

Learning Outcomes for the Medical
Undergraduate in Scotland:
A foundation for competent and
reflective practitioners

The Scottish Deans' Medical Curriculum Group
March 2000

Introduction

Background

This document is the result of a collaborative project, involving all five medical schools in Scotland. The initial conception and the subsequent undertaking of the project are the responsibility of the Scottish Deans' Medical Curriculum Group (SDMCG).

The SDMCG was first established during the five-year period of curriculum change resulting from the 1993 General Medical Council (GMC) recommendations on undergraduate medical education. The remit of the group is to foster closer links between the five medical schools in Scotland and in particular to promote the exchange of ideas on all aspects of medical education and to encourage collaboration between the schools in areas of curriculum development and implementation.

As well as involving the immediate members of the SDMCG this project has required extensive consultation with staff and students in all schools in order that the ideas expressed here are as representative as possible.

Outcome-based education in medicine

Outcome-based education is neither a new concept nor a passing phase in educational technology and is equally applicable throughout the educational continuum from primary school to postgraduate training.

Outcome-based education focuses on the end-product and defines what the learner is accountable for. It is not about telling teachers how to teach or students how to learn. Learning outcomes determine what is taught and assessed and can help to identify what is and is not essential. Having a clear idea of the desired outcomes does not necessarily have to be restricting as the methods of achieving the outcomes are still flexible.

Using learning outcomes leads to common-sense curriculum design that specifies what students are to learn, and provides a clear and unequivocal statement of what the end-product will be like.

This is particularly relevant in modern medical undergraduate education where the end-product is the newly qualified pre-registration house officer (PRHO) who must, from the outset, demonstrate general competency and a range of capabilities that will allow him/her to function satisfactorily. This implies that the competencies required for the PRHO year should be present at the end of undergraduate education, even if only in embryonic form and in need of further development. Hence the need for clearly defined learning outcomes that reflect the requirements of the PRHO year and indeed beyond.

The Learning Outcomes project

This project is a joint attempt by the medical schools of Scotland to identify essential learning outcomes for undergraduate medical education and demonstrates that it is possible for consensus to be reached on this topic even between schools with very different styles of curricula.

The primary aim of the project was to reach agreement on the main learning outcomes that clearly define the abilities of the medical graduate from any of the Scottish schools. The document is intended to assist curriculum planners, teaching staff, students and those responsible for postgraduate training. It is not intended as a blueprint for a "national" curriculum for undergraduate medicine. Although predominantly a description of the graduates we believe we are producing now, rather than an unrealistic wish-list, it also contains an aspirational or visionary element in keeping with the high expectations and standards set by the GMC and other bodies, including the general public, concerned with the quality of the medical workforce.

We recognise that the content of this report is by no means the end of the story as far as learning outcomes in medicine are concerned. The report is intended to be a “living” document; the ideas contained within it will evolve and develop further as it is used by schools and as undergraduate medical education changes.

The Learning Outcomes project has been informed by the various GMC recommendations and documents, including “Tomorrow’s Doctors”, “The New Doctor” and “The Early Years” and is in keeping with the educational philosophy and ideas expressed in these documents. We believe, however, that this set of Learning Outcomes is more practical and explicit. In terms of Teaching Quality Assessment, for example, the document could be useful as a measurable benchmark for each school’s own curriculum.

In addition, this project has served to highlight areas of common interest and concern between undergraduate and postgraduate medicine, especially PRHO training, and has created valuable links between the two in Scotland.

The structure of the document

The starting point for the development of the outcomes was the definition of the three essential elements of the competent and reflective practitioner. These are:

- what the doctor is able to do (“doing the right thing” = technical intelligences);
- how the doctor approaches their practice (“doing the thing right” = intellectual, emotional, analytical and creative intelligences); and
- the doctor as a professional (“the right person doing it” = personal intelligences).

