



# About the *Outcomes* *for graduates*

Working with doctors Working for patients

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General  
Medical  
Council

## Structure of these outcomes

The *Outcomes for graduates* have three sections:

Outcomes 1 – Professional values and behaviours

Outcomes 2 – Professional skills

Outcomes 3 – Professional knowledge



Each section includes outcomes in a number of areas.

The appendix lists practical procedures – a minimum set of practical skills that newly qualified doctors must have when they start work for the first time so they can practice safely.

## The purpose of the outcomes

We set the standards and requirements for all stages of medical education and training in the document [Promoting excellence: standards for medical education and training \(pdf\)](#). We hold a [list of universities entitled to issue medical degrees](#) (also known as UK primary medical qualifications).

This document sets out what newly qualified doctors from all medical schools who award UK primary medical qualifications must be able to know and do.

By setting out what a newly qualified doctor is expected to know and do, the outcomes provide:

- a guide for students on what they need to learn
- a basis for medical schools to develop their curricula and programmes of learning
- a blueprint or plan for assessments at medical schools
- a framework we can use to regulate medical schools against
- a summary for those designing postgraduate training on what newly qualified doctors must be able to know and do.

It's important to remember that newly qualified doctors who enter the Foundation Programme will work under close supervision and in a multidisciplinary team. The competence and skill of each newly qualified doctor will be assessed by their supervisors and each individual will be given the appropriate support and oversight as they develop their knowledge, skills and capabilities in working practice.

We recognise and expect that newly qualified doctors will have achieved basic competence in the areas outlined in the *Outcomes for graduates*. But we acknowledge that they will need ongoing practical experience to develop and consolidate their skills and capabilities during foundation training.\*

## Key principles for changing the outcomes

Developments in patterns of care and disease since the *Outcomes for graduates* were first published in 2009 mean that newly qualified doctors must:

- be able to care for patients in a variety of settings, including the patient's home and community settings as well as general practices and hospitals

\* [Find out more about the Foundation Programme curriculum on the Foundation Programme website.](#)

- be able to care for growing numbers of patients with multiple morbidities and long term physical and mental conditions
- be able to integrate the care they provide with social care
- be able to integrate the care they provide with acute mental health care
- be able to apply principles of health promotion and disease prevention at population level to the care of individual patients
- commit to lifelong learning so they keep up to date with developments in medical practice and trends in disease at population level.

### **Relationship of the outcomes to our other standards and guidance documents**

The *Outcomes for graduates* were originally produced in 2009 and included in our publication *Tomorrow's Doctors* alongside our standards and requirements for teaching, learning and assessment in undergraduate curricula. We replaced *Tomorrow's Doctors* with *Promoting excellence: standards for medical education and training*, which came into effect on 1 January 2016. We republished the *Outcomes for graduates* as a separate document at that point.

- *Promoting excellence* sets out requirements for the management and delivery of undergraduate and postgraduate medical education and training.
- The *Outcomes for graduates* set out in more detail what we expect newly qualified doctors to be able to know and do and should be read alongside *Promoting excellence*.

We expect all newly qualified doctors to practise in accordance with the professional requirements set out in [Good medical practice](#) and related guidance. The *Outcomes for graduates* have been aligned to *Good medical practice*.

### **Relationship of the outcomes to our *Generic professional capabilities framework***

The *Generic professional capabilities framework*, published in May 2017, describes the interdependent essential capabilities that underpin professional medical practice in the UK and sets these out as educational outcomes. We expect the generic professional capabilities to be integrated into all postgraduate specialty training curricula.

We have reflected the capabilities and educational outcomes in this document so there is a recognisable progression through undergraduate and postgraduate medical education and training.

The structure of the *Outcomes for graduates* reflects the *Generic professional capabilities framework* – the three sections described above are mapped to its three fundamental domains. The *Outcomes for graduates* also include sections that map to the targeted domains in the *Generic professional capabilities framework*.

Some outcomes in this document are the same or similar to those in the *Generic professional capabilities framework*. This is because we expect newly qualified doctors and doctors in postgraduate training to demonstrate knowledge and ability in the same areas, but at the level appropriate for the stage they are at in their training. Newly qualified doctors will build on and develop their knowledge and abilities as they move through the Foundation Programme and speciality training. These postgraduate curricula will be underpinned by the educational outcomes set out in the *Generic professional capabilities framework*, some of which are common to the outcomes in this document and some of which are necessarily pitched at a higher level.

