

**ROYAL  
PHARMACEUTICAL  
SOCIETY**



# **Professional knowledge guide 2018**

FOUNDATION

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We put pharmacy at the forefront of healthcare and are the world leader in the safe and effective use of medicines. We are committed to supporting and empowering our members to make a real difference to improving health outcomes for patients.

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## RPS Professional Knowledge Guide – Foundation

This knowledge guide is a recommended list of the specific elements of pharmaceutical and related care to support a practitioner developing during foundation stage of practice. It is intended to guide practice rather than to be a prescriptive list that has to be adhered to in all cases.

Knowledge items shaded in **blue** identify those which should be prioritised within the first stage of Foundation practice, regardless of care setting. Further prioritisation of knowledge items specific to different care settings can be found in the RPS Knowledge Interface Tool.

### 1. Body systems

#### 1.1. Blood

Haematological Abnormalities	Demonstrates knowledge and understanding of, and an ability to provide advice on the treatment of common haematological abnormalities including clotting disorders.
Haemostasis	Demonstrates knowledge and understanding of: clotting physiology; the effect of drugs upon it; and all associated monitoring parameters.
Medicines: Anticoagulants	Demonstrates knowledge and understanding of all aspects of anticoagulants (parenteral and oral), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antiplatelets	Demonstrates knowledge and understanding of all aspects of antiplatelets, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Folic Acid	Demonstrates knowledge and understanding of all aspects of folic acid, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Iron	Demonstrates knowledge and understanding of all aspects of iron (oral), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

#### 1.2. Cardiovascular system

Anatomy and Physiology	Demonstrates knowledge and understanding of the anatomy and function of the cardiovascular system, including the coronary arteries and valvular anatomy; and the complications that can occur.
Cardiac Arrhythmias	Demonstrates knowledge and understanding of atrial fibrillation: 1. cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of atrial fibrillation: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.

	Demonstrates knowledge and understanding of atrial fibrillation: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of atrial fibrillation: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
Heart Failure	Demonstrates knowledge and understanding of acute and chronic heart failure: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of acute and chronic heart failure: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of acute and chronic heart failure: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of acute and chronic heart failure: 1.cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
Hypertension	Demonstrates knowledge and understanding of hypertension: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of hypertension: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of hypertension: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of hypertension: 1.cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
Ischaemic Heart Disease	Demonstrates knowledge and understanding of acute coronary syndromes (ST segment elevation myocardial infarction, non-ST segment elevation myocardial infarction, and unstable angina): 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of acute coronary syndromes (ST segment elevation myocardial infarction, non-ST segment elevation myocardial infarction, and unstable angina): 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of acute coronary syndromes (ST segment elevation myocardial infarction, non-ST segment elevation myocardial infarction, and unstable angina): 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors; 5. the key differences between the acute coronary syndromes.

	Demonstrates knowledge and understanding of acute coronary syndromes (ST segment elevation myocardial infarction, non-ST segment elevation myocardial infarction, and unstable angina): 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to national and international guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of stable angina: 1. cause; 2. signs and symptoms; 3. prevention. 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of stable angina: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of stable angina: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of stable angina: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
Medicines: Adrenaline/Epinephrine	Demonstrates knowledge and understanding of all aspects of adrenaline/epinephrine, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Aldosterone Antagonists	Demonstrates knowledge and understanding of all aspects of aldosterone antagonists, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Amiodarone	Demonstrates knowledge and understanding of all aspects of amiodarone, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Angiotensin 2 Receptor Blockers	Demonstrates knowledge and understanding of all aspects of angiotensin 2 receptor blockers, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Angiotensin-converting-enzyme Inhibitors	Demonstrates knowledge and understanding of all aspects of angiotensin-converting-enzyme inhibitors, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antimuscarinics	Demonstrates knowledge and understanding of all aspects of antimuscarinics, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.



