



THE SCOTTISH DOCTOR

Learning Outcomes for the
Medical Undergraduate in
Scotland: A Foundation for
Competent and Reflective
Practitioners

3rd Edition

Scottish Deans' Medical Education Group

April 2008

University of Aberdeen 

University of Dundee 

University of Edinburgh 

University of Glasgow 

University of St Andrews 

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The following participated in the preparation of this third edition of 'The Scottish Doctor'.

Professor Jim McKillop

Muirhead Professor of Medicine, Deputy Executive Dean of the Faculty of Medicine at the University of Glasgow and Convener of the SDMEG

Professor John Simpson

Former Associate Dean (Medical Education) at the University of Aberdeen and first Convener of the SDMEG

Mr Phillip Evans

Curriculum Development Officer for the Medical Teaching Organisation at the University of Edinburgh and Project Co-ordinator for the SDMEG

Dr Rachel Ellaway

Former e-Learning Manager for the College of Medicine and Veterinary Medicine at the University of Edinburgh

Dr Helen Cameron

Director of the Medical Teaching Organisation at the University of Edinburgh

Professor Allan Cumming

Professor of Medical Education and the Director of Undergraduate Teaching and Learning for the College of Medicine and Veterinary Medicine at the University of Edinburgh

Professor Trevor Gibbs

Former Professor of Medical Practice and Education for the Bute Medical School at the University of St Andrews

Professor Simon Guild

Head of Undergraduate Learning and Teaching for the Bute Medical School at the University of St Andrews

Professor Ronald Harden

Director of Education with the International Virtual Medical School (IVIMEDS)

Professor Hamish McKenzie

Head of the Department of Medical Microbiology and Associate Dean (Undergraduate Medicine) in the School of Medicine at the University of Aberdeen

Professor Gary Mires

Professor of Perinatal Health and Education and Undergraduate Teaching Dean in the School of Medicine at the University of Dundee

Professor Jill Morrison

Professor of General Practice and Head of Undergraduate Medical School at the University of Glasgow

Professor Martin Pippard

Professor of Haematology and Dean of the Medical School at the University of Dundee

Additional Contributor

Dr Al Dowie

Senior University Teacher in Ethics, Law, and Risk Management at the University of Glasgow

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AMEE Office, Tay Park House, 484 Perth Road, Dundee, DD2 1LR, Scotland, UK

Tel: +44 (0) 1382 381953 Fax: +44 (0) 1382 381987 Email: amee@dundee.ac.uk www.amee.org

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1. THE SCOTTISH DOCTOR

1.1 The Scottish Deans' Medical Education Group (SDMEG)

Following the publication of 'Tomorrow's Doctors' by the UK General Medical Council (GMC) in 1993, the five Scottish Medical Schools (Universities of Aberdeen, Dundee, Edinburgh, Glasgow and St Andrews) had a series of meetings to discuss the implications of the recommendations. As a result of these discussions, the Scottish Deans' Medical Education Group (SDMEG) was set up in 1999. The purpose of the SDMEG is to discuss and where necessary coordinate the development, delivery and evaluation of their undergraduate curricula and to ensure that the graduates from each school are of an equivalent standard.

The Group comprises two members from each School, one of whom is the Teaching Dean or equivalent. The Group also has as members a medical education IT expert, an educationalist, who also acts as the Project Officer, a Postgraduate Dean and an administrator. The activities of the Group are funded by the five Schools, with earlier support coming from NHS Education for Scotland. The SDMEG reports to the Board for Academic Medicine in Scotland.

THE SCOTTISH DOCTOR publications have been the most visible results of the SDMEG's activities. Other projects include ones on standard setting, student portfolios, learning in acute care, communication skills and anatomy and some of these projects are ongoing. There is also a standing IT/informatics subgroup (The Medical Education Informatics Group). The SDMEG has proved a valuable forum for the Schools to discuss national issues such as Government or NHS consultation documents or guidance from specialty groupings about undergraduate medical curricular content. The Group has recently appointed a Senior University Teacher in Law, Ethics and Risk Management. The holder of this post, which is funded by the Medical and Dental Defence Union of Scotland, works with all five Schools on their continuing development of this important curricular theme.

1.2 The SDMEG Learning Outcomes Project

1.2.1 Phase 1. The specification of learning outcomes

In March 2000, following almost a year of extensive consultation with staff and students from the five Scottish medical schools, the Scottish Deans' Medical Education Group produced an agreed set of learning outcomes that clearly defined the qualities and abilities of medical graduates from any of the Scottish schools. These outcomes were published as 'THE SCOTTISH DOCTOR - Learning Outcomes for the Medical Undergraduate in Scotland: a foundation for competent and reflective practitioners'.

The outcomes are based on the following essential elements of a competent and reflective practitioner (HARDEN et al 1999):

- What the doctor is able to do;
- How the doctor approaches their practice, and;
- The doctor as a professional.

These three primary elements give rise to 12 domains:

- Clinical skills
- Practical procedures
- Patient investigation
- Patient management
- Health promotion and disease prevention
- Communication
- Medical informatics
- Basic, social and clinical sciences and underlying principles
- Attitudes, ethical understanding and legal responsibilities
- Decision making skills and clinical reasoning and judgement
- The role of the doctor within the health service
- Personal development

Each of these 12 domains is subdivided into a more detailed set of learning outcomes. The process of preparing the statement of learning outcomes was described by Simpson et al (2002).

THE SCOTTISH DOCTOR report was widely distributed to staff and students at the Scottish medical schools and has been used extensively to inform the processes of curriculum design and development.

1.2.2 Phase 2. THE SCOTTISH DOCTOR learning outcomes and assessment

A second edition of THE SCOTTISH DOCTOR was published in 2002. This incorporated amendments to the outcomes in the light of feedback relating to the first edition. It also gave examples of the types of assessment used to assess each outcome (<http://www.scottishdoctor.org>).

One of the aims of this second phase of the work was to establish a collection of assessment items or questions that were acceptable to, and useable by, all schools. These would include set standards and encompass elements of knowledge, skills and attitudes that are applicable to the exit level assessment of the outcomes, wherever that occurred in the various schools' programmes.

Five working groups were established to address the over-arching themes: Common Medical Complaints, Communication, Public Health, Professionalism, and Medical Science. Specific topics were chosen from the level 4 outcomes and assessment items established..

A small bank of objective questions was prepared for the Medical Science section, while work on Professionalism is ongoing. The "Communication" section resulted in an examination question that has been piloted in four schools in the Year 3 OSCE with acceptable results. The inter-marker reliability of the set-standard for the Communication examination question was investigated. The results indicate that, even with a standard-set question, inter-marker variability across four schools is a significant issue. (This work will be reported separately). Whilst the sharing of instruments to assess the curricular outcomes is attractive, a robust method of ensuring that standards are consistent and maintained between medical schools is a necessary component in the process.

1.2.3 Phase 3. Refinement of the learning outcomes and cross-linking with the recommendations published by the General Medical Council (GMC)

Since the publication in March 2000 of THE SCOTTISH DOCTOR there has been a significant move internationally in medical education to an outcome-based model for curriculum development (see section 2.1). In the UK the General Medical Council (GMC) has also been concerned with learning outcomes. It has a statutory role to oversee, quality assure and authorise undergraduate medical education in the UK. The Council publishes guidelines for undergraduate medical education which medical schools must adhere to in order to attain GMC recognition (see section 2.2). In phase 3 of THE SCOTTISH DOCTOR project the learning outcomes statements in THE SCOTTISH DOCTOR have been mapped to those published by the GMC in 'Tomorrow's Doctors' (General Medical Council 2002). All level 3 outcomes were reviewed and a consensus reached on which outcomes were congruent and on areas of difference or omission. In general, the two frameworks were found to be equivalent and the number of changes in THE SCOTTISH DOCTOR outcomes required as a result of this study was relatively small.