### **Responsibility for delivery**

- **Medical schools** must provide training and teaching that allows newly qualified doctors to meet the *Outcomes for graduates*, including the practical procedures specified, and therefore be fit to practise safely as a doctor when they graduate.
- **Local education providers** must provide clinical placements that give medical students the opportunities to build knowledge, skills and practical experience to meet the outcomes and to safely and effectively carry out practical procedures by the time they qualify.
- **Medical students** are responsible for their own learning. They should refer to the *Outcomes for graduates* during their undergraduate training to understand what we expect them to be able to know and do by the time they graduate.

### **Making sure the *Outcomes for graduates* are met**

Medical schools must provide us with evidence to show that medical students' learning is directed towards the outcomes and that students' progress towards meeting the outcomes at graduation is assessed.

This evidence must include medical schools' curricula – which we expect to be mapped to the outcomes – and assessment blueprints – which we expect to show when and how students are assessed on their learning against the outcomes.

Assessment could include formal written and clinical examinations, workplace based assessments, reflective records in learning portfolios, essays, research projects, presentations and coursework.

If we don't have robust evidence that the curriculum and assessments at a medical school are resulting in graduates being able to meet the outcomes, we will take action. We'll do

this in accordance with our [Quality Assurance Framework](#), by requiring the medical school to make changes so the outcomes are met. We will monitor the medical school until we have satisfactory evidence. We may also make regulatory visits to medical schools.

### **Keeping the outcomes up to date**

Medical education and training responds continually to changes in the health of the population and healthcare systems and to developments in technologies used to diagnose, treat and manage illness. Medical education must also adapt to the needs of society and be appropriately responsive to patients and the public.

We'll keep these outcomes up to date with timely revisions to make sure they reflect contemporary medical practice and science. Medical schools must also regularly review their curricula to make sure they are up to date.

# Outcomes for graduates

## Overarching outcomes for graduates

Medical students are tomorrow's doctors. In accordance with *Good medical practice*, newly qualified doctors must make the care of patients their first concern, applying their knowledge and skills in a competent, ethical and professional manner and taking responsibility for their own actions.

## Outcomes 1 – Professional values and behaviours

- 1 Newly qualified doctors must demonstrate appropriate personal and professional values and behaviours. They must keep to our ethical guidance and standards, including *Good medical practice* and the explanatory guidance, which together describe what is expected of all doctors who are registered with us.<sup>\*†</sup>



\* General Medical Council. *Good medical practice*: explanatory guidance available at: [www.gmcuk.org/guidance/ethical\\_guidance.asp](http://www.gmcuk.org/guidance/ethical_guidance.asp).

† Find our draft core ethical and explanatory guidance to the *Outcomes for graduates* on the consultation website.



## Professional and ethical responsibilities

- 2** Newly qualified doctors must be able to behave according to ethical and professional principles. They must be able to:
- a** demonstrate awareness of the clinical responsibilities and role of the doctor, making the care of the patient their first concern
  - b** demonstrate compassionate professional behaviour and understand their professional responsibilities in making sure the fundamental needs of patients – such as hydration, nutrition and pain management – are addressed
  - c** act with integrity, maintain confidentiality and respect patients' dignity and privacy
  - d** be polite, considerate, trustworthy and honest
  - e** be able to take personal and professional responsibility for their actions
  - f** recognise their own personal and professional limits and seek help from colleagues and supervisors when necessary
  - g** recognise the impact of their attitudes and perceptions (including personal bias, which may be unconscious) on groups within society or individuals belonging to particular groups, and identify personal strategies to address this
  - h** recognise the principles of person-centred care and deal with patients' healthcare needs in consultation with them and, where appropriate, their relatives, carers or other advocates
  - i** demonstrate an understanding of the importance to patients of:
    - seeking their consent
    - giving information about options for treatment and care in a way that meets the patient's needs
    - supporting and facilitating patients to make decisions about their treatment and care
    - knowing when and how to act in situations where a patient lacks capacity to make a particular decision.
  - j** demonstrate an understanding of the needs of patients from diverse social and cultural backgrounds with a range of health needs and protected characteristics
  - k** demonstrate an understanding of how to promote, monitor and maintain health and safety in the clinical setting and how errors can happen in practice

