

ANNEX 1: MBBS LEARNING OUTCOMES

The overall Learning Outcomes for MBBS are set out below under each of the three essential elements of the competent and reflective practitioner.

While these overall outcomes are useful in helping both students and staff appreciate the knowledge, skills and attitudes which the undergraduate medical programme is designed to achieve, they are supplemented by more specific learning outcomes mapped to each stage and component of the course; these are detailed in the **Stage/Phase Handbooks** and **Study Guides**.

What the doctor is able to do

Outcomes for Clinical Skills

A new graduate will demonstrate competency in all of these outcomes unsupervised and to a predetermined standard:

Take a history, which:

- **is patient centred,**
- **is sensitive, structured, and thorough in approach**
- **recognises and takes account of the age and state of the patient, and a range of contexts including multicultural factors**
- **recognises the need for skilled communication**

Undertake a physical / mental state examination of patients, which is:

- **general and systems-based**
- **appropriate for age, gender, culture and state**
- **thorough, sensitive and systematic**

Interpret the results of history taking, physical examination and common investigative tests, so as to recognise abnormality

Make a diagnosis:

- **by gathering and analysing all relevant information**
- **so as to be able to recognise life-threatening conditions**

Formulate management plans which:

- **focus on the patient's needs and involve the patient in decision making**
- **prioritise treatments/interventions**
- **involve other health care professionals as appropriate**
- **recognise one's own limitations**

Record findings, such that records:

- **are contemporaneous, legible, concise, dated and signed**
- **include all relevant communications with patients / relatives and colleagues**

Outcomes for Practical Procedures

A new graduate may be required to undertake certain procedures specified in *The New Doctor* from the first day of the Foundation Programme F1 year, competence in these by graduation is essential. Some also feature in the domain of Patient Investigation and many others are covered by normal physical examination e.g. fundoscopy, otoscopy.

Measure and record:

- **peripheral pulse rate**
- **blood pressure**

- **body temperature**
- **respiratory function (peak flow rate)**
- **blood glucose**
- **urinalysis**
- **faecal occult blood**
- **pregnancy test**
Obtain, administer, perform and use appropriately:
- **valid consent**
- **basic resuscitation and life support**
- **oxygen therapy**
- **nebuliser**
- **venepuncture**
- **intravenous access & set up giving set**
- **blood culture**
- **arterial puncture**
- **12 lead ECG**
- **manage ECG monitor**
- **chest drain**
- **nasogastric tube**
- **proctoscopy**
- **male/female bladder catheterisation**
- **collection of MSU**
- **scrub up and gown for surgical and sterile procedure**
- **skin suturing, wound care and basic wound dressing**
- **control of haemorrhage**
- **make up drugs for parenteral administration**
- **iv, im, and sc injections**
- **calculate drug dosage**
- **dosage and administration of insulin**
- **write a prescription**
- **iv infusion and volumetric pumps**
- **take nose, throat and skin swabs**
- **lumbar puncture (for diagnostic purposes)**

Outcomes for Patient Investigation

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

Follow general principles, by:

- **making evidence-based choice of relevant investigations, with awareness of limitations**

- **requesting relevant investigations according to national guidelines and local protocols**
- **obtaining informed consent**
- **preparing patients practically & with adequate information**

Demonstrate knowledge of circumstances in which the commoner laboratory-based investigations are indicated, and procedures required to obtain the necessary material for investigation

Demonstrate knowledge of the range of more common radiological investigations available and their appropriate use in different circumstances

Demonstrate knowledge of the range of more common clinical investigations and their appropriate use, including:

- **exercise tolerance test**
- **pleural tap/biopsy**
- **upper and lower GI endoscopy (including rigid sigmoidoscopy)**
- **bronchoscopy**
- **EEG**
- **echocardiography**
- **lumbar puncture (for therapeutic purposes)**
- **cystoscopy**
- **cervical smear**
- **colposcopy**
- **skin biopsy**
- **joint aspiration**

Outcomes for Patient Management

As a new graduate, a student 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 the student 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.