Twelve key domains were then identified, each related to one of the three elements listed above. These are:

What the doctor is able to do

Clinical skills
Practical procedures
Patient investigation
Patient management
Health promotion and disease prevention
Communication
Medical informatics

How the doctor approaches their practice

Basic, social and clinical sciences and underlying principles
Attitudes, ethical understanding and legal responsibilities
Decision making skills and clinical reasoning and judgement

The doctor as a professional

The role of the doctor within the health service
Personal development

These twelve domains mirror, but are not identical to, the twelve topics deemed essential for professional training in the GMC document *The New Doctor: Recommendations for General Clinical Training*. It is important to note that the order in which the domains are presented is not intended to imply any hierarchy of importance. Each is an essential component of the competent and reflective practitioner.

Each domain was then further subdivided into the appropriate Learning Outcomes. The task of identifying the Learning Outcomes was undertaken by the members of the SDMCG in consultation with colleagues at each school.

Each domain is allocated a separate page in the document with an introductory, explanatory paragraph indicating the nature of the domain. The left hand column of each page lists the essential outcomes for that domain and the right hand column indicates what could be included in each of these when they are broken down into more detail.

The outcomes are intentionally quite broad and lacking in precise detail. The detail will be determined by each school individually according to their own interpretation of the outcome and how it should be achieved. The examples of what the outcomes might include show:

- a) how they might be defined at a level of detail that allows them to be understood by students and teachers; and
- b) how they might be translated into specific teaching and learning activities.

The degree of emphasis placed on each outcome and the level of detail to which it is taken will vary between schools, as will the learning and teaching methods depending on the type of curriculum and available resources. The examples provided in this document are thus not intended to be either prescriptive or comprehensive.

Inevitably there is overlap between some of the different domains with some outcomes being common to more than one domain. Any apparent duplication serves to illustrate the inextricable links and interdependence between the different elements comprising a competent and reflective practitioner.

In conclusion the authors believe that an outcome-based approach to undergraduate medical education will allow curriculum development and reform to keep pace more effectively with changes occurring in medical practice and the delivery of health care.

Feedback / your views

This is a consultative document rather than a policy statement or a set of recommendations and as such we would value feedback on its content. You can register your comments/responses either by completing the feedback form at the back of the document or by visiting the project web site at:

<http://biology.st-and.ac.uk/scottishdoctor>

March 2000

The Scottish Deans' Medical Curriculum Group:

Dr John Simpson (Convener)	Aberdeen
Mrs Joy Crosby	Dundee
Dr Allan Cumming	Edinburgh
Dr Phillip Evans	Edinburgh
Prof Miriam Friedman	Dundee
Dr Jacqueline Furnace (Project Co-ordinator)	
Prof Ronald Harden	Dundee
Mr David Lloyd	Glasgow
Dr Hamish McKenzie	Aberdeen
Dr John McLachlan	St Andrews
Dr Gordon McPhate	St Andrews
Prof Iain Percy-Robb	Glasgow
Prof Stuart MacPherson (Observer)	Scottish Council for Postgraduate Medical and Dental Education

What the doctor is able to do

Outcomes for Clinical Skills

The new medical graduate should be able to demonstrate competency in a range of clinical skills unsupervised and to a predetermined standard.

This could include:

- Take a history from patients, relatives and others. *All age groups; local multicultural/multiethnic factors; a wide range of different contexts and a patient-centred, sensitive, structured and thorough approach with demonstration of principles of good communication.*
- Undertake physical examination of patients. *General and systems-based; appropriate for patient's age, gender and state of mental and physical health, in a thorough, sensitive and systematic manner.*
- Interpret results of history taking, physical examination and investigations. *Recognition of abnormality and correct interpretation of common investigative tests.*
- Make a diagnosis *Gathering and analysis of all available information. Recognition of important, life threatening conditions requiring immediate treatment.*
- Formulate a management plan *Focus on patient's needs, prioritise, involve patients and other members of the healthcare team and recognise own limitations.*
- Record findings *Records concerning all relevant communications with patients / relatives and colleagues. At a minimum records are legible, dated, signed, concise and contemporaneous.*

What the doctor is able to do

Outcomes for Practical Procedures

Mastery of appropriate practical procedures at the time of graduation is an essential part of the smooth transition from undergraduate to PRHO. The following are suggested procedures that the new graduate should be able to carry out unsupervised. Some of these procedures also feature in the domain of Patient Investigation and many others are not specifically mentioned here as they should be covered by normal physical examination e.g. fundoscopy, visual field testing, otoscopy, rectal examination etc.