The work of reviewing THE SCOTTISH DOCTOR learning outcomes has also been informed by the descriptions of curricula and learning outcome frameworks reported for a series of specialised areas in medicine including acute and emergency medicine, dermatology, neurology, palliative care, pharmacology and therapeutics and sexual health.

This work has been the basis for a re-examination of THE SCOTTISH DOCTOR learning outcomes and for a refinement of the learning outcome statements published in the second edition of THE SCOTTISH DOCTOR where this was deemed appropriate. The SDMEG hopes that the report resulting from its activities will provide, as in the earlier versions of THE SCOTTISH DOCTOR, a broad intuitive flexible user-friendly approach to the specification of learning outcomes for use by the practising teacher, the curriculum developer, the student, the researcher or the administrator in relation to curriculum planning, teaching and learning and assessment.

2. Outcome-based education and the General Medical Council Recommendations

2.1 A move to outcome-based education

Outcome-based education is characterised by three features:

- The development of clearly defined and published learning outcomes that must be achieved before the end of a course.
- The design of a curriculum with educational strategies and learning opportunities to ensure the achievement of the learning outcomes.
- An assessment process matched to the learning outcomes with the assessment of individual students to ensure that they achieve the outcomes.

Since the first edition of THE SCOTTISH DOCTOR was published seven years ago, there has been a greater focus in education on an outcome-based approach and a new agenda for medical education with a reorientation from process to product (Harden 2002). It has been recognised that we cannot expect to deliver our learning programme effectively and to choose the most appropriate tools for the task if we have not made the learning outcomes for our courses explicit. The public, the government and the profession have asked justifiably for more explicit statements about the product of our medical schools. The publication of THE SCOTTISH DOCTOR, with learning outcomes defined for the medical undergraduate, has made an important contribution to this move to outcome-based education. The work has demonstrated that it is possible for a consensus on learning outcomes to be reached even between schools with very different styles of curricula (Simpson et al 2002). THE SCOTTISH DOCTOR learning outcomes were developed not simply to define the 'product' but also to assist curriculum planners, teachers, students and those responsible for postgraduate training.

In North America, Brown University lead the way in describing their learning outcomes as a list of nine abilities (Smith and Dollase 1999). The Accreditation Council for Graduate Medical Education (Swing 2007) in the USA and the Royal College of Physicians and Surgeons of Canada (Frank & Danoff 2007) set out learning outcomes for postgraduate and continuing education. Outcome-based education has featured prominently at international meetings on medical education including meetings of the Association for Medical Education in Europe (AMEE) and the Asia Pacific Medical Education Conference (APMEC) with the 4th APMEC, held in Singapore in 2007, devoted to the topic.

Increasing globalisation and a greater interaction between physicians of many countries represent a pressure for the adoption of an outcome-based approach to medical education. The Institute for International Medical Education (IIME) produced a set of learning outcomes that represented the minimum essential core competencies that all physicians must have (Schwarz and Wojtczak 2002). The IIME 'minimum essentials' did not differ significantly from the learning outcomes and the framework agreed by the five Scottish medical schools. In Europe, the Tuning Project funded by the European Commission has developed learning outcomes for degree programmes including medicine in an attempt to promote harmonisation in the Higher Education sector (Cumming & Ross 2007).

The publication of this 3rd edition of THE SCOTTISH DOCTOR is timely in light of this rapidly developing interest in learning outcomes in medicine internationally.

2.2 The General Medical Council Recommendations

In the UK the GMC has a statutory responsibility for determining the extent of the knowledge and skill that is required for the granting of primary UK qualifications, and the standard required from the candidates at qualifying examinations. The GMC fulfils this responsibility by issuing recommendations about undergraduate medical education to the universities with medical schools. It also undertakes visits to medical schools to monitor teaching and to inspect qualifying examinations. Guidelines published by the GMC in 1993 (General Medical Council 1993) introduced greater flexibility into undergraduate medical education while ensuring that a consistent framework was in place. Significant aspects of the guidance were the identification of a core curriculum, setting out the essential knowledge, skills and attitudes, alongside opportunities for students to study areas of interest in depth by choosing special study modules; a reduction of the burden of information on students by removing irrelevant or redundant material from the curriculum; the provision of earlier and more extensive opportunities for students to interact with patients and to begin to develop the clinical and practical skills required to practise medicine successfully; and a focus on the need to develop graduates who display appropriate attitudes towards patients and colleagues (Rubin & Franchi-Christopher 2002).

The publication of the recommendations in 1993 had a significant impact on medical education, not only in the UK, but internationally. In 2002 the GMC published a new edition of 'Tomorrow's Doctors' (General Medical Council 2002) which took account of the changes that had occurred since the publication of the previous version in 1993. This new document, while retaining much of what was good and creative about the earlier version, had a significant switch in emphasis from process and methods of teaching and learning to product and the expected learning outcomes. The principles of professional practice that govern medical practice had been set out by the GMC in their paper 'Good Medical Practice'. The seven headings from Good Medical Practice were central to the new GMC document. Peter Rubin, Chairman of the GMC's Education Committee, and David Franchi-Christopher, Policy Advisor in the GMC's Education and Development Policy Team, (Rubin & Franchi-Christopher 2002) suggested that "In line with current educational theory and research we have adopted an outcomes-based model. This sets out what is to be achieved and assessed at the end of the medical course in terms of knowledge, skills, attitudes and behaviour. It is hoped that this approach will be more user friendly, making it clearer to both teachers and students what has to be achieved by the time of graduation".

A major activity in the preparation of this 3rd edition of THE SCOTTISH DOCTOR has been the comparison and cross-linking of THE SCOTTISH DOCTOR learning outcomes with the outcome statements in the GMC's 'Tomorrow's Doctors'.

2.3 Electronic format for learning outcomes

The original 'Scottish Doctor' (SD) outcomes were developed using a hierarchical framework of four levels, each of which (from high to low) provided progressively more detail. With the rapid move to computer-based course management tools and virtual learning environments there was a need, apparent after the publication of the second version of THE SCOTTISH DOCTOR outcomes, for the whole framework to be available in an electronic format suitable for integration into these new systems.

A coordinate system was introduced to THE SCOTTISH DOCTOR to provide a semantically rich unique identifier (ID) for each outcome statement. These identifiers were constructed from five pairs of numbers, each of which indicates its ordinal location within the SD hierarchy, as shown below. (A fifth level was added to the original four-level SD model to accommodate lists and bulleted points appearing within the level 4 outcomes):

0100000000: level 1
0101000000: level 2
0101010000: level 3
0101010100: level 4
0101010101: level 5

Primarily designed for use in computer-based information systems, these identifiers can be translated also by human users familiar with the SD framework. Each outcome is explicitly related to its parent and child outcomes by way of these identifiers, thereby allowing each to be identified within the framework in the absence of any other term. This unique identifier format has been retained in this third edition of SD with the addition of a header of 'SD' to each ID. Hence '0101010100' has become 'SD0101010100'.

