Assessment Blueprint – July 2023

The **Prescribing Safety Assessment** has been developed by MSC Assessment and the British Pharmacological Society as a summative assessment of knowledge, judgement and skills related to prescribing medicines in the NHS. It is intended primarily for medical students at or near the end of their training and is based on the competencies identified by the General Medical Council in *Outcomes for graduates* (2018) (originally published in *Tomorrow's Doctors (2009*)). The PSA is delivered as an on-line assessment. It assesses, as far as possible within the confines of a virtual environment, complex skills including powers of deduction and problem solving that are relevant to the work of Foundation (Year 1) doctors in the NHS.

The assessment comprises eight sections, each containing a specific item style. There are either six or eight individual items in each section. The assessment offers a total of 200 marks and candidates are expected to complete it within a total of two hours of examination time (Figure 1). The 8 item styles assess prescribing, prescription chart review, planning management, providing important information, drug calculation skills, adverse drug reactions, monitoring therapy and data interpretation. These are described in more detail below (Appendix A) and some examples of scenarios are included in a grid that maps the item styles to relevant clinical settings for a Foundation doctor (Appendix B). They reflect not only the process of prescribing but also the related skills, judgement and knowledge required to review, advise and provide information about medicines. A sampling matrix (Appendix C) is completed for each assessment build to ensure that each assessment contains the correct number of items of each style and meets the required standard for coverage of clinical settings and high-risk drugs.

The skills assessed by the item styles reflect the requirements of *Outcomes for graduates* (2018) (Appendix D), (referenced in Promoting excellence; standards for medical education and training (2015)(Appendix E)) and the Safe Prescribing Working Group recommendations about the competency requirements of all Foundation doctors (Appendix F). The PSA has also been mapped to the Prescribing Competency Framework, aimed at helping all health professionals to be safe, effective prescribers (available at https://www.rpharms.com/resources/frameworks/prescribers-competency-framework).