Medicines: Beta-blockers	Demonstrates knowledge and understanding of all aspects of beta blockers, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Calcium Channel Blockers	Demonstrates knowledge and understanding of all aspects of calcium channel blockers, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Digoxin	Demonstrates knowledge and understanding of all aspects of digoxin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Nicorandil	Demonstrates knowledge and understanding of all aspects of nicorandil, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Nitrates	Demonstrates knowledge and understanding of all aspects of nitrates, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Statins	Demonstrates knowledge and understanding of all aspects of statins, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Venous Thromboembolism	Demonstrates knowledge and understanding of venous thromboembolism (VTE) (treatment and prophylaxis): 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of venous thromboembolism (VTE) (treatment and prophylaxis): 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of venous thromboembolism (VTE) (treatment and prophylaxis): 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of venous thromboembolism (VTE) (treatment and prophylaxis): 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action, pharmacokinetics and pharmacodynamics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.

### 1.3. Ear, Nose and Throat

Anatomy and Physiology	Demonstrates knowledge and understanding of the anatomy and function of the ear, nose and throat, head and neck system and the complications that can occur.
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Oral Care	Demonstrates knowledge and understanding of common oral health problems and the importance of oral care and hygiene e.g. mouth ulcers; toothache sensitivity and decay; periodontal (gum) disease; mucositis; xerostomia; use of pain relief, mouthwashes and anti-fungals.
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#### 1.4. Endocrine system

Diabetes Mellitus	Demonstrates knowledge and understanding of diabetes (type 1, type 2, gestational, alcohol or steroid induced), including: 1. cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of the management of diabetes (type 1, type 2, gestational, alcohol or steroid induced), including: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of the monitoring of diabetes (type 1, type 2, gestational, alcohol or steroid induced), including: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the use of medicines in diabetes (type 1, type 2, gestational, alcohol or steroid induced), including: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance; 4. the impact and effects of drugs on blood glucose with regards to mortality and morbidity.
Medicines: Antidiabetics	Demonstrates knowledge and understanding of all aspects of antidiabetics, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Corticosteroids	Demonstrates knowledge and understanding of all aspects of topical, local and systemic corticosteroids, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Gliptins	Demonstrates knowledge and understanding of all aspects of gliptins, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Glucagon	Demonstrates knowledge and understanding of all aspects of glucagon, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Hormone Replacement Therapy	Demonstrates knowledge and understanding of all aspects of hormone replacement therapy, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

Medicines: Insulin	Demonstrates knowledge and understanding of all aspects of insulin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Levothyroxine	Demonstrates knowledge and understanding of all aspects of levothyroxine, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Sodium-glucose Cotransporter-2 Inhibitors	Demonstrates knowledge and understanding of all aspects of SGLT2 inhibitors, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

## 1.5. Eye

Anatomy and Physiology	Demonstrates knowledge and understanding of the anatomy and function of the ocular system, and the complications that can occur.
Eye Conditions	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of the following conditions: dry and/or red eye conditions, conjunctivitis (bacterial, viral and allergic), glaucoma and cataracts; the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for these conditions; what constitutes an eye emergency and when to refer.
Medicines: Prostaglandin Analogues	Demonstrates knowledge and understanding of all aspects of prostaglandin analogues, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

## 1.6. Gastrointestinal system

Anatomy and Physiology	Demonstrates knowledge and understanding of: the anatomy and function of the gastrointestinal and hepatopancreatobiliary tract (including liver, gall bladder, spleen and pancreas); its role in nutrition; and the complications that can occur.
Constipation	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of constipation and chronic constipation; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for the management and prophylaxis of constipation.
Diarrhoea	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of diarrhoea; and the mechanism of action of, pharmacology, pharmacokinetic characteristics and clinical use of treatments for diarrhoea.
Gastrointestinal, Biliary and Pancreatic Disorders	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of common anorectal disorders including fissures, fistulas and haemorrhoids; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for these conditions.