This could include:

- Measuring and recording
 - *radial pulse rate*
 - *blood pressure*
 - *body temperature*
 - *peak expiratory flow rate*
 - *blood glucose using Reagent sticks with and without a glucometer*
 - *urinalysis using Multistix*
 - *faecal occult blood testing*
 - *pregnancy testing*
 - *perform and interpret a 12 lead ECG*
 - *manage an ECG monitor*

- Administering and doing
 - *First Aid*
 - *basic resuscitation and basic life support for adults and children/infants*
 - *administration of oxygen therapy*
 - *venepuncture*
 - *take a blood culture*
 - *establish intravenous access and set up a giving set*
 - *male and female urinary catheterisation*
 - *collection of MSU*
 - *arterial puncture*
 - *scrub up and gown for surgical and sterile procedures;*
 - *skin suturing*
 - *wound care and basic wound dressing*
 - *make up drugs for parenteral administration*
 - *administration of intravenous, intramuscular and subcutaneous injections*
 - *dosage and administration of insulin and use / prescribing of sliding scales*
 - *use iv infusion and volumetric pumps*
 - *take nose, throat and skin swabs*

What the doctor is able to do

Outcomes for Patient Investigation

As with practical procedures there are different categories of patient investigation depending on whether or not we would expect a new graduate to be able to undertake the task themselves or simply to know how the investigation is carried out and when it is appropriate to use it. Competency in the general principles of patient investigation is essential.

This could include:

- General principles of patient investigation
 - Appropriate choice and use of investigation.*
 - Requesting/ordering of investigations according to local protocols / guidelines.*
 - Obtaining informed consent for investigations.*
 - Preparing patients for investigations practically and with adequate information.*

- Laboratory-based investigations:
 - Demonstrable knowledge of the circumstances in which the commoner laboratory-based investigations are indicated and the procedures required to obtain the necessary material for investigation. To include:*
 - Biochemistry*
 - Haematology*
 - Microbiology*
 - Pathology*
 - Cytology*
 - Genetics*
 - Immunology*
 - Virology*

- Radiological investigations
 - Demonstrable knowledge of the range of radiological investigations available and their appropriate use in different circumstances.*

- Clinical investigations
 - A number of system-specific investigations which the graduate should know about and may have observed, but would not routinely be expected to perform c.f. Practical Procedures.*
 - *Exercise tolerance test*
 - *Pleural tap/biopsy*
 - *Upper and lower GI endoscopy*
 - *EEG*
 - *Lumbar puncture*
 - *Cystoscopy*
 - *Cervical smear*
 - *Colposcopy*
 - *Skin biopsy*
 - *Joint aspiration*

What the doctor is able to do

Outcomes for Patient Management

New medical graduates cannot be expected to have had unsupervised experience of all aspects of patient management as many are restricted by law, e.g. drug prescribing. However, it is reasonable to expect that they will have a demonstrable knowledge of the important aspects of management in the areas outlined below and that they will have had supervised involvement in such activities.

This could include:

- General principles of patient management
*Use of patient-centred, holistic approach with careful consideration of all information available from history, physical examination and investigations and in full consultation with patient, relatives etc.
Recognition of the importance of teamwork*
- Drugs
*Knowledge of prescribing.
Selecting method of delivery.
Calculating dosages.
Consideration of interactions and adverse effects.*
- Surgery
*Recognition of indications for intervention and the available surgical interventions.
Appropriate use of informed consent and the understanding of principles of pre-, peri and post-operative care.*
- Psychological
Recognition of interventions available and their use.
- Social
*Consideration of patient's social circumstances, work, family etc, when determining treatment options.
Available interventions
The role of other organisations.*
- Radiotherapy
*Knowledge of options available and their appropriate use.
Understanding the effect on the patient.*
- Therapy services
Appropriate use. An understanding of what can be achieved and what is involved for patient and physiotherapist / occupational therapist / speech therapist etc.
- Nutrition
*Understanding the role of nutrition as a major non-drug therapy in some medical conditions.
Selecting appropriate method of ensuring adequate nutrition to meet individual patient's needs.*
- Emergency medicine
*Management of life threatening conditions whether due to trauma or disease e.g. acute MI, diabetic ketoacidosis, acute asthma, haemorrhage, anaphylaxis, etc.
Demonstrating systematic approach with appreciation of local protocols/guidelines and working effectively as part of emergency care team.*
- Acute care
Management of a variety of medical and surgical conditions that are not immediately life-threatening but which require early treatment, or management of more serious, life-threatening conditions in the period following emergency management e.g. uncomplicated cerebrovascular accident, exacerbation of chronic obstructive airways disease, etc.