- l** apply the principles of quality control, clinical governance and risk management to medical practice
  - m** demonstrate an understanding of the importance of raising and escalating concerns about patient safety and quality of care appropriately, through informal communication with colleagues and through formal clinical governance and monitoring systems including through the use of 'whistleblowing'\* where necessary
  - n** demonstrate a commitment to professional development and lifelong learning
  - o** understand how to access clear and accurate sources of current evidence and guidance and have established methods for making sure their practice is consistent with these
  - p** establish the foundations for revalidation,<sup>†</sup> including a professional development portfolio containing reflections, achievements, learning needs and feedback from patients and colleagues
  - q** take an active part in their own induction and orientation
  - r** respond constructively to the outcomes of appraisals, performance reviews and assessments.
- 3** Newly qualified doctors must demonstrate awareness of the importance of their personal wellbeing and incorporate self-care into their personal and professional life.<sup>‡</sup> They must be able to:
- a** self-monitor, self-care and seek appropriate advice and support, including by being registered with a GP and engaging with them, to maintain their own physical and mental health and protect patients from any risk posed by their own health
  - b** recognise the risks to their health posed by self-prescribing medication
  - c** manage the personal challenges of coping with uncertainty and develop a range of coping strategies such as reflection, debriefing, handing over to another colleague and asking for help.

\* With reference to [www.gov.uk/whistleblowing/what-is-a-whistleblower](http://www.gov.uk/whistleblowing/what-is-a-whistleblower).

<sup>†</sup> For more information, see [the revalidation pages of our website](#).

<sup>‡</sup> We require medical schools and postgraduate training organisations and local education providers to give learners resources to support their health and wellbeing. [Theme 3: Supporting learners, Requirement R3.2](#).

## Legal responsibilities

- 4 Newly qualified doctors must understand the legal framework in which medicine is practised and have awareness of where further information on relevant legislation can be found.\*

## Patient safety and quality improvement

- 5 Newly qualified doctors must demonstrate that they can practice safely. They must participate in and promote activity to improve the quality and safety of patient care and clinical outcomes. They must be able to:
  - a place patients' needs and safety at the centre of the care process
  - b promote and maintain health and safety in the clinical setting, including when providing treatment and advice remotely, and demonstrate an understanding of how errors can happen in practice
  - c understand the importance of, and the need to keep to, measures to prevent the spread of infection, and apply the principles of infection prevention and control
  - d apply the principles of quality assurance, clinical governance and risk management to medical practice
  - e demonstrate and apply basic human factors principles and practice at individual, team, organisational and system levels
  - f understand and have experience of the principles and methods of improvement. This includes adverse incident reporting and other quality improvement processes such as participating in national surveys and other quality control, quality management and quality assurance processes as required by the regulator, medical school or local education provider
  - g understand how to use the results of audit to improve practice, including seeking ways to continually improve the use and prioritisation of resources.

## Dealing with complexity and uncertainty

- 6 The nature of illness is complex and therefore the health and care of many patients is complicated and uncertain. Newly qualified doctors must be able to recognise, manage and be comfortable with complexity and uncertainty, and seek support and help from colleagues where necessary. They must be able to:

\* Find our draft legislation guidance to the *Outcomes for graduates* on the consultation website

- a** demonstrate an understanding of the complex medical needs of patients and the factors that can affect a patient's health and wellbeing. These include psychological and sociological considerations that can also effect patients' health
- b** demonstrate an understanding of the need to adapt management proposals and strategies for dealing with health problems to engage with patients' preferences, social needs, multiple morbidities and long term physical and mental conditions
- c** demonstrate an understanding of the importance of working with patients, their relatives, carers or other advocates, in planning their care, negotiating and sharing information appropriately and supporting patient self-care
- d** understand the need to manage the uncertainty of diagnosis and treatment success or failure and communicate this openly with patients, their relatives, carers or other advocates
- e** understand how the clinical complexities, uncertainties and emotional challenges involved in caring for patients who are coming towards the end of their lives may require particular communication techniques and strategies with the patient, their relatives, carers and advocates. Understand how these strategies may change depending on the stage of the patient's journey and whether they are facing an anticipated death or a sudden unexpected death
- f** understand the need to be responsive to and to deal with continual change.