The master copy of the SD outcome framework is kept in the online SDMEG database with each outcome expressed as a statement accomplished by a unique ID and metadata such as its level, its version, its status and when the outcome was last updated and by whom. The framework is also available as XML for download from the SDMEG website (<http://www.scottishdoctor.org/node.asp?id=tdg>). At the time of publication several members of the SDMEG are working with international educational technology standards groups on the development of more appropriate and common representational data structures for outcome frameworks such as THE SCOTTISH DOCTOR.

2.4 Cross-Mapping THE SCOTTISH DOCTOR with the GMC's 'Tomorrow's Doctors'

Between 2004 and 2005 the SDMEG cross-referenced THE SCOTTISH DOCTOR (SD) with the 2002 edition of the GMC's 'Tomorrow's Doctors (TD) outcome framework as a method of reconciling and internally validating both frameworks.

The process involved the application of a formal information architecture to TD so that both systems' outcomes could be uniquely addressed, as well as the development of a mapping tool to allow SDMEG members to identify, record and provide comments on the joins and equivalences between terms.

The process was undertaken in two phases. The first involved individuals mapping between the two frameworks as an exercise in developing participant skills and thinking. The second phase, during which the definitive cross-references were recorded, involved round table meetings where each mapping was discussed and consensus acquired before it was recorded.

Every one of the learning outcomes in the TD framework was mapped to SD and every level 3 SD outcome was mapped back to TD. The results are available for download as an XML file from the SD website (<http://www.scottishdoctor.org/node.asp?id=tdg>). The comments made with each mapping were collated and used as the basis for reviewing and refining THE SCOTTISH DOCTOR framework, the results of which represent the major part of this publication. Furthermore, the exercise in cross-referencing THE SCOTTISH DOCTOR with 'Tomorrow's Doctors' provided evidence that the core learning outcomes agreed by the five Scottish medical schools conform closely to the GMC's recommendations.

The cross-referencing exercise undertaken by the SDMEG, the philosophy behind it, the practical steps taken, the findings, the lessons learned and reflections upon how this work may be taken forward have been described in more detail (Ellaway et al 2007).

In creating the information model for THE SCOTTISH DOCTOR and subsequently carrying out the cross-referencing between SD and TD a number of issues were highlighted regarding outcomes frameworks and their applications. The most important are noted below:

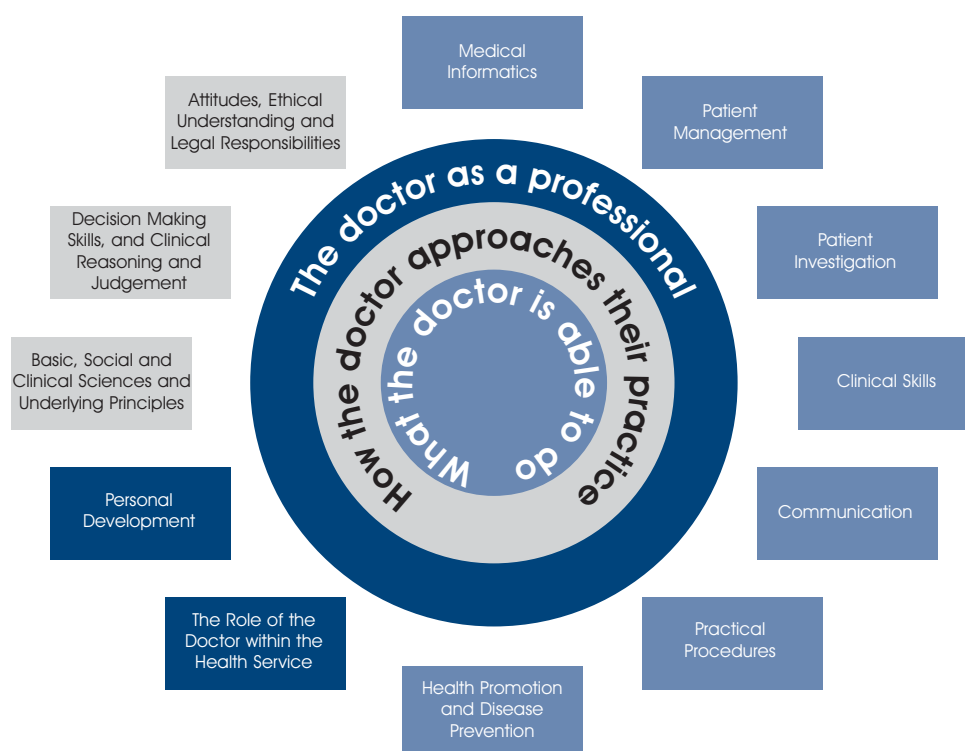
- There are issues regarding the comprehensiveness of an outcomes framework, in particular how completely it describes all of the required outcomes of an undergraduate medical programme and the uniqueness of individual outcomes or their overlap with other outcomes. The original SD outcomes have been strengthened and improved in this edition, but it is inevitable that not all readers will agree with the framework presented in its entirety.
- Equivalence between outcomes (in terms of their importance, the cognitive or performative difficulties they present, the time required to teach or assess them or their sequencing within any given curriculum) is particularly problematic. It is not possible to reflect this lack of equivalence in the SD framework. It is important therefore that curricular managers weigh up the relative scope and importance of individual outcomes within the context of their own curriculum.

- Any outcomes framework, unless it represents a great many test implementations, evaluations and iterative reviews over long periods of time, is going to be partial to its authors' own perspectives and their collective norms, expectations and values. THE SCOTTISH DOCTOR is the collected and consensus perspective and opinion of many of the leaders in undergraduate medical education in Scotland at the start of the 21st century. It is inevitable, however, that SD will change over time as its authors and their shared environment changes. As such it may be helpful to consider SD as an ongoing process with a series of snapshots showing the evolving SD framework rather than as a final product. It is certainly envisaged that there will be a further edition of THE SCOTTISH DOCTOR at some future point, probably before the end of the decade.
- From the design and development of appropriate tools to facilitate authoring and review of the outcomes through to the data standards used to make the framework interoperable with third party systems, such as virtual learning environments and learning management systems, the use of informatics techniques has become an essential part of the development and representation of a complex information system such as THE SCOTTISH DOCTOR outcome framework.

3. THE SCOTTISH DOCTOR learning outcomes

3.0 The 12 domains and the three circle outcomes model

The learning outcomes are described in this section as they relate to the twelve domains. We have not departed from the concept, as adopted in the first edition of THE SCOTTISH DOCTOR, of the learning outcome domains arranged in three groups or dimensions as shown in the figure. We believe this offers an intuitive, user-friendly and transparent approach that makes a compelling statement of the significant exit outcomes for undergraduate medical education. The approach adopted offers a holistic and integrated view of medical education that emphasises the relations and links in clinical practice between the outcomes in the different domains (Harden et al 1999). It follows that some learning outcomes are reflected in more than one domain. The doctor's technical skills or 'what the doctor is able to do' (the inner circle) is considered in the perspective of 'how they approach their practice' (the middle circle) and 'their personal development' as a professional (the outer circle).



There is an emphasis on a 'design down' approach to a more detailed specification of the learning outcomes, with four levels recognised.

- Level 1 The group of domains (This represents the section of the three circles to which the domain belongs).
- Level 2 The domain itself
- Level 3 Subdivisions or aspects of the domain. (These represent areas where there is general agreement as to their relevance to the curriculum)
- Level 4 A more in depth analysis or examples of the level three outcomes.

