represented on the Working Group, including members from the Departments of Education and Science, Health and Children and Finance; the Higher Education Authority; Medical Council; Health Boards; Hospitals; General Practice; Universities; the Union of Students in Ireland; other Healthcare Sectors; the Public and the Deans of all five medical schools in Ireland. This broad-based membership has facilitated the discussions and recommendations on a very wide range of issues concerning medical education.

Submissions were sought by invitation and public advertisement and responses were received from over forty sources, including members of the public. Research on medical education in other countries was reviewed along with key reports in Ireland such as the National Task Force on Medical Staffing. Presentations were made to the Working Group by national and international experts in medical education. Sub-groups were formed to address specific key topics and to draft papers for the Working Group. These submissions and inputs are gratefully acknowledged.

The Working Group has benefited enormously from all of these activities and has identified and discussed critical issues in an open and constructive manner. This has enabled the Working Group to arrive at an understanding of the key challenges facing medical education in Ireland today and to put forward a set of recommendations which it feels will secure the foundations of medical education in the future.

I am grateful to members of the Working Group for their inputs, to Leonora Harty and Rowena Dwyer of the Higher Education Authority for their considerable administrative support, and to the HEA itself for the provision of facilities. Mr. Leo Kearns provided excellent support as facilitator and consultant to the Group, and his invaluable contributions are gratefully acknowledged.

Professor Patrick Fottrell, Chairman

Membership Of The Working Group

Chairman

Professor Patrick Fottrell,
Chairperson, former President of National University of Ireland, Galway

Members

Professor Gerard Bury,
Irish Medical Council

Dr Jane Buttimer,
Chairperson of Postgraduate Medical Education and Training Group, Department of Health and Children

Mr Bernard Carey,
Director, Personnel Management and Development Division, Department of Health and Children

Dr Anthony Carney,
Dean, Faculty of Medicine, National University of Ireland Galway

Dr Tom Collins,
Director, Dundalk Institute of Technology

Professor Anthony Cunningham,
Irish Medical Council

Mr Stiofán De Búrca,
Vice Chairman, Chief Executive Officers Group, Mid-Western Health Board

Professor Muiris FitzGerald,
Dean, Faculty of Medicine, University College Dublin

Ms. Arleen Heffernan,
Assistant Principal, Department of Health and Children

Dr Tony Holohan,
Deputy Chief Medical Officer, Department of Health and Children

Mr John Inderhaug,
Student Representative, Union of Students in Ireland

Professor Alan Johnson,
Dean Faculty of Medicine, Royal College of Surgeons in Ireland

Mr Leo Kearns,
Consultant to the Working Group

Professor Cecily Kelleher,
Department of Public Health Medicine and Epidemiology, University College Dublin

Mr Paul Kelly,
Assistant Secretary, Department of Education and Science

Ms Mary Kerr,
Deputy Chief Executive, Higher Education Authority

Mr John Lamont,
Irish Medical Council

Professor Geraldine McCarthy,
School of Nursing and Midwifery, University College Cork

Mr Kevin McCarthy[1],
(until November 2004) Principal Officer, Department of Education and Science

Ms Ruth Carmody,
(from November 2004) Principal Officer, Higher Education (Policy, Research, Science), Department of Education and Science

Mr Tony McNamara,
General Manager, Cork University Hospital Group

Professor Aidan Moran,
Former Registrar and Vice President for Academic Affairs, University College Cork

Professor Michael Murphy,
Dean, Faculty of Medicine, University College Cork

Ms Ann Nolan,
Principal Officer, Education and Science Votes Section, Department of Finance

Professor Thomas O'Dowd,
Department of Public Health and Primary Care, Trinity College Dublin

Mr Larry O'Reilly,
Principal Officer, Personnel Management and Development, Department of Health and Children

Dr David Redmond[2],
Registrar, National University of Ireland Maynooth

[1]Mr. Kevin McCarthy was a member of the Working Group until November 2004 and was replaced by Ms. Ruth Carmody

[2]Dr. David Redmond was a member of the Working Group until October 2004. He was replaced by Dr. Philip Nolan

Dr. Philip Nolan
(from October 2004), Registrar, University College Dublin

Mr Ned Ryan,
Public Interest Representative

Professor Derry Shanley,
Dean, Faculty of Medicine, Trinity College Dublin

Ms Leonora Harty,
Higher Education Authority, from October 2004

Ms Rowena Dwyer,
Higher Education Authority, until October 2004

Thanks are also due to Mr. Ciarán Ó Maoileoin, Department of Health and Children for his input regarding estimations of future health service medical staffing requirements.

Terms of Reference

The Minister for Health and Children and the Minister for Education and Science have decided to establish a working group to examine undergraduate medical education and training in Ireland. This group will have the following terms of reference:

"Having regard to the programme for Government, including strategic changes set out in the Health Strategy, 2001, and to the importance of a high quality system of medical education and training, the Working Group will examine and make recommendations relating to the organisation and delivery of undergraduate medical education and training in Ireland, with particular reference to:

- course curriculum/syllabus;
- teaching methods/delivery mechanisms;
- professionalisation of undergraduate medical teaching;
- the scope for the promotion of greater inter-disciplinary working between professionals through the development of joint programmes at the initial stages of undergraduate training (ref. Health Strategy action 104);
- such other issues relating to the organisation and delivery of undergraduate medical education and training, as the Working Group considers relevant. These other issues would include any resource implications, insofar as they arise. The Working Group's recommendations will, in so far as is possible, be framed within the context of existing resources. Where this is not feasible, the various means, other than Exchequer provision, by which the resource implications might be funded, shall be identified.

In examining these issues, the Working Group will have regard to:

- The Programme for Government;
- The Health Strategy, 2001;
- The Medical Council's Review of Medical Schools in Ireland, 2001;
- Recent proposals from the Dean of The College of Medicine & Health, UCC and
- The recommendations of the National Task Force on Medical Staffing as they become available.

Consultative Process And Submissions

The preparation of this report involved a wide-ranging consultation process. Several organisations and individuals were invited to submit proposals on the current and future operation of the undergraduate medical education and training system. A public advertisement inviting submissions was placed in the national media and medical journals. The Working Group was particularly pleased to receive submissions from the general public, patient groups, support organisations, and healthcare practitioners.

Medical education in other countries was reviewed and submissions were made. For example, members of the Working Group met with Professor Graeme Catto, Chairman of the General Medical Council in the UK, who provided information on the current system of undergraduate medical education in Britain, discussed current challenges, and provided suggestions as to how some of these challenges might be addressed.

A delegation from Linköping University Medical School in Sweden made presentations on their structure, student selection, educational and research philosophy in the context of their medical school and postgraduate education and training to some members of the Working Group.

Some members attended a conference organised by the Irish Society for Quality and Safety in Healthcare (ISQSH) in association with the Irish Medical Council and the International Association of Medical Regulatory Authorities (IAMRA). The theme of the conference was 'Collaborating for Professional and Patient Safety'.

Likewise, members of the Working Group attended a conference at the University of Nottingham at Derby Medical School, the theme of which was 'Graduate Entry Medicine: The Future for Medical Schools in the UK'. This conference was of particular interest to the group, as it highlighted how the 14 medical schools in the UK who are now offering graduate programmes have approached the introduction of graduate entry. Issues discussed included entry requirements and procedures, clinical placements, programme delivery, problem-based learning and integration with the undergraduate programme.

Written Submissions

The Working Group is grateful to the following organisations for making written submissions to the Group:

An Bord Altranais
Association of Departments of General Practice in Ireland
Association of Optometrists Ireland
Central Applications Office
Convocation of the National University of Ireland
Convocation of the National University of Ireland (personal)
Council of Directors of the Institutes of Technology
Deans of Irish Medical Schools
Department of Education and Science
Department of Health and Children
Dublin Institute of Technology
Faculty of Radiologists
GP Training Scheme Letterkenny
GROW in Ireland

Higher Education Authority
Institute of Guidance Counsellors
Irish Association of Speech and Language Therapists
Irish Institute of Radiography
Irish Lymphoedema Support Network
Irish Medical Organisation
Irish Nurses Organisation
Joint Epidemiology Departments of Irish Medical Schools
Mental Health Commission
Mid Western Health Board
National Association of Compass (Co-operation of Minority Religions & Protestant Parent Association)
National Disability Authority
National Primary Care Steering Group
National Qualifications Authority of Ireland
National University of Ireland Galway
National University of Ireland Maynooth
North Western Health Board
Northern Area Health Board
Nurse Educators
Office for Health Management
Opticians Board
Personal (i)
Personal (ii)
Psychiatric Nurses' Association of Ireland
Royal College of Physicians in Ireland (Irish Committee on Higher Medical Training)
Southern Health Board
St Luke's Hospital
The Academy of Medical Laboratory Science
The Pharmaceutical Society of Ireland
Trinity College Dublin
Union of Students in Ireland
University College Dublin
Veterinary Council of Ireland
VHI Healthcare
Vice President Academic & Registrar University of Limerick.

1. Executive Summary

Ireland can be justly proud of the history and quality of its medical education. Graduates of Irish medical schools are accepted globally as being of international standard and many of the most eminent of Irish medical professionals have returned to Ireland after periods of distinguished service in other countries. This high international standing is reflected in the large number of North American, African and Asian students attending medical school in Ireland. Indeed, the ability of Irish medical schools to successfully compete at an international level in terms of attracting students to Ireland, and to establish a range of strategic relationships with Universities and Governments in other countries is to be commended.

However, despite these indicators of success, medical education in Ireland faces immediate and serious challenges in a number of critical areas.

Increase in numbers of graduates required by the health service

In 1978 the intake of EU students to Irish medical schools was 'capped' at 305 per annum. Although intended to be a short-term measure, the limit on student intake has remained in place ever since. In the interim, the demand for doctors within the health service has risen significantly, although the intake of EU students has remained virtually static. The ever-widening gap between supply and demand has been largely filled by the recruitment of non-national doctors educated in medical schools in their country of origin. In addition, the lack of sufficient high quality, structured specialist training posts in Ireland has resulted in many medical graduates leaving Ireland to take up such opportunities abroad, while the tight regulation of consultant posts in the health service has meant that many such graduates never return to Ireland.

The lack of alignment between medical staffing requirements and medical school intake for the past three decades has resulted in Ireland becoming less and less self-sufficient in terms of medical staffing.

Although it is difficult to predict future requirements with absolute certainty, it has been established that an annual intake of between 700 and 740 EU students would be required in order to achieve self-sufficiency, to address the proposed expansion of the consultant and primary care workforce envisaged in the Health Strategy and to achieve and sustain a consultant-delivered hospital service and an expanded primary and community care service.

However, of the 782 students accepted into Irish medical schools in 2003/4, over 60% were non-EU students, who will generally return to their country of origin after graduation. Ironically, therefore, while Irish medical schools are apparently educating sufficient numbers of doctors to meet the needs of the health service, the reality is that the majority of those doctors are not of Irish or EU origin and will spend their working career outside of Ireland. Meanwhile, the Irish health service must seek to recruit non-national doctors, who have not been trained in Ireland, to meet its own service needs.

To the extent that it exists, the current intake strategy appears to be based on (1) attracting high numbers of non-EU students into medical school because the income generated is essential to maintain the viability of the schools and to subsidise the education of EU and Irish students, while at the same time (2) depending on the recruitment into the health service of a separate cohort of non-national doctors, who have been trained locally in their country of origin, because medical schools are educating insufficient numbers of EU and Irish students to support the medical staffing needs of the health service. The Working Group believes this to be an inappropriate strategy given the increasingly competitive international marketplace that exists for both prospective medical students and medical professionals, and asserts that it is imperative to move towards national self-sufficiency as represented by a future intake of between 700 and 740 EU-students per annum to Irish medical schools.

Such a significant increase in EU-student intake represents an enormous challenge to medical schools, the health service and to funding agencies. In order to meet this challenge successfully a number of issues must be addressed.

In order to accept additional students into medical school, it is essential to create sufficient capacity and resources within clinical settings to meet the significant clinical training elements of the modern medical education curriculum. However, in its Review of Medical Schools in Ireland 2003, the Medical Council refers to what it considers to be the critical lack of capacity in clinical training and advocates that "medical school places are capped at 2003 levels for each medical school, pending the urgent implementation of measures to improve clinical training capacity". The Working Group believes that radical reform of clinical training provision and capacity is an absolute precondition for any increase in overall numbers of medical students.

The possibility of achieving the required increase in EU students by substituting EU for non-EU students must be considered. The additional EU student places required could largely be provided for, in theory, by a matching reduction in the number of non-EU student places. However, it is clear that Irish medical schools have become highly dependant for their viability on income from non-EU students. Also, such a strategy may conflict with the important national objective of developing and consolidating a leading position for Ireland in the global knowledge economy though strong educational and research links with other countries.

Nevertheless, it should be noted that it is highly unusual, among developed countries, for non-national students to comprise more than 10% of the total medical school student body. In the U.K., for example, non-EU students comprise less than 10% of medical school intake, which contrasts with a non-EU student intake over 60% in Ireland in 2003/4. The main adverse consequence of such imbalance in the proportion of non-EU students is that it limits the number of clinical training placements available to the expanded numbers of EU medical students now required by the Health Service.

The Working Group considers the metric of student admissions per million of population to be an important measure of the viability of any proposed intake strategy. Ireland currently has an intake of 195 students per million of population, which is broadly similar to the UK. (although only 10% of entrants in the UK are of non-EU origin, compared to over 60% in Ireland.) If the intake of EU students were to rise to the levels required by the health service and if non-EU student intake were to remain at current levels, there would be an overall intake of 300 students per million of population, which far exceeds the norm in other developed countries.

Also, an increase in undergraduate places has inevitable consequences relating to the number of intern places available in the health service. Between 150 and 300 additional intern places will be required to absorb the increased student intake. In addition, there is also an urgent need to devise and adopt pro-active strategies to improve graduate retention levels, including the provision of an appropriate number of high quality general professional and specialist training positions.

Educational Programme and Curriculum

Serious threats to the quality of medical education have been clearly identified both in Ireland[3] and other countries[4]. Problems include overloading students with factual information, excessive reliance on passive large-group teaching methods, fragmented courses, lack of personal development opportunities, lack of a sustainable strategy to help students cope with a lifelong expansion of scientific, technical and professional knowledge, inadequate exposure to community care, public health medicine and general practice, lack of preparation for the professional role of a doctor and for vocational responsibilities and insufficient involvement of students in evaluating their own curricula.

In its Review of Medical Schools in Ireland 2003, the Medical Council found that "some schools are falling below some of the WFME (World Federation of Medical Education) international benchmarks". Furthermore, it states that "while significant progress has been made in the pre-clinical area .... (Medical) Council is not satisfied that a core curriculum is in place in the clinical area of undergraduate medicine ..... most clinical teachers have major contracts with the health services and minor or non-existing contracts with the universities ..... some schools have little or no control or oversight of their curricula ..... little or no leverage to introduce modern teaching and learning methods"

The Working Group confirms and supports the views of the Medical Council, and believes that medical education in Ireland faces significant challenges in achieving and sustaining quality to international standards, most particularly in light of a significant increase in student intake.

Medical education in Ireland is based largely on the traditional model of medical education whereby the early years of the programme are dominated by large group lectures and practicals and the latter years are predominantly based in large teaching hospital with clinical attachments to medical teams and featuring formal and informal clinical instruction.

[3]Review of Medical Schools in Ireland, Medical Council, Dublin, 2003

[4]Tomorrow's Doctors, General Medical Council, London, 1993

However, international standards in medical education describe a model that involves considerably more emphasis on intensive small group interaction, including problem-based and group learning, with at most 12-20 students per group. Not only is this more labour intensive, but the setting of formal educational objectives in relation to knowledge, skills and competencies also implies that a range of teaching and learning approaches is required, with implications for the numbers and training of staff.

In this new model of medical education there will be more students, more diverse educational delivery settings, and more small-group work and interaction, including enhanced mentoring procedures and more inter-disciplinary contact. This therefore involves considerable reorientation of teaching effort and learning, and logistical and financial support on a scale not seen to date. The benefit will be graduates more fit-for-purpose and possessing greater professional versatility, enabling them to deliver the modern, multi-disciplinary, patient-centric health service Ireland needs and deserves.

Entry to Medical School

In Ireland, the access routes for individuals who wish to pursue a career in medicine are very limited. The predominant entry method is undergraduate entry on the basis of performance in the Leaving Certificate. A small number of graduates also enter annually on the basis of selection by individual medical schools and there are small-scale access programmes for students from disadvantaged backgrounds.

In an international context, there is ongoing reform and change in the selection of students for medical education, with a view to increasing the number of access routes and diversifying the background of the student population.

Many of the submissions made to the Working Group supported change in the current mode of entry to medical education. It was felt that a model of entry dominated almost entirely by school-leaving results meant that students had to make major career choices at an unnecessarily young age and the high-points requirements was perceived to have an excessive impact on teaching and learning at second-level. It also resulted in fewer opportunities for mature applicants, and few pathways into the medical profession.

The Working Group outlines recommendations for a new approach to entry to medical education in Ireland, which will provide opportunities for students to enter the medical profession at several entry points and provide for a more diverse background of entrants.

Provision of clinical training

In its Review of Medical Schools in Ireland 2003, the Medical Council refers to the critical lack of capacity in clinical training and advocates that "medical school places are capped at 2003 levels for each medical school, pending the urgent implementation of measures to improve clinical training capacity". The Working Group believes that the radical reform of the quality and capacity of clinical training is one of the most critical issues to be addressed.

Depending on the intake strategy adopted, the Working Group has established that there will

be a need to provide clinical training places for between 760 and 2000 additional students per annum. There is no possibility whatever that this increase in clinical training placements can be absorbed by existing clinical sites without significant additional resources and radical reform to the structure and management of clinical training in Ireland.

Currently there is rarely any contractual arrangement between clinical sites and medical schools to allow for structured access to health service staff and facilities. In the absence of structured agreements between the healthcare provider and the medical school regarding the utilization of staff and facilities and remuneration for same, it is impossible to plan and deliver a structured medical education curriculum. The majority of clinical training is delivered by hospital staff that has no specific contractual agreement for the provision of training and does so largely on a non-contractual basis, and without formal training in educational techniques or in the professional assessment of students.

In its review of the current funding of medical education, Indecon Economic Consultants[5] reported that of the total number of health service staff involved in any way with undergraduate training, only approximately 2% hold academic posts, with specific contractual obligations regarding the delivery of medical education. In its Review of Medical Schools in Ireland, 2003, the Medical Council estimated that the five medical schools have a total number of '39 full time equivalents in Ireland compared to 2,500 in the UK'. The overwhelming majority of clinical education is provided by consultants, registrars and SHO's who do not have a specific academic contract, and provide teaching services on a voluntary basis.

Staff who are not employees of or who have no contractual arrangement with the University and their medical schools yet who are involved in the training of undergraduates on a non-contractual basis must often, and quite understandably, give priority to their primary role of service delivery. In the context of increasing clinical and regulatory demands, it is to be expected that their continued involvement in a voluntary activity, however laudable, will be put under even greater pressure. While it is to be expected that all doctors will continue to have an input to the training of undergraduates regardless of specific contractual arrangements, it is simply not sustainable to have a situation where the balance between contracted University Medical School staff and non-contracted, informal or voluntary Health Services staff is so one-sided.

Driven by international benchmarks, the proposed changes to the curriculum demand much greater levels of cohesion across the curriculum. In the future, outcomes must be linked to specific curricular objectives, content, delivery methodologies, assessment and sequencing. It is not feasible to sustain a situation where clinical training, a critical element of the curriculum content and delivery, is effectively invisible to those responsible for ensuring that the overall undergraduate educational programme is achieved in a verifiable way.

[5] Indecon Economic Consultants were engaged by the Working Group to carry out a review of the current funding of medical education in Ireland. Their review is published on the CD accompanying this report.

In the future there will be a need to focus more attention on the logistics and coordination involved in aligning clinical training with curriculum objectives, student allocation and clinical capacity. This is critical both to achieving acceptable levels of clinical training capacity, but also will be required to support a curriculum that demands a diversity of clinical locations, a strong multi-disciplinary approach and closer integration between the core curriculum and clinical training.

Inevitably, new approaches to curricular provision will demand a supporting educational infrastructure, such as technology support staff, clinical skills laboratories, libraries, tutorial and lecture facilities on health service sites.

There has been a tendency to consider the acute hospital setting as being the optimum location for clinical training. Consequently, much of the existing curriculum, organisational structures and indeed attitudes are based around the primacy of the hospital setting. As the move towards a broadening of clinical settings continues, it must be understood that arrangements are required to be put in place for the governance, structuring and resourcing of a diversity of clinical settings, including primary, community, step-down and long-terms care settings, and that a simple extension or consolidation of current practice is not sufficient.

Oversight of medical education

The provision of undergraduate medical education in Ireland involves a wide range of stakeholders, some of whom play a core role and others which are associated but nonetheless important. Currently, there is little clarity as to the responsibilities of these various stakeholders, exacerbated by the fact that medical education crosses the boundary between the two domains of education and healthcare provision, with their separate administrative, governance and governmental structures.

As we look to the future of medical education, it is critical that there is clear definition and understanding of the respective roles and responsibilities of each of these stakeholders and their relationship with each other. Indeed the comprehensive broad-based membership of this Working Group has been essential to its ability to consider issues more fully and to arrive at more consensual inter-sectoral recommendations.

The governance of medical education is particularly complex given the crossover between the education and health sectors. Many strategic issues relating to medical education, such as workforce planning, funding and funding structures, resource management and data consolidation demand a national perspective and require an ongoing shared oversight structure to maintain and develop such national perspectives and strategies in a flexible and responsible way.

Funding

The Working Group has identified inadequacy of funding and funding allocation models as being one of the most critical issues facing medical education in Ireland.

As part of the review carried out by the Working Group on funding issues, Indecon Economic Consultants were commissioned to examine the funding basis and estimated expenditure on undergraduate medical education in Ireland. Arising from this, Indecon have defined the funding received by medical schools from the Education sector, including income generated from non-EU students; as well as funding provided by the Health sector for clinical training of medical undergraduates.

Funding for medical schools originates from two principal sources, namely state funding through the HEA and fee income from non-EU students. State funding is allocated to the universities by the Higher Education Authority (HEA) on the basis of an institutional block grant and also grants in lieu of undergraduate fees. This funding is then distributed by the university to the medical schools on the basis of internal allocation models, which can vary considerably from university to university.

Data for the academic year 2001/02, the most recent data available, indicate that the HEA block grant accounted for €6.14 million or 19.6% of total funding across the four public university medical schools. Funding received in lieu of undergraduate fees totaled €8.3 million, accounting for 26.5% of total reported income across all four university medical schools during that period. Therefore, total state funding for medical education in the four university schools amounted to 46.1% of their overall recurrent funding in 2001/2, the balance of 53.9% being generated from non-EU students.

Owing to its particular status as an independent institution, the Royal College of Surgeons in Ireland (RCSI) does not receive HEA block grant funding. RCSI income from undergraduate medical education totalled €27.9 million in 2003 compared to €24.3 million in 2002. In 2003, HEA grants to the RCSI in lieu of undergraduate fees totalled €0.869 million or 3.1% of total income, while non-HEA funding – which is primarily income from non-EU students – totalled €27.01 million (96.9%).

Even in the absence of any increase in student intake, many submissions to the Working Group refer to the current low level of funding and the urgent need to increase funding of undergraduate medical education. In its Review of Medical Schools in Ireland 2003, the Medical Council stated that in 2001 it had drawn "the public's attention to the chronic underfunding of medical education which .... (it) considered to be interfering with attempts to reform and modernise the medical schools". The Council goes on to state that since then "the funding situation has deteriorated further .... and there must now be concern for the very viability of medical schools". In its report, the Medical Council also compares the income from EU students in Irish medical schools unfavourably with the income received by benchmark institutions including Queens University Belfast, the University of Glasgow and several Canadian Medical schools.

It is clear that income from non-EU students now constitutes the largest component of funding for undergraduate medical education in the four university medical schools, and that the

four university medical schools are now highly dependent on non-EU student income, to the extent that EU students are subsidised by up to 50% by income from non-EU students. If such income were not available to them, their viability would be seriously threatened

A significant proportion of the modern medical education programme is delivered on health service sites and by healthcare staff. Currently, funding is made available from the annual financial allocation to the health facility for the provision of services. However, there is no dedicated line of funding provided by the Department of Health and Children to hospitals and primary care facilities for the express purpose of the provision of undergraduate medical education or training, although there has been a significant cost to the hospital sector associated with the provision of clinical training activities.

The Working Group believes that these issues reflect a medical education system in serious difficulty, and that a concerted and comprehensive programme to remedy these problems is urgently required.

1.1. Summary of Recommendations of the Working Group

The Working Group believes that there is now a unique opportunity to reform medical education in Ireland on a structured basis. The summarized recommendations outlined here reflect the necessity to adopt an integrated and balanced approach to this reform, addressing core problems in the areas of intake, curriculum, entry, clinical training, oversight and funding as part of a coherent whole-system approach.

It is essential to understand that the implementation of these recommendations is conditional on many factors and should not be regarded as immutable. For example, the outlined student intake strategy is dependant on sufficient high-quality clinical training places and funding being made available. Similarly, while the Working Group has endeavoured to outline realistic scenarios in a number of key areas, it accepts that as additional data, both national and international, becomes available during implementation, it may be necessary to modify or extend these recommendations. However, the Working Group strongly stresses the importance of making balanced progress across the spectrum of its recommendations and that there should not be an over-emphasis on any particular set of recommendations.

Student Intake Strategy

The Working Group recommends that the intake of EU students into Irish medical schools be increased from its current intake of about 305 per annum to approximately 725 students per annum on the following basis:

- The increased intake is phased over a four year period, commencing when the necessary preparatory arrangements have been introduced.
- By the end of this phased increase, there should be a 60:40 ratio between intake to the undergraduate and graduate programmes.
- In light of the current restriction on clinical

training places, that the proportion of non-EU students entering clinical training should be no greater than 25% of total student intake by the end of the phased increase in EU students. This proportion should be maintained in the future, subject to ongoing review.

- That the undergraduate programmes should normally be of five-year duration, and the graduate programmes of four-year duration for students with appropriate prior educational experience.
- In order to maximise the educational experience for all students, that undergraduate, graduate and non-EU students should be allocated across all schools.
- That additional structured clinical training capacity be developed and resourced in line with need and proposed changes in health delivery in Ireland.
- That additional intern positions be provided in line with need.
- That an inter-departmental steering group be established to review progress and to amend this strategy as appropriate.