### **Capabilities in safeguarding vulnerable groups**

- 7** Newly qualified doctors must be able to recognise and identify factors suggestive of patient vulnerability and take action in response. They must be able to:
- a** demonstrate an understanding that any patient may become vulnerable at any time for a variety of reasons and that this can be temporary or permanent
  - b** demonstrate an understanding that some groups of patients may be particularly susceptible to vulnerability
  - c** take a history that includes consideration of the patient's vulnerability and reflect this in the care plan and referrals
  - d** take steps to safeguard children, young people and adults, using appropriate systems for identifying safeguarding needs, sharing information, recording and raising concerns, obtaining advice, making referrals and taking action
  - e** understand the needs of, and support required, for people who are the victims of domestic or other abuse

- f** understand the needs of, and support required, for people with a learning disability
- g** demonstrate an understanding of the professional responsibilities in relation to procedures performed on minors for non-medical reasons, such as cosmetic interventions\*
- h** demonstrate an understanding of mental capacity and deprivation of liberty safeguards to protect the safety of individuals and society. And apply these principles when caring for patients, including when providing treatment and advice remotely
- i** recognise where addiction (to drugs, alcohol, smoking or other substances), obesity, environmental exposure, financial or social deprivation issues are contributing to ill health. And take action by seeking advice and making appropriate referrals
- j** understand the basic principles of equality legislation in the context of patient care.

### **Education and training**

- 8** Newly qualified doctors must have the foundation skills to function effectively and appropriately as a mentor and teacher for other learners, support learning and understand that the safety of patients must come first. They must be able to:
  - a** respect patients' wishes about whether they wish to participate in the education of learners through obtaining informed consent
  - b** contribute to and participate in effective induction, orientation, education, training and supervision of others, including creating effective learning opportunities
  - c** evaluate and reflect on the effectiveness of the educational activities they contribute to, and give timely and constructive feedback about educational opportunities they participate in.

### **Multi-professional teamworking and leadership**

- 9** Newly qualified doctors must learn and work effectively within a multi-professional and multi-specialty team. This includes working face to face and by written and electronic means, and in a range of settings where patients receive care, including primary care, secondary care and social care settings. They must be able to:

\* See our [Guidance for doctors who offer cosmetic interventions](#).

- a** demonstrate an understanding of the contribution that effective interdisciplinary teamworking with doctors from all specialties and other health and social care professionals makes to the provision of safe and high-quality care
- b** work with colleagues in ways that best serve the interests of patients. This includes:
  - safely passing on information and handing over care
  - effectively using clear and appropriate spoken, written and electronic communication at handover
  - questioning colleagues' diagnoses during handover if appropriate
  - demonstrating flexibility, adaptability and a problem-solving approach.
- c** recognise and demonstrate respect for the roles and expertise of doctors from all specialties and other health and social care professionals in the context of working and learning as a multi-professional team
- d** demonstrate an understanding of how to build team capacity and positive working relationships. Undertake various team roles including, where appropriate, demonstrating leadership and the ability to accept and support leadership by others
- e** demonstrate awareness of the role of doctors in contributing to the leadership of the health service.

## Outcomes 2 – Professional skills

**10** We expect doctors to demonstrate appropriate professional skills.



### Communication and interpersonal skills

**11** Newly qualified doctors must be able to communicate effectively with patients, their relatives, carers and advocates, and colleagues in a medical context, applying patient information confidentiality appropriately. They must be able to:

- a** demonstrate openness and honesty in their communication with patients, their relatives, carers or other advocates – known as the professional duty of candour
- b** communicate clearly, sensitively and effectively with patients, their relatives, carers or other advocates, and colleagues from medical and other professions, by:
  - listening, sharing and responding

- demonstrating effective verbal and non-verbal interpersonal skills
  - making adjustments to their communication approach if needed
  - seeking support from colleagues for assistance with communication if needed.
- c** communicate by spoken, written and electronic methods (including medical records) clearly, sensitively and effectively with patients, their relatives, carers or other advocates, and colleagues from the medical and other professions, in a range of situations including:
- where there is conflict
  - in difficult circumstances, such as when sharing news about a patient's condition and prognosis that may be emotionally challenging for the patient and those close to them, and when discussing sensitive issues, such as alcohol consumption, smoking, obesity or sexual behaviour
  - when communicating with children and young people
  - when communicating with people who have impaired hearing, speech or sight or learning disabilities
  - when English is not the patient's first language by using an interpreter, translation service or other online methods of translation
  - when acting as a patient advocate
  - when making referrals to colleagues from medical and other professions
  - when providing care remotely.
- d** use methods of communication used by patients such as technology-enabled communication platforms.