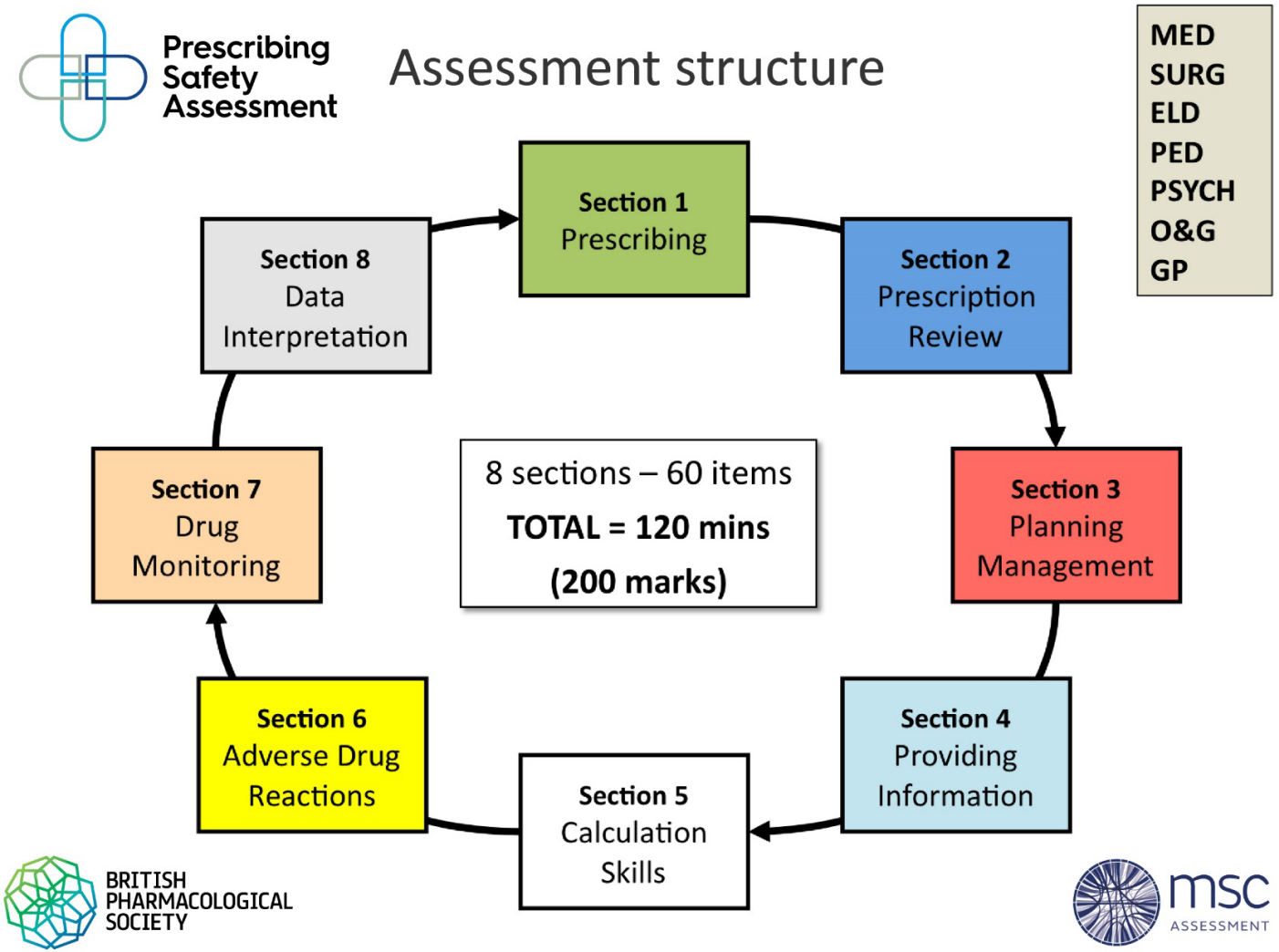

Figure 1. Structure of the assessment

PWS

Appendix A

Item styles

PRESCRIBING

- **Reasoning and Judgement:** ***Deciding on the most appropriate prescription (drug, dose, route and frequency) to write, based on the clinical circumstances and any supplementary information***
- **Measureable Action:** ***Writing a safe and effective prescription for a single medicine using the documentation provided, to tackle a specific indication highlighted by the question***
- This item style presents a clinical scenario followed by a request to prescribe a single appropriate medicine or intravenous fluid. It is distinct from other styles by the specific requirement to write a prescription on one of a variety of prescription forms. Typical scenarios involve the treatment of acute conditions (e.g. acute asthma attack, acute heart failure), chronic conditions (e.g. depression, reflux oesophagitis), and important symptoms such as pain. The candidate must exercise judgement when deciding between different drugs, different formulations, different routes, different doses, and different dose intervals. Prescriptions are expected to meet appropriate standards, they must be unambiguous and complete (approved name of drug, appropriate form, correct dose and route). The duration of treatment (e.g. 7 or 28 days) is included in all general practice forms as there is no facility for the candidate to specify a quantity to supply.
- There are eight Prescribing items in the assessment, each of which includes a single question requiring a single prescription to be written. Each item is worth 10 marks (5 for the drug choice, 5 for the choice of dose/route/frequency, making a total of 80 marks for this item style).
- The purpose is to demonstrate the ability to write a safe and effective prescription [OfG 18(g)][SPWG 3], to manage acute medical emergencies [OfG 17(b)], and to plan appropriate drug therapy for common indications [OfG 6(b), 22(d,e) and 18(d)][SPWG 2].