Educational Programme and Curriculum

The Working Group recommends that each medical school should define and publish a structured educational programme which should include:

- A defined set of programme outcomes regarding knowledge, skills, competencies, values and attitudes, informed by core sets of principles as outlined in national and international guidelines on medical education.[6]
- A programme structure which outlines how programme outcomes are to be achieved, defining core, optional and elective modules and programme regulations.
- A curriculum for each module including details of module co-ordinators, learning outcomes, assessment, core content, instructional methodology, clinical placements and organisation, facilities and staffing.
- Quality assurance mechanisms

This published educational programme will form the basis of internal quality assessment as well as external review, and will also assist students in understanding the educational programme prior to and during their medical education. While the precise content, emphasis and pedagogical methodology of educational programmes may vary from school to school, and while innovation is to be encouraged, it is important that all programmes address the key themes of:

- Competent, safe and sustainable patient care.
- Preparing doctors for the needs and expectations of patients, their families and society.
- Good communication skills and working relationships with patients, relatives, carers and health-service colleagues.
- Professional standards and continuing professional development.
- Preparation for lifelong learning and for the changing knowledge, technological and practice environment.

[6] Principles such as those included in the vision for medical education in this report; various legislative and regulatory requirements; WFME and Medical Council guidelines; international good practice such as the 'Scottish Doctors'; and international good practice in education.

Entry to Medical Education

The Working Group recommends that a multi-streamed entry model, comprised of both undergraduate and graduate entry modes, should be introduced in Ireland. The Working Group also recommends that Leaving Certificate results should no longer be the sole selection mechanism for undergraduate students and that a national implementation committee should be formed to assess and devise appropriate entry mechanisms for both streams.
In order to achieve these objectives, the Working Group believes that a multi-streamed entry model must adhere to a number of key principles:

- The proportion of entry from different streams must be reasonably balanced.
- The undergraduate selection mechanism should not be exclusively coupled with Leaving Certificate results; any new selection mechanism must however still ensure that students selected have the intellectual and emotional capability to undertake and graduate from highly demanding medical education courses.
- The entry method must be seen to be fair and transparent.
- This process of reform must take place on a carefully sequenced and structured basis with built-in ongoing evaluation of outcomes.
- The process should be evidence-based and conform to best international practice.

Clinical Training

In light of the critical role played by clinical training in the medical education programme, the Working Group recommends that:

- An accreditation process for clinical sites[7] should be introduced and a national register of sites accredited for clinical training be maintained.
- Accredited sites should be entitled to access educational funding that has been specifically ring-fenced by the health service for the provision of clinical training services.
- Medical schools should enter into overall governance agreements with clinical sites for the provision of such clinical education and training services, and should enter into contractual agreements for the provision of specific teaching services.
- A credit system should be introduced to allow medical schools to influence how clinical training funding is actually allocated and to ensure that their specific teaching needs are met in a verifiable manner.
- Medical schools and clinical sites or networks must introduce conjoint management, administration and logistical structures in order to ensure that clinical training capacity is maximised.
- The number of joint education/healthcare academic clinician appointments should be increased in line with international norms.

[7] Consideration should be given to the incorporation of the clinical training and education requirements of medical interns and postgraduates, as well as the needs of other healthcare disiplines, so as to avoid duplication and to maximise use of resources.

Oversight of Medical Education

The Working Group believes that the provision of medical education in Ireland is deeply undermined by the absence of an oversight model which incorporates the key stakeholders in medical education. Therefore, the Working Group recommends that:

- A shared oversight model be established to include the Department of Education and Science, the Department of Health and Children, the Department of Finance, the HEA and the HSE, the Medical Council, the Universities and their medical schools.
- Within this shared oversight model strategic national policy issues such as workforce planning and student intake; analysis of financial, qualitative and statistical data across schools and clinical sites; funding levels and structures, and resource management strategies should be addressed and direction established.
- This model should consist of (a) an inter-departmental steering group on medical education, which is responsible for addressing issues of national policy and contains representatives of the Departments of Education, Health and Finance and the HEA and HSE and: (b) a national medical education consultative body which would consist of representatives from the universities and their medical schools, the medical council, clinical training sites, students and the relevant government departments.

Funding of Medical Education

The Working Group recommends that a cross-sectoral, structured funding model for medical education be adopted and resourced. Within this model, the following funding streams should be catered for:

- State funding for EU undergraduate students (including grant in lieu of fees), allocated to the universities by the HEA on a block grant basis and distributed internally by means of a transparent distribution model.
- State funding for students on the graduate entry stream allocated to the universities by the HEA on a block grant basis model and distributed internally by means of a transparent distribution model.
- State funding for students for access for students from socio-economically disadvantaged backgrounds.
- Fees for EU students on the graduate entry stream to be established by the university, paid directly to the university by students and allocated internally by means of a transparent distribution model.
- Dedicated funding for clinical training provided directly to accredited clinical sites, using a credit system where credits allocated to medical schools would result in a funding flow to clinical sites hosting their students.
- Funding to meet personnel requirements for service provision in lieu of resource being applied to clinical training.
- Funding for additional intern positions.

- Funding for the appointment of academic clinicians with a view to matching international norms.
- Fee income from non-EU students, to include fees for the provision of clinical training on healthcare sites.
- Targeted funding initiatives to encourage national collaboration in areas such as research into and the development of assessment techniques, teaching and learning initiatives such as problem based learning, and e-learning infrastructure and material.
- Funding to cater for new models of medical education and learning, including small group teaching, problem-based learning, computer-based learning and inter-disciplinary learning.
- Funding for educational capital/infrastructure developments, including the development of ICT systems to provide statistical and financial data/information.
- Funding to support accommodation, travel and I.T. outreach for students attending geographically dispersed clinical training sites.

Further, a standardised system of reporting of financial information should be instituted with a view to ensuring that critical financial and other data are available on a national basis. This reporting requirement should be required of:

- Universities regarding the distribution of state grants, fees and other income to medical schools and the models utilised to do so
- Medical Schools regarding the sources and allocation of overall income to the delivery of medical education and the costs incurred
- Clinical sites regarding the sources and allocation of funding to medical education and the costs incurred

Implementation

The Working Group proposes the establishment of the following structure[8] to oversee and co-ordinate the implementation of the recommendations of the Group:

The Working Group proposes the establishment of a **National Implementation Committee** to draw up and co-ordinate the overall implementation plan, to oversee and guide the work of the sub-groups within the context of that plan, to carry our further research in specific areas as required, and to address cross-functional issues such as student intake and governance.

This committee should contain senior representatives from each of the following - the Department of Health and Children, the Department of Education and Science, the Department of Finance, the Higher Education Authority, the Health Service Executive, the Medical Council, Higher Education Institutions, the Deans of Medical Schools, and Students.

The implementation committee may require the formation of Working Groups to focus on the implementation of particular elements of the overall plan such as Curriculum, Clinical Training, Entry and Data. Specialists may be recruited onto these working groups as required. Consideration should also be given to the change management issues and communication issues involved.

[8]In proposing this implementation structure and process, the Working Group took account of the successful approach to the implementation of the Nursing degree programme.

It is critical that the National Implementation Committee be properly resourced to fulfill this extremely challenging task. While the members of the Committee will have a part-time involvement, there is a need for a fulltime executive implementation team with responsibility for the proper and effective execution of the overall implementation plan. The establishment and resourcing of this team should be a matter for the Government Departments concerned.

The Working Group also proposes that the **Inter-Departmental Steering Group on Undergraduate Medical Education** (as recommended in Oversight and Governance) should be established immediately, to provide a structured forum for the escalation from the National Implementation Committee of policy issues requiring joint-departmental consideration and approval.

It is envisaged that this implementation structure will be required for the period 2005-2009 at least and possibly for longer depending on progress. A key element of its brief is to transition its ongoing responsibilities to the permanent oversight and governance structures to be established by the end of that period. Thus it is envisaged that while the Inter-Departmental Committee on Medical Education will remain a permanent oversight body, the National Implementation Committee should naturally transition into the permanent Medical Education Consultative Body.

Conclusion

The Working Group believes that medical education in Ireland is at a crossroads. The challenges that present themselves are significant. Radical change in many areas is necessary to create a secure foundation for medical education in the future, and to reach and maintain international benchmarks of quality. The analysis and recommendations contained in this report provide a strategic direction towards achieving that goal.

It is clear that this strategy will require a significant additional investment in undergraduate medical education in Ireland. It is equally clear that such additional funding must be aligned with the development of a national perspective on the provision of medical education by universities, medical schools and the health service. This national perspective demands an integrated and shared approach across the entire medical education system which will create critical mass, reduce duplication, encourage specialization, and achieve most effective use of resources.

The Working Group believes that a determined, focused and integrated approach to the implementation of the recommendations of this report will, in the long term, result in a high-quality medical education system, from which the Irish health service and the people of Ireland will ultimately benefit.

2. Vision For Medical Education

A medical education system which nurtures and develops people of the highest calibre to become caring and effective doctors, who support the wellbeing of the nation and the health of the individual, throughout a lifetime of continuous self-development.

The practice of medicine affects all citizens of the nation, often in the most fundamental way possible. The graduates of the medical education system face a challenging and difficult world, where their knowledge, skills and competencies are continuously put to the test in the context of complex sets of relationships, perceptions and expectations and where scientific, technical and professional knowledge is changing rapidly.

Medical education must prepare medical students for this constantly evolving environment. It must seek to select and develop students of the highest quality; it must constantly strive to improve its understanding of and commitment to learning and teaching outcomes; and it must remain focused on the personal nurturing and professional development of students who on graduation ultimately:

- provide the highest levels of care to their patients,
- promote and maintain the health of the population
- have a sound knowledge of the biological, social and psychological basis of health and disease
- display the broad range of diagnostic, consultative, communication, and organisational skills necessary to provide high quality and balanced patient care
- have the capacity for critical thinking in areas applicable to medical practice
- are fully committed to the ethical practice of medicine in the best interests of all patients,
- embrace a respect for patient autonomy and personal dignity
- display a commitment to reflective practice; critically examining themselves and their profession
- understand and are fully competent in their role, and the role of others, as part of a multidisciplinary patient care team,
- understand the impact of research on modern medicine, and the basis of sound research methodologies
- are committed to lifelong learning as the foundation of their ability to sustain the highest levels of patient care,
- are conscious of their societal responsibility
- recognise the partnership ethos that underpins all decision-making and interaction with patients
- are sensitive to the multicultural environment in which they operate
- understand and comply with the regulatory and legal framework within which they operate
- maintain an involvement in research appropriate to their interests and role,
- are capable of contributing effectively to the teaching of others

- are competent in the administrative and management aspects of their profession,
- are educated to work and engage positively with the health service within which they practice,
- are happy and fulfilled in their choice of career.

3. Overview Of Current Provision Of Medical Education

There are five medical schools in Ireland, four of which are funded by the state and one, the Royal College of Surgeons of Ireland, which is an independent institution and is predominantly funded through fee income from non-EU students. The four state-funded medical schools in University College Dublin, University College Cork, Trinity College Dublin and National University of Ireland Galway receive funding through the Higher Education Authority.

While some institutions have introduced a five-year undergraduate cycle, almost 60% of EU students undertake a six-year medical education programme. A significant proportion of the undergraduate education programme involves clinical training conducted on health service sites such as hospitals or GP practices. The medical school is fully responsible for the provision of undergraduate medical education on both medical school and clinical sites. The Medical Council has statutory responsibility for the accreditation of medical schools, for assessing the quality of the educational outcomes and for the registration of graduates as medical professionals.

There is no national curriculum for undergraduate medical education. Each medical school is responsible for devising and delivering its own educational programme, which may be assessed against national and international best practice by the Medical Council. The most recent Medical Council review of medical education in Ireland was published in 2004, utilizing World Federation of Medical Education (WFME) benchmarks and involving international external assessors.

Upon completion of the undergraduate programme[9], graduates are provisionally registered by the Irish Medical Council and must complete an intern year, during which time they are employed and paid by the health service and are expected to fulfill relevant clinical activities while completing their basic pre-registration medical education and training. In October 2004 there were 488 intern positions in Ireland, of which 153 were occupied by non-EU graduates, mainly of Irish medical schools. Upon successful completion of the internship, all graduates are formally fully registered as medical practitioners by the Medical Council. Even though the intern year is currently considered to be part of the undergraduate programme, medical schools have little formal role in the intern year other than in certifying the final registration process.

Following registration, doctors may progress along one of a number of postgraduate education streams. Currently, there are 13 postgraduate training bodies in Ireland, each responsible for a specific postgraduate stream such as General Practice. Medical schools do not have a formal role in the provision of postgraduate medical education but there is considerable cross-over in terms of the use of clinical teaching resources and facilities.

Generally, EU[10] students apply for entry to undergraduate medical education through the CAO, and are selected solely on the basis of Leaving Certificate performance, which in 2003 was a minimum of 570 points. A small number of graduates are accepted onto the undergraduate programme on the basis of

[9]While the terms of reference of the Working Group are specific to undergraduate medical education, it is understood that the undergraduate element of medical education is part of an educational continuum including internships and postgraduate training.

[10]The term 'EU student' is used to describe those students who are entitled to apply to university in Ireland by virtue of their citizenship of an EU country. Currently, the majority of EU students are citizens of the Republic of Ireland, but all citizens of the EU are entitled to apply to medical schools on the same basis as Irish citizens. EU students generally do not pay tuition fees.

educational attainment and interview. Affirmative action programmes for educationally and socially disadvantaged students permit medical school admission at points levels of 450 or upwards.

In 1978 a 'cap' on numbers of EU students in medical schools was introduced by the Department of Education. While it appears that this limit had been intended to be a short-term measure to address specific economic and capacity issues at the time, it still remains in place and restricts intake to approximately 315 EU students per annum. No such limit is in place for non-EU students and their numbers have increased significantly over this period, to the point where the majority of students in Irish medical schools are of non-EU origin.

In 2002/3 the annual student intake into Irish medical schools was 831, of whom 315 (38%) were EU students and 516 (62%) were non-EU. In 2003/4, the annual intake of students was 782, of whom 305(39%) were EU and 477 (61%) were non-EU in origin.

In light of the need to identify existing funding arrangements in relation to the education and training of doctors in Ireland, the Working Group initiated a study to address this issue and subsequently engaged Indecon International Economic Consultants to carry out the study. This costing exercise (Exchequer and non-Exchequer) encompasses expenditure and income associated with the undergraduate course, the clinical placements associated with the course and the subsequent intern year. The overall aim of the study was to establish a baseline description of the current funding of undergraduate medical education in Ireland.

The study involved an extensive consultation programme with a number of stakeholders including:

- The Higher Education Authority
- The Department of Health and Children
- The Department of Education and Science
- The five medical schools i.e. UCD, TCD, RCSI, UCC and NUIG
- Main teaching hospitals including maternity hospitals
- Survey of General Practitioners

A high level of response was received from hospitals, medical schools and GPs. In particular, all medical schools responded to the detailed data request, while hospitals responding to the data request accounted for 6,784 student placements or 61% of the total number of student placements across all hospitals. A total of 163 GP practices responded to the survey of GPs.

The Indecon report reveals that Irish medical schools have become increasingly and significantly dependant on fee income from non-EU students.

Funding for the university medical schools comprises two main elements – a block grant and a per-student payment in lieu of tuition fees. These funds are allocated by the Higher Education Authority to each of the four Universities who then decide how this funding should be

distributed across all faculties, depending on internal factors. Therefore, the state funding actually received by individual medical school can and does vary according to the particular allocation model utilized by the University. For example, in 2001/2, UCD allocated €6,400[11] per EU undergraduate student to its medical school, NUIG allocated €7,500, TCD allocated €8,900, and UCC allocated €11,000[12] per student.

In 2001/2, the four state medical schools in Ireland received a total of €14.45m in state funding while income from non-EU students totaled €16.7m for the same period. Thus, in 2001/2, excluding the RCSI, income from non-EU students comprised 53% of total medical school income, while in the same period non-EU students comprised 33% of total student enrolment. It is clear that the four medical schools are significantly dependant on income from non-EU students.

Up to 50% of the overall medical curriculum may be delivered on health service locations such as hospitals and primary care sites. Clinical training is largely delivered by clinicians employed by the health service. There is little contractual basis for this activity, and is largely provided on a voluntary basis by the clinicians involved. It is estimated that the cost to the health service of providing existing levels of clinical training is approximately €8,500 per student per annum[13], although this funding is not specifically dedicated to the provision of undergraduate medical education currently.

In 2001/2, while non-EU students accounted for about one-third of total student numbers in medical schools (excluding RCSI), they accounted for over 53% of total medical school income. The number of non-EU students in Irish medical schools continues to increase; in 2002/3 both TCD and UCD enrolled significantly more non-EU than EU students. Indeed, in the five years from 1998-2002, the number of non-EU new entrants to medical schools in Ireland has increased by over 96%, while EU new entrants have declined by 7%. This contrasts with the situation in the UK, where non-EU students comprise less than 10% of the intake to medical schools.

This change has been largely driven by the fact that grant and fee funding for EU students is significantly less than that required to deliver medical education of the quality required by the health service, or to meet international standards of quality. Fee income from non-EU students is two to three times higher than the state grants in lieu of fees for EU students. Non-EU students pay fees to the medical schools ranging from approximately €34,000 per annum in RCSI to €22,000 per annum in the other medical schools, and generally do not remain in Ireland following graduation. Furthermore, the 'cap' on numbers of EU students has limited medical school EU-student intake and therefore income from this sector. As reported by Indecon, 'non-EU student fee income now constitutes the largest component of funding for undergraduate medical education' in Ireland.

Medical schools in Ireland have become so dependant on the fees generated from non-EU students, that without such income, Irish medical schools would be unable to function.

[11]It should be noted that this allocation of state funding was added to by the universities through the allocation of non-EU student income to subsidise EU students. This subsidization ranged from 25% to 50% across the universities.

[12]Indecon: The Cost of Undergraduate Medical Education in Ireland, 2005

[13]Indecon: The Cost of Undergraduate Medical Education in Ireland, 2005

While the Working Group believes that it is a generally positive strategy for Irish medical schools to seek to attract non-EU students in pursuit of a national objective to excel in international education and as a means of generating revenue, it also believes that the increasing degree of reliance on such a source of income represents a serious risk to the medical education system in Ireland. The Medical Council has already reported significant concerns about the quality of medical education in Ireland. If not addressed, such issues have the potential to impact adversely and very quickly on the ability of Irish medical schools to attract non-EU students. Clearly such income should not be taken for granted.

The potential for increasing the intake of EU students to respond to national health service staffing needs is hampered because of the limitation on the availability of clinical training places. Any such increase could threaten the ability of the system to cater for non-EU students and thereby reduce existing income proportionally. Additionally, the practice whereby it appears that some clinical sites are entering into private arrangements with foreign medical schools to provide clinical training places further reduces the number of clinical places available to Irish schools.

4. Increased Intake of Students To Medical School

4.1. Introduction

In 1978 the intake of EU students to Irish medical schools was 'capped' at 305 per annum by the Department of Education in response to the economic climate at that time. Although this restriction was intended to be a short-term measure, the limit on student intake has remained in place for almost 30 years. However, while the number of EU graduates from Irish medical schools has remained relatively static, the demand for doctors within the health service has risen significantly over that period. The ever-widening gap between supply and demand has been largely filled by the recruitment of non-national doctors educated in medical schools in their country of origin, leading to a significant dependence on non-national medical professionals to support the Irish health service. For example, while non-nationals comprised 14% of non-consultant hospital doctors in 1984, they now occupy 53% of all NCHD positions in Irish hospitals[14]. While the Working Group acknowledges the tremendous contribution of non-national medical professionals to the health service, it also recognises that in an increasingly competitive market for qualified doctors internationally, Ireland cannot simply depend on a continued supply of non-national doctors to meet its requirements.

In addition, the lack of sufficient, high quality, structured specialist training posts in Ireland has resulted in many Irish graduates leaving Ireland to take up such opportunities abroad. The tight regulation of consultant posts in the health service has meant that many such graduates never return to Ireland. The strong trend towards the recruitment of foreign-trained non-national doctors and the ongoing recruitment difficulties in rural and certain urban areas reflect the fact that there are insufficient numbers of EU graduates from Irish medical schools to meet the needs of the health services. Ireland has therefore become less and less self-sufficient in terms of medical staffing due largely to the lack of alignment between staffing requirements and medical school intake for the past 30 years.

The Department of Health and Children has endeavoured to assess the future staffing requirements of the health service and to estimate the number of EU medical graduates required to meet this demand. Given the many variables involved, it is difficult to predict future requirements with absolute certainty. However, based on the findings of the National Task Force on Medical Staffing and supported by work undertaken by the FÁS Skills and Labour Research Unit and by the Central Statistics Office (CSO) in relation to population projections, the Department of Health and Children has estimated that an annual intake of between 700 and 740 EU students is required in order to achieve self-sufficiency and to address the proposed expansion of the consultant and primary care workforce envisaged in the Health Strategy. Furthermore, in the context of the radical reform of the health service currently underway, there is a need to educate doctors in Ireland to work in the environment of the Irish health service in order to achieve and sustain a consultant-delivered hospital service and an expanded primary and community care service.

[14]The Postgraduate Medical and Dental Board, Survey of NCHD Staffing at 1st October 2004

Currently there is an intake of approximately 800 students into Irish medical schools each year. However, the majority of these are non-EU students. For example, of the 782 students accepted into Irish medical schools in 2003/4, 305 were EU students, while 477 were non-EU students. Non-EU students generally return to their country of origin after graduation, and do not usually remain to work in the Irish health service, although some may complete their intern year in Ireland. Ironically, therefore, while Irish medical schools are educating sufficient numbers of doctors to meet the needs of the health service, the majority of those doctors are not of Irish or EU origin and plan to work outside of Ireland. Meanwhile, the Irish Health service must seek to recruit non-national doctors, who have not received their undergraduate education in Ireland, to meet its medical staffing requirements.

To the extent that it exists, the current intake strategy appears to be based on (1) attracting high numbers of non-EU students into medical school in order to maximize medical school income and thereby subsidise the education of EU and Irish students, while at the same time (2) depending on the recruitment into the health service of a separate cohort of non-national doctors, who have received their undergraduate medical education in their country of origin. The Working Group believes this to be an inappropriate strategy given the increasingly competitive international marketplace that exists for both prospective medical students and medical professionals, and asserts that it is imperative to move towards national self-sufficiency as represented by a future intake of between 700 and 740 EU-students per annum to Irish medical schools.

Such a significant increase in EU-student intake represents an enormous challenge to medical schools, the health service and to funding agencies. A number of factors must be considered in order to properly assess and devise viable strategies to meet this challenge.

Firstly, in order to accept additional students into Medical School, it is essential to create sufficient capacity within clinical settings to meet the significant clinical training elements of the modern medical education curriculum. However, there is already serious difficulty regarding the provision of clinical training to existing numbers of students. In its Review of Medical Schools in Ireland 2003, the Medical Council refers to the critical lack of capacity in clinical training and advocates that "medical school places are capped at 2003 levels for each medical school, pending the urgent implementation of measures to improve clinical training capacity"

In Chapter 8 of this report, *Provision of Clinical Training*, the need for radical reform of clinical training is discussed in detail and a set of recommendations proposed. It is the view of the Working Group that the adoption of these recommendations would lead to a significant increase in clinical training capacity and quality and that the reform of clinical training is an absolute precondition for any increase in overall numbers of medical students.

Secondly, the implications of achieving the required increase in EU students by substituting EU for non-EU students must be considered. The additional EU student places required could largely be provided for, in theory, by a matching reduction in the number of non-EU students, given that there were 477 non-EU entrants in 2003/4. However, in the context of substituting EU for non-EU students, it is important to understand the degree to which Irish medical schools are dependant on income from non-EU students. For example, if just one years intake of 477 non-EU students to the five medical schools was to be substituted by EU undergraduate students, the medical schools would face a reduction in income of approximately €13m[15] in any single year and a consequential loss of income over the five or six year duration of the programme of approximately €70m. By contrast, under current funding conditions, medical schools would receive only approximately €23m over the same period for the substituting EU undergraduate students.

In addition to the financial difficulties arising from the substitution of non-EU students, such a strategy conflicts with the important national policy objective of developing and consolidating a leading position for Ireland in the global knowledge economy through strong research and educational links with other countries and indeed with the objective of securing additional streams of income for higher education in Ireland.

Nevertheless, it should be noted that it is highly unusual, among developed countries, for non-national students to comprise more than 10% of the total medical school student body. In the U.K, for example, non-EU students comprise less than 10% of medical school intake, which contrasts with a non-EU student intake of 61% in Ireland in 2003/4. The main adverse consequence of such imbalance in the proportion of non-EU students is that it limits the number of clinical training placements available to expanded numbers of EU medical students.

It is important to consider international benchmarks regarding levels of intake to medical school. Ireland currently has an intake of 195 students per million of population, which is broadly similar to the UK. In 2001 the equivalent ratio in the U.S. was 270/million[16]. The Working Group considers this metric to be an important measure of the viability of any proposed intake strategy. Ireland is significantly out of line with international norms with regard to the mix of national and international students. While Ireland and the UK are broadly equivalent in terms of overall admissions, only 10% of entrants in the UK are of non-EU origin, compared to over 60% in Ireland.

The issue of availability of intern places must also be considered. All medical graduates receive provisional registration on graduation and must then complete a years health service internship prior to full registration as a medical practitioner by the Medical Council. An increase in undergraduate places inevitably requires an increase in internships, or else EU medical graduates will be forced to take up intern positions in other countries and as a consequence would be less likely to be retained with the Irish health service in the medium to long term. Currently there are 488 approved intern positions

[15]As assessed by Indecon, fee income from EU students averaged at e8,500 per student per annum in 2001/2, while non-EU student fees are approximately. e22,000 per student per annum.

[16]New Steam from an Old Cauldron – The Physician Supply Debate. Blumenthal, D. New England Journal of Medicine, April 2004

in the public health service in Ireland[17], of which 153 (31%) are occupied by non-Irish graduates of Irish medical schools, who in most cases are not likely to remain within the Irish health service following internship and full registration. In the context of an intake of 725 EU students per annum, for example, the Department of Health and Children have established that between 150 and 300 additional intern positions[18] will be required if the benefit of increased student intake is to be realised in the Irish health service. These positions would be phased in over a number of years, in line with the changed graduation pattern resulting from an increased intake of students.