**12** Newly qualified doctors must be able to carry out a consultation with a patient. They must be able to:

- a** elicit and record a patient's medical history, including family and social history
- b** encourage patients' questions, sharing of their understanding of their condition and treatment options, and their views, concerns, values and preferences
- c** understand that patients often come to consultations with information they have gathered about their conditions and symptoms and be able to discuss this with patients taking a collaborative approach



- d** provide explanation, advice, reassurance and support commensurate with their level of understanding and the patients' needs
- e** check whether the patient has understood what has been explained to them
- f** know when and how to seek advice and support from colleagues from medical and other professions and to make referrals
- g** safely undertake an appropriately tailored physical and mental state examination, including a cognitive state examination if appropriate
- h** assess a patient's capacity to make a particular decision in accordance with legal requirements and our guidance as appropriate
- i** determine the extent to which patients, or their legal advocates, want to be involved in decision making about their care and treatment
- j** recognise that work is a clinical outcome and hold a fitness for work conversation with patients of working age, including social, personal and biological factors, incorporating their findings into their management plan.

## **Diagnosis and medical management**

- 13** Newly qualified doctors must be able to diagnose and manage clinical presentations and maintain accurate, legible, contemporaneous and comprehensive medical records. They must be able to:
- a** make clinical judgements and decisions based on a holistic assessment of the patient and their needs, and appreciate the importance of clinical, psychological, spiritual, religious, social and cultural factors in both primary and secondary care
  - b** interpret findings from the history, physical examination and mental state examination
  - c** make an initial assessment of a patient's problems, give a clinical summary and formulate a differential diagnosis. Understand the processes by which doctors make and test a differential diagnosis and be prepared to explain their clinical reasoning to others
  - d** select appropriate, safe and cost-effective investigations in collaboration with the patient
  - e** interpret the results of investigations and the results of the diagnostic procedures in the appendix
  - f** synthesise information from investigations to produce a full assessment of the patient's problems and define the likely diagnosis or diagnoses

- g** make clinical judgements and decisions, based on the available evidence, in conjunction with colleagues and as appropriate for their level of training and experience and understand that this may include situations of uncertainty
  - h** take account of patients' concerns, beliefs, choices and preferences, seek consent to any recommended or preferred options for treatment and care, and respect the rights of patients to reach decisions with their doctor about their treatment and care and to refuse or limit treatment
  - i** formulate a plan for treatment, management and discharge, according to established principles and best evidence, in collaboration with the patient, their relatives, carers or other advocates, and other health professionals as appropriate.
- 14** Newly qualified doctors must demonstrate that they can make appropriate clinical judgements when considering or providing humane interventions or support at the end of life. They must understand the need to involve patients, their relatives, carers or other advocates in management decisions, making referrals and seeking advice from colleagues as appropriate.
- 15** Newly qualified doctors must be able to give immediate care in medical emergencies. They must be able to:
- a** assess and recognise the severity of a clinical presentation and the need for immediate emergency care
  - b** diagnose and manage acute medical emergencies, escalating appropriately to colleagues for assistance and advice
  - c** give basic first aid
  - d** give life support at the appropriate level
  - e** give cardiopulmonary resuscitation or direct other team members to carry out resuscitation.\*

\* If a reasonable adjustment is necessary. For more information about reasonable adjustments for medical students see our guidance, [Gateways to the professions](#).

## Prescribing medicines safely

- 16** Newly qualified doctors must be able to prescribe medicines safely, appropriately, effectively and economically.\* They must be able to:
- a** establish an accurate medication history, covering both prescribed medication and other drugs, and establish medication allergies and the types of reaction that patients experience
  - b** carry out a risk assessment for the patient of starting a new medication taking into account the medication history and potential medication reactions
  - c** access reliable information about medicines and understand the different technologies used to support prescribing
  - d** calculate appropriate medication doses and record the outcome accurately
  - e** provide a safe and legal prescription
  - f** understand the role of pharmacologists and pharmacists and prescribe in consultation with these and other colleagues from the medical and other professions as appropriate
  - g** correctly advise a patient on what a medicine is for and share any important safety information
  - h** detect and report adverse drug reactions and therapeutic interactions and react appropriately by changing medication
  - i** monitor the efficacy of medication and react appropriately by adjusting medication, including stopping medication if it proves ineffective
  - j** understand the challenges of safe prescribing for patients with long term conditions or multiple morbidities and medications, and at extremes of age
  - k** respect patient choices about complementary and alternative therapies, and have awareness of the existence and range of these therapies, why patients use them, and how this might affect the safety of other types of treatment that patients receive
  - l** understand the challenges of delivering these standards of care when providing treatment and advice remotely, for example via online services

\* Since September 2016, all medical students or newly qualified doctors must pass the national [Prescribing Safety Assessment](#) by the time they complete the first year of the Foundation Programme before we grant them full registration. The Prescribing Safety Assessment is mapped to the outcomes in this section.