REV

PRESCRIPTION REVIEW

- **Reasoning and Judgement:** ***Deciding which components of the current prescription list are inappropriate, unsafe or ineffective for a patient based on their clinical circumstances***
- **Measureable Action:** ***Identifying prescriptions (drugs, doses or routes) that are inappropriate, unsafe or ineffective from amongst the current list of prescribed medicines***
- This item style presents a scenario that requires review of a current list of prescribed medicines (e.g. an inpatient prescription chart, a referral letter from a general practitioner). Typically, this item style involves interpreting the list of medicines in light of a clinical problem (e.g. impaired renal function, loss of anticoagulation control, headache), spotting important drug interactions (e.g. verapamil with beta-blockers, erythromycin with warfarin), identifying obvious or serious dosing errors (e.g. morphine, digoxin, aspirin), or noting suboptimal prescriptions (e.g. loop diuretics to be given late in the day, ineffective doses). The total list of medicines for each item ranges from 6 to 10. Some knowledge of common effects, adverse reactions and interactions of common medicines is assumed. Candidates should have time to consult the BNF for relevant information that might be considered beyond the core knowledge base of a minimally competent Foundation doctor.
- There are eight Prescription Review items in the assessment, each of which includes two questions requiring analysis of a list of currently prescribed drugs. Each item is worth 4 marks (making a total of 32 marks for this item style).
- The purpose is to demonstrate the ability to review the prescribing of others [OfG 18(a,o)][SPWG 4], to spot potentially important errors and make changes that will improve patient outcome [OfG 5(c), 14(n), 18(j)].

MAN

PLANNING MANAGEMENT

- **Reasoning and Judgement.** ***Deciding which treatment would be most appropriate to manage a particular clinical situation***
- **Measureable Action:** ***Selecting the most appropriate treatment based on individual patient circumstances***
- This item style presents a clinical scenario followed by a request to identify the most important treatment that would be part of initial management. This involves selecting between options (medicines, fluids and sometimes other treatments) that would be of real benefit and others that would be neutral or harmful. The candidate must decide on the most appropriate treatment, based on symptoms, signs, and investigations, from a list of five. Such treatment might be preventive, curative, symptomatic, or palliative. The candidate should show that they are able to plan treatment that is appropriate to individual patients. They should be aware of situations where it is inappropriate to treat and also of the role of non-drug therapies (e.g. physiotherapy, TENS machines for pain relief). Some of these scenarios may relate to the management of clinical toxicological emergencies that a foundation doctor might be expected to manage. The likely diagnosis (or differential diagnosis) should be clear from the scenario but will not necessarily be identified, to reflect the fact that planning management is sometimes necessary when there remains a degree of uncertainty about the underlying diagnosis (e.g. dyspnoea, abdominal pain, reduced conscious level).
- There are eight Planning Management items in the assessment, each of which requires identification of the most appropriate treatment from a list of five. Each item is worth 2 marks (making a total of 16 marks for this item style).
- The purpose is to demonstrate the ability to plan appropriate treatment for common clinical indications [OfG 22(d), 14(e, l) and 18(d)][SPWG 2].

COM

PROVIDING INFORMATION

- **Reasoning and Judgement: Deciding what is the most important piece of information that should be provided to patients, carers or other health professionals. This information may help patients to choose whether to take the medicine, or may provide information that will enable a medicine to be used safely and effectively.**
- **Measureable Action: *Selecting the information that is most important***
- This item style presents a brief scenario in which a patient is about to start taking a new treatment or where further advice about an existing treatment is required. The candidate is expected to select the most important piece of information that they would provide to the intended recipient from a list of 5 that includes four distractors. The task is to select which of the five options listed is more important than the others. Examples of the medicines that might be the focus of discussion include insulin, warfarin, salbutamol inhaler, methotrexate, or an oral hypoglycaemic.
- There are six Providing Information items in the assessment, each of which requires identification of the most important information option from a list of five. Each item is worth 2 marks (making a total of 12 marks for this item style).
- The purpose is to demonstrate the ability to provide patients with important information about their medicines [OfG 18(c,i),26(b)][SPWG 6].