The issue of graduate retention must also be considered. Preliminary findings from a Department of Health and Children study[19] indicate that by 2004, 52.3% of 1994 graduates[20] and 56.3% of 1999 graduates remained in medical employment in the Republic of Ireland. Given the tradition that has existed for many years for Irish medical graduates to undertake further post-graduate training and to take up employment in other highly developed countries, such findings are not surprising. Indeed it can be argued that the exposure of Irish medical practitioners to world-class health service provision and research environments outside of Ireland is a most positive benefit to Ireland. It should not be an objective to ensure that all graduates remain in Ireland following registration, but it should be an objective that most return following the acquisition of experience abroad. However, it should be an objective to encourage and support the return of these graduates when appropriate experience has been acquired.

The Working Group believes that issues which could adversely affect retention and discourage the return of those who move abroad, such as the availability of training positions of sufficient quantity and quality in Ireland, and family-friendly working arrangements must be addressed as an integral part of an overall intake strategy. The Working Group also believe that it is important for medical students to have a positive and welcoming experience of the Irish health service during their clinical training as this may influence future career decisions. It is also essential that there is a clear, high-quality and coherent postgraduate training path available to medical graduates. Many graduates leave Ireland after their internship for many reasons, including a lack of confidence in the postgraduate training options available to them at home. The Report in preparation of the Postgraduate Medical Education and Training Group (MET Group) will, inter alia, address these issues.

Finally, the Working Group believes that the introduction of a dedicated graduate entry stream to medical school offers an opportunity to increase the intake of EU students, as well as offering an alternative route of access to the medical profession in Ireland.

Bearing these factors in mind, the Working Group has considered a number of potential model scenarios for the provision of additional places, in order to understand the possible consequences of some specific actions. These scenarios are outlined in the following pages.

[17] The Postgraduate Medical and Dental Board, Survey of NCHD Staffing at 1st October 2004

[18] It is most likely that the number of additional intern positions required will be on the higher end of this scale. The lower figure of 150 will suffice only if all intern positions are restricted to EU students only.

[19] Preliminary findings from the Career Retention Study of Irish Medical Graduates, Department of Public Health Medicine and Epidemiology, UCD

[20] These figures relate to the number of those students that were registered in 1994 and 1999, i.e. they completed their intern year in Ireland in 1994 or 1999. This included a number of non-EU students who would have been unlikely to remain in Ireland in any case.

In the first scenario, EU student intake is increased to 725 over a phased period with no change to non-EU intake. In the second scenario, the impact of reducing non-EU students by 55 students per annum is assessed. The third scenario shows the impact of reducing the non-EU intake to approximately 25% of the total intake, while the final scenario extends this to assess the effect of reducing the duration of the graduate and undergraduate programmes to 4 or 5-years respectively.

The Working Group then makes some observations and recommendations arising from an examination of these scenarios.

4.2. Intake Scenarios

Scenario 1:-

Increase EU undergraduate intake by 45 per annum and introduce a new EU graduate entry programme with an annual intake of 60 per annum, both phased over a four year period; no change to non-EU student intake

Intake Assumptions:

- The annual intake of approximately 725 EU students is introduced on a phased basis over a four year period.
- During that period, the intake of EU students onto a five or six-year Undergraduate programme increases by 45 students per annum.
- In parallel, intake to a new four or five-year EU graduate programme increases by 60 students per annum.
- No change is made to the current non-EU student intake of 477.

Table 4.1: Intake Model Scenario 1

	EU Undergraduate Stream		EU Graduate Stream		EU Summary		Non-EU Students		EU and non-EU Combined	
	Entrants	*% of EU Total*	*Entrants*	*% of EU Total*	*Total Entrants*	*% of Overall Total*	*Entrants*	*% of Overall Total*	*Total Entrants*	*Additional Students*
Year 0[21]	305	100%	0	0%	305	39%	477	61%	782	0
Year 1	350	85%	60	15%	410	46%	477	54%	887	105
Year 2	395	77%	120	23%	515	52%	477	48%	992	105
Year 3	440	71%	180	29%	620	57%	477	43%	1097	105
Year 4	485	67%	240	33%	725	60%	477	40%	1202	105

Projected Impact on Student Intake By Year 4:

- There is an annual intake of 725 EU students, which is an increase of 420 from the 2003/4 EU student intake.
- Of these 485 (67%) follow an undergraduate programme, which is an increase of 180 from 2003/4.
- A further 240 (33%) students follow a graduate programme, which is an increase of 240 from 2003/4.
- EU students now comprise 60% of total student intake into medical schools, while non-EU students comprise 40% of student intake, reduced from 61% in 2003/4.
- In total, there are now 1202 students entering medical school annually, which is an increase of 105 per annum over the four year period. This represents an intake of 300 per million of population.

[21] All Year 0 data is based on HEA data on new entrants to medical school in Ireland for 2003/4

Graduation Assumptions:

- Based on 2003/4 ratios, assume that 31% of undergraduate entrants follow a 5-year programme and 69% follow a 6- year programme[22].
- Assume that 50% of graduate entrants follow a 4-year programme and 50% follow a 5- year programme.
- Based on 2003/4 ratios, assume that 56% of non-EU entrants follow a 5-year programme and 44% follow a 6- year programme.
- Assume that 5.7% of both EU undergraduate and EU graduate entrants will not complete the programme[23].
- Assume that 6.1% of all EU students who complete the programme do not take up an intern position in Ireland.
- In the first instance, assume all current intern positions are made available to EU graduates only, and then that non-EU students are allowed take up intern positions at current levels[24].

Table 4.2: Graduation Model Scenario 1

	EU Undergraduates		EU Graduates		EU Summary		Overall			
	Entrants	*Graduates*	*Entrants*	*Graduates*	*Entrants*	*Graduates*	*Max Additional in School*	*Max Additional Clinical Placements Required*	*Additional Intern Positions- EU only*	*Additional Intern Positions – EU & non-EU*
Year 0	305	–	0	–	305	–	0	–	–	–
Year 1	350	–	60	–	410	–	105	–	–	–
Year 2	395	–	120	–	515	–	315	–	–	–
Year 3	440	–	180	–	620	–	630	**105**	–	–
Year 4	**485**	–	**240**	**28**	**725**	**28**	1050	315	–	–
Year 5	485	**301**	240	85	725	386	1440	630	–	–
Year 6	485	343	240	141	725	485	1756	1050	–	120
Year 7	485	386	240	198	725	584	1967	1440	60	93
Year 8	485	428	240	**226**	725	654	2073	1756	66	66
Year 9	485	**457**	240	226	725	**684**	**2104**	1967	27	27
Year 10	485	457	240	226	725	684	2104	2073	–	–
Year 11	485	457	240	226	725	684	2104	**2104**	–	–

[22] While it is understood that there are plans to move the standard undergraduate programme to five years duration, all assumptions regarding the ratio of EU or non-EU students following programmes of 5 or 6 year duration are based on data from the HEA relating to actual student intake in 2003/4. The graduate programme is based on the assumption that 50% of student intake will not have a science or biomedical background, and will therefore undergo a five year programme.

[23] The attrition rates used in these scenarios are based on attrition rates utilized by the Department of Health and Children and FAS in the determination of workforce requirements.

[24] Currently about 155 of the available 488 intern positions in Ireland are taken up by non-EU graduates. Thus the estimation of the number of additional intern places required as a result of increasing student intake, firstly assumes that intern positions are allocated to EU students only, and in the second instance assumes that all intern positions are open to both EU and non-EU graduates as is the case currently.

Projected Impact on Student Graduation:

- While the target intake of 485 EU students on the undergraduate stream is achieved by Year 4, graduation from this stream is maximised at 457 by Year 9 (the difference between intake and graduation is accounted for by attrition), while the first uplift in graduates is in Year 5.
- While the target intake of 240 EU students on the graduate stream is achieved by Year 4, the graduation from this stream is maximised at 226 by Year 8, (accounting for attrition[25]) while the first uplift is in Year 4.
- Overall the graduation of EU graduates per annum from both intake streams reaches a peak of 684 by Year 9.
- This intake strategy leads to a maximum of additional students in medical schools by Year 9 of 2104.
- The number of required clinical training placements does not increase until Year 3, when an additional 105 are needed. Thereafter, the number of students requiring clinical training placements increases each year until a plateau of 2104 additional students is reached in Year 11.
- If all intern positions are confined to EU graduates, and accounting for attrition, an additional 154 intern positions are required, introduced on a phased basis from Year 7 to Year 9.
- If non-EU graduates are allowed take up intern positions at 2004 levels, an additional 306 intern positions are required, introduced on a phased basis from Year 6 to Year 9.

[25] It should be noted that the current undergraduate attrition rate is applied to the graduate intake stream, since there is currently no graduate stream to measure against. It is possible that the profile of graduate entrants may present a different attrition rate in the future.

Scenario 2:-

Increase EU undergraduate intake by 45 per annum and increase EU graduate entry by 60 per annum over a four year period; decrease non-EU student intake to 422 for four years, a reduction of 55 per annum on current intake levels

Intake Assumptions:

- The annual intake of approximately 725 EU students is introduced on a phased basis over a four year period.
- During that period, the intake of EU students onto the five or six-year Undergraduate programme increases by 45 students per annum.
- In parallel, there is an annual intake of 60 EU students per annum onto a four or five-year Graduate programme.
- The intake of non-EU students is reduced from 477 to 422 per annum, a decrease of 55.

Table 4.3: Intake Model Scenario 2

	EU Undergraduate Stream		EU Graduate Stream		EU Summary		Non-EU Students		EU and non-EU Combined	
	Number	*% of EU Total*	*Number*	*% of EU Total*	*Total*	*% of Overall Total*	*Number*	*% of Overall Total*	*Numbers*	*Additional Students*
Year 0	305	100%	0	0%	305	39%	477	61%	782	0
Year 1	350	85%	60	15%	410	49%	422	51%	832	50
Year 2	395	77%	120	23%	515	55%	422	45%	937	105
Year 3	440	71%	180	29%	620	60%	422	40%	1042	105
Year 4	485	67%	240	33%	725	63%	422	37%	1147	105

Projected Impact on Student Intake By Year 4:

- There is an annual intake of 725 EU students, which is an increase of 420 from the 2003/4 EU student intake.
- Of these 485 (67%) follow an undergraduate programme, which is an increase of 180 from 2003/4.
- A further 240 (33%) students follow a graduate programme, which is an increase of 240 from 2003/4.
- EU students now comprise 63% of total student intake into medical schools, while non-EU students comprise 37% of student intake, reduced from 61% in 2003/4.
- In total, there are now 1147 students entering medical school, which is an increase of 50 each year over the four years. This represents an intake of 286 per million of population.

- Assuming that annual intake of non-EU students returns to 477 in Year 5, the temporary four-year reduction leads to an estimated loss of income to the five medical schools of c€22m[26] .

Graduation Assumptions:

- Based on 2003/4 ratios, assume that 31% of undergraduate entrants follow a 5-year programme and 69% follow a 6- year programme.
- Assume that 50% of graduate entrants follow a 4-year programme and 50% follow a 5- year programme.
- Based on 2003/4 ratios, assume that 56% of non-EU entrants follow a 5-year programme and 44% follow a 6- year programme.
- Assume that 5.7% of both EU undergraduate and EU graduate entrants will not complete the programme
- Assume that 6.1% of all EU students who complete the programme do not take up an intern position in Ireland.
- In the first instance, assume all current intern positions are made available to EU graduates only, and then that non-EU students are allowed take up intern positions at current levels

Table 4.4: Graduation Model Scenario 2

	EU Undergraduates		EU Graduates		EU Summary		Overall			
	Entrants	*Graduates*	*Entrants*	*Graduates*	*Entrants*	*Graduates*	*Max Add in School*	*Max Add Clinical Positions Required*	*Add Intern Positions- EU only*	*Add Intern Positions - non-EU also*
Year 0	305	–	0	–	305	–	0	–	–	–
Year 1	350	–	60	–	410	–	50	–	–	–
Year 2	395	–	120	–	515	–	205	–	–	–
Year 3	440	–	180	–	620	–	465	**50**	–	–
Year 4	**485**	–	**240**	**28**	**725**	**28**	830	205	–	–
Year 5	485	**301**	240	85	725	386	1220	465	–	–
Year 6	485	343	240	141	725	485	1567	830	–	120
Year 7	485	386	240	198	725	584	1833	1220	60	93
Year 8	485	428	240	**226**	725	654	1994	1567	66	66
Year 9	485	**457**	240	226	725	**684**	**2080**	1833	27	27
Year 10	485	457	240	226	725	684	2080	1994	–	–
Year 11	485	457	240	226	725	684	2080	**2080**	–	–

[26]This estimation is based on current levels of income in the university medical schools of c€22,000 per non-EU student per annum in the four university medical schools, and ce34,000 per non-EU student in RCSI, accounting for partial substitution by income from replacement undergraduate students at current average unit cost level of €8,500 per EU student per annum. The reduction in non-EU students is apportioned between the university medical schools and RCSI in line with the ratios of non-EU intake of 2003/4.

Projected Impact on Student Graduation:

- While the target intake of 485 EU students on the undergraduate stream is achieved by Year 4, graduation from this stream is maximised at 457 by Year 9 (accounting for attrition), while the first uplift in graduates is in Year 5.
- While the target intake of 240 EU students on the graduate stream is achieved by Year 4, the graduation from this stream is maximised at 226 by Year 8, (accounting for attrition) while the first uplift is in Year 4.
- Overall the graduation of EU graduates per annum from both intake streams reaches a peak of 684 by Year 9.
- This intake strategy leads to a maximum of additional students in medical schools by Year 9 of 2080.
- The number of required clinical training placements does not increase until Year 3, when an additional 50 are needed. Thereafter, the number of students requiring clinical training placements increases each year until a plateau of 2080 additional students is reached in Year 11.
- If all intern positions are confined to EU graduates, and accounting for attrition, an additional 154 intern positions are required, introduced on a phased basis from Year 7 to Year 9.
- If non-EU graduates are allowed take up intern positions at 2004 levels, an additional 306 intern positions are required, introduced on a phased basis from Year 6 to Year 9.

Scenario 3:-

Increase EU undergraduate intake by 45 per annum and increase EU graduate entry by 60 per annum over a four year period; simultaneously decrease non-EU student intake to approximately 25% of overall student intake

Intake Assumptions:

- The annual intake of approximately 725 EU students is introduced on a phased basis over a four year period.
- During that period, the intake of EU students onto the five or six-year Undergraduate programme increases by 45 students per annum.
- In parallel, there is an annual intake of 60 EU students per annum onto a four or five-year Graduate programme.
- The annual intake of non-EU students is reduced from 477 to 257, or approximately 25% of overall intake, over a four year period. This is achieved by an incremental decrease of 55 per annum.

Table 4.5: Intake Model Scenario 3

	EU Under-graduate Stream		EU Graduate Stream		EU Summary		Non-EU Students		EU and non-EU Combined	
	Number	*% of EU Total*	*Number*	*% of EU Total*	*Total*	*% of Overall Total*	*Number*	*% of Overall Total*	*Numbers*	*Additional Students*
Year 0	305	100%	0	0%	305	39%	477	61%	782	0
Year 1	350	85%	60	15%	410	49%	422	51%	832	50
Year 2	395	77%	120	23%	515	58%	367	42%	882	50
Year 3	440	71%	180	29%	620	67%	312	33%	932	50
Year 4	485	67%	240	33%	725	74%	257	26%	982	50

Projected Impact on Student Intake By Year 4:

- There is an annual intake of 725 EU students, which is an increase of 420 from the 2003/4 EU student intake.
- Of these 485 (67%) follow an undergraduate programme, which is an increase of 180 from 2003/4.
- A further 240 (33%) students follow a graduate programme, which is an increase of 240 from 2003/4.
- EU students now comprise 74% of total student intake into medical schools, while non-EU students comprise 26% of student intake, reduced from 61% in 2003/4.

- In total, there are now 982 students entering medical school, which is an increase of 50 each year over the four years, or a 25% increase on 2003/4intake levels. This represents an intake of 245 per million of population.
- The four-year reduction in non-EU student intake leads to an estimated loss of income to the five medical schools of c€87m[27].

Graduation Assumptions:

- Based on 2003/4 ratios, assume that 31% of undergraduate entrants follow a 5-year programme and 69% follow a 6- year programme.
- Assume that 50% of graduate entrants follow a 4-year programme and 50% follow a 5- year programme.
- Based on 2003/4 ratios, assume that 56% of non-EU entrants follow a 5-year programme and 44% follow a 6- year programme.
- Assume that 5.7% of both EU undergraduate and EU graduate entrants will not complete the programme
- Assume that 6.1% of all EU students who complete the programme do not take up an intern position in Ireland.
- In the first instance, assume all current intern positions are made available to EU graduates only, and then that non-EU students are allowed take up intern positions at current levels

Table 4.6: Graduation Model Scenario 3

	EU Undergraduates		EU Graduates		EU Summary		Overall			
	Entrants	*Graduates*	*Entrants*	*Graduates*	*Entrants*	*Graduates*	*Max Add in School*	*Max Add Clinical Positions Required*	*Add Intern Positions- EU only*	*Add Intern Positions - non-EU also*
Year 0	305	–	0	–	305	–	0	–	–	–
Year 1	350	–	60	–	410	–	50	–	–	–
Year 2	395	–	120	–	515	–	150	–	–	–
Year 3	440	–	180	–	620	–	300	**50**	–	–
Year 4	**485**	–	**240**	**28**	**725**	**28**	500	150	–	–
Year 5	485	**301**	240	85	725	386	670	300	–	–
Year 6	485	343	240	141	725	485	797	500	–	120
Year 7	485	386	240	198	725	584	874	670	60	93
Year 8	485	428	240	**226**	725	654	901	797	66	66
Year 9	485	**457**	240	226	725	**684**	**907**	874	27	27
Year 10	485	457	240	226	725	684	907	901	–	–
Year 11	485	457	240	226	725	684	907	**907**	–	–

[27] This estimation is based on current levels of income in the university medical schools of c€22,000 per non-EU student per annum in the four university medical schools, and c€34,000 per non-EU student in RCSI, accounting for partial substitution by income from replacement undergraduate students at current average unit cost level of €8,500 per EU student per annum. The reduction in non-EU students is apportioned between the university medical schools and RCSI in line with the ratios of non-EU intake of 2003/4.

Projected Impact on Student Graduation:

- While the target intake of 485 EU students on the *undergraduate* stream is achieved by Year 4, graduation from this stream is maximised at 457 by Year 9 (accounting for attrition), while the first uplift in graduates is in Year 5.
- While the target intake of 240 EU students on the *graduate* stream is achieved by Year 4, the graduation from this stream is maximised at 226 by Year 8, (accounting for attrition) while the first uplift is in Year 4.
- Overall the graduation of EU graduates per annum from both intake streams reaches a peak of 684 by Year 9.
- This intake strategy leads to a maximum of additional students in medical schools by Year 9 of 907.
- The number of required clinical training placements does not increase until Year 3, when an additional 50 are needed. Thereafter, the number of students requiring clinical training placements increases each year until a plateau of 907 additional students is reached in Year 11.
- If all intern positions are confined to EU graduates, and accounting for attrition, an additional 154 intern positions are required, introduced on a phased basis from Year 7 to Year 9.
- If non-EU graduates are allowed take up intern positions at 2004 levels, an additional 306 intern positions are required, introduced on a phased basis from Year 6 to Year 9.

Scenario 4:-

Increase EU undergraduate intake by 45 per annum and increase EU graduate entry by 60 per annum over a four year period; decrease non-EU student intake over a four year period to approximately 25% of overall student intake. However, in this scenario, both EU and non-EU undergraduate students undertake a 5-year programme, while all graduate entrants undertake a 4-year Programme

Intake Assumptions:

- The annual intake of approximately 725 EU students is introduced on a phased basis over a four year period.
- During that period, the intake of EU students onto a **five-year** Undergraduate programme increases by 45 students per annum. There is no six-year undergraduate programme[28].
- In parallel, there is an annual intake of 60 EU students per annum onto a **four-year** Graduate programme only.
- The annual intake of non-EU students is reduced from 477 to 257, or approximately 25% of overall intake, over a four year period. This is achieved by an incremental decrease of 55 per annum. All non-EU students undertake a **five-year** programme.

Table4.7: Intake Model Scenario 4

	EU Under Graduate Stream		EU Graduate Stream		EU Summary		Non-EU Students		EU and non-EU Combined	
	Number	*% of EU Total*	*Number*	*% of EU Total*	*Total*	*% of Overall Total*	*Number*	*% of Overall Total*	*Numbers*	*Additional Students*
Year 0	305	100%	0	0%	305	39%	477	61%	782	0
Year 1	350	85%	60	15%	410	49%	422	51%	832	50
Year 2	395	77%	120	23%	515	58%	367	42%	882	50
Year 3	440	71%	180	29%	620	67%	312	33%	932	50
Year 4	485	67%	240	33%	725	74%	257	26%	982	50

Projected Impact on Student Intake By Year 4:

- There is an annual intake of 725 EU students, which is an increase of 420 from the 2003/4 EU student intake.
- Of these 485 (67%) follow an undergraduate programme, which is an increase of 180 from 2003/4.
- A further 240 (33%) students follow a graduate programme, which is an increase of 240 from 2003/4.
- EU students now comprise 74% of total student intake into medical schools, while non-EU students comprise 26% of student intake, reduced from 61% in 2003/4.

[28]In 2003/4, 31% of EU undergraduate entrants embarked on a five-year programme, while 69% entered a six-year programme. This scenario assumes a move towards a five-year programme for all EU undergraduate students, in order to assess the impact such a move would have.

- In total, there are now 982 students entering medical school, which is an increase of 50 each year over the four years, or a 25% increase on 2003/4 intake levels. This represents an intake of 245 per million of population.
- The four-year reduction in non-EU intake leads to an estimated loss of income to the five medical schools of c€87m[29].

Graduation Assumptions:

- Assume that all EU undergraduate entrants follow a 5-year programme.
- Assume that all graduate entrants follow a 4-year programme.
- Assume that all non-EU entrants follow a 5-year programme.
- Assume that 5.7% of both EU undergraduate and EU graduate entrants will not complete the programme
- Assume that 6.1% of all EU students who complete the programme do not take up an intern position in Ireland.
- In the first instance, assume all current intern positions are made available to EU graduates only, and then that non-EU students are allowed take up intern positions at current levels

[29] This estimation is based on current levels of income in the university medical schools of c€22,000 per non-EU student per annum in the four university medical schools, and c€34,000 per non-EU student in RCSI, accounting for partial substitution by income from replacement undergraduate students at current average unit cost level of €8,500 per EU student per annum. The reduction in non-EU students is apportioned between the university medical schools and RCSI in line with the ratios of non-EU intake of 2003/4.

Table 4.8: Graduation Model Scenario 4

	EU Undergraduates		EU Graduates		EU Summary		Overall			
	Entrants	*Graduates*	*Entrants*	*Graduates*	*Entrants*	*Graduates*	*Max Add in School*	*Max Add Clinical Positions Required*	*Add Intern Positions- EU only*	*Add Intern Positions - non-EU also*
Year 0	305	–	0	–	305	–	0	–	–	–
Year 1	350	–	60	–	410	–	50	–	–	–
Year 2	395	–	120	–	515	–	150	–	–	–
Year 3	440	–	180	–	620	–	300	**50**	–	–
Year 4	**485**	–	**240**	**57**	**725**	**57**	500	150	–	–
Year 5	485	**330**	240	113	725	443	640	300	–	–
Year 6	485	372	240	170	725	542	730	500	5	174
Year 7	485	415	240	**226**	725	641	**770**	640	114	93
Year 8	485	**457**	240	226	725	**684**	760	730	40	40
Year 9	485	457	240	226	725	684	760	**770**	–	–
Year 10	485	457	240	226	725	684	760	760	–	–
Year 11	485	457	240	226	725	684	760	760	–	–

Projected Impact on Student Graduation:

- While the target intake of 485 EU students on the *undergraduate* stream is achieved by Year 4, graduation from this stream is maximised at 457 by Year 8 (accounting for attrition), while the first uplift in graduates is in Year 5.
- While the target intake of 240 EU students on the *graduate* stream is achieved by Year 4, the graduation from this stream is maximised at 226 by Year 7, (accounting for attrition) while the first uplift is in Year 4.
- Overall the graduation of EU students per annum from both intake streams reaches a peak of 684 by Year 8.
- This intake strategy leads to a maximum of additional students in medical schools by Year 7 of 770.
- The number of required clinical training placements does not increase until Year 3, when an additional 50 are needed. Thereafter, the number of students requiring clinical training placements increases each year until a plateau of 760 additional students is reached in Year 10.
- If all intern positions are confined to EU graduates, and accounting for attrition, an additional 154 intern positions are required, introduced on a phased basis from Year 6 to Year 8.
- If non-EU graduates are allowed take up intern positions at 2004 levels, an additional 306 intern positions are required, introduced on a phased basis from Year 6 to Year 8.

Observations on Intake Scenarios

The Working Group developed the preceding scenarios in an effort to understand the dynamics of a significant increase in EU-student intake, and in particular to examine the potential impact on graduation patterns, the increase in clinical training placements and the requirement for additional intern positions. Examination of these scenarios allows a number of observations to be made:

- If the increase in EU-student intake is phased over a number of years, the health service will not receive the full graduate benefit for a significant time. Thus, if the increase is phased over four years, it will take nine years to reach maximum annual graduation levels. Even if all medical schools move to a five-year undergraduate programme the target will not be achieved for eight years. Obviously increasing or decreasing the 'phasing-in' period has an equivalent impact on the time period for achieving the target of EU graduates. Therefore, it is important to understand that this is not a short-term solution to meeting the needs of the health service.
- The issue of clinical training capacity is critical. Increasing the intake of medical school students inevitably leads to an increase in the number of clinical training placements required. Based on a phased increase in EU-student intake to 725 per annum, it will take eleven years for the demand for clinical training placements to reach maximum and then plateau. Substituting EU students for non-EU students on a temporary basis appears to have little impact on the ultimate demand for clinical training places, although the rate of increase in demand does change depending on the scale and duration of the reduction in non-EU students, as is demonstrated in *Table 4.9*.