Gastro-oesophageal Reflux Disease	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of gastro-oesophageal reflux disease (GORD)/heartburn and indigestion; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for the management and prophylaxis of GORD.
Inflammatory Bowel Disease	Demonstrates knowledge and understanding of inflammatory bowel diseases e.g. Crohn's disease, ulcerative colitis: 1.cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of monitoring of management of inflammatory bowel disease e.g. Crohn's disease, ulcerative colitis: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the management of inflammatory bowel disease e.g. Crohn's disease, ulcerative colitis: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used. 4. Adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of use of medicines in the management of inflammatory bowel disease e.g. Crohn's disease, ulcerative colitis: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug-disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
Medicines: Alginates	Demonstrates knowledge and understanding of all aspects of alginates, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Aminosalicylates	Demonstrates knowledge and understanding of all aspects of aminosalicylates, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antidiarrhoeals	Demonstrates knowledge and understanding of all aspects of antidiarrhoeal medicines, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antiemetics	Demonstrates knowledge and understanding of all aspects of antiemetics, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: H2-receptor Antagonists	Demonstrates knowledge and understanding of all aspects of H2-receptor antagonists, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Hyoscine	Demonstrates knowledge and understanding of all aspects of hyoscine, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

Medicines: Laxatives	Demonstrates knowledge and understanding of all aspects of laxatives, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Oral Bowel Cleansing Agents	Demonstrates knowledge and understanding of all aspects of bowel cleansing preparations, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Proton Pump Inhibitors	Demonstrates knowledge and understanding of all aspects of proton pump inhibitors, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Peptic Ulcer Disease	Demonstrates knowledge and understanding of duodenal/gastric ulcer including gastrointestinal bleed 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage. 3. optimise patient concordance.
	Demonstrates knowledge and understanding of duodenal/gastric ulcer including gastrointestinal bleed 1. identify monitoring parameters. 2. prioritise monitoring parameters. 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of duodenal/gastric ulcer including gastrointestinal bleed 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of duodenal/gastric ulcer including gastrointestinal bleed: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.

## 1.7. Hepatic system

Liver Function and Dysfunction	Demonstrates knowledge and understanding of alcoholic liver disease: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors; 5. diagnosis and scoring systems for assessing disease severity; 6. national guidance in relation to alcohol related liver disease.
	Demonstrates knowledge and understanding of alcoholic liver disease: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of alcoholic liver disease: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of alcoholic liver disease: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
Liver Function and Dysfunction	Demonstrates knowledge and understanding of the common medicines and diseases that cause changes in liver function.

	Demonstrates knowledge and understanding of, and ability to interpret: liver function tests including bilirubin, transaminases, alkaline phosphatase, glutamyl transpeptidase, albumin, prothrombin time and international normalised ratio (INR); the clinical consequences of derangement of each of these tests; and the signs, symptoms and markers of liver damage that indicate the type and extent of liver impairment, with an appreciation of their limitations.
	Demonstrates knowledge and understanding of: the functions of the liver in drug metabolism; the pharmacokinetic and pharmacodynamics changes that may occur in patients with liver disease; how these changes will affect drug therapy; the principles for prescribing drugs in liver disease; an ability to advise on drugs that should be avoided or used cautiously in liver disease; and an ability to make dosage recommendations in complex hepatic failure patients.
Medicines: Terlipressin	Demonstrates knowledge and understanding of all aspects of terlipressin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

## 1.8. Immune system

Medicines: Antihistamines	Demonstrates knowledge and understanding of all aspects of anti-histamines, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Common Vaccinations	Demonstrates knowledge and understanding of all aspects of common vaccinations, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Vaccine Preventable Diseases	Demonstrates knowledge and understanding of: the main types/groups of vaccines; the differences between live and inactivated vaccines; childhood vaccinations; an ability to advise on the most appropriate vaccination regimens, protocols for supply and the precautions that need to be observed with respect to timing when administering more than one vaccine, from the same group, or different groups.