- Chronic care

*Consideration for:
patient's age; nature of chronic disease; effect on patient e.g. loss of mobility, psychological impact
Appropriate use of drugs, appliances/aids, etc.*
- Intensive care

*The circumstances under which an individual patient might require intensive care.
Recognition of interventions / monitoring capabilities offered by intensive care and the implications for patient and family including psychological.*
- Palliative care

Recognition of what palliative care can offer, where it can be delivered and by whom. Knowledge of how to involve patient, family, friends as well as healthcare professionals and other relevant bodies.
- Pain control

*Specific knowledge of pharmacological, physical and psychological interventions.
Selecting the most appropriate method and knowledge of when to initiate pain relief. Understanding the role of the pain management specialist.*
- Rehabilitation

*Understanding of the integral role of rehabilitation in recovery especially after major illness, significant trauma or surgery e.g. myocardial infarction, spinal injury or transplantation.
Appreciation of the need for a specific programme of rehabilitation and the role of other healthcare professionals in providing this.*
- Complementary therapies

*Appreciation of what is available.
Outline of what is involved in most commonly practised therapies; how alternative and conventional therapies might be combined.
Keeping an open mind and remaining impartial regarding the use of complementary therapies.*
- Patient referral

*Making appropriate referrals to the right professionals.
Assessing at what stage of management referral may be indicated.
Giving and receiving the appropriate information.
Keeping the patient informed.*
- Blood Transfusion Services

*Nature and extent of service.
How blood products are obtained through donors and by manufacture including issues of safety.
Diversity of blood products available and how they are used in different circumstances.
Making the most efficient and appropriate use of the Blood Transfusion Service in the care of patients*

What the doctor is able to do

Outcomes for Health Promotion and Disease Prevention

Every contact between a doctor and a patient can be seen as an opportunity for health promotion and disease prevention. It is therefore essential that the new graduate knows how to make the most of these opportunities through demonstrable knowledge of the principles involved both for individual patients and populations.

This could include:

- Recognition of the causes of disease and the threats to the health of individuals and populations at risk
Assessment of distribution of risk factors in the population.
- To be able to implement, where appropriate, risk reduction strategies for individual patients
Knowing how to change risk factors. The use of evidence-based medicine and effective interventions.
- Appreciate that health promotion and disease prevention depend on collaboration with many other professionals and agencies
Identify who the other professionals and agencies are and what their role is.
- Plan health promotion taking into account barriers to preventing disease and promoting health both in the individual and the population
Consideration of; political, economic, behavioural and organisational barriers.
- Screening
Criteria for determining appropriate implementation of screening programmes.

What the doctor is able to do

Outcomes for Communication

Good communication underpins all aspects of the practice of medicine. All new graduates must be able to demonstrate effective communication skills in all areas and in all media e.g. orally, in writing, electronically, by telephone etc.