Follow general principles, recognising:

- **effect on patient & concordance**
- **age and social circumstances when determining treatment**
- **requirements for informed consent**
- **need for team work**
- **need for appropriate referrals to right professionals**

Demonstrate knowledge of the appropriate use of drugs:

- **for all ages and with awareness of underlying chronic diseases**
- **in prescribing, calculating dosages, & methods of delivery**
- **their interactions & adverse effects**

Demonstrate knowledge of the range of interventions and indications, for:

- **surgery, including the principles of pre-, peri- and post- operative care**
- **nutrition & dietetics**
- **radiotherapy**

- palliative care
- physiotherapy
- occupational therapy
- rehabilitation
- podiatry
- psychological therapy
- other organisations, including social services and the voluntary sector
- complementary therapies

In relation to critical care, demonstrate knowledge of:

- life threatening conditions due to trauma or disease
- intensive care, indications for intervention / monitoring
- implications for the patient & family
- effective working in emergency care team

In relation to acute & chronic care, demonstrate knowledge of:

- conditions, not immediately life-threatening but requiring early treatment
- impact of acute illness on chronic disease and the transition between acute and chronic conditions
- chronic diseases
- rehabilitation in recovery from major illness
- impairment and disability
- pharmacological, physical and psychological interventions in pain control
- care of the dying

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.

Define public health problems at a population level or in clinical practice:

- recognise the causes of disease & threats to health of individuals & populations at risk
- identify opportunities for screening, disease prevention, health education, health promotion, and communicable disease control and take action where appropriate
- assess the health, health care and health promotion needs of individual patients

Implement evidence-based risk reduction strategies for individual patients

Plan and implement, where appropriate, health promotion taking into account barriers to disease prevention & health promotion both in the individual & population

Appreciate that health promotion & disease prevention depend on team-working and collaboration with other professionals & agencies

Outcomes for Communication

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

Follow general principles of good communication, including:

- active listening

- **gathering and giving information with good record keeping and correspondence skills**
- **mediating, negotiating & dealing with complaints**
- **making oral presentations & writing reports**
- **safeguarding confidentiality**
- **recognising own limitations, extent of personal knowledge**

In communicating with patients / relatives, be able to:

- **demonstrate empathy**
- **elicit patient's ideas, concerns & expectations**
- **achieve a shared understanding**
- **build and maintain a relationship**
- **answer questions & give explanations**
- **deal with challenging consultations**
- **make requests, e.g. post-mortem, organ donation**
- **obtain informed consent**

In communicating with colleagues, be able to:

- **transfer information (oral, written & electronic)**
- **write good discharge summaries**
- **refer patients appropriately**

In communicating with other agencies (e.g. police, coroner), and the media/press:

- **follow proper procedures without breaking rules of confidentiality**
- **act as a patient's advocate when appropriate**

Be able to communicate as a teacher and mentor

Outcomes for Information and Data Handling Skills

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 the new graduate 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 the new graduate appreciates the role of informatics in the day-to-day care of patients and the advancement of medical science in general.

In relation to patient records:

- **maintain high quality of recording (whether by writing or on computer)**
- **demonstrate an awareness of the different types of records and how they are stored and retrieved**
- **maintain confidentiality**
- **demonstrate awareness of legislation governing access to medical records and data**

In accessing and manipulating data, demonstrate ability to use:

- **library and other information systems to access data**
- **information from primary sources to inform evidence-based practice**
- **information from secondary sources (e.g. professional guidelines)**

Demonstrate C&IT skills, including use of:

- **E-mail**
- **word-processing**

- **on-line databases**
- **spreadsheets & statistical packages**
- **search engines and decision support tools**

Maintain records for personal & professional development

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 underpins medicine.

Demonstrate knowledge and understanding of:

- **Normal structure, and function of the major organ systems and how they interrelate**
- **The different stages of the life cycle and how these affect normal structure and function**
- **Behaviour and relationships between individuals and their family/partners, immediate social groups, and society at large**
- **Molecular, biochemical and cellular mechanisms important in maintaining homeostasis**
- **Causes of disease and the ways in which diseases affect the body**
- **Disease aetiology and relationships with risk factors and disease prevention**
- **Alteration in structure and function of the body & its major organ systems**
- **Pharmacological principles of treatment using drugs & efficacy of therapeutic measures in management and symptomatic relief of diseases**
- **Principles of disease surveillance and screening, disease prevention, health promotion, and health needs assessment**
- **Principles of healthcare planning, prioritisation of service and communicable disease control, including basic concepts of health economics**
- **Epidemiological principles of demography and biological variability**
- **Educational principles through which learning takes place (for patients, students and colleagues)**

Outcomes for Appropriate Attitudes, Ethical Understanding and Legal Responsibilities

The demonstration of appropriate attitudes by the new graduate, as shown by their professional behaviour, is a key area of concern for educators and employers 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 is meant in comparison to some other outcomes. The legal responsibilities of even new graduates are numerous and relate to all aspects of practice. The new graduate must gain a firm grasp of the ethical principles and their appropriate application before graduation.