## 1.9. Integumentary system

Allergies	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of allergies; primary and secondary prevention of allergies; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for allergies.
Skin Conditions	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of skin conditions in adults and children e.g. dry skin, eczema, psoriasis, pruritis, seborrhoeic dermatitis, drug-induced rashes, fungal rashes, acne and wound management; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for these conditions.

## 1.10. Musculoskeletal system

Arthritis	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of arthritis; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for arthritis.
Back-ache, sprains and strains	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of back-ache, sprains and strains; primary and secondary prevention of back-ache, sprains and strains; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for back-ache, sprains and strains.
Medicines: Allopurinol	Demonstrates knowledge and understanding of all aspects of allopurinol, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Disease-modifying Antirheumatic Drugs	Demonstrates knowledge and understanding of all aspects of disease-modifying antirheumatic drugs, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

## 1.11. Nervous system

Anatomy and Physiology	Demonstrates knowledge and understanding of the anatomy and function of the central nervous system and the complications that can occur.
Cerebrovascular Disease	Demonstrates knowledge and understanding of stroke: 1. cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of stroke: 1. drug- drug, drug-patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of stroke: 1. identify monitoring parameters; 2. prioritise monitoring parameters. 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of stroke: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
Epilepsy and Seizure Disorders	Demonstrates knowledge and understanding of epilepsy (acute, status and initial management): 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of epilepsy (acute, status and initial management): 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of epilepsy (acute, status and initial management): 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.

	Demonstrates knowledge and understanding of epilepsy (acute, status and initial management): 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
Medicines: Antiepileptics	Demonstrates knowledge and understanding of all aspects of anti-epileptics, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Gabapentin	Demonstrates knowledge and understanding of all aspects of gabapentin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Phenobarbitone	Demonstrates knowledge and understanding of all aspects of phenobarbitone, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Sumatriptan	Demonstrates knowledge and understanding of all aspects of sumatriptan, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

## 1.12. Renal system

Anatomy and Physiology	Demonstrates knowledge and understanding of: the anatomy and function of the kidney and the complications that can occur; and the role of the kidney in metabolism and excretion, including of drug therapies.
	Demonstrates knowledge and understanding of the anatomy of the urinary tract and the complications that can occur.
Medicines: Diuretics	Demonstrates knowledge and understanding of all aspects of diuretics (loop diuretics, thiazides, potassium sparing, osmotic and carbonic anhydrase inhibitors), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Renal Function and Dysfunction	Demonstrates knowledge and understanding of alternative methods of estimating renal function e.g. 24 hour creatinine clearance, EDTA, including their limitations.
	Demonstrates knowledge and understanding of how estimated glomerular filtration rate (eGFR) is calculated, including its limitations.
	Demonstrates knowledge and understanding of the laboratory test results e.g. urea and creatinine, that are used to assess the nature and extent of renal impairment with an appreciation of their limitations
	Demonstrates knowledge and understanding of, and an ability to classify a patient's renal status in accordance with the National Institute for Health and Care Excellence guidance.
	Demonstrates knowledge and understanding of, and an ability to use the most appropriate method to estimate renal function in order to modify medicines and dosing regimens according to renal function.



Demonstrates knowledge and understanding of: the calculation of glomerular filtration rate using the Cockcroft-Gault equation, including its limitations; and an ability to estimate renal function using the Cockcroft-Gault equation.

### 1.13. Reproductive system

Anatomy and Physiology	Demonstrates knowledge and understanding of the anatomy of the reproductive system and the complications that can occur.
Medicines: Contraceptives	Demonstrates knowledge and understanding of all aspects of contraceptives, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

### 1.14. Respiratory system

Anatomy and Physiology	Demonstrates knowledge and understanding of: the anatomy and function of the respiratory system and the complications that can occur; and the physiology of pulmonary gas exchange and the key principles of ventilation.
Asthma	Demonstrates knowledge and understanding of asthma (acute and chronic): 1. cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of asthma (acute and chronic): 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of asthma (acute and chronic): 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of asthma (acute and chronic): 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/evidence e.g. national British Thoracic Society guidance; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent; 5. correct inhaler techniques; 6. non-pharmacological management such as physiotherapy and treatment with oxygen.
Chronic Obstructive Pulmonary Disease	Demonstrates knowledge and understanding of chronic obstructive pulmonary disease (COPD): 1. cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of chronic obstructive pulmonary disease (COPD): 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of chronic obstructive pulmonary disease (COPD): 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.