## Using medical devices safely

- 17** Newly qualified doctors must be able to use medical devices relevant to their role safely. They must be able to:
- a** understand the importance of being trained in the use of specialist medical equipment and devices before use and the risks associated with not using medical devices safely
  - b** recognise their own training requirements and the extent of their capabilities in using medical devices
  - c** make sure medical devices are used safely by complying with safety checks, contributing to reporting systems, and following other appropriate maintenance, monitoring and reporting processes
  - d** understand the design features and safety aspects associated with the safe use of medical devices.

## Practical procedures

- 18** Newly qualified doctors must be able to perform a range of diagnostic, therapeutic and practical procedures safely and effectively. These procedures are listed in the appendix.
- 19** Newly qualified doctors must be able to identify, according to their level of skill and experience, the procedures for which they need supervision to ensure patient safety.

## Using information effectively and safely

- 20** Newly qualified doctors must be able to use information effectively and safely in a medical context. They must be able to:
- a** make effective use of decision making and diagnostic technologies
  - b** understand and uphold the requirements of confidentiality and data protection legislation and the need to comply with local information governance and storage procedures
  - c** understand their professional and legal responsibilities when accessing information sources when in relation to patient care, health promotion, giving advice and information to patients, and research and education
  - d** make sure patient information is recorded and coded in clinical information systems in a way that provides safe and effective patient care and ensures clear communication with other professionals working in healthcare at a patient and population level

- e understand how doctors contribute to the collection and interrogation of patient data at a population level to identify trends in wellbeing, disease and treatment and to improve healthcare and healthcare systems.

## Outcomes 3 – Professional knowledge

- 21** We expect doctors to demonstrate their professional knowledge and apply this to the care of patients in practice. Newly qualified doctors must understand biomedical, psychological and social science principles of health and disease and apply them to the care of their patients.



### The health service and healthcare systems in the four countries

- 22** Newly qualified doctors must be able to understand how patient care is delivered in the health service. They must be able to:
- a** understand the range of settings in which patients receive care, including in the community, in patients' homes and in primary and secondary care provider settings
  - b** understand how care provided in the different settings that a patient will experience on their healthcare journey should be integrated for that patient to ensure person-centred care

- c** understand trends in settings where care is provided, for example the shift for more care to be delivered in the community rather than in secondary care settings
  - d** understand the relationship of healthcare to social care and how they interact.
- 23** Newly qualified doctors must be able to demonstrate an understanding of the frameworks in which medicine is practised across the UK, including the structures, functions, values and constitution of the health service in each of the four nations.
- 24** Newly qualified doctors must be able to demonstrate an understanding of how the culture of the health service in the UK affects the care of patients.

### **Applying biomedical scientific principles**

- 25** Newly qualified doctors must be able to apply biomedical scientific principles and knowledge to medical practice and integrate these into patient care. They must be able to:
- a** explain normal human structure and function, including at the extremes of age
  - b** explain the scientific processes underlining common diseases
  - c** justify, through an explanation of the underlying fundamental principles and clinical reasoning, the selection of appropriate investigations for common clinical cases and diseases
  - d** select appropriate forms of management for common diseases, and ways of preventing common diseases, and explain their modes of action and their risks from first principles
  - e** demonstrate knowledge of drug actions: therapeutics and pharmacokinetics; drug side effects and interactions, including for multiple treatments, long term conditions and non-prescribed drugs; and also including effects on the population, such as the spread of antibiotic resistance
  - f** make accurate observations of clinical phenomena and conduct appropriate critical appraisal and analysis of clinical data. Explain their clinical reasoning and how they formulate a differential diagnosis and management plan.