Thus, there is practically no difference between the demand for additional clinical training placements resulting from ***no*** reduction in non-EU students (demand plateau of 2,104), and the demand resulting from a *temporary* reduction in non-EU student intake by 125 per annum for four years (demand plateau of 2,049). Even if non-EU intake were reduced by 125 per annum indefinitely, the demand for additional clinical training places for students would still remain very high at 1,424. It should be understood that these figures reflect the additional numbers of students requiring clinical training in any particular year. The number of actual clinical training rotations will be a multiple of these figures, as a single student could have many clinical training rotations in any one year.

As indicated in *Table 4.9*, the Working Group has estimated that if non-EU students were reduced on a phased basis to 25% of student intake, or approximately 257 non-EU students in total, there would be a requirement for 907 additional clinical training placements. However, if the duration of the undergraduate programme were reduced to 5-Years, and the graduate intake restricted to a 4-Year programme, the requirement for additional clinical training places would plateau at approximately 760.

If the intake of non-EU students were reduced to 10% of student intake, or approximately 70 non-EU students in total, this would almost

eliminate the requirement for additional clinical training placements. However, such a significant reduction in non-EU intake is not feasible on economic or educational grounds. Therefore, the need for additional clinical placements, of between 760 and 2,100 depending on the adopted intake strategy, is unavoidable. Either end of this range represents a very significant increase in the requirement for clinical places. In the context of the current provision of clinical training, the Working Group believes that increased capacity of this scale can only be achieved through radical reform of clinical training.

Table 4.9: Additional demand for clinical training placements [30]

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
No reduction in non-EU students (i.e. 477 p.a.)	0	0	105	315	630	1050	1440	1756	1967	2073	2104
Reduce non-EU by 55 per annum for four years (i.e. 422 p.a.)	0	0	50	205	465	830	1220	1567	1833	1994	2080
Reduce non-EU by 55 per annum indefinitely (i.e. 422 p.a.)	0	0	50	205	465	830	1165	1457	1668	1774	1805
Reduce non-EU by 125 per annum for four years (i.e. 352 p.a.)	0	0	-20	65	225	550	940	1326	1662	1893	2049
Reduce non-EU by 125 per annum indefinitely (i.e. 352 p.a.)	0	0	-20	65	255	550	815	1076	1287	1393	1424
Reduce non-EU to c25% of total intake (i.e. 257 p.a.), indefinitely.	0	0	50	150	300	500	670	797	874	901	907
Reduce non-EU to c25% of total intake (i.e. 257 p.a.), indefinitely. Reduce programme durations to 4-Year/5-Year	0	0	50	150	300	500	640	730	770	760	760
Reduce non-EU to c10% of total intake (i.e. 73 p.a.), indefinitely	0	0	4	12	24	40	26	-5	-41	-80	-93

- As discussed previously, the admissions per million of population is an important metric to help determine the feasibility of intake strategies. In Ireland this metric is currently approximately 195 per million of population which is broadly equivalent to the U.K. (although the UK has a much higher proportion of EU students than Ireland) As demonstrated in these scenarios, if non-EU intake is capped at current levels, the admissions per million metric is 300, which is much higher than the level pertaining in the U.K. If non-EU intake is

[30] Assuming an increase in EU undergraduate intake of 45 per annum and EU graduate intake of 60 per annum for four years, reaching a total EU intake of 725 in the fourth year, this table shows the impact that varying reductions in non-EU students intake has on the number and timing of additional clinical training placements. It should be noted that the reduction in non-EU students is applied to the HEA 2003/4 intake data. Thus a reduction of 55 per annum for four years means that for that period, the intake of non-EU students is 'capped' at 422; while a reduction of 125 indefinitely means that the intake of non-EU students is 'capped' indefinitely at 352. It should also be noted that this table reflects the likely maximum number of clinical places required as attrition rates are not included, given that there is no reliable data to assess the point at which students leave the programme.

restricted to 25% of overall intake, the number of admissions per million of population is 245, which would still be significantly ahead of the U.K, and is extremely challenging in the context of the current inadequate educational infrastructure. The Working Group believes that it will not be possible to increase EU intake to the levels required while retaining non-EU intake at current levels (i.e. 300 admissions per million), and indeed that the target of a non-EU intake of 25% (i.e. 245 admissions per million) is possible only in the context of significant reform.

- As stated previously, an increase in student intake will lead to an increased requirement for intern positions. This is essential in order to allow graduates to complete their full professional registration in Ireland. If the intake of EU-students is increased to 725 per annum, and assuming a reduction in non-EU intake to 25% of overall intake, there will be a requirement to create between 153 and 306 additional intern positions[31]. The lower figure applies only if all intern positions are allocated to EU students only. Given that this is unlikely to occur, it is probable that about 300 additional intern places will be required. This increased demand will occur six years after the commencement of the changed intake pattern, and has significant organisational, staffing and financial implications for the health service.
- The impact of reducing the undergraduate programme to five years and the establishing a four year graduate programme is very significant. Not only does it result in earlier graduation of students, it also reduces the overall number of students requiring clinical placements by approximately 15%, given that the students are in school for a shorter period. However, while the overall number of students requiring clinical placements may be reduced, the length and intensity of each student's clinical placements may increase.
- In order to assist in determining the optimum intake strategy, it is important to understand the levels of income foregone through the substitution of non-EU students. It should be understood that the loss of one fee-paying non-EU student results in a consequential income loss for five or six years depending on the duration of the educational programme.

  As outlined in *Table 4.10*, it is clear that a number of the potential substitution scenarios result in very significant loss of income to the medical schools and that as the number of additional clinical training places required decreases, the loss of income from non-EU students' increases. The scale of foregone income would be partially mitigated by income related to the substituting EU students. This is explored in more detail in the Implementation and Costing section of this report.

[31] It has been suggested to the Working Group, although this has not been verified, that some EU graduates are unable to gain intern positions in Ireland currently, and that they must complete their internship outside Ireland. If this is the case, the requirement for additional intern positions may be greater and more immediate, than is indicated in these scenarios. This issue should be assessed further during implementation.

Table 4.10: Potential Loss of Income as a result of reducing non-EU student intake

	% EU Intake of Total after 4 Years	% non-EU Intake of Total after 4 years	Maximum Additional Clinical Placements Required	Estimation of Foregone non-EU income [32]
No reduction in non-EU students (i.e. 477 p.a.)	60%	40%	2104	0
Reduce non-EU by 55 per annum for four years (i.e. 422 p.a.). Thereafter increase non-EU intake to 477 again.	63% (thereafter, 60%)	37% (thereafter, 40%)	2080	€32m
Reduce non-EU by 55 per annum indefinitely (i.e. 422 p.a.)	63%	37%	1805	€32m (for each block of four years)
Reduce non-EU by 125 per annum for four years (i.e. 352 p.a.) Thereafter increase non-EU intake to 477 again.	67% (thereafter, 60%)	33% (thereafter, 40%)	2049	€74m
Reduce non-EU by 125 per annum indefinitely (i.e. 352 p.a.)	67%	33%	1424	€74m (for each block of four years)
Reduce non-EU to 25% of total intake (i.e. 257 p.a.), indefinitely. Phase reduction evenly over first 4 years.	75%	25%	907	€74m (for first four years) €117m (for each block of four years thereafter)
Reduce non-EU to 10% of total intake (i.e. 73 p.a.), indefinitely. Phase reduction evenly over first 4 years.	90%	10%	40	€144m (for first four years) €230m (for each block of four years thereafter)

[32] These estimations of foregone income are based on the following:

- That non-EU students follow same pattern of 5 and 6 year programmes as the 2003/4 intake
- That income is foregone by the university medical schools and by RCSI in proportion to their intake of non-EU students in 2003/4. This is relevant because of the higher fees charged by RCSI
- These estimations indicate the level of income that would be foregone over the lifetime of the programme by medical schools if non-EU student intake were reduced. No account is taken of additional income received for the increase in EU students, although this would be a fraction of income foregone in any event.

4.3. Recommendations on Student Intake

Having regard to the many issues involved, the Working Group puts forward the following recommendations regarding student intake into Irish medical schools.

Recommendations

1) **Increased intake of EU students to align with health service needs**

The Working Group recommends that the intake of EU students into Irish medical schools be increased to approximately 725 students per annum on the following basis:

- The increased intake is phased over a four year period
- By the end of this phased increase, there should be an approximate 60:40 ratio between intake to the undergraduate and graduate programmes[33]
- In the light of the current restriction on clinical training places, that the proportion of non-EU students in programmes requiring clinical training should be no greater than 25% of total student intake by the end of the phased increase in EU students. This proportion should be maintained in the future, subject to ongoing review.
- That the undergraduate programme should normally be of five-year duration, and graduate programmes of four-year duration for students with appropriate prior educational experience.
- In order to maximise the educational experience for all students, that undergraduate, graduate and non-EU students should be allocated across all schools.
- That additional clinical training capacity be developed in line with need
- That additional intern positions be provided in line with need

2) **Integrated strategies to address graduate retention**

In parallel with the increase in student intake, the Working Group recommends that an integrated strategy[34] be developed and implemented to address the issue of graduate retention, and that such a strategy should address:

- Creating a positive experience of working in the health service for medical students
- Providing proactive career guidance support for medical students and interns
- Provision of sufficient intern positions to enable EU graduates to remain in Ireland at a minimum until registration

[33] Refer to the Entry to Medical Education section (Chapter 6) of this report for more detailed recommendations regarding the introduction of a graduate entry stream.

[34] The Working Group understands that many of these issues are under consideration by the Postgraduate medical Education and Training Group, and will be addressed in its report.

- Establishment of high-quality, coherent and accessible post-graduate training opportunities and pathways for graduates
- Identifying and resolving issues relating to working conditions, particularly those likely to discourage qualified professionals such as flexible and family-friendly working conditions

3) **Provision of high quality clinical training capacity**

The Working Group recommends that a strategy for the development of clinical training capacity[35] and quality be implemented immediately. This strategy should address:

- The introduction of an accreditation process for all clinical sites involved in clinical training of medical students and to allow for expanded participation of clinical sites in clinical training
- In particular to provide incentives for primary, community care and public health sites as well as current non-teaching hospitals to participate in clinical training
- Dedicated funding to support the expansion of clinical training site facilities and support infrastructure
- Dedicated funding to support the provision of clinical teaching time
- Introduction of formal arrangements between medical schools, healthcare providers and clinicians relating to the provision of clinical training on healthcare sites and with health service resources

4) **Ongoing national oversight on intake strategy**

The Working Group believes that the alignment of health service staffing requirements, student intake onto undergraduate and graduate streams, the balance between EU and non-EU student numbers at a national level, the provision of adequate numbers of quality clinical training placements, and the availability of intern positions is a complex and evolving task. It is essential that a national perspective[36] be maintained on these issues in order to ensure that any necessary modifications to the strategy proposed by the Working Group are identified and acted upon. Therefore, the Working Group recommends that an inter-departmental steering group comprising the Department of Education and Science, the Department of Health and Children, the Health Service Executive and the Higher Education Authority take responsibility for ongoing monitoring and modification of national student intake strategy, in light of workforce planning.

[35]Refer to Chapter 7: *Clinical Training* for more detailed discussion of clinical training requirements

[36]Refer to Chapter 8: *Oversight of Medical Education and Training* for more detailed discussion of ongoing oversight issues

Comment

The Working Group recognises that these recommendations will pose significant challenges for universities, medical schools and the health services. However, it is important to understand that these recommendations reflect a national need and that meeting this need should be considered an opportunity for collaboration, educational innovation and creativity. It is also important to state that these recommendations can only be implemented in the context of the reform of funding for medical education as discussed later in this report.

5. Educational Programme And Curriculum

5.1. Introduction

Medical education must prepare graduates for life and work in a complex, challenging and changing world. A broad range of knowledge, skills, competencies, attitudes and values are required, combined with lifelong learning to cope with the evolution of scientific knowledge and professional practice.

Medical education must prepare medical students for this constantly evolving environment. It must seek to select and develop students of the highest quality and potential; continually strive to improve its commitment to learning and teaching outcomes; and it must remain focused on nurturing and graduating students who contribute to the greater health and wellbeing of society.

Not only must medical education reflect best practice education, it must also respond to – and sometimes lead – progress within medicine itself. Developments such as genetic screening, gene therapies, MRI scanning as well as problem-based learning and simulation-training reflect the fundamental changes that have occurred in both medicine and education in recent decades. In such an evolving environment, the need for dynamic curricula and effective teaching and learning strategies is clear.

Developing international standards

Worldwide, more than 1600 undergraduate medical schools currently exist with wide variations in quality and practice[37]. The rapid internationalisation of medicine, increasing mobility of medical workforces and fast pace of scientific and technological change have demonstrated the need for high international standards for the organisation, content and delivery of medical education.

Serious threats to the quality of medical education have been clearly identified both in Ireland[38] and other countries[39]. Problems include overloading students with factual information, excessive reliance on passive teaching methods, fragmented courses, lack of personal development opportunities, inadequate exposure to community medicine and general practice, lack of preparation for the role of a doctor and for professional responsibilities and poor involvement of students in evaluating their own curricula.

Bodies such as the World Federation for Medical Education (WFME)[40] and the US Licensing Commission for Medical Education (LCME)[41] have developed wide-ranging guidance on undergraduate programmes. WFME, through initiatives like the Edinburgh Declaration of 1988[42], has developed standards which now form the basis of undergraduate education in many countries, including many in the EU. LCME standards are used for all US and Canadian schools. Medical education in the UK, Australia and New Zealand is similarly subject to published accreditation standards[43].

[37] World Directory of Medical Schools 2000-2003, World Health Organisation

[38] Review of Medical Schools in Ireland, Medical Council, Dublin, 2003

[39] Tomorrow's Doctors, General Medical Council, London, 1993

[40] Basic Medical Education – WFME Global Standards for Quality Improvement. WFME, Copenhagen, 2003

[41] LCME Accreditation Guidelines for New and Developing Medical Schools. LCME, Washington, 2003

[42] World Federation for Medical Education, The Edinburgh Declaration. Lancet, 1988

[43] Tomorrow's Doctors, Recommendations on Undergraduate Medical Education. GMC, 2003; Assessment and Accreditation of Medical Schools, Standards and Procedures. Australian Medical Council, Canberra, 2002

A framework for good educational practice

Good practice in medical education need not adhere to a uniform structure or formulaic content. Within broad limits, innovative educational strategies can foster diversity in design and delivery. However, it is essential that the broad outcomes of medical education should reflect key themes:

- Competent, sustainable patient care
- Preparing doctors for the needs and expectations of society
- Good working relationships with patients and colleagues
- Professional standards and continuing development
- Preparation for lifelong learning and for the changing scientific environment

International standards highlight the need for medical schools to structure themselves around broad domains which include:

- A mission and objectives in which preparation for patient care is the focus
- Governance and administration of the medical school
- Quality educational programmes
- Valid, reliable and fair assessment procedures
- Effective student welfare procedures
- Support for academic staff/Faculty
- Appropriate educational resources
- Continuing programme evaluation
- Continuous renewal

5.2. Submissions to the Working Group on Curriculum

A number of submissions were critical of the focus on hospitals as the primary clinical training arena, and the lack of attention paid to general practice and community care, where medicine is mainly practised. Concern was also expressed regarding the minimal exposure to general practice and public health in the medical education curriculum, an issue that was also raised by the Medical Council in their 2003 Review of Medical Schools in Ireland.

Some submissions to the Working Group referred to the inability of medical graduates to perform basic skills and that the intern year had evolved into a period during which essential skills were acquired. The lack of integration between the undergraduate programme and the intern year was emphasised.

Many submissions raised the issue of interdisciplinary working and felt that doctors had not been sufficiently exposed to working in teams with other health-service disciplines and that this reflected a segregation and separation of the healthcare disciplines throughout their education and training. It also points to the lack of oversight or governance structures to promote and support multidisciplinary approaches to healthcare education and training.

Another issue raised in submissions was the lack of exposure of medical students to health service management issues. It was felt that there was a major gap in relation to training in the use of

technology, financial management, leadership, clinical governance and management skills. This issue reflected the perception that the medical education curriculum has changed little over the years and that certain specialisms dominate to the detriment of others.

5.3. Views of the Working Group on Curriculum

Moving to a new model of medical education

Medical education in Ireland is based largely on a traditional model. The early years of the programme are dominated by large group lectures and practicals and the latter years are based in a large teaching hospital attached to a clinical team receiving both formal and informal clinical instruction. A high degree of self directed activity on the part of the student in learning how to interview and examine patients is required.

However, international standards in medical education describe a model that involves considerably more intensive small group interaction throughout the programme with at most 20 students per group. Not only is this more labour intensive[44], but the setting of formal educational objectives in relation to knowledge, skills and competencies also implies that a wider range of teaching and learning approaches is required. In this new model of medical education there will be more students, more diverse delivery settings, more small-group work and interaction, including mentoring procedures and more inter-disciplinary contact. This therefore involves considerable logistical support on a scale not seen to date. The gain will be graduates more fitted to the complex, increasingly multi-cultural society Ireland has become.

Meeting international benchmarks

In its Review of Medical Schools in Ireland 2003, the Medical Council found that "some schools are falling below some of the WFME (World Federation of Medical Education) international benchmarks". Furthermore, it states that "while significant progress has been made in the pre-clinical area .... (the Medical) Council is not satisfied that a core curriculum is in place in the clinical area of undergraduate medicine ..... most clinical teachers have major contracts with the health services and minor or non-existing contracts with the universities ..... some schools have little or no control or oversight of their curricula ..... little or no leverage to introduce modern teaching and learning methods"

The Working Group confirms and supports the views of the Medical Council, and believes that medical education in Ireland faces significant challenges in achieving and sustaining quality to international standards, most particularly in light of a significant increase in student intake.

Growth in student numbers

One of the most critical issues facing medical education is the imminent increase in student numbers. This increase creates difficulties of a financial and clinical capacity nature, but it also presents a significant curriculum challenge. The transition towards internationally accepted best practice, such as small group teaching, problem-based learning and broadly based clinical

[44] Typically, the replacement of a single 1 hour plenary lecture delivered by a senior member of staff will involve at least 5 tutor staff

experiences is rendered even more challenging by the parallel increase in student intake.

Clinical Teaching

The issue of the arrangements between medical schools, the health service and clinicians is dealt with in more detail later in this report. However, it is important to note that even though clinical training forms up to 50% of the overall undergraduate curriculum, most clinical teaching is carried out on a voluntary basis with little or no possibility of oversight or quality assessment by the Medical School. The Working Group asserts that it is not possible to define, deliver and assess a high quality educational programme in the absence of a formal agreement between medical school, clinical site and clinician regarding curriculum objectives, methodologies, timing and assessment.

Defined Educational Outcomes

The Working Group considers it essential for medical schools to focus on learning outcomes in terms of knowledge, skills, competencies, values and attitudes, as this is ultimately what defines the success of the educational programme. In 2000 the Scottish Deans' Medical Curriculum Group[45] stated: "Outcome-based education focuses on the end-product and defines what the learner is accountable for". The Working Group believes that there has been insufficient focus on explicitly stated learning outcomes within medical education in Ireland, and that the definition of desired outcomes[46] is the starting point in the development of a structured educational programme. It is the responsibility of each medical school to develop an educational programme that is based on achieving defined core outcomes, while optimising its own unique strengths and tradition as a medical school. To support external assessment, accountability and student awareness, it is important that each medical school makes publicly available its educational outcomes, and the details of the programme through which these outcomes are achieved.

Clinical Learning Opportunities

In its Review of Medical Schools 2003, the Medical Council states that "future doctors need a balance of clinical learning opportunities in order to allow them to respond to the changing needs of society ..... the absence of change (since the previous review) is disappointing". In particular the Council notes the need to more fully integrate areas such as the behavioural sciences into the curriculum. The Working Group strongly endorses this view. The base of theoretical knowledge provided by a medical education should be broadened to include social and behavioural sciences and there is a particular need to greatly increase the exposure to clinical training in the general practice, community and public health settings which comprise the majority of actual day-to-day medical care settings in the health service. Medical schools should seek to incorporate such a shift in emphasis into their education programme.

Teaching and Learning

The framework for good practice outlined above has clear and specific implications for teaching and learning in medical schools. International

[45] Learning Outcomes for the Medical Undergraduate in Scotland, March 2000

[46] Medical schools can draw from a number of international sources in order to define outcomes, many of which have already been referred to. For example, Scottish Doctors, WFME and LCME Guidelines, Medical Council Reports, International Research on Medical Education etc

experience demonstrates that innovation and creativity in the medical curriculum and its delivery are essential if graduates are to be adequately prepared for a lifetime of practise in the constantly changing environment of medicine in the 21st century

The key challenge can be expressed as follows: how is it possible to give students the very broad range of knowledge, skills and competencies which are or may be required for patient care, yet at the same time not require students to learn excessive amounts of information or overload the curriculum.

The Working Group believes that the only viable response to this challenge, which is now becoming embedded as best educational practice, is first to concentrate on learning outcomes, and define the core outcomes which are required of every medical practitioner. Student learning must be directed in the first instance to these core outcomes. However, in order to develop greater depth of understanding, and advanced lifelong learning skills, it is important that students have the opportunity to study some topics in considerable depth, but equally important that such in-depth study is confined to a manageable number of areas. The development of explicit 'programme outcomes' for a programme of undergraduate medical education, which are often divided into specific and generic knowledge and competencies, is the first step to the development of an appropriate and balanced curriculum. The subsequent curriculum development usually defines a 'core-and-options' curriculum which combines a core curriculum with in-depth study in a number of optional areas which can be tailored to the aptitudes, interests and goals of the individual student.

Curricular reform offers the opportunity to rebalance the curriculum in a variety of ways, shifting the balance from teaching to learning, from facts to ways of thinking and analysing, from biological sciences to social and behavioural sciences. This is not to suggest that didactic teaching, factual knowledge and the biomedical sciences do not form an important part of the preparation for medical practice, but merely that their place in the curriculum could be more balanced than at present.

It is worth reiterating that the learning and thinking skills developed by students are as important as the knowledge learned. Critical thinking is an important attribute of the rounded graduate. Lifelong learning skills and in particular the capacity for self-direction in future learning are essential professional attributes.

Against this background, the medical school must identify and incorporate in the curriculum the contributions of the behavioural sciences, social sciences, medical ethics and medical jurisprudence that enable effective communication, clinical decision making and ethical practices.

There is clear research evidence that a major determinant of learning approaches by students is the form of assessment. Sustainable deep learning will only occur if appropriate assessment methods are used. The medical school

must define and state the methods used for assessment of its students, including the criteria for passing examinations. Assessment principles, methods and practices must be clearly compatible with educational objectives and must promote learning. The number and nature of examinations should be adjusted by integrating assessments of various curricular elements to encourage integrated learning.

The principles outlined above have important implications for the delivery of the curriculum and the settings in which learning occurs:

- Students must have different teaching and learning opportunities that combine an appropriate balance of teaching in large groups with small groups, practical classes and opportunities for self-directed learning.
- Students must have access to appropriate learning resources and facilities including libraries, computers, lecture theatres and seminar rooms. The quality of facilities should be regularly reviewed to make sure they are still appropriate. Students must be able to comment about the facilities and suggest new resources that should be provided.
- Clinical education must reflect changing patterns of healthcare and must provide experience in a variety of environments including hospitals, general practices and community medical services.
- Early involvement in the delivery of healthcare is essential. This might involve visiting families expecting a baby, visiting an elderly or disabled person, or taking part in community projects that are not necessarily medically related. Such contact with patients encourages students to gain confidence in communicating with a wide range of people, and can help develop their ability to take patients' histories and examine patients.
- Students must have opportunities to develop and improve their clinical and practical skills in an appropriate environment (where they are supported by teachers) before they use these skills in clinical situations. Skills laboratories and centres provide an excellent setting for such training.
- During the later years of the curriculum, students should have the opportunity to become increasingly competent in these skills and in planning patient care.
- Students must be properly prepared for their first day as an intern. As well as the induction provided for interns, students should have opportunities to shadow the intern in the post that they will take up when they graduate.
- Medical schools should explore and, where appropriate, provide opportunities for students to work and learn with other health and social care professionals.

The emphasis placed on continuous renewal of the educational programme is an important concluding point. A key enabler of successful, student-centred curricular reform is to involve students in the quality enhancement process: students should not only be clear about their programme but should have some responsibility for the design, planning and evaluation of the

course. The process of medical education can never be static or 'finished' and requires fresh thinking, continuous exchanges of experience and insightful research.

The medical education and training system should provide for a vertical integration of the curricula and learning outcomes, so that the competencies developed at undergraduate level can be enhanced systematically at internship and at each step of postgraduate training and continued professional development.

Graduate Entry Stream

Later in this report, the Working Group will recommend the introduction of a graduate entry stream to allow well-qualified graduates of any discipline to apply for entry to a medical education programmes. It is anticipated that these students will undertake a four year programme, based on appropriate prior educational experience. It is acknowledged that this initiative will require the development of an education programme specific to the profile of graduate-level learners and their varied backgrounds.

Student Welfare

Generally, EU students enter medical school having undergone an extremely intensive second level programme, where the pressure to perform at the highest levels is intense. The world they enter in medical school is equally arduous and challenging and is compounded by the fact that particularly in the first year, large group teaching with minimal one-to-one interaction with teaching staff is the norm.

They also experience a unique and challenging environment when they move to the clinical training element of the programme. In its 2003 Review of Medical Schools in Ireland, the Medical Council describes the frustration experienced by students during the period of clinical training, where there can be '30% no-show rates for clinical teaching sessions', by busy health service clinicians.

In addition, it is important to realise that over 60% of students are non-EU, and may potentially suffer from isolation and from language and cultural differences and indeed racist attitudes in some instances.

The Working Group believes that it is essential that medical students are provided with a challenging but supportive environment where their potential is maximised and their knowledge, skills and competencies developed. All those involved in medical education must address the issue of student welfare in a constructive manner.

One of the main issues relating to student welfare is the fact that students engage with both the education and health service sectors. Healthcare workers who are under tremendous pressure to deal with increasing service demands may feel that medical students are somewhat of a hindrance and add little benefit to the workings of the clinical site. Similarly, groups of students can be an inconvenience for patients if they attend in large groups or too often. Medical students often sense this ambivalence about their role and have expressed the view that at times they feel unwelcome in the clinical setting.