	Demonstrates knowledge and understanding of chronic obstructive pulmonary disease (COPD): 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/evidence e.g. national British Thoracic Society guidance; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent; 5. correct inhaler techniques; 6. non-pharmacological management such as physiotherapy and treatment with oxygen.
Medicines: Antimuscarinic Bronchodilators	Demonstrates knowledge and understanding of all aspects of antimuscarinic bronchodilators, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Beta 2 Agonists	Demonstrates knowledge and understanding of all aspects of beta 2 agonists, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Carbocysteine	Demonstrates knowledge and understanding of all aspects of carbocysteine, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Inhaled Steroids	Demonstrates knowledge and understanding of all aspects of inhaled steroids, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Oxygen	Demonstrates knowledge and understanding of all aspects of oxygen, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Theophylline and Aminophylline	Demonstrates knowledge and understanding of all aspects of theophylline (and aminophylline), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

## 2. Medication supply/use

### 2.1. Biochemical Monitoring

Electrolyte Disturbances	Demonstrates knowledge and understanding of the common medicines and diseases that cause changes to the normal ranges for electrolytes.
	Demonstrates knowledge and understanding of, and an ability to provide appropriate advice on correcting electrolyte imbalances.
	Demonstrates knowledge and understanding of: the role of potassium, sodium, phosphate, magnesium and calcium with regard to physiological function; and the consequences of too little or too much of these electrolytes.

### 2.2. Clinical Trials

Clinical Trial Interpretation and Evaluation	Demonstrates knowledge and understanding of: critical appraisal of relevant clinical trials undertaken in-house or externally; the Critical Appraisal Skills Programme framework (or other approved framework) as applied to the evaluation of a randomised controlled trial; potential sources of bias in randomised controlled trials, systematic reviews and meta-analyses etc.; an ability to interpret clinical trial data for local practice; the limitations in interpreting data from uncontrolled studies and non-superiority studies; and an ability to communicate risk in clinical trials e.g. quantifying and explaining uncertainty about efficacy, benefit and harm using concepts such as precision and confidence intervals.
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### 2.3. Complementary and Alternative Medicines/Therapies

Complementary and Alternative Medicines and Therapies	Demonstrates knowledge and understanding of the general principles of herbal medicines, homeopathic medicines and dietary supplements, the main differences between them and list common examples of each.
	Demonstrates knowledge and understanding of the principles of homeopathy and the methods by which homeopathic medicines are prepared.
	Demonstrates knowledge and understanding of the regulations that exist for herbal medicines, homeopathic medicines and nutritional supplements.
	Demonstrates knowledge and understanding of the safety issues surrounding herbal medicines, homeopathic medicines and dietary supplements, and the potential for interactions with conventional medicines/disease states.

### 2.4. Control, Manufacture and Distribution of Pharmaceuticals

Financial Management of Medicines and Medicines Services	Demonstrates knowledge and understanding of funding mechanisms, including PBR-exclusion drugs.
Legal, Professional and Ethical Patient Centred Care	Demonstrates knowledge and understanding of, and an ability to comply with relevant waste management regulations as applied to technical pharmacy.
Licensing and Regulation of Medicines, Devices and Hazardous Substances	Demonstrates knowledge and understanding of labelling requirements for licensed and unlicensed products.