CAL

CALCULATION SKILLS

- **Reasoning and Judgement:** ***Making an accurate drug dosage calculation based on numerical information***
- **Measureable Action:** ***Recording the answer accurately with appropriate units of measurement***
- This item style presents a scenario where the candidate has to make an accurate calculation of the dose or rate of administration of a medicine. They must interpret the problem correctly and use basic arithmetic to derive the correct answer. Examples of potential scenarios might include identifying the correct number of tablets to achieve a required dose, calculating the required dose based on weight or body surface area, or diluting a drug for administration in an infusion pump. These items also include testing the candidate's ability to recognise and convert different expressions of drug doses and concentrations.
- There are eight Calculation items in the assessment, each of which requires calculation of the correct figure based on a very brief clinical scenario. Each item is worth 2 marks (making a total of 16 marks for this item style).
- The purpose is to demonstrate the ability to calculate appropriate drug doses and record the outcome accurately [OfG 18(f)][SPWG 5].

ADR

ADVERSE DRUG REACTIONS

- **Reasoning and Judgement:** ***Identifying likely adverse reactions to specific drugs, drugs that are likely to be causing specific adverse drug reactions, potentially dangerous drug interactions and deciding on the best approach to managing a clinical presentation that results from the adverse effects of a drug***
- **Measureable Action:** ***Selecting likely adverse reactions of specific drugs, selecting drugs to discontinue as likely causes of specific reactions, avoiding potential drug-interactions and providing appropriate treatment for patients suffering an adverse event***
- *Type A*. This item style requires the candidate to identify the most likely adverse effect of a specific drug. Examples might include the adverse effects caused by commonly prescribed drugs such as calcium channel blockers, beta$_2$-agonists, non-steroidal anti-inflammatory drugs, aminoglycoside antibiotics, etc.
- *Type B*. This item style requires the candidate to consider a presentation that could potentially be caused by an adverse drug reaction and identify the medicine most likely to have caused the presentation. Examples might include newly recognised renal impairment, hepatic dysfunction, hypokalaemia, urinary retention, etc.
- *Type C*. This item style requires the candidate to consider a presentation where there are potential interactions between medicines currently being prescribed to a patient and identify the drug most likely to be clinically important. Examples might include interactions such as warfarin-statins, NSAIDs-ACE inhibitors etc.
- *Type D*. This item style requires the candidate to consider a presentation where a patient is suffering an adverse drug event and decide on the most appropriate course of action. Examples might include acute anaphylaxis, excessive anticoagulation, drug-induced hypoglycaemia, diuretic-induced dehydration etc.
- There are eight Adverse Drug Reaction items in the assessment, each of which requires identification of the most appropriate answer from a list of five. Each item is worth 2 marks (making a total of 16 marks for this item style).
- The purpose is to demonstrate the ability *to detect, respond to and prevent* potential adverse drug reactions [OfG 18(j) and 5(c)] [SPWG 8], and access reliable information about medicines [OfG 26(b,e)][SPWG 7].

TDM

DRUG MONITORING

- **Reasoning and Judgement:** ***Deciding on how to monitor the beneficial and harmful effects of medicines.***
- **Measureable action:** ***Identifying the appropriate methods of assessing the success or failure of a therapeutic intervention.***
- This item style presents a scenario that involves making a judgement about how best to assess the impact of treatments that are ongoing or are being planned. Candidates are expected to demonstrate that they understand how to plan appropriate monitoring for beneficial and harmful effects based on factors such as clinical history, examination and investigation. This may involve taking blood samples at the right time, deciding which is the most appropriate assessment of outcome, the timing of those measurements. Examples of prescriptions that might require appropriate monitoring are digoxin for atrial fibrillation, inhaled corticosteroids for asthma, oral contraception, levothyroxine for hypothyroidism, etc.
- There are eight Monitoring items in the assessment, each of which requires identification of the most appropriate answer from a list of five. Each item is worth 2 marks (making a total of 16 marks for this item style).
- The purpose is to demonstrate knowledge of how drugs work and their clinical effects [OfG 18(k), 22(e)] and the ability to monitor them appropriately to maximise safety and efficacy.