It should be understood that the Irish healthcare system as experienced by medical students can have an adverse impact on students' desire to work in that system on graduation. A recent survey[47] of medical students in Ireland is instructive in this regard – a high percentage of students in medical school in Ireland intend to leave Ireland upon graduation (although it should be noted that some of these students are not EU citizens). In the context of the extreme need for additional medical graduates as articulated in the National Task Force on Medical Staffing and the need to retain such graduates in Ireland, it is important that students' experience of the health service is positive and affirming.

Occupational health services are now already developed in the major teaching hospitals. On entry to clinical training, students should have access to these services so that their immunisation and other preventive health issues can be dealt with. This will also allow them to become familiar with the potential value of these services for their mental and physical wellbeing throughout their working lives.

5.4. Recommendations on Educational Programme and Curriculum

The educational programme is central to the achievement of the outcomes of medical education. While it is reasonable to approach change with a degree of caution, it is important that all stakeholders in medical education recognise that raising the quality of medical education has a direct impact on the quality of health service provision and that this is an issue of significant public interest, and indeed is fundamental to the objective of radically reforming the provision of healthcare in Ireland.

The Working Group believes that certain changes are essential if the quality of medical education in Ireland is to be raised and sustained at a level sufficient to achieve the required learning outcomes. In this context, the Working Group makes the following set of recommendations:

Recommendations

1) **Development and publication of structured educational programmes**
The Working Group recommends that each medical school should define and publish a structured educational programme which includes:

- A defined set of programme outcomes regarding knowledge, skills, competencies, values and attitudes, informed by core sets of principles as outlined in national and international guidelines on medical education.[48]
- A programme structure which outlines how programme outcomes are to be achieved, defining core, optional and elective modules and programme regulations.
- A curriculum for each module including details of module co-ordinators, learning outcomes, assessment, core content, instructional methodology, clinical placements, facilities and staffing.

[47]Irish Medical Students Association, National Survey, 2004.

[48]Principles such as those included in the vision for medical education in this report; various legislative and regulatory requirements; WFME and Medical Council guidelines; international good practice such as the 'Scottish Doctors'; and international good practice in education.

- Quality assurance mechanisms

  This published educational programme will form the basis of internal quality assessment as well as external peer-review, and will also assist students in understanding the educational programme prior to and during their medical education. While the content, emphasis and pedagogy of educational programmes may vary from school to school, it is important that all programmes address the key themes of:

- Competent, safe and sustainable patient care
- Preparing doctors for the needs and expectations of patients, their families and society.
- Good communication skills and working relationships with patients, relatives, carers and health service colleagues.
- Professional standards and continuing professional development.
- Preparation for lifelong learning and for the changing knowledge, technological and practise environment.

  In the medium term, the medical schools are encouraged to collaborate on the development of national guidelines on core learning outcomes for medical undergraduates in Ireland, taking account of the needs of the Irish health service, while accommodating the particular strengths, specialisations and innovations of individual schools.

2) **Key roles within the medical school and on clinical sites**

The Working Group recommends that each medical school must establish a senior role (e.g. Dean for Teaching and Learning) that has full responsibility for the entire undergraduate curriculum. This post will be responsible for ensuring that:

- Explicit educational outcomes are defined and agreed.
- The curriculum to deliver these outcomes is specifically documented.
- The curriculum is coherent and consistent across all departments.
- Educational integrity is maintained throughout.
- Innovation and excellence in teaching are promoted.
- The logistics involved in clinical training are effectively managed.

Further, each medical school should establish a dedicated post of Director of Clinical Education with responsibility for all partner clinical training sites or networks, and who is responsible for the

co-ordination and oversight of clinical training activities. In particular he/she is responsible for liaison with clinicians on that site and also with the health provider's clinical training administrator, and with those formally responsible for post-graduate education. There should be an awareness of the opportunities to coordinate clinical placements across the disciplines and between undergraduate and postgraduate medical training. This is also essential in order to identify opportunities for cross-professional team working at undergraduate level that has been identified as a serious problem in many submissions to the working group.

Each clinical setting should designate a senior post of Clinical Training Administrator. This person will act as the liaison person between the clinical site or network and the medical school (through the school's Director of Clinical Education), and is responsible for logistical and administrative issues relating to capacity, timetabling, and resources, particularly in light of the demands being made on resources from other sources. It is understood that in a clinical cluster arrangement involving several sites, there may be a need for multiple coordinators, but they should all work through a central coordinator.

6. Entry To Medical Education in Ireland

6.1. Introduction

The issue of entry to medical education in Ireland was referred to the Working Group for consideration on foot of a commitment in the Programme for Government 2002. The Working Group presented an interim report on this issue to the then Minister for Education and Science, Mr. Noel Dempsey T.D., in July 2004.

In Ireland, the access routes for individuals who wish to pursue a career in medicine are very limited. The predominant entry method is undergraduate entry on the basis of performance in the Leaving Certificate. A small number of graduates also enter annually on the basis of selection by individual medical schools and there are small-scale access programmes for students from disadvantaged backgrounds.

In an international context, there is ongoing reform and change in the selection of students for medical education, with a view to increasing the number of access routes and diversifying the academic and social background of the student population.

The Working Group is also aware that within Ireland, a more general process of reform and change is underway in regard to the whole health sector, as service delivery requirements change in response to population needs. Key reports such as the Report of the National Task Force on Medical Staffing (2003), the National Health Strategy (2004) and Primary Care, A new direction (2001) have signalled a new approach to health education and service delivery.

The Working Group outlines recommendations for a new approach to entry to medical education in Ireland, which will provide opportunities for students to enter the medical profession at multiple entry points and provide entrants from more diverse backgrounds.

6.2. Submissions to the Working Group on Entry

The Working Group received a large number of submissions regarding the issue of entry to medical education.

Many of the submissions made to the Working Group supported change in the current mode of entry to medical education. It was felt that a model of entry dominated by school-leaving results had important negative consequences of great concern. First, students had to make major career choices at an unnecessarily young age. Second, the demand so far exceeds supply that extraordinary academic performance is required at second level to gain entry. This 'points race' has an acknowledged negative effect on teaching and learning at second-level. Third, it resulted in fewer opportunities for mature applicants, and limited pathways into the medical profession.

However, many submissions also identified problems with the introduction of an exclusive graduate entry model. It was possible that excellent students with high points in the Leaving Certificate who wished to study medicine would opt to do so directly in the UK rather than to pursue an initial undergraduate degree in Ireland, although it should be noted that some

Irish students are currently entering graduate-entry medical education programmes in the U.K. because of the unavailability of such an option in Ireland. In addition, the introduction of exclusive graduate entry may result in additional costs to the State, and may have the potential to further favour socio-economically advantaged students, unless specific measures were taken to prevent this. Submissions also recommended a sequenced and structured approach to the introduction of graduate entry.

On balance, the submissions were in favour of diversification of the entry system to medical education. The general consensus from the submissions was that the medical education system should provide for a mix of undergraduate and graduate entry students.

6.3. Views of the Working Group on Entry

In the context of an evolving healthcare system in which the service delivery requirements are changing to respond to growing population needs, the Working Group now believes that there is a very real opportunity to reform the system of selecting medical students, and that this reform will diversify the mix of entrants and provide for a second-chance entry to medical school.

The Group supports the consensus emerging from the submissions that a multi-streamed entry model, comprised of both undergraduate and graduate entry methods, should be introduced in Ireland. The Group believes that moving to the multi-streamed entry model can, if implemented properly, increase equity of access and enhance the diversity in background of entrants to the medical profession. The Group also believes that the new model can help to mitigate the negative impact of the 'points-race' phenomenon on second-level students going through the senior cycle.

In order to achieve these objectives, the Working Group believes that a multi-streamed entry model must adhere to a number of key principles:

- The proportion of entry from different streams must be reasonably balanced.
- The undergraduate selection mechanism should not be exclusively coupled with Leaving Certificate results; any new selection mechanism must however still ensure that students selected have the intellectual and emotional capability to undertake and graduate from highly demanding medical education courses.
- The entry method must be seen to be fair and transparent.
- This process of reform must take place on a carefully sequenced and structured basis with built-in ongoing evaluation of outcomes.
- The process should be evidence-based and conform to best international practice.

6.4. Recommendations on Entry to Medical Education

Recommendations

1) **Introduction of a graduate entry stream**

Having regard to the emerging consensus and the key principles outlined previously, the Working Group recommends that a graduate stream of entry to medical school in Ireland be introduced.

All graduates of honours Bachelor degree programmes (National Qualification Authority of Ireland (NQAI) Level 8) should be eligible to apply for entry to the medical education programme, and should not be required to have completed any specific type of degree programme.

In line with international standards, the selection method to be used should be based on an appropriate test (e.g. MCAT, GAMSAT, UMAT or some derivative[49]). Applicants should be ranked for entry in order of merit in terms of score on the entry test. There should be a limit on the number of times a student may sit the entry test.

The selection process should be administered independently of the medical schools by a national agency such as the CAO, with applicants indicating their choice of medical school in order of preference.

Graduate entrants chosen on the basis of appropriate educational experience should ordinarily be able to anticipate completion of their medical degree in four years.

2) **Entry to undergraduate medical education programme should not be exclusively coupled with Leaving Certificate performance**

The Working Group considered the different means available for the selection of students entering under-graduate medicine including second level achievement, standardised tests, interviews and references/non-academic achievement.

While second level achievement in terms of exam results is clearly a predictor of future academic performance where such performance is measured using knowledge-based exam assessments, characteristics such as interpersonal skills, integrity and professionalism are also very important. Exam results in themselves can also be a function of educational and socio-economic background as well as student ability.

[49] See Appendix 11.2 for further details on the use of standardized selection tests in other countries.

The Group noted the development of standardised tests within the UK and Australia to assist in the selection of school-leaving students who are seeking to enter medical education. The stated aim of these standardised tests is to examine an applicant's ability and fundamental understanding rather than factual knowledge. The Group was cognisant of recent UK research, sponsored by the Sutton Trust, indicating that standardised tests are less sensitive to socio-economic backgrounds than school-leaving results.

Interviews, references and reports of non-academic achievements are subjective measures and can be subject to bias. Within Ireland, there is a wide confidence in the fairness and transparency of the selection system operated through the CAO, which essentially relies on objective measures. The Group considered that incorporation of subjective measures such as interviews and references/ reports in selection of medical students would be very problematic and would not command the same confidence as anonymous testing.

The Working Group considers that the models of practice emerging internationally are helpful in considering a way forward in Ireland. In particular, the combination of a specified minimum level of performance in the Leaving Certificate, together with a further objective and independent test of student-related generic thinking skills and aptitudes for medicine offers a very real means of developing a broader-based entry mechanism. International practice appears to be trending towards the use of multiple selection tools rather than complete reliance on any single tool. For example, Oxford Medical School shortlists applicants for interview on the basis of GCSE academic results and performance in the Biomedical Admissions Test. Final selection is made following interview.

In this context, the Group recommends that the Leaving Certificate should no longer be used as the sole selection method for entry to medical education at undergraduate level, but that a two-stage test should be applied for entry. The first stage would be based on Leaving Certificate performance – all students would be required to achieve at least 450 points. This represents the top 16% of CAO applicants[50]. The second stage of selection would be based on a standardised test (e.g. MCAT, BMAT[51], UMAT, SAT), where applicants would be ranked for entry on the basis of performance in that test.

A quota of places would be reserved in each medical school for students from disadvantaged backgrounds. These places would be allocated on merit to school-leavers from such backgrounds, who have achieved the qualifying standard of 450 points, on the basis of their performance in the standardised test. The quotas would be set as a proportion of all places having regard to national policies on access.

[50] www.cao.ie, 2003 statistics

[51] BMAT- the BioMedical Admissions Test is used as part of the selection procedure for medicine, veterinary science, and some physiological science courses used by University of Bristol Veterinary School, University of Cambridge Medical and Veterinary Schools, Imperial College London, Manchester University, Oxford University Medical School, Royal Veterinary College and University College London. The BMAT is conducted by independent test centres, and consists of 3 sections: Section 1: Aptitude and Skills (60 minutes multiple choice); Section 2: Scientific Knowledge and Application (30 minutes multiple choice) and Section 3: Writing Task (30 minutes)

The selection process should be administered independently of the medical schools by a national agency such as the CAO, with applicants allowed their choice of medical school in order of preference.

Students should sit the Leaving Certificate and take the standardised test in the same year in order to be eligible to apply for entry.

3) **Implementation of multi-stream entry to medical education**

The Working Group recommends that there should be a 60:40 balance between the numbers of undergraduates and graduates. However, the increase of the graduate stream to 40% of overall EU-student intake should be informed by the experience gained through the initial cohort as well as ongoing international developments. It is important that there be a critical mass of students in place in the relevant medical schools so as to create the new educational pathways necessary to facilitate graduate entrants. The attainment of this target will be facilitated by the proposed increased intake of EU students into medical schools in Ireland.

The National Implementation Committee proposed later in this report should further develop the recommendations on entry to medical education with particular reference to:

- The logistics and administration of the proposed standardised test,
- Establishing specific performance criteria for the standardised test[52]
- Outline specific 'fitness to practice' criteria for potential medical students[53]
- Review current academic eligibility criteria for the medical schools with a view to recommending a rationalised approach
- Identify target implementation dates and optimise the proportion of graduate entry cohorts

It is understood that it may be necessary to modify details of the implementation of multi-stream entry, particularly where additional research or data become available.

While the Working Group were principally concerned with medical entry, in order to optimise the educational benefits of change at second level senior cycle, the principles of the revised selection methods proposed could also be applied as a priority to the other high points health science professional disciplines. Commonly applicable standardised tests could be considered for this purpose. The principles could, indeed, apply more generally to other high-points, professional courses.

[52] In this regard, the Assessment Centre process that is being evaluated in the UK may be of value, and should certainly be investigated by the Implementation Group

[53] 'In addition to educational criteria, there are a number of important practical issues relating to entry to medical education, which need to be addressed. These include statutory provisions prohibiting unlawful discrimination and also health, safety and security considerations'. These issues may also be included in the terms of reference of the Implementation Group. It is essential that the implementation group have due regard to international practice in its considerations.

These recommendations should facilitate the introduction of revised measures for the selection of undergraduate students for the cohort commencing senior cycle in 2005. It is anticipated that both undergraduate and graduate selection, via the revised measures could take place in 2007, although this is very much contingent on the progress of the implementation plan.

The Working Group recommends that provision be made for a review process of these new systems for entry to medical education within 3 years of their implementation. That review should consider the system in terms of benefits to students applying for entry and students participating in medical education, and report on the effectiveness of the system and any potential for improvement (including the development of further alternative pathways to medical education).

7. Clinical Training

In its Review of Medical Schools in Ireland 2003, the Medical Council refers to what it considers to be a critical lack of capacity in clinical training and advocates that "medical school places are capped at 2003 levels for each medical school, pending the urgent implementation of measures to improve clinical training capacity". While accepting that further investigation and analysis is required in order to establish current levels of clinical capacity, the Working Group strongly believes that the radical reform of the quality and capacity of clinical training is one of the most critical issues to be addressed, and that the proposed increase in student intake is contingent on such reform.

7.1. Overview of clinical training

The time spent by medical students in clinical training is a fundamental element of medical education. Approximately one-half of undergraduate training is delivered in clinical settings, usually in a hospital but also in some primary and community care facilities. Clinical training provides an essential opportunity for students to acclimatise to the clinical environment and to experience the continuum of clinical care.

While there is a trend towards starting clinical training earlier in the medical education curriculum, it is generally in the last 2-3 years of training that the preponderance of student activity on clinical sites occurs. Students are expected to attend their clinical location on a daily basis during this time, equating to approximately 36 hours per week. During their period of clinical training, students typically rotate across a diversity of hospital settings including large, urban teaching hospitals, specialist hospitals such as maternity and paediatric, and others such as regional or small community hospitals.

Within the hospital setting, learning time comprises two main elements. The first involves scheduled, formal events such as lectures or tutorials, which generally take place in the large teaching hospitals. The second is the attachment of students to health service teams.

Lectures and Tutorials

Typically there may be up to eight scheduled sessions per week. These sessions are organised in advance and are carried out in lecture and tutorial rooms or in small groups at the bedside. Depending on the size of the clinical site, the facilities available and the rotation strategy, up to 200 students could attend a single lecture. While some lectures on clinical sites are given by members of faculty of the medical schools, the vast majority of lectures are given by consultants and other health service staff attached to the clinical site. Tutorials form an important part of clinical training activity and may be 'bedside tutorials' with 6-10 students attending, or 'room tutorials' for up to 20 students. A significant number of tutorial sessions are delivered by non-consultant hospital doctors or trainees on a voluntary basis.

Attachment to Service Teams

Attachment to service teams is an essential component of clinical training for the student. Each service team is led by a consultant and is primarily responsible for the delivery of patient care in specific clinical specialties, e.g. Cardiology, Urology. Students generally have four team activities per week, each lasting two or three hours. Students may be attached to a team for a period of 2-4 weeks, and will follow a variety of team activities such as ward rounds, attendance at outpatient clinics, operating theatre or procedure activity and attendance at case conferences. In a minority of cases, there may be informal tutorial or teaching sessions during service team attachment also.

During their time of attachment to service teams, the learning experience of the students is generally observational, may vary considerably in quality, and is very much dependant on the approach to student training taken by the service team. It has been suggested that these students have a more interactive experience when attached to service teams in the smaller hospitals.

While the majority of traditional clinical training remains a hospital-based activity, there has been some effort in recent years to broaden clinical training settings to include non-acute hospitals, primary care facilities and community-based locations.

This is largely driven by the requirement, as articulated in the Medical Council's Review of Medical Schools in Ireland (2003), to 'ensure a broader range of experience for students. Future doctors need a balance of clinical learning opportunities in order to allow them to respond to the changing needs of society' Notwithstanding this, it appears that only 8-10 days are allocated to clinical training in a primary care or community settings across the entire undergraduate programme. In general, students adopt an observational role in these settings. However, students on a primary care rotation tend to have a more interactive role than on hospital sites, due to the nature of the clinical setting which encourages one-to-one experiences.

Contractual Arrangements for the Delivery of Clinical Training

The delivery of clinical training is dependant to a significant degree on the goodwill of consultants, non-consultant medical staff and occasionally other healthcare professionals, all of whom have a full service commitment, and who generally have no specific contractual obligation to participate in clinical training of medical students.

In its review of the current funding of medical education, Indecon Economic Consultants reported that of the total number of health service staff involved in any way with undergraduate training, only around 2% hold academic posts, with specific contractual obligations regarding the delivery of medical education. This appears to be supported by the Medical Council, which in its Review of Medical Schools in Ireland, 2003, estimated that the five medical schools have a total number of '39 whole time equivalents (i.e. Academic Clinicians) in

Ireland compared to 2,500 in the UK'. According to Comhairle na nOspideal data, in 2004 there were 124 clinicians (all consultants) with academic contracts[54] in Ireland. However, while there are 1320 sessions in total, only 440 of these are actual academic sessions, the balance being clinical sessions. This equates to 40 whole-time equivalents. Thus, the overwhelming majority of clinical education is provided by consultant and non-consultant doctors who do not have a specific academic contract, and provide teaching services on a voluntary basis.

However, in the current consultant contract, 'The Nature of Consultant's Role and Responsibilities'; no specific reference is made to any role in the education of medical students. However, it does state that the consultant can participate "as of right ..... in in-service teaching and training of medical and other staff"

Similarly, other medical staff such as Specialist Registrars, Registrars and Senior House Officers, have no specific contractual arrangement to carry out training activities and generally contribute their time on a non-contractual, voluntary basis.

Therefore, the burden of delivery of clinical training (which is approximately one-half of the entire undergraduate curriculum), falls to a cohort of medical professionals that has no explicit contractual arrangement in this regard, and carry out this task on a voluntary basis, and in the context of acute service demands. While there is a weak contractual basis for the training carried out by health service professionals; it should be noted that there has traditionally been a strong ethic among doctors to train their successors, and indeed involvement in training is perceived to be integral to professional development.

However as the demands of service delivery increases, significant challenges are faced in maintaining this level of contribution. The overall nature of clinical training being in the main, based on loose scheduling and determined by medical staff not specifically contracted to do so, is a significant contributing factor of the level of 'no shows' at tutorial sessions, as indicated in the Medical Council's Review of Medical Schools 2003. Most importantly, the Medical Council also refers to the critical lack of capacity in clinical training and advocates that "medical school places are capped at 2003 levels for each medical school, pending the urgent implementation of measures to improve clinical training capacity"

Contractual Arrangements between Healthcare Providers and Medical Schools

While the primary responsibility of all healthcare providers is to maintain high levels of patient care, healthcare providers have a crucial role in clinical training. All clinical training takes place on their premises, the majority of teaching is carried out by their staff, and they must provide services and facilities to support clinical training activity.

However, contractual arrangements between healthcare providers and medical schools vary quite considerably. While there may be contractual agreements in place between individual medical schools and the large teaching hospitals, there is often ad-hoc or informal

[54] An Academic Clinician has a joint hospital/university appointment whose contract includes an agreement to provide a specific number of hours to teaching activities, in addition to their clinical duties. Currently the overwhelming majority of Academic Clinicians are consultants. The standard consultant contract is to provide 11 sessions per week to the health service. Each session normally equates to three hours. An Academic Clinician contract allocates a specific number of these sessions to academic work. The specific number allocated may vary from contract to contract.

arrangements in place with smaller hospital and with primary care settings. Even where agreements are in place, these tend to be very broad, outline arrangements, many of which were agreed decades ago and do not reflect current requirements.

In the context of these issues, it should be noted that the new Health Act (2004) places obligations and responsibilities on the health service regarding the provision of support for medical education and training.

7.2. Submissions to the Working Group

A number of concerns relating to the delivery of clinical training were expressed in submissions to the Working Group, including:

- Clinical training is carried out predominantly in hospital settings, which is good for acute, life-threatening illness diagnosis and management. However, 90% of doctor/patient interaction is in the community setting, and such settings should therefore be much more involved in clinical training than is currently the case.
- It is strongly argued that there must be a significant increase in the number of academic clinician appointments, and that such appointees must have protected time in order to fulfill their educational duties. Currently there are only 39 whole-time equivalent (WTE) Academic Clinicians in Ireland (approximately 10 per million of population), compared to 2,500 in the UK[55]. (approximately 40 per million of population)
- Currently, undergraduate, internship and postgraduate training are treated as three separate entities. There is no structure or forum through which strategies and plans can be integrated.
- In a situation where there is a significant dependence on clinicians to deliver training, teaching is often accorded the lowest priority particularly where there is increasing demand from service delivery and well funded research activities.
- There is a severe lack of educational infrastructure on clinical sites e.g. teaching areas, lecture rooms, tutorial rooms, clinical skills laboratories and student facilities.
- There is a paucity of in-house educational expertise and staff training and development in educational skills and techniques.

7.3. Views of the Working Group on Clinical Training

Taking into account the submissions made to the Working Group, and the discussions within the Working Group itself, a number of key issues relating to clinical training have been identified.

Increase in student intake

As discussed previously, the increase in EU student intake to 725 represents a significant challenge. If the intake of non-EU students is capped at current levels (approximately 477 per annum) there will be a requirement to provide clinical training for an additional 2,100 students per annum. (In this case, demand for additional clinical training places arises in the third year after the increased intake, and reaches a plateau of 2,100 in the eleventh

[55]CHMS: Council of the Heads of Medical Schools

year). Given that each student requires a number of rotations[56] each year, the actual number of rotations required is a multiple of 2,100. Even if the intake of non-EU students is reduced to 25% of the total student intake, the number of additional students requiring clinical training would reach a plateau of 760 per annum after eleven years. At this point in time, there is no possibility whatever that this increase in clinical training placements can be absorbed by existing clinical sites, without radical reform to the structure and management of clinical training in Ireland and significant financial investment.

Contractual Arrangements between Healthcare Providers and Medical Schools

Healthcare providers and medical schools have related but different missions. Medical schools need structured access to staff and clinical teams employed by the health provider and need to use facilities provided by the health provider. In the absence of structured agreements between the healthcare provider and the medical school regarding the utilisation of staff and facilities and remuneration for same, it is impossible to plan and deliver a structured medical education curriculum.

Contractual Arrangements with Teaching Staff

Clinical training is currently delivered by a small number of academic clinicians at consultant level and lecturer-tutors at non-consultant level, appointed by the medical school and who have combined educational and clinical commitments; but the majority of clinical training is delivered by hospital staff that have no specific contractual agreement for the provision of training and that do so largely on a non-contractual, voluntary basis.

Staff involved in the training of undergraduates on a non-contractual basis must give precedence to their primary role of service delivery. In the context of increasing clinical and regulatory demands, it is to be expected that their continued involvement in a voluntary activity, however laudable, will be put under even greater pressure. While it is to be expected that all doctors should continue to have an input to the training of undergraduates as a core professional value, regardless of specific contractual arrangements, it is simply not sustainable to have a situation where the balance between contracted and non-contracted obligations is so one-sided.

As discussed previously in Chapter 5: *Educational Programme and Curriculum,* medical schools must develop an outcomes-based approach where curricular objectives are linked specifically to content, delivery and assessment. In a situation where the majority of clinical training is delivered on a non-contractual basis, it is not possible to implement a structured curriculum of this nature in any meaningful way.

New model of medical education

The adoption of a new model of medical education presents a number of other challenges to the provision of clinical training. Changes to the curriculum demand much greater levels of cohesion across the curriculum. In the future, programme outcomes must be linked to

[56] In the course of a single year's clinical training, a student will typically 'rotate' through a number of clinical training settings, in order to provide a comprehensive clinical training experience in a diversity of clinical situations. Thus a student would have multiple 'rotations' during their clinical training.

specific curricular objectives, content, delivery methodologies, assessment and sequencing. It is not feasible to sustain a situation where a critical element of the curriculum content and delivery is effectively invisible to the leadership of the medical school, who are responsible for ensuring that the overall undergraduate educational programme is achieved, and where the medical school has limited capacity to manage the clinical components of the education programme or to lead change in those components.

There is a need to focus more attention on the logistics and coordination involved in aligning clinical training with curriculum objectives, student allocation and clinical capacity. This is critical both to achieving acceptable levels of clinical training capacity, but also will be required to support a curriculum that demands a diversity of clinical locations and closer integration between the curriculum and clinical training.