3.1 Learning Outcomes for Clinical Skills

[SD010000000]

Level 1 - 'What the doctor is able to do'

[SD010100000]

Level 2 - Outcomes for Clinical Skills

[SD010101000]

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

Level 3	Level 4 - This could include:	
Take a history from patients, relatives and others [SD0101010100]	History taking in patients from all age groups taking into account local multicultural/multiethnic factors and a wide range of different contexts and using a patient-centred, sensitive, structured and thorough approach with demonstration of principles of good communication	[SD0101010101]
Undertake physical and mental state examination of patients [SD0101010200]	General and systems-based examination of the patient, appropriate for the patient's age, gender and state of mental and physical health, conducted in a thorough, sensitive, efficient and systematic manner	[SD0101010201]
Interpret results of history taking, physical and mental state examination and investigations [SD0101010300]	Recognition of abnormality and correct interpretation of common investigative tests	[SD0101010301]
	Requesting appropriate investigations	[SD0101010302]
Make a diagnosis [SD0101010400]	Gathering and analysis of all available information	[SD0101010401]
	Recognition of important and life threatening conditions requiring immediate treatment	[SD0101010402]
Formulate a management plan [SD0101010500]	Focussing on the patient's needs including the patient's competence to cooperate and prioritise. Involving patients and other members of the healthcare team. Recognising own limitations	[SD0101010501]
Record findings [SD0101010600]	Recording appropriately all relevant contacts and communications with patients/relatives and colleagues. At a minimum records to be legible, dated, signed, concise and contemporaneous	[SD0101010601]

3.2 Learning Outcomes for Practical Procedures

[SD0200000000]

Level 1 - 'What the doctor is able to do'

[SD0201000000]

Level 2 - Outcomes for Practical Procedures

[SD0201010000]

Mastery of appropriate practical procedures at the time of graduation is an essential part of the smooth transition from undergraduate to Foundation Practitioner. 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.

Level 3	Level 4 - This can include:	
Measure and record [SD0201010100]	Measurement of radial pulse rate	[SD0201010101]
	Measurement of peripheral pulses	[SD0201010102]
	Measurement of blood pressure	[SD0201010103]
	Measurement of body temperature	[SD0201010104]
	Measurement of peak expiratory flow rate	[SD0201010105]
	Measurement of blood glucose using reagent sticks with and without a glucometer	[SD0201010106]
	Urinalysis using Multistix	[SD0201010107]
	Faecal occult blood testing	[SD0201010108]
	Pregnancy testing	[SD0201010109]
	Performing and interpreting a 12 lead Electrocardiograph (ECG)	[SD0201010110]
	Managing an Electrocardiograph (ECG) monitor	[SD0201010111]
	Measuring height and weight of adults and children	[SD0201010112]
	Interpreting growth charts	[SD0201010113]
	Central venous pressure measurement	[SD0201010114]
	Transcutaneous monitoring of oxygen saturation	[SD0201010115]

Level 3	Level 4 - This could include:	
Administer and do [SD0201010200]	First aid	[SD0201010201]
	Basic resuscitation and basic life support for adults and children/infants	[SD0201010202]
	Delivery of oxygen therapy	[SD0201010203]
	Venepuncture	[SD0201010204]
	Taking a blood culture	[SD0201010205]
	Establishing intravenous access and set up an infusion	[SD0201010206]
	Male and female urinary catheterisation	[SD0201010207]
	Collecting a mid-stream urine specimen	[SD0201010208]
	Arterial puncture	[SD0201010209]
	Scrubbing up and gowning for surgical and sterile procedures	[SD0201010210]
	Skin suturing	[SD0201010211]
	Wound care and basic wound dressing	[SD0201010212]
	Making up drugs for parenteral administration	[SD0201010213]
	Administering intravenous, intramuscular and subcutaneous injections	[SD0201010214]
	Dosage and administration of insulin and use/prescribing of sliding scales	[SD0201010215]
	Using intravenous infusion and volumetric pumps	[SD0201010216]
	Taking nose, throat and skin swabs	[SD0201010217]
	Using a nebuliser	[SD0201010218]
	Taking a cervical smear	[SD0201010219]
	Writing a drug kardex	[SD0201010220]
Requesting cross-matching of blood	[SD0201010221]	
Setting up a blood transfusion	[SD0201010222]	
Intermediate life support	[SD0201010223]	

3.3 Learning Outcomes for Patient Investigation

[SD0300000000]

Level 1 - 'What the doctor is able to do'

[SD0301000000]

Level 2 - Outcomes for Patient Investigation

[SD0301010000]

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.

Level 3	Level 4 - This could include:	
General principles of patient investigation [SD0301010100]	Appropriate choice and use of investigation	[SD0301010101]
	Requesting/ordering of investigations according to local protocols/guidelines	[SD0301010102]
	Obtaining informed consent for investigations	[SD0301010103]
	Ensuring proper patient identification	[SD0301010104]
	Preparing patients for investigations practically and with adequate information	[SD0301010105]
	Communicating the results of investigations to patients/relatives	[SD0301010106]
	Interpreting reports/results of investigations	[SD0301010107]
	Providing all necessary demographic and clinical information on request forms	[SD0301010108]
Laboratory-based investigations [SD0301010200]	Demonstrating knowledge of the circumstances in which the commoner laboratory-based investigations are indicated and of the procedures required to obtain the necessary material for investigation. To include: biochemistry, haematology, microbiology, pathology, cytology, genetics, immunology, virology and toxicology	[SD0301010201]
Radiological investigations [SD0301010300]	Demonstrating knowledge of the range of radiological investigations available and their appropriate use in different circumstances	[SD0301010301]
Clinical investigations [SD0301010400]	There are 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). These include: exercise tolerance test, aspiration of fluid collections and biopsy of tissue (e.g. pleura), upper and lower gastrointestinal endoscopy, electroencephalography, lumbar puncture, cystoscopy, colposcopy, skin biopsy, joint aspiration and laryngoscopy (direct and indirect)	[SD0301010401]

3.4 Learning Outcomes for Patient Management

[SD040000000]

Level 1 - 'What the doctor is able to do'

[SD040100000]

Level 2 - Outcomes for Patient Management

[SD040101000]

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.

Level 3	Level 4 - This could include:	
General principles of patient management [SD0401010100]	Using a patient-centred, holistic approach with careful consideration of all information available from history, physical and mental state examination and investigations and in full consultation with patient, relatives etc.	[SD0401010101]
	The immediate assessment of illness acuity/severity rating with appropriate intervention, investigation and monitoring	[SD0401010102]
	The principles of patient support (physiological, psychological, social, spiritual) and symptom management until a definitive diagnosis is reached and specific treatment is started	[SD0401010103]
	The ability to recognise the need for specialist help, appropriate environment and the speed with which these two are required	[SD0401010104]
	Patient referral, as above, and lines of communication, keeping the patient/family/carers informed	[SD0401010105]
General principles of teamwork [SD0401010200]	The roles and relationships of the multidisciplinary team	[SD0401010201]
	Accepting corporate decisions and priorities	[SD0401010202]
Drugs [SD0401010300]	Knowledge of prescribing and practical demonstration of prescribing ability	[SD0401010301]
	Knowledge of common adverse effects and their treatment	[SD0401010302]
	Selecting the method of delivery	[SD0401010303]
	Calculating dosages	[SD0401010304]
	Consideration of dependence, interactions and adverse effects	[SD0401010305]
	Knowledge of principles of antibiotic prescribing to minimise the development of resistance	[SD0401010307]
Surgery [SD0401010400]	Recognition of indications for intervention and the available surgical interventions	[SD0401010401]
	Knowledge of principles and practice of informed consent	[SD0401010402]
	Knowledge of common surgical problems and complications and remedies	[SD0401010403]
	Understanding the principles of pre-, peri and post-operative care	[SD0401010404]