DAT

DATA INTERPRETATION

- **Reasoning and Judgement:** ***Deciding on the meaning of the results of investigations as they relate to decisions about ongoing drug therapy***
- **Measureable Action:** ***Making an appropriate change to a prescription based on those data***
- This item style involves interpreting data in the light of a clinical scenario and deciding on the most appropriate course of action with regard to prescribing. This may involve withdrawing a medicine, reducing its dose, no change, increasing its dose or prescribing a new medicine. The key focus of these items is interpreting the data and deciding on its implications for prescribing. Examples of data to be considered might include drug concentrations, haemoglobin, white cell count, liver or renal function, cholesterol, nomograms, etc.
- There are six Data Interpretation items in the assessment, each of which requires identification of the most appropriate answer from a list of five. Each item is worth 2 marks (making a total of 12 marks for this item style).
- The purpose is to demonstrate the ability to interpret data on the impact of drug therapy and make appropriate changes, and critically appraise the results of relevant diagnostic, prognostic and treatment trials [OfG 14(c,f), 18(k) and 26(b)].

Detailed descriptions of the skills being assessed and how they are blueprinted against relevant national statements of core competencies are listed (OfG = Outcomes for graduates (2018) (from Tomorrow's Doctors 2009), SPWG = Medical Schools Council Safe Prescribing Working Group 2007).

Notes on Clinical Settings

General Medicine: This setting includes acute medical admissions units, cardiovascular, respiratory, gastroenterology, endocrinology, neurology, rheumatology conditions as well as common medical emergencies.

General Surgery: This setting includes pre-operative and post-operative therapeutics relating to general surgery, orthopaedic, colorectal surgery etc.

Elderly Care: This setting involves elderly patients with problems such as stroke, incontinence and cognitive impairment and includes consideration of deprescribing and the problems posed by polypharmacy.

Paediatrics: This setting involves children under the age of 16 including neonatal care.

Psychiatry: This setting includes patients with common psychiatric problems such as anxiety, depression, disturbed behaviour and psychosis.

Obstetrics & Gynaecology: This setting includes the care of women who are pregnant (or who are planning to become pregnant), women who are using or requesting contraception and those with common gynaecological problems.

General practice: This setting involves the problems most commonly encountered in a primary care setting including ear, nose & throat problems, dermatology, and ophthalmology.

Appendix B

Examples of clinical cases and related item styles

	Medicine	Surgery	Elderly Care	Paediatrics	Psychiatry	Obstetrics & Gynaecology	General Practice
Prescribing	Unstable angina Acute asthma Dyspepsia	Thromboprophylaxis Antibiotics Analgesia	Intravenous fluids Laxatives Analgesia	Allergies Infection (e.g. otitis media, epiglottitis, croup), Reflux	Depression Anxiety	Oral contraception HRT Bladder instability	Hypercholesterolaemia Hypertension Urinary tract infection
Prescription review	Interactions Medication errors Causes of signs and symptoms	Pre-operative assessments NBM	Diuretics Antihypertensives Benzodiazepines Opioids Deprescribing	*Cases of polypharmacy in children will be more difficult to find*	SSRIs Lithium	Reviewing prescribing in pregnancy Interactions with OCP	Patients presenting with common symptoms
Planning management	Acute (e.g. asthma, pulmonary oedema, MI), Chronic (e.g. COPD, diabetes)	Acute (e.g. bleeding, low BP, acute abdo) Chronic (e.g. IBD, oncology)	Acute (e.g. back pain) Chronic (e.g. Parkinson's disease, dementia)	Asthma Acute anaphylaxis Diabetic ketoacidosis Dehydration	Acute behavioural disturbance	Anticoagulation, UTI in pregnancy	Shingles Community acquired pneumonia
Providing information	Oral hypoglycaemics Corticosteroids Nitrates	Tamoxifen Antibiotics Heparin Finasteride	Anticoagulants Bisphosphonates Diuretics Anti-epileptics Hypnotics	Vaccinations Insulin Cystic fibrosis Acne	Antidepressants Benzodiazepines Antipsychotics	Advising about drugs in breast feeding Advising about drugs preconception OCP, HRT	Antihypertensives Nicotine replacement NSAIDs, latanoprost Sildenafil Vaccinations
Calculation skills	Aminophylline infusion	Infusion rates (e.g. dopamine), intravenous fluid volumes	Digoxin elixir	Fluid replacement Dosing by weight Buccal midazolam	Intravenous lorazepam Haloperidol injection	Lidocaine injections	Steroid reducing dose
Adverse drug reactions	Renal impairment Liver function Hyponatraemia	Bleeding Opioid toxicity Vomiting	Dehydration Collapse Constipation	Hypoglycaemia Vomiting Substance abuse	Benzodiazepines Antimuscarinic effects Antipsychotics	Oestrogenic effects Interactions with the OCP	Headache Ankle swelling Dizziness Lethargy
Drug monitoring	Digoxin, insulin, methotrexate, amiodarone, oxygen	Fluid replacement Blood transfusion Antibiotics Anticoagulants	Carbimazole Theophylline Anti-epileptics	Asthma therapy Diabetes	Lithium Antipsychotic drugs	Monitoring safety of OCP	Statins ACE inhibitors Antibiotics
Data interpretation	TFTs, glucose, INR, renal function	Antibiotic concentrations Fluid replacement	Hb, U&Es, CXR, anti-epileptic concentrations	PEFR, paracetamol poisoning	Lithium Clozapine	BP and OCP HRT and LFTs	Cholesterol, BP, diuretics and K^+