A key issue to be addressed in the context of a structured curriculum is the need to assess the quality of clinical training, through mechanisms such as student feedback, specified educational metrics and peer review. This level of comprehensive assessment does not currently exist in the clinical training setting.

New approaches to the medical curriculum such as small-group teaching, student-centred case conferences, problem-based learning, e-learning, and continuous assessment, require expertise in educational skills and techniques, so that those involved in clinical training will require appropriate educational management and training.

Inevitably these new approaches to curriculum also give rise to a requirement to put in place a supporting educational infrastructure, such as technology support staff, clinical skills laboratories, libraries, tutorial and lecture facilities.

Nature of Clinical Settings

There has been a tendency to consider the acute hospital setting as being the optimum location for clinical training. Indeed this is reflected in the fact that a very small proportion of clinical training activity takes place in settings outside hospitals. Historical issues, and in particular the dominance of hospital-based clinical specialties in the undergraduate curriculum and academic structures of the medical schools, together with logistical and resource constraints have contributed to this bias.

Consequently, much of the existing curriculum, structures and organisational culture are based around the primacy of the hospital setting. As the move towards a broadening of clinical training settings continues, it must be understood that arrangements are required to be put in place for the governance, structuring and resourcing of a diversity of these settings, and that a simple extension of current practice is not sufficient. For example, some work has already been done in relation to the creation of 'educational hubs' where a diverse range of educational opportunities and placements are provided across a number of different clinical settings and are coordinated through a central point.

There are good arguments for increasing capacity in the delivery of medical undergraduate education beyond the most obviously pressing one of dealing with an expanding student population.

Education for health professionals generally is predominantly confined to larger tertiary-referral institutions in urban centres affiliated to a university. Such hospitals gain from this by attracting senior staff of high calibre, so there is an element of reciprocity in the arrangement. However these centres are not typical of healthcare provision. The majority of hospitals involved in clinical training are not used to capacity, and many specialist care hospitals, step down centres, general practices and community care centres have little or no student through-put at all. Extension of teaching unit status to such settings would certainly increase capacity. It would also raise standards generally with implications for the standard of healthcare provision, internship and postgraduate training since many such settings are not currently recognised for such purposes but might in the future if regular student throughput became the norm. It is worth reiterating that involvement in teaching and training (and where applicable research), has significant impact on the ability of a clinical centre to attract and retain high-quality staff. However, it must be emphasised that the infrastructure and organisation of the primary care sector in Ireland must be greatly enhanced to accommodate undergraduate medical teaching, before international norms in the role of primary care in medical education can be achieved.

Staffing Levels

A crucial issue to be addressed is that of educational staffing levels within the medical schools and the clinical settings. If a contractual basis for the provision of clinical training is put in place, it will be important to assess the impact this will have on service delivery, given that a significant proportion of clinical time will be allocated to education and training and will not be available for clinical work.

7.4. Recommendations on Clinical Training

The Working Group asserts that a structured and coherent approach to the provision of clinical training is essential to the provision of high quality medical education. Based on the issues identified in the previous section, and following consideration of processes and procedures already adopted in Nursing and the Therapies, the Working Group puts forward the following recommendations:

Recommendations

1) **Accreditation of healthcare sites for clinical training**

The Working Group recommends that a national system for the accreditation of clinical sites for undergraduate medical education should be established.

The purpose of this accreditation is to ensure that all clinical settings involved in clinical training are appropriately resourced, organised and structured for the purpose of delivering clinical training to medical students. All clinical settings involved in training of medical students must be accredited and students may only be allocated to clinical sites that are accredited. All clinical sites within the State are entitled to apply for accreditation. A register of accredited clinical sites will be maintained and updated. This register will contain detailed information about the specific capabilities and specialisations of each accredited site. The accreditation body is responsible for ensuring that a diverse mix of clinical sites is accredited.

Given its current role in the accreditation of medical schools, and its wider responsibility in relation to the quality and standard of service delivery, the Medical Council could be asked to consider adopting the role of accrediting clinical settings for the purpose of delivering medical education, and of maintaining a register of such sites.

Clinical sites should be categorised according to function, scale and scope and include Acute and Specialist Hospitals, Primary Care, Community Care and Public Health. These categories must take into account clinical site clusters, hubs or co-ordinated networks. In consultation with all stakeholders, specific accreditation criteria must be established, and sites audited to ensure such criteria are met. The criteria for accreditation will vary depending on category, but may include benchmarks regarding student facilities, educational infrastructure, organisational structure, staffing, policies and procedures and standardised student feedback.

Clinical sites may obtain accreditation for a specified period. Audits may be conducted during this period, and each site may be required to capture and maintain specified financial and statistical data.

Accredited clinical sites will be entitled to receive funding specifically for the purpose of clinical training of students. Such funding will be allocated on a pre-defined funding model, taking a number of factors into account, e.g. number of students, clinical site category, staffing. Funding will include capital, overhead and revenue provision. While a clinical site may be accredited for clinical

training, funding is received on the basis of students being allocated to that clinical site by a medical school, allowing for necessary capital or organisational expenditure, and provided that agreed educational deliverables are achieved.

While it is outside the terms of reference of this Working Group, it is recommended that the accreditation process should address the requirements for intern and post-graduate medical training as well as for undergraduate medical training and training in other healthcare disciplines also.

Furthermore, the various bodies involved in inspections on clinical sites, for example the Irish Health Service Accreditation Board, HIQA, the Medical Council and the post-graduate training colleges should agree a rationalisation of such inspections to minimize adverse impact on resources and also to ensure coherence and consistency.

2) **Establishment of inter-institutional agreements for the provision of clinical training**

Inter-institutional service agreements should be established between the medical school or schools and accredited clinical settings or networks of clinical settings. These agreements may be by way of a Memorandum of Understanding combined with a rolling service level agreement, and should specify the requirements of the medical school in relation to student numbers, facilities, and resource requirements regarding contracted teaching. The agreement should define management structures and operational relationships between the partner institutions, be of significant duration (3-5 years), and should allow for periodic review. These agreements form the context for the individual teaching agreements entered into with individual consultants for the delivery of clinical training. They also form the context for health service funding of clinical training in the healthcare setting.

It is recognised that there is considerable overlap in terms of facilities and teaching resources between undergraduate, intern and postgraduate medical education. It is important that management structures address this issue, so as to maximise the utilisation of resources across all clinical training activity and reduce the potential for conflicting or duplicating demands being made on facilities and resources.

3) **Establishment of contractual arrangements for clinical teaching services**

Noting that a new contract for consultants is to be negotiated, and that the Report of the National Task Force on Medical Staffing has recommended the introduction of a 'consultant-provided' service, the Working Group recommends that explicit contractual arrangements be entered into with those involved in the clinical teaching of undergraduate medical students, including consultants, non-consultant hospital doctors, GP's, public health specialists and community care specialists.

These contractual arrangements should include an explicit commitment to allocate a specific percentage of time or a specific number of sessions/hours to training activities for undergraduate students and should address issues such as number of students, frequency of contact, involvement in student assessment, adherence to curriculum objectives, student feedback, ongoing development of educational skills and techniques and contribution to ongoing curriculum development.

These contractual arrangements should be entered into by the medical professional in question, the employer and the medical school. Such agreements would be in the context of the resource requirement established by the medical school in its educational programme and reflected at outline level in the Memorandum of Understanding between the healthcare provider and the medical school.

In this context it is recognised that the medical school should have flexibility in regard to these contractual agreements. It may be appropriate to enter into contracts of varying levels depending on the resource requirement and in the light of service commitments e.g. the medical school may require more or less input from specific specialist areas depending on curricular balance and student feedback.

The teaching commitments entered into by any individual should be reflected in the service plan of that clinician.

The Working Group believes that specific incentives should be provided for those who enter into contractual arrangements for specific teaching activities.

Where relevant, the contractual arrangements should combine teaching commitments across the entire spectrum of undergraduate, intern and post-graduate training.

Training programmes to develop educational skills and techniques should be put in place, and a career structure which provides pathways for the development of academic clinicians should be established and supported.

4) **Provision of facilities on the clinical training site**

The Working Group recommends that each clinical site or network of sites should provide facilities that are required to support the delivery of clinical training e.g. rooms suitable for lecture or tutorial learning situation; service-integrated learning facilities; clinical skills laboratories; and library and e-learning facilities.

The clinical site should also provide facilities for the support of students e.g. student common room; residential accommodation; student welfare services; facilities for disabled students; and childcare facilities.

As part of the accreditation process, clinical sites should provide a capacity statement, and a rationale for their capacity based on the accreditation guidelines. It is important that capacity statements assess capacity across all departments and all disciplines. This is required in order to ensure that true clinical training capacities are taken into account in the allocation of students.

It is understood that the facilities required and provided will vary depending on the category of clinical site involved and the nature of clinical training to be carried out on that site. Also, it is understood that in the context of a cluster or network some of these facilities may be adequately provided through other sites in the cluster. The accreditation criteria should be used by healthcare providers to identify the facilities required to provide clinical training services on their sites.

5) **Logistical support for clinical training**

The Working Group recommends that each medical school should appoint a Student Allocation Officer. This person is responsible for the overall allocation of medical students to clinical sites, taking into account the diverse mix of clinical experiences required by the student over the period of the educational programme, the maximisation of clinical site capacity and curriculum requirements.

The Student Allocation Officer should endeavour to base allocations in line with the shift patterns applicable in the clinical site to which they are attached. This person should ensure that all students are fully briefed prior to attendance at any clinical site, and should support and debrief students on an ongoing basis. He/she should also provide a scheduling service to ensure that all students allocated to that site are properly and effectively distributed within the clinical site.

8. Oversight of Medical Education And Training

8.1. Introduction

The provision of undergraduate medical education in Ireland involves a wide range of stakeholders, some of whom play a core role and others which are associated but nonetheless important. In summary these are:

Core Role	Department of Education and Science, Department of Health and Children, Higher Education Authority, Health Service Executive, Students, Patients, Medical Council, Universities, Medical Schools, Multiple Clinical Settings (ranging from large teaching hospitals to GP practices) Consultants and NCHDs, the Public.
Associated	Department of Finance, HRB (and other research funders), Postgraduate Training Bodies, Other Healthcare Disciplines,

Currently, there is considerable lack of clarity as to the responsibilities of these various stakeholders, exacerbated by the fact that medical education crosses the boundary between the two domains of education and healthcare provision. As we look to the future of medical education, it is critical that there is clear definition and understanding of the respective roles of each of these stakeholders and their relationship with each other.

8.2. Views of the Working Group on Oversight

Taking into account the submissions made to the Working Group, and the discussions within the Working Group itself, a number of key issues relating to the governance of medical education have been identified.

The governance of medical education is particularly complex given the crossover between the education and health sectors. Many strategic issues relating to medical education require a national perspective and require an ongoing shared governance structure to maintain and develop such national perspectives and strategies as required.

While medical education involves both the education and health sectors, there is little evidence of a joint approach to any of the issues involved. The new Health Act 2004 does specifically recognise that the health service has an obligation towards the delivery of medical education. This is now an unavoidable issue, and one that the health service must address in concrete terms, specifically in relation to the funding of clinical training. However, there is also an obligation on the education sector to recognise the critical role played by the health service in the provision of medical education and to be prepared to enter into shared governance and funding arrangements at both national and local level as appropriate.

Critical issues which require this national perspective are:

- **Workforce planning:** Currently the sole workforce 'planning' tool applying to medical education is the 'cap' on numbers, which was introduced in 1978. However, based on current projections, it is clear that the Irish health service will require a significant increase

in numbers of medical graduates in future. Many of the severe difficulties now being experienced in medical education result from the lack of integration of workforce needs and student intake over the past 30 years. The link between the resourcing needs of the health service and the intake of students into medical school requires a national policy and ongoing assessment at inter-departmental level.

- **Funding and funding structures:** The human and infrastructural resource dedicated to medical education and training is distributed across the domains of education and health. It is critical that a joint approach to the funding be established where responsibilities for various funding elements are clearly defined within a co-ordinated model.
- **Strategic resource management:** Ireland is a relatively small country with five medical schools and limited clinical training capacity. It is essential that a national policy as to how these resources are applied to maximum benefit for the nation, ensuring collaboration and shared governance is developed, where possible and appropriate, in order to achieve economies of scale and international quality benchmarks.
- **Data consolidation, analysis and research:** Based on the experience of the Working Group, it is clear that there is a serious dearth of reliable and readily available data (financial, quality, statistical) on medical education in Ireland upon which strategies can be based. This is an unacceptable situation and inevitably leads to reluctance to make any decisions because of the lack of evidence-based data.

It should be noted that while Universities are autonomous educational institutions and validate and award their own degrees, the Medical Council continues to have statutory responsibility for the accreditation of medical education programmes, in terms of entitlement to practise as a medical doctor.

8.3. Recommendations on Oversight of Medical Education

National Oversight of Medical Education

The Working Group believes that the provision of medical education in Ireland is deeply undermined by the absence of an oversight model which incorporates the key stakeholders in medical education. Therefore, the Working Group recommends that:

- a shared oversight model be established to include the Department of Education and Science, the Department of Health and Children, the HEA and the HSE, the Medical Council, and the Universities and their Medical Schools.
- within this shared oversight model strategic national issues such as workforce planning and student intake; analysis of financial, qualitative and statistical data across schools and clinical sites; funding levels and structures, and resource management strategies (including clinical training capacities) should be addressed and policy established
- this model should consist of (a) an inter-departmental steering group on undergraduate medical education, which is responsible for determining issues of policy and contains

representatives of the Departments of Education, Health and Finance and the HEA and HSE and: (b) a national consultative committee which would consist of representatives from the universities and their medical schools, the Medical Council, clinical training sites, students, other health professions and the relevant Government Departments, and which would evolve into a permanent medical education consultative body.

Local Governance Structures

The Working Group has recommended (see 7.4) that formal 'overarching' agreements be established at local level between universities and clinical sites, or a network of clinical sites as appropriate. This agreement should address issues such as the overall nature of the relationship; roles and responsibilities; authorisations; services to be provided by both parties; management and administration structures; and assessment procedures.

Within the context of these overarching agreements the Working Group has further recommended (see 7.4) that medical schools and clinical sites enter into a service plan agreement, which is the detailed description of the specific services to be provided and the resources to be applied, and is the basis of the tripartite contractual agreement between the medical school, the clinical setting and the individual clinician.

In addition, the Working Group recommends that universities and their medical schools should seek to identify means by which national requirements may be better met through collaboration, joint ventures and sharing of resources by the medical schools, and that appropriate oversight structures are implemented in such cases as required.

9. Funding and Resourcing of Medical Education

9.1. Introduction

The Working Group has identified inadequacy of funding and funding allocation models as being one of the most critical issues facing medical education in Ireland. While the Working Group believes that funding is not the only issue impacting on the quality of medical education in Ireland and that other issues such as contractual arrangements, governance structures, curriculum and teaching methodologies are of great importance, the Group does believe that the provision of appropriate funding is an essential enabler, and as such requires careful and urgent consideration.

As part of the investigations carried out by the Working Group on the issues of funding, Indecon Economic Consultants were commissioned to review the funding and cost of undergraduate medical education in Ireland. Subsequently, Indecon produced a report[57] which defines the funding received by medical schools from the education sector, including income generated from non-EU students; as well as funding provided by the health sector for clinical training of medical undergraduates. They also estimated medical schools expenditure as well as the expenditure on undergraduate clinical training placements on healthcare sites.

Funding derived from the Education Sector

Funding for medical schools originates from two principal sources, namely state funding through the HEA and fee income from non-EU students. State funding is allocated to the universities by the HEA on the basis of an institutional block grant and also grants in lieu of undergraduate fees. This funding is then distributed by the university to the medical schools on the basis of internal allocation models, which can vary considerably from university to university.

Data for the academic year 2001/02, which is the most recent data available, indicate that the HEA block grant accounted for €6.14 million or 19.6% of total funding across the four university medical schools, and that funding received in lieu of undergraduate fees totaled €8.3 million, accounting for 26.5% of total reported income across all four medical schools during that period. Therefore, total state funding for medical education, as allocated internally in the four university schools, amounted to 46.1% of their overall recurrent funding in 2001/2, the balance of 53.9% being generated from non-EU students.

Owing to its particular status as an independent institution, the RCSI does not receive HEA block grant funding. RCSI income from undergraduate medical education totalled €27.9 million in 2003 compared with €24.3 million in 2002. In 2003, HEA grants to the RCSI in lieu of undergraduate fees totalled €0.869 million or 3.1% of total income, while non-HEA funding – which is primarily income from non-EU students – totalled €27.01 million.

It is clear that income from non-EU students now constitutes the largest component of funding for undergraduate medical education in the four university medical schools, with funding from this source accounting for €16.7 million of total funding in the 2001/02 period.

[57] The full text of the Indecon report is published on the CD accompanying this report

This situation is a consequence of the fact that there has been a limit on EU-student intake for almost 30 years, and that medical schools have had to attract non-EU students in ever-increasing numbers in order to access alternative sources of income to sustain their educational programmes. Thus, while the intake of non-EU students has remained below 10% of overall student intake to medical schools in the U.K., about 60% of Ireland's medical student population is now composed of non-EU students. Not surprisingly, given the economic context, the fee applied to a non-EU student is significantly higher than the income received from the HEA for an EU student.

The four university medical schools are now highly dependent on non-EU student income and if such income were not available to them, they would not be financially viable.

Funding derived from the Health Sector

A significant proportion of the medical education programme (i.e. clinical training) is delivered on health service sites and teaching responsibilities are assigned to healthcare staff. However, there is no dedicated line of funding provided by the Department of Health and Children to hospitals and primary care facilities for the specific purpose of providing undergraduate medical education or training, although there is a cost to the health service associated with the provision of clinical training activities. The funding to meet clinical training costs is contained within the general funding allocation provided to the hospital or health facility. In some cases, clinical sites may receive transfer recurrent and capital funding through agreements in place with the medical schools[58]. However, this does not apply to all clinical settings and where it does it may not always be consistent.

While there are some similarities between medical education and that of other healthcare disciplines, it is reasonable to suggest that the clinical training element of medical education presents particular challenges owing to the breadth of the curriculum and the many specialties involved.

Medical School Costs

To assist the HEA in allocating recurrent funding to the universities, unit cost data from each university is analysed and compared. Unit cost data is submitted annually by the universities at the level of cost per student per course. This data is derived following application of a cost allocation model to the overall recurrent expenditure of a university. The available data for the period 2001/02 from the HEA Unit Cost model indicate that unit costs for undergraduate medicine ranges from €6,513 at UCD, to €7,500 in NUIG, to €8,900 in TCD and €11,776 at UCC. Indecon estimate that the aggregate unit cost per student across the four universities was €8,367 in 2001/02.

It is important to note that the HEA funding model does not determine how funds should be allocated within each institution. It is the responsibility of each university to determine its unit costs across all its activities, to submit this to the HEA, and to allocate the funding it

[58] See Indecon report

subsequently receives to its various faculties in line with the strategic objectives of the institution. Therefore, the actual funding received by the medical schools is determined by the allocation model utilised by each university to allocate funding across all its programmes.

Indecon also estimate that the universities utilise fee income from non-EU students to subsidise the funding internally allocated to medical schools for EU students. As indicated in Table 9.1, Indecon estimated that this subsidisation ranges from €9,841 to €14,521. Effectively, this means that in 2001/2, each EU student was being subsidised from between 25% and 50% by income from non-EU students.

Table 1

Estimated Unit Costs of Undergraduate Medical Education & Training – Medical Schools	
Unit Costs as estimated by HEA Unit Cost Model*	€6,513 - €11,776
Revised unit costs including non-EU fee income**	€9,841-€14,521
Notes: *HEA model does not include RCSI costs **The above revised unit cost breakdown does not include costs of vacant posts or other adjustments to reflect the university's assessment of undergraduate medical education costs	

Costs of Clinical Training

Clinical training of undergraduate medical students takes place primarily through clinical placements in hospitals and primary care facilities, including General Practices. Such placements occur in the form of 'rotations', with students rotating through a number of separate placements to different health care facilities depending on medical specialty. Placements are organised by the student's medical school. Individual schools may have relationships and agreements with particular hospitals.

Indecon have also reviewed the costs involved in clinical training. The objective of the analysis carried out by Indecon was to establish the baseline scenario for the current costs of clinical training for undergraduate medical students in hospitals and community/primary care settings. Given the paucity of verifiable data, it is difficult to be definitive, but Indecon assert that their estimation is the best estimate available at this time as to current expenditure on existing clinical training programmes.

The analysis of information supplied by each of the medical schools revealed that a total of 11,068 hospital-based undergraduate student placements took place across the five medical schools in the period 2003/04. Owing to the particular status of the university teaching hospitals, the vast majority of clinical placements are focused on these institutions.

In arriving at its estimates of the cost of undergraduate education in the hospital setting *(see Table 2)*, Indecon indicate that reporting hospitals accounted for 61% of the total number of hospital-based clinical placements during the period, representing a robust basis for the estimation of unit costs within the hospital sector[59]. In addition, medical school data on teaching contact time in clinical settings assisted in the validation of the estimates.

Table 2

Summary of Estimates of Unit Costs of Undergraduate Medical Education & Training in the Hospital Setting	
Sectors	Estimated Unit Cost - € per Student Per Annum
Estimates based on Hospital Data	€9,010
Adjusted Estimates reflecting Medical School data	€8,555

Indecon also received an exceptional response from General Practitioners and indicate token payments in the primary care clinical setting of €127 - €185 per student per annum. This low figure reflects the fact that students spend a relatively short time in GP placement as part of their clinical training, and that there is no structured approach to the provision of primary or community care clinical training.

It should, of course, be noted that although these costs may be incurred by the health sector, they are not specifically dedicated to undergraduate education and the medical schools have no control over how clinical training resources are applied.

9.2. Views of the Working Group on Funding

Taking into account the submissions made to the Working Group, the findings of the Indecon study and the discussions within the Working Group itself, a number of key issues relating to the funding of medical education have been identified.

Increase in EU Student intake to 725 per annum

The proposed increase in students intake represents a critical challenge regarding the funding of medical education. A number of potential funding issues arise from the recommendation of the Working Group to increase EU student intake to approximately 725 per annum from the current intake of 305:

[59] A full description of the basis upon which Indecon estimated and validated contact time between hospital staff and students is contained in the final Indecon report, which is appended to this report.

Potential funding issues arising from recommendation of the Working Group

Increase in number of EU undergraduate students	The recommendation to increase the number of undergraduate entrants by 180 over a four year period represents an increase of almost 75% over 2003/4 intake levels. This will have a significant funding and resource impact.
Introduction of a graduate entry stream	The introduction of a graduate entry stream allows universities to seek fees from entrants. The level at which such fees are set should be a matter for the universities. However, it is important that prospective applicants are not discouraged because of socio-economic factors and therefore may require some level of funding support. Additionally, the Government provides certain funding for existing postgraduate courses, and this is likely to apply to the graduate intake to medicine also.
Potential reduction in non-EU student intake	Given the scale of fee income generated from non-EU students and the degree to which medical schools are dependant on such income, any reduction in non-EU student intake will result in significant loss of income. For example, it is estimated that a reduction of 55 in non-EU student intake for just one year will lead to a loss of income of approximately €4m. However, these students occupy significant clinical training placements and consideration should be given to prioritising EU students in terms of access to places and/or charging for clinical placements for non-EU students. Certainly, the costs and sources of funding for clinical placements need to be clearly and explicitly identified, regardless of the origin of the student.
Increase in numbers involved in clinical training	Increasing the intake of students has a dramatic impact on the number of clinical training placements required, and consequent costs. For example, it is estimated that increasing intake of EU students to 725 per annum, without decreasing the number of non-EU students, will lead to an increase of over 2000 in the number of students requiring clinical training placements annually.
Development of accredited clinical training settings	Existing clinical training sites do not have sufficient capacity to meet the expected demand for training placements. It is essential that affiliated hospitals, primary and community care settings are encouraged and supported to participate in clinical training. The development of this additional capacity will require funding and other resources.
Additional intern positions	The number of intern positions will increase in line with the increase in graduates from medical school. It is estimated that there will be a requirement for over 300 additional intern posts.

Additional health service personnel	There will be a requirement to increase the number of health service personnel in order to allow for the dedicated teaching commitment required.
Additional medical school personnel	There will be a requirement to appoint additional academic clinicians at all levels in order to deal with the increased numbers of students. Other additional posts recommended by the Working Group include Deans with responsibility for Teaching and Learning and Student Allocation Officers.
Facilities	It is inevitable that the significant increase in student numbers will require the upgrading of existing facilities and the provision of additional facilities, including clinical skills laboratories.

Current level of funding of undergraduate medical education

Even in the absence of any increase in student intake, many submissions to the Working Group refer to the current low level of funding and the urgent need to increase funding of undergraduate medical education.

In its Review of Medical Schools in Ireland 2003, the Medical Council stated that in 2001 it had drawn "the public's attention to the chronic underfunding of medical education which .... (it) considered to be interfering with attempts to reform and modernise the medical schools". The Council goes on to state that since then "the funding situation has deteriorated further .... and there must now be concern for the very viability of medical schools". In its report, the Medical Council also compares the income from EU students in Irish medical schools unfavourably with the income received in benchmark international institutions.

In their study of the funding of medical education in Ireland, Indecon state that the annual income per medical student in Ireland is lower than in other EU countries and in Canada.

Unit Costs for Veterinary (€29,650) include the cost of running a veterinary hospital, and Dentistry (€20,494)[60] includes some costs associated with clinical training and therefore the unit cost for both these disciplines are not directly comparable to medicine. As such, neither is directly comparable to Medicine. However, it is still the case that undergraduate medical education is delivered with no dedicated allocation for the clinical training element, even though the clinical aspect is more complex and broadly-based than either of these two disciplines, and where the costs of obtaining such clinical teaching time is high. A comparison can also be drawn with Nursing, where costing of €10,264 per student per annum is allocated, excluding clinical training.

The Working Group concludes that the funding of medical education in Ireland is significantly lower than in most other developed countries.