Demonstrate the acquisition of appropriate professional attitudes, by

- **accepting the duties of a doctor and codes of professional practice**
- **maintaining confidentiality, truthfulness and integrity**
- **establishing trust and showing respect in the doctor / patient relationship**
- **demonstrating an empathic and holistic approach to patients**
- **valuing and preserving patient autonomy and involving patients in decisions affecting them**
- **respecting colleagues, other health care professionals and regulatory bodies**

- **dealing effectively with complaints**
- **appreciating financial and other constraints affecting the NHS and their impact on delivery of care**
- **recognising the importance of contributing to the advancement of medicine**

Demonstrate an understanding of the basic ethical principles of autonomy, beneficence, non-maleficence and justice, and their application

Demonstrate an understanding of, and accept legal responsibilities, with respect to:

- **human rights**
- **drug prescribing**
- **physical and sexual abuse of children and adults**
- **death certification**
- **codes of conduct**
- **reporting of adverse medical care / standards involving other practitioners**

Demonstrate an understanding of the practice of medicine in a diverse, multicultural society, by:

- **valuing diversity**
- **showing respect for differing personalities, lifestyles and cultures, in patients and colleagues and in health and illness**
- **understanding the roots of prejudice, and how prejudice and discrimination may be challenged in respect of age, gender, sexual orientation, ethnicity, disability, and socio-economic status**

Outcomes for Decision Making Skills, Clinical Reasoning and Judgement

Decision making, and clinical reasoning and judgement are activities in which the new graduate must be proficient. On graduation, the new 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.

Demonstrate proficiency in clinical reasoning, through ability to:

- **recognise, define and prioritise problems**
- **analyse, interpret and prioritise information, recognising its limitations**

Demonstrate ability to think critically, by:

- **adopting an inquisitive and questioning attitude and applying rational processes**
- **recognising irrationality in oneself and others**
- **recognising importance of own value judgements and those of patients**

Demonstrate insight into research & scientific method, through the:

- **appreciation of quantitative and qualitative methodology**
- **choosing and applying appropriate methodologies and statistical tests with some understanding of the underlying principles**
- **recognising the relationship between evidence based medicine, audit and the observed variation in clinical practice**

Exhibit creativity / resourcefulness, by:

- **demonstrating self-reliance, initiative and pragmatism**
- **demonstrating preparedness to think outwith conventional boundaries when appropriate**

Demonstrate the ability to cope with uncertainty, by:

- **appreciating that uncertainty exists and using cognitive and intellectual strategies when dealing with uncertainty**
- **making decisions in partnership with colleagues and patients, recognising one's own level of responsibility and capability**

Demonstrate ability to prioritise the patient's care, including the management of tasks, events and time

The doctor as a professional member of the health care team

Outcomes for Professional Development

This is a rapidly changing area of medical education and practice, which is subject to many external influences including political and legal. 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.

Recognise and contribute to meeting patients' needs within the health care system

Demonstrate acceptance of the professional responsibilities and role of the doctor, through:

- **commitment to the '*Duties of a Doctor*' as defined by the General Medical Council and local codes including clinical governance**
- **participation in clinical governance and valuing professional self-reflection**
- **valuing the role and opinions of other health care professionals and ability to benefit from, and contribute to, the multi-professional team**
- **appreciating the value of, and opportunities for medical research and its role in career progression**
- **participation in teaching and mentoring students, colleagues and other health care professionals**
- **fostering a culture of life-long learning in the health service**
- **appreciating the role of the doctor as manager both in one's own practice and in the health care system**
- **appreciating the medical profession as a voice in society and an agent of change**

Outcomes for Personal Development

Personal development within the context of undergraduate medical education is a complex issue. The underlying personality of the new graduate as an individual and their 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.

Conduct oneself as a reflective and accountable practitioner

Manage one's own learning

Manage one's own self-care, by:

- **recognising the pressures of a demanding professional life on oneself and others and the need to maintain a balance between professional and personal activities**
- **attending to one's own lifestyle and recognising the hazards of self-medication and substance abuse**
- **making use of available help and advice in stressful circumstances**

Identify the value of career planning and be able to set realistic short and long-term goals