### **Applying psychological principles**

- 26** The new qualified doctor must be able to integrate psychological principles, methods and knowledge to medical practice. They must be able to:
- a** understand the spectrum of normal human behaviour at an individual level

- b** integrate psychological concepts of health, illness and disease into patient care and apply theoretical frameworks of psychology to explain the varied responses of individuals, groups and societies to disease
- c** explain psychological factors that contribute to illness, the course of the disease and the success of treatment
- d** describe the psychological impact on a patient's behaviour regarding treatment and care
- e** discuss adaptation to major life changes, such as bereavement; understanding the adjustments that might occur in these situations
- f** identify appropriate strategies for managing patients with dependence issues and other demonstrations of self-harm
- g** demonstrate an understanding of how psychological aspects of behaviour, such as response to error, can influence behaviour in the workplace in a way that can affect health and safety. Be able to apply this understanding to personal behaviours and that of colleagues.

### **Applying social science principles**

- 27** Newly qualified doctors must be able to apply social science principles, methods and knowledge to medical practice. They must be able to:
- a** understand how society influences and determines normal behaviour and apply this to the care of their patients
  - b** understand sociological concepts of health, illness and disease and apply these to the care of their patients
  - c** apply theoretical frameworks of sociology to explain the varied responses of individuals, groups and societies to disease
  - d** understand sociological factors that contribute to illness, the course of the disease and the success of treatment and apply these to the care of their patients – including issues relating to health inequalities and the social determinants of health, the links between occupation and health and the effects of poverty and affluence
  - e** understand sociological aspects of behavioural change and treatment concordance and compliance and apply these models to the care of patients as part of person-centred decision making.



## Health promotion and illness prevention

**28** Newly qualified doctors must be able to apply to medical practice the principles, method and knowledge of population health and the improvement of health and sustainable healthcare. They must be able to:

- a** explain the concept of wellness or wellbeing as well as illness. Be able to help and empower people to achieve the best health possible, including promoting lifestyle change
- b** describe the health of a population using basic epidemiological techniques and measurements
- c** assess in any population and at the individual level the underlying causes of poor health, including environmental, social, behavioural and cultural factors. Identify options to address these, including advocacy for those who are disempowered
- d** apply epidemiological data to manage healthcare for the individual and the community and evaluate clinical effectiveness of interventions
- e** explain the principles underlying the development of health, health service policy, and clinical guidelines, including principles of health economics, equity, and sustainable healthcare
- f** explain the principles and application of primary, secondary and tertiary prevention of disease
- g** recognise the role of ecological, environmental and occupational hazards in ill-health and discuss ways to mitigate their effects
- h** explain and apply the basic principles of communicable disease control in hospital and community settings, including disease surveillance
- i** explain the role of nutrition in health at an individual and societal level
- j** evaluate from a global perspective the determinants of health and disease and variations in healthcare delivery and medical practice. Explain the impact that global changes may have on local health and wellbeing.

## Clinical research and scholarship

**29** Newly qualified doctors must be able to apply scientific method and approaches to medical research and integrate these with a range of sources of information used to make decisions for care. They must be able to:

- a** understand the role and hierarchy of evidence in clinical practice and decision making with patients

- b** communicate and interpret research evidence in a meaningful way for patients to support them in making informed decisions about treatment and management
- c** recognise and appreciate the role and value of both qualitative and quantitative methodological approaches in scientific enquiry
- d** critically appraise a range of information from trials, the results of relevant diagnostic, prognostic and treatment trials and other qualitative and quantitative studies as reported in the medical and scientific literature
- e** formulate simple relevant research questions in biomedical science, psychosocial science or population science, and design appropriate studies or experiments to address the questions
- f** understand basic principles and ethical implications of research governance including recruitment into trials and research programmes
- g** understand stratified risk and personalised medicine
- h** use evidence from large scale public health reviews and other sources of public health data to inform decisions about the care of individual patients.

## Appendix – practical procedures

Newly qualified doctors must be able to carry out the following practical procedures safely and effectively, with assistance from colleagues, medical and other professions as necessary and appropriate. And they must be able to interpret their findings in the context of the individual patient.