[60] HEA data

New model of medical education

Earlier in this report the need for medical schools in Ireland to develop and implement a 'new model' of medical education in order to meet international benchmarks of quality was discussed in detail. In this new model there will be more students, more diverse delivery settings, an increase in small-group work and interaction, including mentoring, problem-based learning, and more inter-disciplinary contact. There will be a requirement for greater and more effective use of technology, assessment techniques, clinical-skills laboratory work and modular courses.

The transition to a new model of education will require re-training and re-skilling of staff as well as the development of new and existing teaching facilities and resources. The funding implications of this model are likely to be significant, particularly when the low funding base that currently exists is considered.

The Working Group considers it essential for medical education in Ireland to develop this new model of education if Ireland is to continue to educate medical professionals of a high quality for the Irish health service, and to maintain Ireland's standing internationally in medical education.

Contractual and funding arrangements for the provision of clinical training

As discussed in detail in Chapter 7 of this report, Provision of Clinical Training, approximately one-half of undergraduate training is delivered in clinical settings, usually in a hospital but also in some primary and community care facilities.

A number of critical funding issues arise from that discussion, particularly in the context of a significant increase in graduate numbers:

- dedicated funding for clinical training,
- appointment of additional academic clinicians
- appointment of additional clinicians to maintain service levels in the context of protected teaching time.

Dedicated funding for clinical training

While Indecon estimate that the total cost per registered student in a hospital clinical setting was €9,010 in 2002/3, this funding is not specifically allocated to medical education in a clinical setting by the health service. This is in contrast to the UK where clinical training is specifically funded through Service Increment for Training (SIFT).[61]

The Working Group believes it is essential that dedicated funding be provided for clinical training activities in healthcare settings. However, while this funding may be allocated by the Department of Health and Children directly to the Health Service providers, it is equally essential that the medical schools can influence how such funding is utilised in order to ensure effective and high quality teaching in line with curriculum requirements. This may be achieved through the introduction of a credit system.

The credit system could, for example, work in the following way[62]. Any clinical site may apply to become accredited as a clinical site. This entitles them to draw down funding in respect of facilities

[61] In England and Wales, the funding model on the service side is through SIFT, which is £28,000 per student per annum. However, while this funding is specifically allocated to medical education in the service context, it is unclear as to whether the full amount is actually allocated to this purpose on the ground.

[62] While the Working Group recommends the principle of dedicated funding from the health service for training activities, and that such funding should be amenable to medical schools control, it is intended that the national implementation group should work through the mechanics involved in this, using the concept of credits as a possible solution.

and teaching time, and indeed may encourage them to become involved in clinical training. In order for them to do so, the clinical site can obtain credits from a medical school in return for the provision of clinical training services. The credits are used to draw down funding from the training portion of the health budget. The medical school, within reasonable constraints regarding multi-annual commitments, can 'spend' their credits with whatever clinical site provides the service they require. Medical schools are allocated credit on the basis of the number of students they have enrolled.

An issue arises in relation to non-EU students. While dedicated funding for clinical training may be provided for EU students, this is unlikely to be the case for non-EU students. Therefore, the costs for clinical training of non-EU students should be accounted for within the fees charged to such students. However, recognising the important economic, social and cultural role played by non-EU students in Irish medical education, care must be taken not to render Ireland an unattractive destination for non-EU medical students.

Additional Academic Clinicians

Academic Clinicians are joint appointments between a medical school and a health service provider, mainly hospitals, and have a significant educational component to their contract, often up to 50%. These posts form the backbone of curriculum delivery in the clinical setting. According to most recent Comhairle na nOspidéal data, the delivery of clinical training in Ireland is supported by 40 whole-time equivalent academic clinicians[63], which is approximately 4 times less per capita than in the UK[64]. The relative scarcity of such appointments is of critical importance to the provision of the medical education curriculum. Further, most such appointments in Ireland have been on the basis of the clinician retaining a virtually fulltime service commitment which can have adverse consequences for the educational aspect of their duties.

Additional service personnel

In order to allocate time to clinical teaching on a contractual basis, it is necessary for health providers to allocate additional resources to service provision. In the absence of such allocation, it is inevitable that service demands will be prioritised regardless of requirements for clinical education and training.

Availability of Financial Data

It became clear to the Working Group that the availability and reliability of financial and statistical data on medical education is not sufficient to enable strategic analysis or planning on an ongoing basis. In the case of clinical settings, there is little or no systematic or structured approach to budget allocation or cost analysis for undergraduate medical education. There is also a lack of transparency within universities in relation to the allocation of funding by the universities to the medical schools, and from medical schools as regards their costs and sources of income.

As a result, it is extremely difficult to be definitive about any financial analysis of medical education.

[63] All consultants are required to provide 11 sessions as contracted. Academic clinicians are required to dedicate some of these sessions to academic work, while the remaining sessions are allocated to clinical work. The number of sessions dedicated to academic work varies according to the terms of the specific contract. Most consultants do not have an academic clinician contract, and are not obliged to provide academic sessions, although many do engage on a voluntary basis in training activities.

[64] CHMS survey

While we believe the Indecon report is the best possible estimate that can be made at this time, this lack of financial information can not be accepted in the future. This situation is exacerbated by the fact that the delivery of medical education crosses multiple domains thus creating further possibilities for divergence and confusion.

Further, the lack of structured and transparent financial and statistical data renders it difficult to relate funding to specific outcomes and thereby measure success. In the future, additional funding should be linked directly to specific outcomes, and this will require much more transparency and accountability within the universities, medical schools and health-service sites.

Number of medical schools in Ireland

There are four university medical schools in Ireland and one independent medical school, RCSI. Suggestions have been made recently regarding the establishment of a graduate medical school, while the possibility of the establishment of a cross-border medical school has been proposed.

Irish medical schools are small by international standards. Currently, the annual intake of EU students in Ireland's medical schools ranges from 54 to 106 with an almost equal intake of non-EU students. It is debatable in a 'greenfield' situation whether five medical schools would be established in a country of Ireland's size and population. In the U.K., for example there is one school per 1.5m of population, whereas in Ireland there is one medical school per 0.8m of population.

It is reasonable to conclude also, on the basis of the available financial data, that the existing medical schools remain viable only because of the very significant income received from non-EU students. Indeed, while the existence of five medical schools is an historical fact, in recent years the schools have become significantly dependant on the increasing subsidisation provided by non-EU students, and even with this subsidy there is clearly a major deficit in terms of funding within the four university medical schools. It is not realistic to assume that there is room for the expansion of such an income source or even that the existing subsidisation will continue at current levels indefinitely, given the severe constraints on the availability of clinical training placements and the increasing international competition for income-generating students.

While it is not within the remit of the Working Group to adjudicate on the number and types of medical schools in Ireland, the Working Group believes that in responding to the increased output of medical graduates required, any proposed and/or existing medical schools must be capable of answering the following questions to the satisfaction of international peer review, if they are to be considered viable and in line with national need:

- Can the school perform at the levels required in terms of national and international quality benchmarks?
- Is the school financially viable in the long term?
- Does the school offer an opportunity to resolve capacity issues that cannot be resolved by existing schools?

- Is there sufficient clinical training capacity to accommodate the school?
- Is there an opportunity for the school to form a collaborative relationship with other existing or proposed schools?
- Does the school have the critical mass or the potential for critical mass required to maximise the benefits of investment?
- Is the creation of this additional school or the retention of an existing school the most effective way of meeting national need for medical education?
- Does this school have sufficient numbers of academic staff and a strong health research environment?

The Working Group is of the view that it is important to strike a balance between competition and collaboration between medical schools. While it is of benefit that there is a number of options available to the State in order to fulfil its needs in terms of student intake and graduation, it is also essential that medical schools collaborate effectively in order to mitigate duplication of investment, and to maximise the application of resources across the medical education system. Medical schools must collaborate and specialise if they are to maintain international standards. The possible amalgamation or shared governance of existing medical schools to achieve greater critical mass and returns on investment should be considered.

Future Funding Streams

It is likely that the future funding streams for medical education will need to contain a number of discrete elements:

- State funding for EU undergraduate students (including grant in lieu of fees), allocated to the universities by the HEA on a block grant basis and distributed internally by means of a transparent distribution model
- State funding for students on the graduate entry stream allocated to the universities by the HEA on a block grant basis model and distributed internally by means of a transparent distribution model.
- State funding for students for access for students from socio-economically disadvantaged backgrounds
- Fees for EU students on the graduate entry stream to be established by the university, paid directly to the university by students and allocated internally by means of a transparent distribution model to the medical school
- Dedicated funding for clinical training provided directly to accredited clinical sites, using a credit system where credits allocated to medical schools would result in a funding flow to clinical sites hosting their students
- Funding to meet personnel requirements for service provision in lieu of resource being applied to clinical training
- Funding for additional intern positions
- Funding for the appointment of academic clinicians with a view to matching international norms

- Fee income from non-EU students, to include fees for the provision of clinical training on healthcare sites.
- Targeted funding initiatives to encourage national collaboration in areas such as the development of assessment techniques, teaching and learning initiatives such as problem-based learning, and e-learning infrastructure and material.
- Funding to cater for new models of medical education and learning, including small group teaching, problem-based learning, computer-based learning and inter-disciplinary learning.
- Funding for capital/infrastructure developments, including the development of ICT systems to provide statistical and financial data/information.
- Funding to support accommodation and travel for students attending geographically dispersed clinical training sites.

The Working Group recommends that a structured approach that addresses these various funding elements in a coherent way is adopted.

9.3. Recommendations on Funding of Medical Education

In light of all these issues, the Working Group puts forward a number of recommendations relating to the funding of medical education, based on the principles of accountability and quality of outcomes:

Recommendations

1) Future funding model

The Working Group recommends that a cross-sectoral, structured funding model for medical education be adopted and that the framework outlined in *Fig. 1* be used as the basis for such a model.

(See *Fig. 1* over)

2) Standardised Financial and Statistical Reporting

A standardised system of reporting of financial and statistical information should be instituted with a view to ensuring that critical financial and other data is available on a national basis. This reporting requirement should be required of:

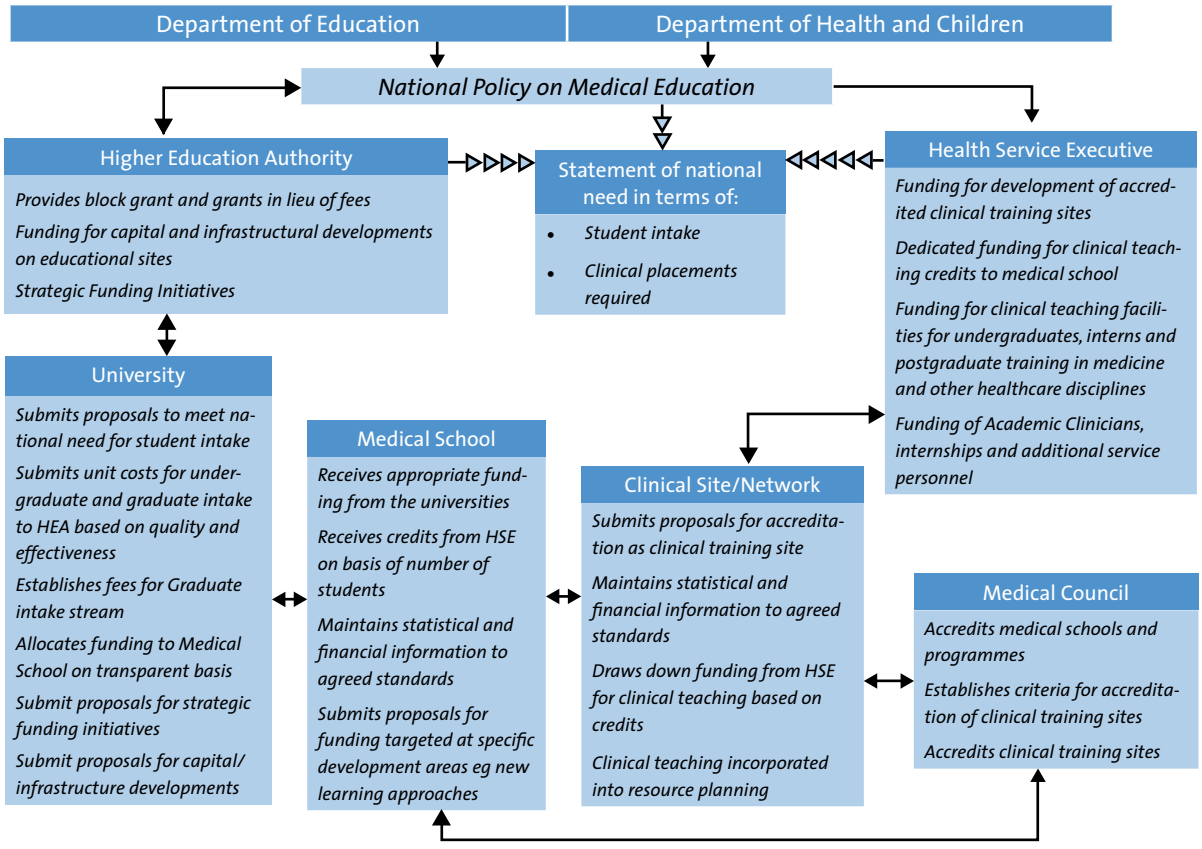
- Universities regarding the distribution of state grants, fees and other income to medical schools and the models utilised to do so
- Medical Schools regarding the sources and allocation of overall income to the delivery of medical education and the costs incurred
- Clinical sites regarding the sources and allocation of funding to medical education and the costs incurred

3) **Funding of Clinical Training**

In line with the provisions of the Health Act 2004, the Health Services Executive, in association with the Department of Health and Children should:

- Allocate dedicated funding for the provision of facilities for medical education on accredited clinical sites
- Allocate protected funding for clinical teaching and associated costs of undergraduate medical students on accredited clinical sites
- Supply medical schools with 'credits' per student. Medical schools will utilise these credits to negotiate teaching time with the clinical site in the context of the overarching agreement between the university and the clinical site. The clinical site can then use these credits to draw-down the allocated funding[65].
- Ensure that EU students are given priority in terms of access to clinical training places and intern posts.

Fig. 1



[65] The credit system is outlined in Section 9.2. Any clinical site may apply to become accredited as a clinical site. This entitles them to draw down funding in respect of facilities and teaching time. In order for them to do so, the clinical site can obtain credits from a medical school in return for the provision of clinical training services. The credits are used to draw down funding from the training portion of the health budget. The medical school, within reasonable constraints regarding multi-annual commitments, 'spend' their credits with whatever clinical site provides the service they require. Medical schools are allocated credit on the basis of the number of students they have enrolled. However, while the Working Group recommends the principle of dedicated funding from the health service for training activities, and that such funding should be amenable to medical schools control, it is intended that the national implementation group should work through the mechanics involved in this, using the concept of credits as a possible solution.

10. Implementation & Costing

10.1. Overview

Elsewhere in this report, the Working Group outlines the radical changes that are required in the organisation, delivery and funding of medical education in Ireland in order to meet the twin challenges of health service resourcing and of achieving and sustaining international standards for medical education. It is critical that these complex and interdependent changes are implemented in a structured and integrated manner and at a realistic, albeit challenging, pace.

The Working Group is conscious of the scale of what is proposed and believes that the implementation of the changes already discussed in detail earlier in this document must proceed on a phased basis. A phased approach is necessary, not only because of the scale of the changes proposed, but because there is a need to review progress on an ongoing basis, and if required, to amend the implementation strategy and plan.

It is also essential to establish an 'implementation structure' through which these multi-stream changes can be progressed in coordinated and effective manner. Therefore, the Working Group proposes the establishment of the following structure to oversee and co-ordinate the implementation of the recommendations of the Group:

National Implementation Committee:- to draw up and co-ordinate the overall implementation plan, to oversee and guide the work of the working sub-groups within the context of that plan, to make ongoing decisions regarding the implementation strategy, and to address cross-functional issues such as student intake and governance.

This group should contain senior representatives from each of the following - the Department of Health and Children, the Department of Education and Science, the Department of Finance, the Higher Education Authority, the Health Service Executive, the Medical Council, Higher Education Institutions and their Medical Schools, Medical Training Bodies and Students.

The National Implementation Committee may require the formation of working sub-groups to focus on the implementation of particular elements of the overall plan such as Curriculum, Clinical Training, Entry Mechanisms, Data and Information, Governance and Funding. Specialists and others, including members of the public, may be recruited onto these working groups as required.

It is critical that the National Implementation Committee be properly resourced to fulfill this extremely challenging and complex task. While the members of the Committee will have a part-time involvement, there is a need for an appropriately resourced, fulltime executive implementation team with responsibility for the proper and effective execution of the overall implementation plan. The establishment and resourcing of this team should be a matter for the Government Departments concerned.

The Working Group also proposes that the **Inter-Departmental Steering Group on Undergraduate Medical Education** (as recommended in Oversight and Governance) should be established immediately, to provide a structured forum for the provision of policy direction to the National

Implementation Committee and for the escalation of policy issues requiring cross-departmental consideration and approval.

It is envisaged that this implementation structure will be required for the period 2005-2009 and possibly for longer depending on progress. A key element of its brief is to transition its ongoing responsibilities to the permanent oversight and governance structures to be established by the end of that period.

10.2. Proposed Implementation Plan

The Working Group has drawn up a proposed implementation plan, which is intended to provide an overview of how the implementation process should proceed. It is envisaged that the National Implementation Committee, as part of its initial work, will define a more detailed plan, and more clearly delineate the work to be carried out by the implementation working sub-groups.

It is very important to understand that the Working Group believes that the implementation plan will evolve as additional information is made available, and that the National Implementation Committee should be most careful to incorporate such information into the plans in an appropriate manner. For example, the phased doubling of student intake as proposed by the Working Group is contingent on considerable progress being made in improving the quality and capacity of clinical training provision. If such progress is not achieved, it follows that the proposed intake strategy may require significant adjustment and/or rephasing. It should also be recognised that the goals outlined in the implementation plan are ambitious and that if specific goals are not met there will be a consequential knock-on effect and delay in achieving other goals. Similarly, many of these goals are fully dependant on appropriate additional funding being made available, and indeed, the implementation process cannot begin without approval of the funding requirements.

This implies that the implementation process will be punctuated with key decision points, and that the implementation process may alter course as a result of decisions made at those points.

The Working Group considers it absolutely essential that an integrated approach be adopted to the implementation of its recommendations. While some issues of detail have been passed to the National Implementation Committee to address as part of its implementation of the Working Group recommendations, it is important that significant progress is made on all of the various themes identified by the Working Group i.e. student intake, entry, curriculum reform, organisation and delivery of clinical training, oversight and governance and funding, and that there is not an imbalanced focus on any particular theme.

The Working Group is conscious of the extensive reform programme currently underway within the health service, especially the establishment of the Health Service Executive and is sensitive to the particular challenges that its recommendations and proposed implementation plan will place on all elements of the health service. However, the Working Group believes that proactive

collaboration across the education and health sectors is essential to the success of the proposed plan, and that the long term benefits to the Irish Health Service will be significant.

Table 10.1 outlines some of the key goals to be achieved over the implementation period. These should not be considered definitive, as they will be expanded and revised by the National Implementation Committee in order to develop a detailed implementation plan. For example, the Working Group has assumed that the increase in EU student intake will rise to 725 over a four year period. This, of course is dependent on a number of critical factors such as funding and the provision of additional clinical training capacity.

Table 10.1: Implementation Plan– Key Goals

Year	Key Goals
2005	1. Establish National Implementation Group and Sub-Groups, including executive resources 2. Prepare detailed implementation plan 3. Define and agree financial and statistical reporting frameworks 4. Define and agree clinical training accreditation frameworks 5. Define and agree framework agreements between health providers and medical schools and teaching agreements with clinicians 6. Define and agree mechanism for funding of clinical training, to include credits-type facility for medical schools 7. Establish entry criteria/mechanism for EU undergraduate and graduate students 8. Publish national student intake requirement for 2006 and seek proposals as to its fulfillment 9. Universities and their Medical Schools to define and initiate a change programme towards revised model of medical education
2006	1. Accreditation of any proposed new courses[66], e.g. 4 Year Graduate Programme 2. Medical Schools publish revised educational programme, based on programme outcomes 3. In parallel, Universities and medical schools define resource model to deliver medical educational programme, including academic clinicians 4. Student intake in September of 350 EU Undergraduates and 60 EU Graduates 5. Publication of educational facilities plan highlighting shared use of facilities and resources 6. Establishment of clinical training site Register, all existing clinical training sites must be registered before end 2006 7. Introduce proactive programme to incentivise all potential clinical training sites to consider becoming involved in structured clinical training 8. Introduction of funding for clinical training based on mechanism defined in 2005 9. Overarching agreements in place between medical schools and health providers

[66] It appears that the accreditation of new courses, provided there is the awarding of an existing accredited degree, may not be an onerous or time consuming process.

	10.	Universities establish resources to co-ordinate logistics of clinical placements from all disciplines across all healthcare settings
	11.	Engage with other healthcare disciplines with a view to establishing joint strategies relating to shared use of facilities and resources
	12.	Engage with other relevant bodies with a view to establishing joint strategies relating to intern and postgraduate training streams
2007	1.	Publication of financial and statistical data, based on agreed frameworks
	2.	Review of stability, quality and capacity of clinical training provision, with possible revision to intake strategy
	3.	Student intake in September of 395 EU Undergraduates and 120 EU Graduates
	4.	Agreements in place between medical schools, health providers and clinicians for provision of all clinical teaching
	5.	Quality Assessment of educational programme – internal and external
2008	1.	Publication of financial and statistical data, based on agreed frameworks
	2.	Review of stability, quality and capacity of clinical training provision, with possible revision to intake strategy
	3.	Student intake in September of 440 EU Undergraduates and 180 EU Graduates
	4.	Agreements in place between medical schools, health providers and clinicians for provision of all clinical teaching
	5.	Additional clinical placements required – maximum of 125
2009	1.	Publication of financial and statistical data, based on agreed frameworks
	2.	Review of stability, quality and capacity of clinical training provision, with possible revision to intake strategy
	3.	Student intake in September of 485 EU Undergraduates and 240 EU Graduates
	4.	Agreements in place between medical schools, health providers and clinicians for provision of all clinical teaching
	5.	Quality Assessment of educational programme – internal and external
	6.	Additional clinical training placements required – maximum 375
2010-2015	1.	Ongoing publication of financial and statistical data, based on agreed frameworks
	2.	Annual review of stability, quality and capacity of clinical training provision, with possible revision to intake strategy
	3.	Student intake stabilises but under annual review, including balance with non-EU students
	4.	Ongoing internal and external assessment of educational programme
	5.	Ongoing increase in additional clinical training placements required – to a maximum of 2104 (from 2003/4 base) in 2016
	6.	Additional intern positions required in 2011. From 2011 to 2014, between 160 and 300 additional positions will be required.

10.3. Estimation of Costs

The changes proposed for medical education in Ireland are significant and consequently the financial issues involved need to be understood. The Working Group believes that a number of key elements of the resourcing of medical education must be addressed if its recommendations are to be achieved. The lack of data in some aspects of medical education as identified by Indecon in their review of the funding of medical education in Ireland makes it difficult to be definitive. However, it is possible to estimate the likely costs involved in a number of specific areas, based on a specific intake strategy. In other areas, such as in the move to more interactive teaching and learning models, it is possible only to be arbitrary in the definition of potential future costs. The Working Group puts forward the following cost estimations, which are based on one of many potential future scenarios, as a high-level guideline to the national implementation group, and strongly urges that ongoing reference should be made to relevant international data, and in particular data which is beginning to emanate from the U.K.[67]

For the purposes of cost estimation the following student intake strategy[68] is assumed:

• EU student intake rises to 725 over a four year period.

• This is comprised of an undergraduate intake of 485 and a graduate intake of 240.

• The undergraduate programme is restricted to five years, while the graduate programme is restricted to four years.

• Intake of non-EU students is restricted to 25% of total intake, or approximately 257 students.

• No account is taken of attrition rates in the following cost estimations.

• For the purposes of this costing model, it is assumed that this intake strategy commences in September 2006. In reality, the actual intake model and timings will be agreed during the implementation period and may vary considerably.

Increased intake of EU Undergraduate students

For almost 30 years, the intake of EU students has been limited to approximately 305 per annum. Based on the recommendation of the Working Group, there will be a phased increase of 45 in the intake of EU undergraduate students each year for four years, leading to an annual intake of 485 by the fourth year. The potential additional cost of the increased intake is as outlined in Table 10.1:

[67] For example, CHMS (UK) may be a source for data relating to the costs of graduate programmes, of which there is significant experience in the UK.

[68] This is based on Intake Model 4, which is examined in detail in Chapter 5 of this report: Increased Intake of Students

Table 10.1: Costs of additional EU undergraduate students

	Annualised	*2006/7*	*2007/8*	*2008/9*	*2009/10*	*2010/11*	*2011/12*	*2012/13*	*2013/14*
Cumulative number of additional[69] EU undergraduates in medical school		45	135	270	450	630	765	855	900
Cost of additional EU undergraduates at current averaged unit cost levels of e10,000 per student per annum	€9m	€0.5m	€1.4m	€2.7m	€4.5m	€6.3m	€7.7m	€8.6m	€9m
Current subsidization from non-EU student income for all EU undergraduates, estimated at 50%	€12.1m	e8.9m	€9.4m	€10.1m	€11m	€11.9m	€11.4m	€11.9m	€12.1m

The annualised cost of €9m indicated in *Table 10.1*, reflects the additional cost resulting from the increase in student numbers. However, this is based on the Indecon averaged estimation of €8,367 (2001/2) per student per annum, increased to €10,000 to reflect the current position (2003/4). However, the Working Group considers this estimation to be entirely inadequate to fund medical education at international levels of quality. While unit costs will ultimately be assessed by each university taking its own situation into account, the Working Group believes that the current level of subsidisation provided by non-EU students should be incorporated into the costs of the undergraduate student. Thus, *Table 10.1* indicates the likely cost of applying a 50% subsidisation to the cost for all 485 undergraduate students as being approximately €12m.

It is also important to restate that it is the responsibility of each university to submit cost and other data to the HEA. These data are used by the HEA to inform the level of recurrent funding to be provided to each university as a whole. The university then allocates this funding across all its faculties on the basis of internal allocation models. Currently, these allocation models are not sufficiently transparent to bring clarity on sources of income or accountability with regard to expenditure. This also applies to the manner in which income from non-EU students is allocated by the universities to their medical schools or expended by the medical schools.