This could include:

- General principles of good communication
*Being able to listen and use other appropriate communication techniques including an appreciation of non-verbal communication / body language (one's own and the interviewee's).
Gathering and giving information with good record keeping and correspondence skills.
Mediating, negotiating and dealing with complaints.
Making oral presentations and writing reports / papers.
Telephone usage*
- Communicating with patients / relatives
*Answering questions and giving explanations and/or instructions.
Strategies for dealing with the "difficult" consultation including defusing aggression, breaking bad news and admitting lack of knowledge or mistakes.
Making requests e.g. post-mortem, organ donation.
Obtaining informed consent.
Confidentiality.*
- Communicating with colleagues
*Transfer of information orally, in writing and electronically.
The "art" of the good discharge summary and patient referrals.*
- Communicating with Police and Procurator Fiscal/Coroner
Proper procedure when such communication is necessary and how to relay appropriate information without breaking rules of confidentiality.
- Communicating with media and press
A clear understanding of who should give information to the media and press and what form it should take including the need to maintain confidentiality where individual patients are concerned.
- Communicating as a teacher
*Recognising the importance of sticking to what you know, knowing your own limitations and admitting when you don't know.
Some basic teaching techniques e.g. demonstrating practical procedures, using various teaching aids, etc.*
- Communicating as a patient advocate
How to recognise when this is appropriate and how it may be accomplished effectively.

What the doctor is able to do

Outcomes for Medical Informatics

Collecting, storing and using information has always been an integral part of the practice of medicine. It has, however, become more complex and technology-based thereby creating an increasing need for medical graduates to be competent in basic information handling skills ranging from simple record-keeping to accessing and using computer-based data. As well as having the technical skills to undertake such tasks it is important that graduates appreciate the role of informatics in the day-to-day care of patients and the advancement of medical science in general.

This could include:

- Keeping patient records
*Maintaining high quality of recording (whether in writing or on computer); accuracy and data quality; legibility.
Knowledge of:
the different types of records and how records are stored and retrieved (manually and electronically);
coding and classification;
confidentiality – including legislation governing access to medical records and data.*
- Accessing data sources
*Using library and other systems to access data and information from sources such as computerised databases and the Internet.
How routinely collected health information is used in service planning and delivery of care.
Using information in evidence-based practice.
Identifying and using professional guidelines.*
- IT Skills / Computing skills
Use of E-mail, word-processing, databases, statistical packages, spreadsheets, Medline / BIDS and on-line journals, etc.
- Personal record keeping for professional development
The role and use of log books and portfolios.

How the doctor approaches their practice

Outcomes for Basic, Social and Clinical Sciences and Underlying Principles

The competent graduate recognises, explains and manages health problems using the principles of current scientific knowledge and understanding that underpin medicine.

This could include:

- Normal structure and function of the individual as an intact organism and of each of its major organ systems
*Anatomy, physiology, biochemistry, genetics.
Molecular, biochemical and cellular mechanisms that are important in maintaining homeostasis*
- The life cycle
The different stages and how these affect normal structure and function e.g. the foetus; the neonate / infant; childhood; adolescence; adulthood; old age; death.
- Behaviour and relationships between an individual and his/her:
 - Family / partners
 - Immediate social groups
 - Society at large and the general population
 - Physical environment*Behavioural sciences, psychology and sociology*
- The causes of diseases and the ways in which these diseases affect the body (pathogenesis)
Knowledge and understanding of the following causes of disease: genetic, developmental, metabolic, toxic, microbiological, autoimmune, neoplastic, degenerative, traumatic, environmental, social, occupational.
- The alteration in structure and function of the body and its major organ systems resulting from various diseases and conditions
Appropriate pathology and pathophysiology.
- Pharmacological principles of treatment using drugs
*Pharmacokinetics and pharmacodynamics.
Mechanisms of action / interaction.
Side effects / adverse reactions.*
- Principles of therapeutic measures in the management and symptomatic relief of diseases
*Drugs, surgery, complementary therapies.
Evidence base for use of therapeutic measures.*
- Public health
*Knowledge and understanding of scientific reasoning in the practice of public health in the NHS.
Principles of healthcare planning, prioritisation of service and communicable disease control.*
- Health economics
Knowledge and understanding of basic concepts including the cost of patient management to NHS and society and rationing.
- Disease prevention
Knowledge and understanding of causes of disease and

evidence of causes.

Disease aetiology and relationships between risk factors and disease – high risk approach and population approach

- Epidemiology

Knowledge and understanding of principles of demography, biological variability and clinical trials.