Level 3	Level 4 - This could include:	
Psychosocial [SD0401010500]	Recognition of specialist availability and of interventions and their use	[SD0401010501]
	Understanding the role of psychosocial factors in precipitating and perpetuating illness	[SD0401010502]
	Consideration of patient's social circumstances, work, family etc, when determining treatment options	[SD0401010503]
	Understanding available interventions	[SD0401010504]
	Understanding the role of other organisations	[SD0401010505]
	Identification of child physical and sexual abuse	[SD0401010506]
Radiotherapy [SD0401010600]	Knowledge of options available and their appropriate use	[SD0401010601]
	Understanding the effect on the patient	[SD0401010602]
Therapy services [SD0401010700]	Understanding the range of therapy services	[SD0401010701]
	Appropriately access, refer to and interact with therapy services	[SD0401010702]
	Understanding what can be achieved and what is involved for patient and physiotherapist/occupational therapist/speech therapist etc.	[SD0401010703]
Nutrition [SD0401010800]	Understanding of nutrition, nutritional support and the role of specialist dieticians	[SD0401010801]
	Appropriately access, refer and interact with nutrition services	[SD0401010802]
	Understanding the role of nutrition as a major non-drug therapy in some medical conditions	[SD0401010803]
	Selecting appropriate method of ensuring adequate nutrition to meet individual patient's needs	[SD0401010804]
	Promoting healthy eating as a means to improve and maintain health as well as to prevent disease	[SD0401010805]
Emergency medicine [SD0401010900]	Adequate assessment, risk stratification and provision of immediate management to life threatening adult emergencies	[SD0401010901]
	Management of adult cardiac arrest utilising UK Resuscitation Council algorithms	[SD0401010902]
	Performance of paediatric basic life support	[SD0401010903]
	Demonstrating systematic approach with appreciation of local protocols/guidelines and working effectively as part of emergency care team	[SD0401010904]
Acute care [SD0401011000]	Management of a variety of medical, surgical and psychiatric 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, deliberate self-harm, acute confusional states etc.	[SD0401011001]

Level 3	Level 4 - This could include:	
Chronic care [SD0401011100]	Consideration of patient's age; nature of chronic disease; effect on patient e.g. loss of mobility, psychological impact	[SD0401011101]
	Appropriate use of drugs, appliances/aids, etc.	[SD0401011102]
Intensive care – to include high dependency care, coronary care and other specialist intermediate care e.g. renal, neurological [SD0401011200]	Recognising the circumstances under which an individual patient might require referral/admission to these areas	[SD0401011201]
	Knowledge of the criteria for referral and local guidelines, protocols and mechanisms	[SD0401011202]
	Appreciation of the range of facilities and services available	[SD0401011203]
	Understanding the implications, including psychological, for patient and family, of this form of care	[SD0401011204]
Palliative care [SD0401011300]	Recognition of what palliative care can offer, where it can be delivered and by whom. Knowledge of how to involve patient, family and friends as well as healthcare professionals and other relevant bodies	[SD0401011301]
Pain control [SD0401011400]	Ability to select and initiate appropriate analgesia using local protocols	[SD0401011401]
	Specific knowledge of pharmacological, physical and psychological interventions	[SD0401011402]
	Understanding the role of the pain management specialist and demonstrating ability to access/interact with pain management specialists/teams	[SD0401011403]
Rehabilitation [SD0401011500]	Understanding the integral role of rehabilitation in recovery especially after major illness, significant trauma or surgery e.g. myocardial infarction, spinal injury, transplantation, chronic mental illness such as schizophrenia	[SD0401011501]
	Appreciation of the need for a specific programme of rehabilitation and the role of other healthcare professionals in providing this	[SD0401011502]
Complementary therapies [SD0401011600]	Appreciation of what is available in the form of complementary therapies and the evidence base for them.	[SD0401011601]
	Outline of what is involved in most commonly practised therapies; how alternative and conventional therapies might be combined	[SD0401011602]
	Keeping an open mind and remaining non-judgemental regarding the use of complementary therapies	[SD0401011603]
Patient referral [SD0401011700]	Making appropriate referrals to the right professionals	[SD0401011701]
	Assessing at what stage of management referral may be indicated	[SD0401011702]
	Giving and receiving the appropriate information	[SD0401011703]
	Keeping the patient informed	[SD0401011704]

Level 3	Level 4 - This could include:	
Blood Transfusion Services [SD0401011800]	Understanding the nature and extent of blood transfusion services	[SD0401011801]
	Understanding how blood products are obtained through donors and by manufacture including issues of safety	[SD0401011802]
	Understanding the diversity of blood products available and how they are used in different circumstances	[SD0401011803]
	Making the most efficient and appropriate use of the Blood Transfusion Service in the care of patients	[SD0401011804]
	Understanding the importance of sample/patient/blood product identification	[SD0401011805]
	Management of transfusion reactions	[SD0401011806]
Management of Death [SD0401011900]	Death certification	[SD0401011901]
	Requirements and certification for cremation	[SD0401011902]
	Post-mortem examination – both practicalities of consent and specific sensitivities of different religious groups	[SD0401011903]

3.5 Learning Outcomes for Communication

[SD0500000000]

Level 1 - 'What the doctor is able to do'

[SD0501000000]

Level 2 - Outcomes for Communication

[SD0501010000]

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.

Level 3	Level 4 - This could include:	
Apply general principles of good communication [SD0501010100]	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)	[SD0501010101]
	Gathering and giving information with good record keeping and correspondence skills	[SD0501010102]
	Mediating, negotiating and dealing with complaints	[SD0501010103]
	Making oral presentations and writing reports/papers	[SD0501010104]
	Communication via the telephone and electronic media such as e-mail	[SD0501010105]
	Communication taking into account the age and mental ability of the patient/relative	[SD0501010106]
	Communication taking into account religious/spiritual beliefs that may affect a consultation	[SD0501010107]
	Recognising when communication is unsuccessful and another strategy is required	[SD0501010108]
	Using an interpreter when communicating with individuals who cannot speak English	[SD0501010109]
	Communicating effectively with individuals regardless of their social, cultural or ethnic backgrounds, or their disabilities	[SD0501010110]
	Knowledge that some individuals use different methods of communication, for example, Deaf-blind Manual and British Sign Language	[SD0501010110]
	Communicating with people with mental illness, including cases where patients have special difficulties in sharing how they feel and think with doctors	[SD0501010111]
	Communicating with and treating patients with severe mental or physical disabilities	[SD0501010112]
Helping vulnerable patients	[SD0501010113]	