The Working Group believes that it should remain the responsibility of the University to assess its funding requirements and to allocate its funding as it considers appropriate to its various activities. However, it is important that all such allocations should be transparent and that the University remains accountable for its decisions in this regard.

[69] These are additional to the existing intake of approximately 305 EU students per annum.

Introduction of an EU Graduate stream

Students on postgraduate courses in Irish universities are required to pay tuition fees. However, these fees in most instances do not cover the economic cost of the course, and in addition Universities generally receive State grant funding in respect of these courses.

The Working Group proposes that overall funding should be made available to the new graduate medical education programme at the same level as that proposed for the undergraduate programme, given that the degree awarded to both streams is the same.

Therefore, in the cost estimation outlined in *Table 10.2*, an overall cost of €10,000 is assumed, with the already stated caveats that apply to this cost. It is assumed that all graduate students will embark on a four-year graduate programme.

Table 10.2: Costs of Graduate Intake Stream

	Annualised	*2006/7*	*2007/8*	*2008/9*	*2009/10*	*2010/11*	*2011/12*	*2012/13*	*2013/14*
Cumulative number of EU graduates in medical school		60	180	360	600	780	900	960	960
Cost of additional EU graduates at current averaged unit cost levels of e10,000 per student per annum for undergraduates	€9.6m	€0.6m	€1.8m	€3.6m	€6m	€7.8m	€9m	€9.6	€9.6m
Subsidization from non-EU student income for EU graduates, estimated at 50%	€4.8m	€0.3m	€0.9m	€1.8m	€3m	€3.9m	€4.5m	€4.8m	€4.8m
Potential fee income from graduate students, estimated at e5,000 per student per annum	€4.8m	€0.3m	€0.9m	€1.8m	€3m	€3.9m	€4.5m	€4.8m	€4.8m

While there is no definitive estimate of the real cost of a graduate medical education, the four university medical schools charge non-EU students a fee of approximately €22,000 per annum, while RCSI charge in the region of €34,000 per student per annum. It is a matter for the institutions involved to determine the fees to be levied on EU graduate students. However, on the basis of the annualised unit costs and subsidisation outlined in *Table 10.2*,

the universities would have to apply a fee of approximately €12,000 per student per annum rather than the €5,000 indicated, in order to reach the current fee level of a non-EU student. It should also be understood that the educational programme to be followed by students on the graduate entry stream, while of shorter overall duration, may be of greater intensity than the undergraduate programme. Students may be required to follow an 'all-year', rather than an academic, cycle. This may demand more resources than the undergraduate programme. For example, there are some emerging indicators[70] in the U.K, where they have had extensive experience of graduate entry medical programmes, that the incremental cost of educating a graduate entrant (associated with more extensive teaching over a 48-week year) is equivalent to the cost of the fifth year of the typical undergraduate programme. The Working Group recommends that further investigation of this issue be undertaken during implementation.

Students from socio-economically disadvantaged backgrounds

Given the fact that fees will be applied to the graduate intake stream, it is important that the issue of equity of access is addressed. Students from socio-economically disadvantaged background should not be effectively excluded from the opportunity provided by the graduate intake. For example, if the state were to provide for the subsidisation of fees for 20% of graduate student intake, this would equate to approximately €1m annualised on the basis of a tuition fee of €5,000 per student per annum, and €2.4m annualised on the basis of €12,000 per student per annum. The Working Group strongly recommends that action to ensure equity of access to medical education be implemented.

Reduction of non-EU student intake

As has been discussed earlier in this report, non-EU students generate a very significant part of the current income of medical schools and are heavily cross-subsidising EU students. It is clear that the impact of reducing numbers of non-EU students will be very severe. In this regard, it should be noted that a failure to increase non-EU student intake in line with the increase of EU-student intake has the effect of reducing the subsidisation impact of non-EU income. Decreasing non-EU intake has an even more significant impact.

Table 10.3 assesses the level of foregone income resulting from the loss of non-EU student fees in the context of reducing non-EU intake to 25% of total student intake. In this illustration, it first assumes that the loss of non-EU students is confined to the university medical schools. It then assumes that the loss of non-EU students will be borne by each of the five medical schools in proportion to their intake of non-EU student in 2003/4, i.e. the four university medical schools will absorb 44% and RCSI 56% of the reduction. It is understood that this may not be the eventual ratio, but it is useful for modeling purposes. In the model, it is assumed that income is €34,000 per student per annum in RCSI and €22,000 per student per annum in the university medical schools.

[70] Council of Heads of Medical Schools (CHMS)

Table 10.3: Impact of reducing non-EU student intake

	Annualised	2006	2007	2008	2009	2010	2011	2012	2013
Number of non-EU students lost each year		55	165	330	550	770	935	1045	1100
Lost income each year from these students: university medicals schools only	€24m	€1.2m	€3.6m	€7.3m	€12m	€17m	€21m	€23m	€24m
Lost income each year: RCSI also included - proportionate to current intake levels	€30m	€1.5m	€4.5m	€9m	€15m	€21m	€26m	€29m	€30m

It is unwise to assume that non-EU student intake is a tap to be turned on or off at will. The large intake of non-EU students in Irish medical schools reflects over 20 years of effort in building an international presence and brand name. It is likely that even a short-term reduction in intake will lead to a long-term reduction in income.

Again, it should be noted that the scale of the income loss reflects quite starkly the degree to which medical education in Ireland has become dependent on income from non-national students.

It should be noted that the prime reason for restricting the intake of non-EU students is the general lack of clinical training capacity and the need to allocate clinical placements to EU students in the first instance, particularly in the context of an increase in EU-student numbers. However, the current cohort of non-EU students contains a number who carry out their clinical training in their country of origin and do not therefore impact on clinical training capacity in Ireland. This scenario offers a potential strategy for the retention of non-EU students in the future.

Dedicated clinical training funding and increased placements

The Working Group has identified the provision of clinical training as an area of extreme concern and urgency, both in relation to the quality of the current deliverable and also its capacity to absorb additional numbers of students.

Indecon has estimated that the current cost of a clinical training placement is €9,000 per student per annum. The Working Group has recommended that this funding should be explicitly dedicated to clinical training and that the medical schools should influence its drawdown through a 'credit' system. However, the increase in numbers of students in medical schools will give rise to a requirement for additional clinical training placements. *Table 10.4* outlines the potential cost impact of requirement for an increased number of clinical training places.

It is critical to note that the number of actual clinical rotations required will be a multiple of the number of students requiring placements, as a single student could have four or five separate rotations in a single year, each of one or more week's duration. Thus 730 additional students requiring clinical training in 2013 will give rise to thousands of additional rotations across multiple clinical sites. In the context of the Medical Council statement suggesting that student numbers be capped at 2003 levels until the lack of capacity in clinical training has been addressed, the scale of the challenge to provide clinical placements is clear.

Table 10.4: Additional Cost of Clinical Training Placements

	Annualised	2006	2007	2008	2009	2010	2011	2012	2013
Number of additional students requiring clinical training places		0	0	50	150	300	500	640	730
Cost of additional places based on e9,000 per student per annum	€6.6m	0	0	€0.5m	€1.4m	€2.7m	€4.5m	€5.8m	€6.6m

It is important to note that the cost of €9,000, although the best estimation possible at this time, may not be an accurate estimate of costs, and certainly does not reflect likely costs across the wider spectrum of clinical training sites that will be required in the future. Also, it should be clearly understood that this expenditure is based on a clinical training experience which is considered by the Working Group to fall far short of the standard that is necessary. It is important therefore, that this cost metric be kept under annual review as part of the statistical and financial data analysis referred to previously.

Academic Clinicians

Academic Clinicians[71] form the backbone of the delivery of clinical training to medical students. However, the delivery of clinical training in Ireland is supported by 39 whole-time equivalent academic clinicians, which is very low by international standards.

[71] An Academic Clinician has a joint hospital/university appointment whose contract includes an agreement to provide a specific number of hours to teaching activities, in addition to their clinical duties. Currently the overwhelming majority of Academic Clinicians are consultants. The standard consultant contract is to provide 11 sessions per week to the health service. Each session equates to one hour of work. An Academic Clinician contract allocates a specific number of these sessions to academic work. The specific number allocated may vary from contract to contract.

The Working Group recommends an increase in the number of academic clinicians in order to support the radical change required in the quality and capacity of clinical training. However, this increase should not be confined to consultants. Other, non-consultant clinicians can play a very valuable role in the provision of clinical teaching and the Working Group strongly endorses the incorporation of such clinicians into the academic clinician structure.

In *Table 10.5,* the potential impact of a fourfold increase in the number academic clinicians is outlined. For the purposes of this model, it is assumed that all appointments are at consultant level and that the increase is phased over an eight year period at a rate of 17 additional posts per annum. This level of increase would establish a cohort of academic clinicians in Ireland by 2013, at levels equivalent those currently applying in the UK, assuming UK levels do not change in the interim.

Table 10.5: Cost of additional Academic Clinicians posts

	Annualised	2006	2007	2008	2009	2010	2011	2012	2013
Cumulative number of additional **whole time equivalent** academic clinicians		17	33	50	66	83	99	116	132
Cost of Academic Clinicians based on e250,000 per WTE per annum	€33m	€4m	€8m	€12m	€16m	€21m	€25m	€29m	€33m

It should be noted that the number of academic clinician whole-time equivalents does not reflect the number of actual positions involved. Thus an additional 17 whole time equivalents may require 40 or more actual appointments. Each of these appointments will involve some academic and some clinical sessions. The annualised cost of €33m reflects the cost of the academic element of those appointments only, and does not include the cost of the service component, which is an integral part of any academic clinician appointment. However, the service cost is likely to be broadly equivalent to the academic cost, on the basis of a 50:50 ratio between academic and clinical responsibilities. It should be noted that this investment in academic clinicians will also result a high level of service to the health service provider.

Change in Educational Programme

In line with Medical Council recommendations and international benchmarks, the Working Group strongly supports the move towards a new model of medical education, incorporating an outcomes-based curriculum, modular core and options programme structures, small group teaching and problem-based learning. This represents a significant change in the delivery of medical education in Ireland and presents specific cost challenges.

There is a general belief among the Working Group that the current level of State funding provided to medical schools in Ireland is low by international standards and is not consistent with the objective of high quality medical education.

The present-day cost of educating a medical graduate is based on the traditional model of medical education whereby the early years of the programme are dominated by large group lectures and practicals and the latter years are based in a large teaching hospital attached to a practising clinical team receiving both formal and informal clinical instruction, with a high degree of self-directed activity on the part of the student in learning how to interview and examine patients. The proposed new model involves considerably more intensive small group interaction with at most 20 students per group across the course and is therefore more labour intensive from the teacher perspective. Typically the replacement of a single 1 hour plenary lecture delivered by a senior member of staff will involve at least 5 tutor staff (where class n=100 students) and up to 15 person hours (where class n=300 students) of contact time. The provision of interactive and virtual electronic material and other teaching aids further increases the costs.

The Working Group is not in a position to state the optimum level of funding for medical education. It is the responsibility of the Universities to establish the costs of delivering high quality medical education, utilizing multi-disciplinary resources and facilities where possible, and to submit such costs for inclusion in the block grant process. However, in order to provide some indication of potential cost levels, the Working Group has made a number of assumptions as outlined in *Table 10.6*. Firstly it assesses the potential annual cost of an increase of 20% in direct costs, based on an overall unit cost of €10,000 per student per annum, of which 59% is direct costs. Secondly it assesses the impact of a 10% increase in unit costs to allow for the development and provision of educational tools appropriate for small group or problem-based learning. The Working Group does not state that these are the actual costs, but simply identifies that there will be a cost for the changes involved for both tuition and educational tools, and indicates some possible costs based on a 20% and 10% increase respectively. The Working Group recommends that the national implementation committee should research the international experience of transition from traditional to interactive methods of medical education to provide a more reliable estimation of costs.

Table 10.6: Costs associated with revised model of medical education

	Annualised	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14
Cost of increased tuition time based on an increase of 20% on direct costs element of unit costs plus subsidisation [72]	€6m	€3m	€4m	€4m	€5m	€6m	€6m	€6m	€6m
Provision of educational tools, based on 10% of unit costs plus subsidisation	€5m	€2.7m	€3.1m	€3.5m	€4.2m	€4.7m	€4.8m	€5m	€5m

In light of the changes recommended in this report, it is likely that Universities will make a strong case for increased funding associated with the costs for the delivery of medical education, in the context of a strategic, sectoral approach to the provision of high quality medical education, with a clear focus on reduction of duplication, maximization of human and infrastructural resources, creation of critical mass and appropriate specialisation. The Working Group recommends that the allocation of additional undergraduate or graduate students be made on the basis of quality, maximization of resources and economic viability.

Additional intern positions

Currently there are 488 approved intern positions in the public health service in Ireland[73], of which 153 (31%) are occupied by non-nationals, who in most cases are not likely to remain within the Irish health service following registration. In the context of an increase to 725 EU graduates per annum, it is clear that additional intern positions will be required if the benefit of increased student intake is to be realised in the Irish health service.

Table 10.7 outlines the likely requirement for additional intern positions and the potential cost. In this estimation, it is assumed that intern positions are open to all applicants, both EU and non-EU, and that the number of intern positions currently taken by non-nationals (153), would remain at this level. It is also assumed that the basic intern salary is €50,000 per annum.

As is indicated in *Table 10.7,* the proposed increase in graduate numbers will generate a requirement for 307 additional intern positions in total, with

[72] Averaged unit costs per student per annum is €15,000. The direct costs element of this, which includes staffing costs, is 59%. The 20% increase for additional tuition time is applied only to this element of the unit cost.

[73] The Postgraduate Medical and Dental Board, Survey of NCHD Staffing at 1st October 2004

an annual cost of €15.4m, when all positions are in place. It is important to state that interns fulfil an important service delivery role and that this cost provides additional clinical service capacity for the health service.

Table 10.7: Costs associated with additional intern positions

	Annualised	2006	2007	2008	2009	2010	2011	2012	2013
Cumulative number of additional intern positions required		0	0	0	0	0	174	267	307
Cost of additional intern positions, based on a salary of e50,000 per annum.	€15.4m	0	0	0	0	0	€8.7m	€13.4m	€15.4m

Facilities

The delivery of a high quality medical education is dependant on suitable facilities, such as clinical skills laboratories, IT equipment and seminar rooms being available in both medical schools and clinical settings. While the recent report of the Capital Review and Prioritisation Group (Kelly Report) has identified the prioritised capital requirements of the universities, it is likely that the proposed increase in student intake may impact on these priorities. Universities should ensure that consideration should be applied to facilities across all healthcare disciplines and should propose ways in which existing and new facilities may be utilised to the maximum across all disciplines, and on clinical sites for undergraduate, intern and postgraduate education.

Also, it is likely that the inclusion of additional clinical training locations will lead to a requirement for the development of enabling educational infrastructure on clinical sites. The expansion of clinical training settings is also likely to lead to student accommodation issues and the need for distance and e-learning infrastructures. It is expected that the accreditation process, which has been recommended for clinical training sites, will assist in identifying the facilities required by clinical sites of varying levels. As part of the

application for accreditation, it is envisaged that a comprehensive view of current provision and potential deficits on a national level will emerge.

Regarding the development of supporting facilities, the Working Group urges that specific attention be given to the needs of students.

Conclusion

In the above model, it can be seen that the level of investment that is required in medical education is significant, perhaps in the region of €100m, not including capital investment. It is important to recognise that this additional funding is targeted across a range of elements which are core to the future of medical education in Ireland. It is recognised that ongoing work is required to more accurately estimate funding requirements for both the education and health sectors, particularly as more data becomes available and the various stakeholders are engaged in the implementation of the recommendations of the Working Group. The challenge facing the national implementation committee in relation to funding is to align progress in all of these areas with appropriate investment levels.

Finally, the Working Group strongly urges the national implementation committee to continue to prioritise the acquisition and analysis of relevant statistical and financial data both nationally and internationally, with particular reference to the U.K., in order to better inform the implementation of the strategic direction provided in this document.

Appendices

A

Indecon report: The Cost of Medical Education in Ireland

(Published on the CD accompanying this report)

B

Additional Information regarding the use of standardised entry tests internationally

Introduction

The following document outlines some issues regarding the use of an objective and independent test of the student, related to aptitude for medicine, as a supplement to the use of academic results in the selection of students into medical education in Ireland.

The methods used for selecting medical student are of great importance as selection for medical school implies selection for the medical profession. Therefore, there should be procedures for testing in place, which take account of the various cognitive and cognitive skills considered desirable for a medical professional to possess. - 'In addition to academic achievement, health sciences programmes value non-cognitive variables such as interpersonal skills, integrity and professionalism'. (MMI)

In 1999, the Council of Heads of Medical Schools in the UK agreed a guiding set of principles for the selection and admission of medical students to medical schools. These concluded that:

- The selection process for medical students must be transparent
- The selection process should attempt to identify the core academic and non-academic qualities, which doctors must possess.
- A high level of academic attainment will be expected (www.chms.ac.uk/guidprin.doc)

This document outlines the arguments that have been made regarding the need for selection tools, which take account of more than academic achievement. Subjective selection tools are then discounted as these can reduce the fairness and transparency of the selection process. Finally, examples of the qualities that are desired for medical students are outlined, and a number of test procedures suggested.

Information in this document is sourced predominantly from the UK and Australia, which have introduced, or are currently in the process of introducing, a variety of assessment methods, which in addition to academic results, determine students selected for medical education. These assessment tools are used for both undergraduate and graduate selection.

Academic Criteria – necessary, but not sufficient

Example 1

Three arguments underpin the use of academic record in selection:

- Achievement – academic records are said to ensure a minimum competence in the sciences basic to medicine
- Ability – academic success depends mainly on intellectual ability, and achievements tests, such as the Leaving Certificate and A-levels, indirectly assess intelligence
- Motivation – academic record is an effective method of selection because university education requires not only intellectual ability but also good study skills

and motivation, which are demonstrated through past achievement.

However, since educational background influences Leaving Certificate and A-level achievement, medical schools may wish to find alternative or supplementary measures of intellect for mature students or those from disadvantaged backgrounds.

Also, it has been questioned whether A-level results are a good indicator of broader cognitive skills such as logical reasoning, problem solving and critical reasoning. (British Medical Association – The demography of medical schools)

Example 2

Further testing may be necessary to enable medical schools to differentiate between candidates who appear to be equally well qualified and suited. In many cases the great majority of applicants all have or are predicted to get three Grade A's. (Biomedical Admissions Test – www.bmat.org) Similarly, In Ireland the great majority of applicants will achieve greater than 500 points in the Leaving Certificate.

The case against subjective selection tools

Example 1 - Personal interview

There is evidence to suggest that interviewers tend to choose people like themselves. Also, interviews may bias the selection process in favour of students from more advantaged backgrounds. (British Medical Association – The demography of medical schools)

Example 2 - Personal interview

It is not simply interviewer bias that limits the generalisability of interview scores. Many of the problems with the personal interview might be explained, at least in part, by the possibility that the personal interview is a domain plagued by context specificity (An admissions OSCE: the multiple mini-interview, McMaster University, Ontario)

Example 3 - School, referee and personal reports

These reports do not facilitate objective comparisons between candidates and may bias the selection process in favour of students with better school or parental support and guidance. (British Medical Association – The demography of medical schools)

Aptitude testing – what traits do we want?

Example 1

Four domains are considered to be vital for a career in the health sciences

- Critical thinking
- Ethical decision-making
- Communication skills
- Knowledge of the healthcare system (An admissions OSCE: the multiple mini-interview, McMaster University, Ontario)

Example 2

Cognitive skills such as logical reasoning, problem solving and critical reasoning (British Medical Association – The demography of medical schools)

Example 3

Mastery of basic concepts in biology, chemistry, and physics; facility with scientific problem solving and critical thinking; and writing skills

MCAT - www.aamc.org/students/mcat/start.htm

Example 4

Application of skills in reasoning and problem solving
Insight into the feelings, motivation and behaviour of other people, and into issues related to helping or working with others

MSAT - http://www.acer.edu.au/tests/university/msat/intro.html

Example 5

The acquisition of skills in critical thinking and problem solving, interaction with others, and abstract non-verbal reasoning

GAMSAT - http://www.acer.edu.au/tests/university/gamsatuk/documents/GAMSATUKinfo04.pdf

Suggested Solutions

Example 1 - Bio-Medical Admissions Test

Test items draw upon generic academic skills and basic science knowledge rather than the products of recent specialist teaching and provide an objective basis for comparing candidates from different backgrounds, including mature applicants and those from different countries. The test is designed to be challenging, in order to discriminate effectively between able applicants for university courses, including those who may have achieved the highest possible grades in school examinations.

Biomedical Admissions Test - www.bmat.org

Example 2 - Medical College Admission Test

The Medical College Admission Test (MCAT) is a standardised multiple-choice examination designed to assess problem solving, critical thinking, and writing skills, in addition to the candidate's knowledge of science concepts and principles prerequisite to the study of medicine. The goal of the MCAT is to help admission committees predict which of their applicants will be successful in medical school.

MCAT - www.aamc.org/students/mcat/start.htm

Example 3 - Medical School Admissions Test

The Medical School Admissions Test is designed to complement academic achievement as evidenced by second level academic results or undergraduate degree grades and provides measures of general and personal skills and abilities not directly assessed in written examinations.
Because the test does not draw on curriculum knowledge, it is applicable to candidates across a range of ages and from a range of backgrounds, thus catering for students seeking admission to both undergraduate and graduate-entry programmes. Unlike other tests for entry to medical schools, it does not assess reasoning in basic sciences or the interpretation of complex verbal materials.

MSAT - http://www.acer.edu.au/tests/university/msat/intro.html

Example 4 - Undergraduate medicine and health sciences admission test

UMAT is designed to assess general attributes and skills gained through prior experience and learning; specifically, the acquisition of skills in critical thinking and problem solving, interaction with others, and abstract non-verbal reasoning. These non-academic personal skills are considered important to the study of later practice of professions in the health sciences.

UMAT is an aptitude test. It is not curriculum based and presupposes no particular subjects of study at secondary level. It does not require any knowledge or skills in maths or sciences, or in any other area of the curriculum. It is available to any student whose educational level at the time of sitting the test is the final year of secondary schooling.

http://www.acer.edu.au/tests/university/umat/documents/UMATinfobook2004_002.pdf

Example 5 - Graduate Medical School Admissions Test

GAMSAT evaluates the nature and extent of abilities and skills gained through prior experience and learning, including the mastery and use of concepts in basic science, as well as the acquisition of more general, skills in problem solving, critical thinking and writing. Success in GAMSAT is unlikely without knowledge and ability in the biological and physical sciences

http://www.acer.edu.au/tests/university/gamsatuk/documents/GAMSATUKinfo04.pdf

BIOMEDICAL ADMISSIONS TEST

(BMAT) http://www.bmat.org.uk/

Introduction

The BMAT is used as an additional means of assessing an applicant's potential for studying medical and veterinary courses. It tests an applicant's ability and fundamental understanding rather than their factual knowledge.

The purpose of the Biomedical Admissions Test is solely to provide a predictive assessment of candidates' potential in an academically demanding Undergraduate biomedical degree, and not their fitness to practice medicine or veterinary medicine - which universities will continue to assess in other ways. The test results are intended to be used as a significant component of the selection decision in conjunction with past examination performance, evidence from the UCAS form and performance in interview.

Test items draw upon generic academic skills and basic science knowledge rather than the products of recent specialist teaching and provide an objective basis for comparing candidates from different backgrounds, including mature applicants and those from different countries. The test is designed to be challenging, in order to discriminate effectively between able applicants for university courses, including those who may have achieved the highest possible grades in school examinations.

Universities in England who are currently using, or will be using the BMAT as a selection instrument are:

- University of Oxford
- University of Cambridge
- University College London
- Royal Veterinary College
- University of Bristol Veterinary School

Requirements for Test

Knowledge
Familiarity with concepts, terms and propositional knowledge specified by national curriculum key stage 4 (GCSE-level) double-award science and mathematics

– see http://www.nc.uk.net/home.html

Skills
Handling of number and communication, as defined at level 3 in the national framework curriculum Key Skills– see http://www.qca.org.uk/nq/ks/, specifically:

- Ability to read formal English and follow written instructions
- Ability to work quickly and accurately
- Ability to perform very simple mental arithmetic
- Ability to identify the straightforward meaning of a particular phrase within a longer text
- Ability to extract the meaning intended by an author where to do so requires more than one syntactical element of the text to be understood and synthesised.
- Ability to read simple quantitative data presented numerically or graphically and to understand their straightforward meaning and to be able to produce simple and appropriate graphs or diagrams of quantitative data
- Ability to generalise from quantitative data, for example to interpret a trend, a pattern, a rate and to be able to apply the generalisation to the particular or hypothetical
- Ability to make logical inferences or deductions from textual information and quantitative data and to identify illogical inferences
- Ability to communicate knowledge, understanding, interpretation, inferences, arguments, deductions and predictions by the appropriate use of clear and concise written English and diagrams

Attitudes
A tendency to take approaches that are critical, evidence-based, open-minded, humane and flexible

Test Procedure
Applicants applying for more than one course or to more than one university are only required to sit the BMAT exam once and pay the entry fee once. UCLES will provide the outcome to all the relevant universities. UCLES will observe the UCAS invisibility principle whereby universities do not know where else an applicant has applied.

The test has three elements: 60 minute test of Aptitude and Skills; 30 minute test of Scientific Knowledge and Applications and a 30 Minute writing task
Within Aptitude and Skills, the following are tested – Problem solving, understanding argument and Data Analysis & Inference. For Scientific Knowledge and application, questions are asked from Biology, Chemistry, Physics and Maths. The Writing task demonstrates the capacity to develop ideas and to communicate them effectively in writing, rather than knowledge.

Marking
For both Aptitude & Skills and Scientific Knowledge & Applications, scores are reported on a 9 point BMAT scale (definite answers to all questions).

The Writing task is not scored by UCLES (The University of Cambridge Local Examinations Syndicate)[74]. Instead, each institution to which the candidate has applied will be supplied with a copy of the candidate's answers, which the institution will evaluate for themselves.

[74] The University of Cambridge Local Examinations Syndicate (UCLES) is a department of the University of Cambridge and a leading international examinations body. The Group provides a wide range of general academic, English for Speakers of Other Languages, vocational and skills-based qualifications in over 150 countries.

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