Appendix C

Sampling matrix to be completed for each assessment build

	Clinical setting (and No req to meet blueprint)						
Question style (and No of items in assessment)	Medicine (8)	Surgery (4)	Elderly care (8)	Pediatrics (4)	Psychiatry (4)	Obstetrics and Gynaecology (4)	General Practice (8)
PWS (8 items)							
REV (8 items)							
(min 60 prescribed items)							
MAN (8 items)							
COM (6 items)							
CAL (8 items)							
ADR (8 items)							
MON (8 items)							
DAT (6 items)							
	Insert item number in relevant box						

Checklist for high risk drugs coverage	
Anticoagulation (AC)	
Antibiotics (AB)	
Insulin (INS)	
Opiates (OPI)	
Fluids (FLU)	

Appendix D

General Medical Council – Outcomes for graduates (2018) (from *Tomorrow's Doctors (2009))* Outcomes relating to prescribing medicines

Outcomes 1 – Professional values and behaviours

5. Newly qualified doctors must demonstrate that they can practise 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:

5a. place patients' needs and safety at the centre of the care process.

5c. recognise how errors can happen in practice and that errors should be shared openly and be able to learn from their own and others' errors to promote a culture of safety

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 complexity and uncertainty. And, through the process of seeking support and help from colleagues, learn to develop confidence in managing these situations and responding to change.

6b. identify the need to adapt management proposals and strategies for dealing with health problems to take into consideration patients' preferences, social needs, multiple morbidities, frailty and long term physical and mental conditions

Outcomes 2 – Professional skills

14. Newly qualified doctors must be able to work collaboratively with patients, their relatives, carers or other advocates to make clinical judgements and decisions based on a holistic assessment of the patient and their needs, priorities and concerns, and appreciating the importance of the links between pathophysiological, psychological, spiritual, religious, social and cultural factors for each individual. They must be able to:

14c. interpret findings from history, physical and mental state examinations

14e. propose options for investigation, taking into account potential risks, benefits, cost effectiveness and possible side effects and agree in collaboration with colleagues if necessary, which investigations to select

14f. interpret the results of investigations and diagnostic procedures, in collaboration with colleagues if necessary

14l. propose a plan of management including prevention, treatment, management and discharge or continuing community care, according to established principles and best evidence, in collaboration with other health professionals if necessary

14n. recognise the potential consequences of over-diagnosis and over-treatment

17. Newly qualified doctors must be able to recognise when a patient is deteriorating and take appropriate action. They must be able to:

17b. diagnose and manage acute medical and psychiatric emergencies, escalating appropriately to colleagues for assistance and advice