Level 3	Level 4 - This could include:	
Communicate with patients/relatives [SD0501010200]	Answering questions and giving explanations and/or instructions	[SD0501010201]
	Adoption of strategies for dealing with the "difficult" consultation including defusing aggression, breaking bad news and admitting lack of knowledge or mistakes	[SD0501010202]
	Making requests e.g. post-mortem, organ donation	[SD0501010203]
	Obtaining informed consent	[SD0501010204]
	Ensuring confidentiality	[SD0501010205]
	Educating patients and facilitating self-management of illness	[SD0501010206]
Communicate with colleagues [SD0501010300]	Passing on and sharing information orally, in writing and electronically	[SD0501010301]
	Writing a discharge summary and patient referral	[SD0501010302]
	Providing all necessary clinical information on request forms to laboratory-based colleagues	[SD0501010303]
Communicate with Police and Procurator Fiscal/Coroner [SD0501010400]	Knowledge of the circumstances under which there is a legal obligation to contact such authorities	[SD0501010401]
	Knowledge of the proper procedure when such communication is necessary and how to relay appropriate information without breaking rules of confidentiality	[SD0501010402]
	Providing evidence in court	[SD0501010403]
Communicate with media and press [SD0501010500]	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	[SD0501010501]
Communicate as a teacher [SD0501010600]	Recognising the limits of one's knowledge, and ensuring the accuracy of teaching content delivered to others	[SD0501010601]
	Conveying complex information to others, individually or in groups, in a variety of settings and using a range of teaching tools and presentation aids	[SD0501010602]
	Understanding of methods to evaluate the effectiveness and quality of teaching	[SD0501010603]
Communicate as a patient advocate [SD0501010700]	Recognising when patient advocacy is appropriate and how it may be accomplished effectively	[SD0501010701]

3.6 Learning Outcomes for Health Promotion and Disease Prevention

[SD060000000]

Level 1 - 'What the doctor is able to do'

[SD0601000000]

Level 2 - Outcomes for Health Promotion and Disease Prevention

[SD0601010000]

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.

Level 3	Level 4 - This could include:	
Recognise the causes of disease and the threats to the health of individuals and populations at risk [SD0601010100]	Understanding the definition of health, disease and disability	[SD0601010101]
	Assessment of distribution of risk factors for disease in the population	[SD0601010102]
	Risk identification and reduction policies for populations taking into account diversity, ethnicity and social inequality	[SD0601010103]
Recognise the particular impact of cigarette smoking, alcohol abuse, and poverty and social deprivation [SD0601010200]	Knowledge of the biological effects and disease processes associated with these factors	[SD0601010201]
	Knowledge of the prevalence of these factors in society	[SD0601010202]
Demonstrate the ability to implement, where appropriate, risk reduction strategies for individual patients [SD0601010300]	Knowledge of how to change risk factors	[SD0601010301]
	The use of evidence-based medicine and effective interventions	[SD0601010302]
	Helping patients to modify behaviour whilst respecting their autonomy	[SD0601010303]
	Managing and implementing change	[SD0601010304]
Appreciate that health promotion and disease prevention depend on collaboration with many other professionals and agencies [SD0601010400]	Identifying who the other professionals and agencies are and what their role is in health promotion and disease prevention	[SD0601010401]
Plan health promotion taking into account barriers to preventing disease and promoting health both in the individual and the population [SD0601010500]	Consideration of political, economic, behavioural and organisational barriers	[SD0601010501]
	Demonstration of the importance of audit of health promotion and disease prevention activities	[SD0601010502]
Screening [SD0601010600]	Application of the criteria for determining appropriate implementation of screening programmes	[SD0601010601]
General Principles of Infection Control [SD0601010700]	Knowledge of the major types of healthcare acquired infection and their common microbiological causes	[SD0601010701]
	Knowledge of routes of spread of common hospital pathogens	[SD0601010702]
	Performing effective handwashing	[SD0601010703]
	Knowledge of basic barrier nursing procedures	[SD0601010704]
	Knowledge of the principles of sterilisation and disinfection	[SD0601010705]

3.7 Learning Outcomes for Medical Informatics

[SD0700000000]

Level 1 - 'What the doctor is able to do'

[SD0701000000]

Level 2 - Outcomes for Medical Informatics

[SD0701010000]

Collecting, storing and using information has always been an integral part of the practice of medicine. It is now more complex and technology-based, thereby creating an increasing need for medical graduates to be competent in 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 graduates must appreciate the role of informatics in the day-to-day care of patients and the advancement of medical science in general.

Level 3	Level 4 - This could include:	
Keep patient records [SD0701010100]	Maintenance of accurate and legible recording of clinical information in patient records (written and electronic)	[SD0701010101]
	Knowledge of approaches to medical record storage and retrieval	[SD0701010102]
	Understanding of the issues relating to confidentiality of medical records (written and electronic)	[SD0701010103]
	Knowledge of legislation governing access to medical records and patient data	[SD0701010104]
	Awareness of how medical conditions/diseases are classified e.g. International Classification of Diseases (ICD)	[SD0701010105]
Access data sources [SD0701010200]	Using library and on-line information sources, including internet and intranet systems accurately, systematically and in sufficient depth	[SD0701010201]
	Understanding how routinely collected health information is used in service planning and delivery of care	[SD0701010202]
	Using information in evidence-based practice	[SD0701010203]
	Identifying and using professional guidelines	[SD0701010204]
IT Skills/ Computing skills [SD0701010300]	Using appropriately tools such as email, word-processing and databases	[SD0701010301]
	Using IT to deliver and enhance healthcare at a distance e.g. telemedicine	[SD0701010302]
Personal record keeping for professional development [SD0701010400]	Understanding the role and making appropriate use of log books and portfolios	[SD0701010401]

3.8 Learning Outcomes for Basic, Social and Clinical Sciences and Underlying Principles

[SD0800000000]

Level 1 - 'How the doctor approaches their practice'

[SD0801000000]

Level 2 - Outcomes for Basic, Social and Clinical Sciences and Underlying Principles

[SD0801010000]

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

Level 3	Level 4 - This could include:	
Normal structure and function of the individual as an intact organism and of each of its major organ systems [SD0801010100]	Anatomy, physiology, biochemistry, genetics	[SD0801010101]
	Molecular, biochemical, cellular and immunological mechanisms that are important in maintaining homeostasis	[SD0801010102]
The life cycle [SD0801010200]	The different stages and how these affect normal structure and function e.g. the fetus, neonate/infant, childhood, adolescence, adulthood, old age and death	[SD0801010201]
Behaviour and relationships between an individual and his/her: family/partners, immediate social groups, society at large and the general population, physical environment, health professionals, and responses to illness [SD0801010300]	Behavioural sciences, psychology and sociology	[SD0801010301]
	Understand how relationships between an individual and his/her family/partners, immediate social groups, health professionals, and the general population may affect and be affected by health, impairments and disability.	SD0801010302
	Understand the relationship between the physical environment and health.	SD0801010303
	Understand the interplay of social and psychological factors with behaviours such as alcohol and drug abuse, smoking and domestic violence in the aetiology of and response to ill health.	SD0801010304
Beliefs and understanding of health and illness [SD0801010400]	Cultural and ethnic influences on health care	[SD0801010401]
The mechanisms of diseases and the ways in which these diseases affect the body (pathogenesis) [SD0801010500]	Knowledge and understanding of the basic causes of disease: genetic, developmental, metabolic, toxic, microbiological, autoimmune, neoplastic, degenerative, traumatic, environmental, social, occupational	[SD0801010501]
The alteration in structure and function of the body and its major organ systems resulting from various diseases and conditions [SD0801010600]	Pathology and pathophysiology	[SD0801010601]
Pharmacological principles of treatment using drugs [SD0801010700]	Pharmacokinetics and pharmacodynamics	[SD0801010701]
	Mechanisms of action/drug interaction	[SD0801010702]
	Side effects/adverse reactions of drugs	[SD0801010703]
	Resistance to drug action	[SD0801010704]
	Genetic aspects of pharmacology	[SD0801010705]