	<b>Procedure</b>	<b>Description</b>
1	Measure body temperature	Measure a patient's body temperature using an appropriate recording device.
2	Measure pulse rate and blood pressure	Measure a patient's pulse and blood pressure using manual techniques and automatic electronic devices.
3	Carry out transcutaneous monitoring of oxygen saturation	Apply, and take readings from, an electronic device that indicates the amount of oxygen in the patient's blood.
4	Carry out venepuncture	Insert a needle into a patient's vein to take a sample of blood for testing.
5	Carry out intravenous cannulation. Set up an infusion using infusion devices	Insert a tube into a patient's vein to take a sample of blood for testing, give an injection or give fluids via the vein. Make the appropriate choice of fluids and their doses and demonstrate the correct use of electronic devices that drive and regulate the rate of fluid administration.
6	Carry out arterial blood gas and acid base sampling from the radial or femoral artery in adults	Insert a needle into a patient's radial artery (in the wrist or forearm) or the femoral artery (in the groin) to take a sample of blood to test levels of gases, such as oxygen and carbon dioxide, and the balance of acidity and alkalinity in the blood.
7	Manage blood samples correctly and safely	Make sure that blood samples are placed in the correct containers, that these are labelled correctly and sent to the laboratory promptly and in the correct way. Take measures to prevent spillage and contamination. Highlight high risk samples, for example samples from patients who have blood-borne viruses, appropriately to other staff.
8	Take blood cultures	Take samples of venous blood to test for the growth of infectious organisms in the blood.

9	Measure blood glucose	Measure the concentration of glucose in the patient's blood at the bedside using appropriate equipment, and recording and interpreting the results.
10	Carry out and interpret a 3- and 12-lead electrocardiograph	Set up a continuous recording of the electrical activity of the heart. Make sure the recorder is functioning correctly, and interpret the tracing.
11	Carry out peak flow respiratory function tests	Perform a peak flow test to see how well the patient's lungs are working.
12	Carry out, and advise patients how to carry out, a urine multi dipstick test	Test a sample of urine for abnormal contents, such as blood or protein, and for pregnancy.
13	Take nose, throat and skin swabs	Use the correct technique to apply sterile swabs to the nose, throat and skin.
14	Carry out a nutritional assessment and refer appropriately	Make an assessment of the patient's state of nutrition. This includes an evaluation of their diet; their general physical condition; and measurement of height, weight and body mass index. Make a referral to a dietician if needed.
15	Carry out an initial mobility and daily living assessment and refer appropriately	Make an assessment of the patient's mobility and ability to carry out activities of daily living and refer the patient to a physiotherapist, occupational therapist or social care professional as appropriate.
16	Manage and monitor fluid balance, including reading fluid balance charts	Make an assessment of a patient's fluid intake (for example through drinking and eating or intravenous fluids) and output (for example through urination) and monitor this information for signs of dehydration or other deterioration.
17	Prescribe and administer oxygen safely using a delivery method appropriate for the patient's needs and monitor and adjust oxygen as needed	Give oxygen to a patient safely.
18	Carry out dosage and administration of insulin using appropriate	Calculate how many units of insulin a patient needs, what strength of insulin solution to use, and how it should be given (for example, into the skin, or into a

	equipment and use sliding scales	vein). Use a 'sliding scale' that links the number of units to the patient's blood glucose measurement at the time.
19	Carry out subcutaneous and intramuscular injections	Give injections beneath the skin and into muscle.
20	Ensure safe and appropriate blood transfusion	Following the correct procedures, give a transfusion of blood into the vein of a patient (including correct identification of the patient and checking blood groups). Observe the patient for possible reactions to the transfusion, and take action if they occur.
21	Carry out male and female urinary catheterisation	Pass a tube into the urinary bladder to permit drainage of urine, in male and female patients.
22	Carry out nasogastric tube placement safely, understanding the contraindications to nasogastric tube use, and assess whether a nasogastric tube is correctly placed	Pass a tube into the stomach through the throat for feeding and administering drugs or draining the stomach's contents.
23	Instruct patients in the use of devices for inhaled medication	Give instructions for patients about how to use inhalers correctly.
24	Use local anaesthetics	Perform local anaesthesia applied directly to the skin or injected into skin or body tissues.
25	Carry out wound care and basic wound closure and dressing	Provide basic care of surgical or traumatic wounds and apply dressings appropriately.
26	Apply correct techniques for moving and handling, including patients who are frail	Use, or direct other team members to use, approved methods for moving, lifting and handling people or objects, in the context of clinical care, using methods that avoid injury to patients, colleagues, or oneself.
27	Carry out hand washing (including surgical scrubbing up)	Follow approved processes for cleaning hands before procedures or surgical operations.

28	Correctly use personal protective equipment (for example gloves, gowns and masks)	Make correct use of equipment designed to prevent the spread of body fluids or cross infection between the operator and the patient.
29	Appropriately prevent, and manage infection, including controlling the risk of cross infection	Take all steps necessary to prevent the spread of infection before, during or after a procedure.
30	Employ safe disposal of clinical waste, needles and other sharps	Make sure these materials are handled carefully and placed in a suitable container for disposal.

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