18. Newly qualified doctors must be able to prescribe medications safely, appropriately, effectively and economically and be aware of the common causes and consequences of prescribing errors. They must be able to:

18a. establish an accurate medication history, covering both prescribed medication and other drugs or supplements, and establish medication allergies and the types of medication interactions that patients experience

18b. carry out an assessment of benefit and risk for the patient of starting a new medication taking into account the medication history and potential medication interactions in collaboration with the patient and, if appropriate, their relatives, carers or other advocates

18c. provide patients, their relatives, carers or other advocates, with appropriate information about their medications in a way that enables patients to make decisions about the medications they take

18d. agree a medication plan with the patient that they are willing and able to follow

18e. access reliable information about medications and be able to use the different technologies used to support prescribing

18f. calculate safe and appropriate medication doses and record the outcome accurately

18g. write a safe and legal prescription, tailored to the specific needs of individual patients, using either paper or electronic systems and using decision support tools where necessary

18h. describe the role of clinical pharmacologists and pharmacists in making decisions about medications and prescribe in consultation with these and other colleagues as appropriate

18i. communicate appropriate information to patients about what their medication is for, when and for how long to take it, what benefits to expect, any important adverse effects that may occur and what follow-up will be required

18j. detect and report adverse medication reactions and therapeutic interactions and react appropriately by stopping or changing medication

18k. monitor the efficacy and effects of medication and with appropriate advice from colleagues, reacting appropriately by adjusting medication, including stopping medication with due support, care and attention if it proves ineffective, is no longer needed or the patient wishes to stop taking it

18l. recognise the challenges of safe prescribing for patients with long term physical and mental conditions or multiple morbidities and medications, in pregnancy, at extremes of age and at the end of life

18m. respect patient choices about the use of complementary therapies, and have a working knowledge 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

18n. recognise the challenges of delivering these standards of care when prescribing and providing treatment and advice remotely, for example via online services

18o. recognise the risks of over-prescribing and excessive use of medications and apply these principles to prescribing practice.

Outcomes 3 – Professional knowledge

22. Newly qualified doctors must be able to apply biomedical scientific principles, methods and knowledge to medical practice and integrate these into patient care. This must include principles and knowledge relating to anatomy, biochemistry, cell biology, genetics, genomics and personalised medicine, immunology, microbiology, molecular biology, nutrition, pathology, pharmacology and clinical pharmacology, and physiology. They must be able to:

22a. explain how normal human structure and function and physiological processes applies, including at the extremes of age, in children and young people and during pregnancy and childbirth

22b. explain the relevant scientific processes underlying common and important disease processes

22c. justify, through an explanation of the underlying fundamental principles and clinical reasoning, the selection of appropriate investigations for common clinical conditions and diseases

22d. 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

22e. describe medications and medication actions: therapeutics and pharmacokinetics; medication side effects and interactions, including for multiple treatments, long term physical and mental conditions and non-prescribed drugs; the role of pharmacogenomics and antimicrobial stewardship

26. 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.

26b. interpret and communicate research evidence in a meaningful way for patients to support them in making informed decisions about treatment and management

26e. critically appraise a range of research information including study design, the results of relevant diagnostic, prognostic and treatment trials, and other qualitative and quantitative studies as reported in the medical and scientific literature.

Appendix E

General Medical Council - Promoting excellence: standards for medical education and training July 2015.

Theme 5: Developing and implementing curricula and assessments

The GMC sets the learning outcomes required of medical students when they graduate and the standards that medical schools must meet when teaching, assessing and providing learning opportunities for medical students.
Medical schools develop and implement curricula and assessments to make sure that medical graduates can demonstrate these outcomes. Medical schools, in partnership with LEPs, also make sure that clinical placements give medical students the learning opportunities they need to meet these outcomes. Medical schools are responsible for the quality of assessments including those done on their behalf. Medical schools make sure only medical students who demonstrate all the learning outcomes are permitted to graduate.