Level 3	Level 4 - This could include:	
Principles of therapeutic measures in the management and symptomatic relief of diseases [SD0801010800]	Drugs, surgery, radiotherapy, complementary therapies	[SD0801010801]
	Evidence base for use of therapeutic measures	[SD0801010802]
Public health [SD0801010900]	Knowledge and understanding of scientific reasoning in the practice of public health in the National Health Service	[SD0801010901]
	Principles of healthcare planning, prioritisation of clinical service delivery, and communicable disease control	[SD0801010902]
Health economics [SD0801011000]	Knowledge and understanding of basic concepts including the cost of patient management to NHS, other care systems and society and rationing	[SD0801011001]
Disease prevention [SD0801011100]	Knowledge and understanding of causes of disease and evidence of causes	[SD0801011101]
	Knowledge and understanding of disease aetiology and relationships between risk factors and disease	[SD0801011102]
Epidemiology [SD0801011200]	Knowledge and understanding of principles of demography, biological variability and clinical trials	[SD0801011201]
Education [SD0801011300]	Knowledge and application of the basic theories of learning and teaching	[SD0801011301]
	Basic organisation of medical teaching and training in the United Kingdom	[SD0801011302]

3.9 Learning Outcomes for Attitudes, Ethical Understanding and Legal Responsibilities

[SD0900000000]

Level 1 - 'How the doctor approaches their practice'

[SD0901000000]

Level 2 - Outcomes for Attitudes, Ethical Understanding and Legal Responsibilities

[SD0901010000]

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 of great importance to patients and the public in general, even if it is sometimes more difficult to define what we mean by this in comparison to some of the other outcomes. A firm grasp of ethical principles and their appropriate application must be gained before graduation. The legal responsibilities of new graduates are numerous and relate to all aspects of practice. Many of the outcomes in this domain are also relevant to Domain 12 "Outcomes for personal development".

Level 3	Level 4 - This could include:	
Appropriate professional attitudes [SD0901010100]	Establishing trust between doctor and patient and respect for patients and colleagues. Ensuring that relationships with patients and colleagues are not damaged by prejudices based on their vulnerability, lifestyle, social, cultural and economic background, race, age, sexuality, gender, beliefs or disability.	[SD0901010101]
	Commitment to professional Codes of Conduct.	
	Valuing and preserving patient autonomy and involving patients in decisions affecting them	[SD0901010104]
	Respect for professional institutions and health service bodies	[SD0901010105]
	Awareness of public opinion	[SD0901010106]
	Ensuring that patients' rights are protected	[SD0901010107]
	Awareness of progress in medical science and how it is achieved and the potential for every doctor to contribute to such progress	[SD0901010108]
Basic ethical principles and standards [SD0901010200]	Knowledge and understanding of contemporary medical ethics and the main ethical principles of autonomy, beneficence, non-maleficence and justice	[SD0901010201]
	Understanding the duties of a doctor	[SD0901010202]
	Practical application of ethical theories e.g. consequentialist and deontological (duty-based) approaches	[SD0901010203]
	Understanding the importance of confidentiality, truthfulness and integrity	[SD0901010204]
	Knowing under what circumstances the breaking of confidentiality can and should occur	[SD0901010205]
	Dealing effectively with complaints about own performance	[SD0901010206]
	Ethical reasoning applied to issues such as withholding or withdrawing life-prolonging treatment	[SD0901010207]

Level 3	Level 4 - This could include:	
Legal responsibilities [SD0901010300]	Knowledge and understanding of legal reasoning and compliance with the law in relation to: <ul style="list-style-type: none"> • Death certification • Drug prescribing • Physical and sexual abuse of children and adults • Appropriate legislation (and amendments) such as: Mental Health Act 2007, Human Tissue (Scotland) Act 2006, Disability Discrimination Act 2005, Mental Capacity Act 2005, Human Tissue Act 2004, Mental Health (Care and Treatment) (Scotland) Act 2003, Adults with Incapacity (Scotland) Act 2000, Data Protection Act 1998, Children (Scotland) Act 1995, Age of Legal Capacity (Scotland) Act 1991 • Reporting of adverse medical care/standards involving other practitioners • Codes of conduct • Human rights issues • Disclosure of patient information • Reporting of notifiable diseases 	[SD0901010301]
Practice of medicine in a multicultural society [SD0901010400]	Knowledge of and respect for differing cultures, views, beliefs and practices including those relating to the human body and healthcare	[SD0901010401]
Psychosocial issues [SD0901010500]	Knowledge of the social factors that affect relationships between doctors and patients and their carers and between colleagues	[SD0901010501]
Economic issues [SD0901010600]	Applying ethical and legal approaches to the appropriate use of healthcare resources	[SD0901010601]
Research issues [SD0901010700]	Knowledge and understanding of the legal and ethical framework within which medical research is conducted. This should include: <ul style="list-style-type: none"> • the distinction between audit and research • the requirements for ethical approval of research, and where to find information and documentation if needed • the need to protect the rights of patients and volunteers participating in research, in relation to recruitment, consent, confidentiality, patient safety, data handling and compensation arrangements • the potential consequences of research malpractice 	[SD0901010701]

Level 3	Level 4 - This could include:	
Patient consent [SD0901010800]	Understanding and application in practice of the principles of patient consent including: <ul style="list-style-type: none"> • Relation of capacity, competence, and respect for autonomy • Criteria for consent to be valid and legal • Criteria for ordinate refusal of consent • Legal standards of patients' best interests, Bolam test, and 'prudent patient' test (from US law) • Implied consent • Proxy consent (different in Scotland and England) • Age of legal capacity (different in Scotland and England) • Section 2(4) competence (Scotland) or Gillick competence (England) • Advance directives and statements • Delict or tort of battery • Delict or tort of negligence in giving information regarding benefits of treatment, risks of treatment, and alternative possible treatments • Consent for research 	[SD0901010801]
Disability issues [SD0901010900]	Understanding and application in practice of principles relating to disability issues including: <ul style="list-style-type: none"> • Rights of disabled persons, e.g. access • Recognition of the capabilities of disabled persons • Awareness of discrimination in society against individuals with bodily impairment • Awareness of discrimination in society against individuals with learning difficulties • Awareness of discrimination in society against individuals with mental health problems • The importance of attitudes to disability with regard to healthcare interventions • The importance of attitudes to disability with regard to the health state of patients as they experience it • Awareness of the needs of parents with disabled children 	[SD0901010901]

3.10 Learning Outcomes for Decision Making Skills, and Clinical Reasoning and Judgement

[SD100000000]

Level 1 - 'How the doctor approaches their practice'

[SD100100000]

Level 2 - Outcomes for Decision Making Skills, and Clinical Reasoning and Judgement

[SD100101000]

Decision making and clinical reasoning and judgement are activities in which medical undergraduates should be proficient. The new medical graduate must continue to display and develop 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 Foundation Practitioner, but the achievement of these outcomes to a high standard is essential.