- Education

Knowing about and applying basic theories of learning and teaching.

Basic organisation of medical teaching and training in the UK.

How the doctor approaches their practice

Outcomes for Attitudes, Ethical Understanding and Legal Responsibilities

The demonstration of appropriate attitudes by new medical graduates, as shown by their professional behaviour, is a key area of concern for educators and employers alike and is obviously also of great importance to patients and the public in general. It is therefore important to have attitudes as an outcome for undergraduate medical education even if it is more difficult to define what we mean by this in comparison to some of the other outcomes. The legal responsibilities of even new graduates are numerous and relate to all aspects of practice. A firm grasp of ethical principles and their appropriate application must be gained before graduation.

This could include:

- Appropriate professional attitudes
 - Establishing trust between doctor and patient and respect for patients and colleagues.*
 - Adopting an empathic, holistic approach to patients and their problems.*
 - Valuing and preserving patient autonomy and involving patients in decisions affecting them.*
 - Respect for professional institutions and health service bodies.*

- Basic ethical principles and standards
 - Knowledge and understanding of contemporary medical ethics and the main ethical principles of autonomy, beneficence, non-maleficence and justice.*
 - The duties of a doctor.*
 - Practical application of theories e.g. consequentialism, deontology (duty) and double effect.*
 - The importance of confidentiality, truthfulness and integrity.*
 - Dealing effectively with complaints about own performance.*

- Legal responsibilities
 - Particularly with respect to:*
 - *Death*
 - *Drug prescribing*
 - *Physical and sexual abuse of children and adults*
 - *Reporting of adverse medical care / standards involving other practitioners*
 - *Codes of conduct*
 - *Human rights issues*

- Practice of medicine in a multicultural society
 - Knowledge of and respect for differing cultures, views, beliefs and practices relating to the human body and healthcare.*

- Psychosocial issues
 - Those arising from patients and colleagues and relating to the multitude of differing characteristics making up the human personality.*

- Economic issues
 - Knowledge and appreciation of financial constraints affecting the NHS and their impact on delivery of care.*

- Contributing to the advancement of medicine
 - Progress in medical science and how it is achieved, particularly the potential for every doctor to contribute to such progress.*
 - The doctor's role in ethical regulated clinical trials.*

How the doctor approaches their practice

Outcomes for Decision Making Skills, and Clinical Reasoning and Judgement

Decision making, and clinical reasoning and judgement are activities in which medical undergraduates should be proficient. The new medical graduate must continue to display such skills with the additional burden of increasing responsibility for their decisions and actions. This is undoubtedly one of the most stressful aspects of the transition between undergraduate and PRHO and therefore the achievement of these outcomes to a high standard is essential.

This could include:

- Clinical reasoning
How to recognise and define the problem, analyse and interpret information and cope with limitations of information and personal limitations.
- Evidence-based medicine
*How to seek the best available evidence and keep up to date.
How to analyse and interpret evidence and work with guidelines and protocols.
Recognising the link between evidence-based medicine and audit and the reasons for variation in clinical practice.*
- Critical thinking
*The importance of adopting an inquisitive and questioning attitude and applying rational processes.
Recognising irrationality in oneself and others.
The importance of own value judgements and those of patients.*
- Research and scientific methodologies
*Knowledge and appreciation of quantitative and qualitative methodology including the differences between them and their appropriate usage.
Using research and scientific methodologies to interpret investigations.*
- Statistical understanding and application
*How to think and communicate quantitatively.
Choosing and applying appropriate statistical tests with some understanding of the underlying principles and their strengths and weaknesses.*
- Creativity / resourcefulness
*Creative use of techniques, technologies and methodologies.
Demonstration of self-reliance, initiative and pragmatism.
The importance of sometimes looking outwith conventional boundaries.*
- Coping with uncertainty and error in decision making
*Appreciating that uncertainty exists and that sources of uncertainty might include:
oneself
the environment
the patient
limits of knowledge
How to use cognitive and intellectual strategies when dealing with uncertainty and the need to be adaptable to change.
How to harness one's own emotional resilience and courage.
The importance of making decisions in partnership with colleagues and patients.
An outline of levels of responsibility in the healthcare system.*

- Prioritising

Knowledge and understanding of the factors influencing priorities.