Appendix F

Medical Schools Council – *Safe Prescribing Working Group*

Statement of Competencies in relation to Prescribing required by all Foundation Doctors

Prescribing is a core clinical skill practised regularly by all qualified doctors from day one of their first Foundation post. Effective prescribing can yield great benefits for patients, but medicines are also associated with significant risks. Adverse medication events are common in NHS hospitals. The task of prescribing well is probably getting more difficult, owing to various factors. For all of these reasons it is important that undergraduate medical education delivers a firm grounding in the principles of therapeutics and is supported by appropriate knowledge and practical skills.

To guide the undergraduate learning process the Medical Schools Council Safe Prescribing Working Group has agreed a set of competencies required of all doctors at the beginning of their Foundation training. These take into account the likely prescribing demands and levels of supervision possible in a typical NHS hospital. Although not explicitly stated, the competencies are also applicable to prescription of other therapies such as oxygen, intravenous fluids and blood products.

Competencies required of all Foundation doctors

1. *The ability to establish an accurate drug history.* This may be taken directly from the patient, from a collection of medicines, or from information given by others (carers, GP, old prescriptions). The record of this history should include making relevant conclusions from past exposures, including effective interventions and unsuccessful or harmful ones (drug allergies, adverse drug reactions, and drug interactions).
2. *The ability to plan appropriate therapy for common indications.* This means deducing appropriate treatment, based on symptoms, signs, and investigations. Such treatment might be preventive, curative, symptomatic, or palliative. It should be possible to plan treatment that is appropriate to individual patients. This will involve deciding at a simple level between options that might include different drugs, different formulations, different routes, different doses, and different durations. It should be possible to plan treatment for common acute and chronic conditions, including the use of high-risk drugs (e.g. anticoagulants, opioids, insulin) and commonly used antibiotics. There should be awareness of situations where it is inappropriate to prescribe and also of the role of non-drug therapies (e.g. physiotherapy, TENS machines for pain relief).

3. *The ability to write a safe and legal prescription.* This will usually be on a hospital drug administration chart (once-only, regular, and as required medications), but may include other relevant documentation (e.g. an infusion chart, insulin chart, warfarin chart, oxygen chart, TTO prescriptions). This skill would also include cancelling prescriptions and understanding other aspects of documentation. Prescriptions would be expected to meet appropriate standards, being legible, unambiguous, and complete (approved name written in upper case, appropriate form and route, correct dose appropriately written without abbreviations, necessary details and instructions, signed). It should be possible to prescribe controlled drugs. This skill would normally be undertaken with access to a copy of the British National Formulary. Prescribers should be aware of the legal responsibility of signing a prescription.
4. *The ability to appraise critically the prescribing of others.* This will include the ability to review prescription charts and relate medicines to symptoms (e.g. a nitrate and headache), identify common drug interactions (e.g. erythromycin with warfarin), identify inappropriate prescriptions (e.g. a hypnotic during daytime), and identify obvious dosing errors for common drugs (e.g. aspirin). By implication, all doctors should also be able to review and critically appraise their own prescribing decisions.
5. *The ability to calculate appropriate doses.* These might include simple dosage calculations by weight or body surface area and adjustments for age or renal function. This will include knowledge of different expressions of drug doses.
6. *The ability to provide patients with appropriate information about their medicines.* This will include being able to provide important information about the most commonly prescribed drugs or groups of drugs (approximately 75 in all), being able to help patients make informed decisions about their care, and being able to give instructions that improve safety and effectiveness (e.g. safety warnings about warfarin, explanations about inhaled therapy).
7. *The ability to access reliable information about medicines.* This might include standard hard-copy references, such as the BNF and the Datasheet/SPC compendium but will increasingly involve an electronic search. This would involve being able to check for contraindications, drug-drug interactions, and known adverse drug reactions.
8. *The ability to detect and report adverse drug reactions.* This should include recognition of specific types of drug-induced disease, such as anaphylaxis, maculopapular rash, bone marrow suppression, liver disorders, kidney disease. It should also include the ability to report an adverse drug reaction and awareness of sources of information on adverse drug reactions.

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Available to download at www.medschools.ac.uk

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