Level 3	Level 4 - This could include:	
Clinical reasoning [SD1001010100]	How to recognise and define the problem, analyse and interpret information, cope with limitations of information and personal limitations and find appropriate solutions	[SD1001010101]
Evidence-based medicine [SD1001010200]	How to find, analyse and interpret evidence	[SD1001010201]
	Working with guidelines and protocols	[SD1001010202]
	Recognising the link between evidence-based medicine and audit and the reasons for variation in clinical practice	[SD1001010203]
	Recognising the limitations of evidence-based medicine	[SD1001010204]
Critical thinking [SD1001010300]	Adopting an inquisitive and questioning attitude where appropriate and applying rational processes	[SD1001010301]
	Recognising the significance of value judgements and that those of doctor and patient may differ	[SD1001010302]
Research and scientific methodologies [SD1001010400]	Knowledge and appreciation of quantitative and qualitative methodologies, including the differences between them, and their appropriate usage	[SD1001010401]
	Applying knowledge of scientific methodologies to critically evaluate research findings	[SD1001010402]
Statistical understanding and application [SD1001010500]	Understanding statistical principles	[SD1001010501]
	Choosing the appropriate statistical test for a given situation	[SD1001010502]
	Interpreting the outcomes of statistical analyses	[SD1001010503]
Creativity/resourcefulness [SD1001010600]	Innovative use of knowledge, techniques, technologies and methodologies	[SD1001010601]
	Demonstration of self-reliance, initiative and pragmatism	[SD1001010602]

Level 3	Level 4 - This could include:	
Coping with uncertainty and error in decision making [SD1001010700]	Appreciating that uncertainty exists and that sources of uncertainty might include: oneself, the environment, the patient, and limits of knowledge	[SD1001010701]
	Using cognitive and intellectual strategies when dealing with uncertainty and the need to be adaptable to change	[SD1001010702]
	Harnessing one's own emotional resilience and courage	[SD1001010703]
	Making decisions in partnership with colleagues and patients	[SD1001010704]
	Understanding the levels of responsibility in the healthcare system	[SD1001010705]
	Following the principles of risk management in the practice of medicine	[SD1001010706]
Prioritising [SD1001010800]	Knowledge and understanding of the factors influencing priorities	[SD1001010801]
	Prioritising one's own time as well as prioritising the care of patients, both of which include management of tasks, events, time and stress	[SD1001010802]
	Using protocols as appropriate to aid prioritisation	[SD1001010803]

3.11 Learning Outcomes for The Role of the Doctor within the Health Service [SD110000000]

Level 1 - 'The doctor as a professional' [SD110100000]

Level 2 - Outcomes for The Role of the Doctor within the Health Service [SD110101000]

This is an often changing area of medical education and practice, which is subject to many external influences including political, legal and economic. 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. For practice specifically in the UK, the 2006 GMC publication "Good Medical Practice" is an essential guide.

Level 3	Level 4 - This could include:	
Healthcare systems [SD1101010100]	This should include knowledge and understanding of: <ul style="list-style-type: none"> • The structure of the medical profession in the United Kingdom, and how it interacts with other healthcare professions • The roles of professional bodies such as the Royal Colleges and the British Medical Association • The role of the General Medical Council in the regulation of the medical profession and medical care • The roles and relationships of primary, secondary and tertiary care providers • The governance, structure and organisation of the UK National Health Service • External influences on the National Health Service e.g. private medical care, the European Union, provision of healthcare for overseas visitors, and mobility of doctors • The relationships between conventional health care systems and provision of complementary and alternative medicine • Systems of quality assurance such as clinical governance and other health care audit systems • The origins and history of medical practice 	[SD1101010101]
The clinical responsibilities and role of a doctor [SD1101010200]	Appreciation of the medical profession as a voice in society and an agent of change	[SD1101010201]
	Valuing and participating in professional audit	[SD1101010202]
	Understanding the role of the doctor as an employee within a corporate organizational entity or as an independent contractor	[SD1101010203]
	Understanding and applying good practice relating to the significance of health and safety issues in the healthcare setting	[SD1101010204]
The doctor as researcher [SD1101010400]	Appreciation of the value of medical research and how this is organised and funded	[SD1101010401]
	Knowledge of the potential role of research in career progression and the opportunities for research	[SD1101010402]
The doctor as mentor and teacher [SD1101010500]	Recognising the important role of all doctors as mentors and teachers	[SD1101010501]
	Recognising the importance of adopting a culture of life-long learning and fostering this in the health service	[SD1101010502]
	Having the ability to appraise the performance of others	[SD1101010503]

Level 3	Level 4 - This could include:	
The doctor as manager [SD1101010600]	Managing people and resources	[SD1101010601]
	Understanding and applying as appropriate risk assessment and management strategies for healthcare professionals	[SD1101010602]
The doctor as a member of a multi-professional team and the roles of other healthcare professionals [SD1101010700]	Understanding the roles and relationships of other healthcare professionals within the clinical team	[SD1101010701]
	Working with other healthcare professionals in the context of patient care in order to better develop team-working, leadership and facilitative skills	[SD1101010702]
	Understanding the potential benefits to be gained by learning with and being taught by other healthcare professionals	[SD1101010703]

3.12 Learning Outcomes for Personal Development

[SD120000000]

Level 1 - 'The doctor as a professional'

[SD120100000]

Level 2 - Outcomes for Personal Development

[SD120101000]

Personal development within the context of 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.

Level 3	Level 4 - This could include:	
Self-awareness [SD1201010100]	Conducting oneself as a reflective and accountable practitioner	[SD1201010101]
	Making best use of sources of informed criticism such as assessment, audit and appraisal	[SD1201010102]
	Responding positively to assessment, audit and appraisal	[SD1201010103]
Self-learner [SD1201010200]	Managing one's own learning and keep up-to-date as demonstrated by: <ul style="list-style-type: none"> • Managing time, learning-plans and activities for effective personal study, taking into account both academic achievement and individual professional development • Searching out, selecting and using appropriate learning resources, including technical aids • Employing appropriate and effective study techniques • Recognising limitations of current personal understanding and capabilities and identifying areas and strategies for development 	[SD1201010201]
Self-care [SD1201010300]	Recognition of the pressures of a demanding professional life on health, well-being and personal relationships and the need to maintain a balance between personal, professional and social goals and activities	[SD1201010301]
	Attention to lifestyle, diet, exercise and relaxation	[SD1201010302]
	Making use of available help and advice in stressful circumstances	[SD1201010303]
	Recognition of the hazards of self-medication or substance abuse in dealing with stress	[SD1201010304]
Career choice [SD1201010400]	Identification of short and long-term career and personal plans and aspirations and work towards these by establishing realistic development plans involving relevant activities	[SD1201010401]
	Full participation in the life of the professional community and making use of professional and other networks	[SD1201010402]
Motivation [SD1201010500]	Recognition of key personal motivating factors and their importance in sustaining a high level of commitment and medical practice	[SD1201010501]
Commitment [SD1201010600]	Demonstration of dedication to one's chosen career pathway through adherence to the highest levels of professional conduct	[SD1201010601]

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5. Further information

Information about THE SCOTTISH DOCTOR learning outcomes and details of the mapping with the General Medical Council (GMC) recommendations as published in 'Tomorrow's Doctors' (General Medical Council 2002) are available on THE SCOTTISH DOCTOR website of the Scottish Deans' Medical Education Group (<http://www.scottishdoctor.org>).

Correspondence relating to THE SCOTTISH DOCTOR or more generally to the work of the Scottish Deans' Medical Education Group should be addressed to:

Professor J H McKillop, j.mckillop@clinmed.gla.ac.uk

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