How to prioritise one's own time as well as prioritising the care of patients both of which include management of tasks, events, time and stress.

How to use protocols to aid prioritisation.

The doctor as a professional

Outcomes for The Role of the Doctor within the Health Service

This is a rapidly changing area of medical education and practice, which is subject to many external influences including political, legal and economic. However, there are a number of key outcomes applicable to the new graduate, awareness of which should provide a firm basis for dealing with future developments and changes within the health service.

This could include:

- Healthcare systems
 - An outline of:*
 - *the structure of the medical profession in the UK*
 - *the professions allied to medicine*
 - *roles and relationships of primary, secondary and tertiary care*
 - *NHS organisation*
 - *the origin and history of medical practice*
 - *systems that impact on the NHS e.g. private medicine, EU, complementary therapies, etc.*

- The clinical responsibilities and role of a doctor
 - The “Duties of a Doctor” as defined by the General Medical Council.*
 - Appreciation of the medical profession as a voice in society and an agent of change.*
 - The importance of valuing and participating in professional audit.*

- Code of conduct and required personal attributes
 - Duties of a Doctor (GMC)*
 - Local codes where applicable.*

- The doctor as researcher
 - Appreciation of the value of medical research and how this is organised and funded in UK and Europe.*
 - Outlining the potential role of research in career progression and the opportunities for research even as an undergraduate.*

- The doctor as mentor and teacher
 - The importance of reflecting on and analysing own experience of mentors and teachers identifying the “positive” and the “negative” and how to use this in one’s own practice as a teacher of others.*
 - The importance of adopting a culture of life-long learning and fostering this in the health service.*

- The doctor as manager
 - Managing people and resources e.g. financial.*

- The doctor as a member of a multi-professional team and the roles of other healthcare professionals
 - The opportunity to learn with and be taught by other healthcare professionals during undergraduate education with an understanding of the benefits to be gained by all concerned including patients.*
 - Working with other healthcare professionals in the context of patient care as an undergraduate in order to better develop team-working, leadership and facilitative skills.*

The doctor as a professional

Outcomes for Personal Development

Personal development within the context of undergraduate medical education is a complex issue. The underlying personality of the individual graduate and his/her life experiences outwith the university have a major influence on personal development, as do experiences relating specifically to their training. Personal development is, of course, an ongoing, life-long process but it is possible to identify a number of important outcomes for the undergraduate period.

This could include:

- Self-awareness
The ability to conduct oneself as a reflective and accountable practitioner including seeking out sources of informed criticism and valuing, reflecting and responding to them appropriately. Enquiring into own competence and evaluating own capabilities and personal effectiveness
- Self-learner
The ability to manage own learning as demonstrated by:
 - *searching out and selecting appropriate learning resources of all types*
 - *making use of all available technical aids*
 - *employing appropriate and effective study skills*
 - *recognising limitations of current personal understanding and capabilities and identifying areas needing refreshed or extended*
 - *setting realistic and appropriate personal learning goals*
 - *selecting learning strategies that take account of personal learning preferences and that are likely to succeed*
 - *setting challenging personal learning goals as a basis for personal growth*
- Self-care
*Recognition of the pressures of a demanding professional life on health, well-being and relationships with others and the need to maintain a balance between personal, professional and social goals and activities.
Evidence of attention to lifestyle, diet, exercise and relaxation.
Making use of available help and advice in stressful circumstances.
Recognition of the hazards of self-medication or substance abuse in dealing with stress.*
- Career choice
*Identify short and long-term career and personal plans and aspirations and work towards these by establishing realistic development plans involving relevant activities.
Participate fully in the life of the professional community and make use of professional and other networks of all types.*
- Motivation
Recognising key personal motivating factors and their importance in sustaining a high level of motivation.
- Commitment
Demonstrating dedication to one's chosen career pathway through adherence to the codes of conduct and behaviour expected of undergraduate medical students and doctors and an acceptance of any limitations that might be associated with them.