	Demonstrates knowledge and understanding of the data that is used to assess compliance of a supplier with regulatory requirements.
	Demonstrates knowledge and understanding of the issues associated with counterfeit pharmaceuticals in the supply chain and the anti-counterfeiting and anti-tampering controls that may be used by pharmaceutical companies.
	Demonstrates knowledge and understanding of the key functions of the Medicines and Healthcare products Regulatory Agency.
	Demonstrates knowledge and understanding of the licensing framework within the UK for premises and products as described by the Medicines and Healthcare products Regulatory Agency.
	Demonstrates knowledge and understanding of the regulatory requirements for the preparation of different categories of medicinal products.
Medicines Logistics and Supply Chain Management	Demonstrates knowledge and understanding of local procedures for obtaining and supplying rarely used medicines.
	Demonstrates knowledge and understanding of the procedures to follow in the event of a drug recall.
	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with returns from wards.
	Demonstrates knowledge and understanding of, and an ability to ensure "to follow" stock items and/or oiwings are ordered and appropriately processed.
	Demonstrates knowledge and understanding of, and an ability to follow local procedures for ordering extemporaneous and aseptically prepared items.
	Demonstrates knowledge and understanding of, and an ability to follow local procedures to ensure stock is managed correctly including appropriate management of stock discrepancies, returns, storage.
	Demonstrates knowledge and understanding of, and an ability to follows local formulary processes appropriately for internal and external stock ordering.
	Demonstrates knowledge and understanding of, and an ability to review and risk assess suitable alternative medications and/or formulations during periods of local or national supply shortages.
	Demonstrates knowledge and understanding of: how to source medicines both during and outside of normal pharmacy and supplier opening hours; and internal requisitioning and external ordering for out of hours service.
Medicines Manufacturing and Preparation	Demonstrates knowledge and understanding of aseptic preparation, including examples of good and bad aseptic technique.
	Demonstrates knowledge and understanding of how both the NHS and commercial manufacturing services can respond to individual patient's needs.
	Demonstrates knowledge and understanding of NHS guidance governing aseptic preparation services and their governance.
	Demonstrates knowledge and understanding of the common reasons why a prepared product may be deemed unfit for purpose.
	Demonstrates knowledge and understanding of the concepts of cleaning, sanitisation (disinfection) and sterilisation.
	Demonstrates knowledge and understanding of the different sources of particulate contamination.
	Demonstrates knowledge and understanding of the main areas of risk associated with ward, pharmacy and outsourced product preparation, and how these could be managed.

	Demonstrates knowledge and understanding of the mathematical calculations involved in the preparation and administration of parenteral products, and an ability to undertake them accurately.
	Demonstrates knowledge and understanding of the origin and significance of spores, and the methods commonly used to eradicate them.
	Demonstrates knowledge and understanding of the role and professional duties of the pharmacist within technical pharmacy.
	Demonstrates knowledge and understanding of the sources of microbial contamination e.g. bacteria, yeasts, moulds, fungi and viruses, including examples of each.
	Demonstrates knowledge and understanding of the terms Quality Assurance, Quality Control and Good Manufacturing Practice, and how they apply to the preparation of medicines.
	Demonstrates knowledge and understanding of: the process involved when dispensing or preparing a product to determine whether it is fit for purpose; and an ability to apply the process when approving a product for use.
Regulation of Healthcare Services and Professionals	Demonstrates knowledge and understanding of relevant pharmaceutical law, regulation and guidance.
	Demonstrates knowledge and understanding of the responsible pharmacist regulations and how they apply to hospital pharmacy.
	Demonstrates knowledge and understanding of, and an ability to comply with responsible pharmacist regulations if applicable to the Trust.
Storage and Stability of Medicines	Demonstrates knowledge and understanding of: the factors influencing the stability of medicines, including factors relating to the packaging of medicines; how these relate to the determination of product shelf life; and how the stability of medicines impacts on their storage and supply.
	Demonstrates knowledge and understanding of: the requirements for the safe storage and transport of medicines (including cold storage items); and how deviation from recommended practice should be assessed and managed.
Unlicensed Medicines and Unlicensed Use	Demonstrates knowledge and understanding of the appropriate measures to be taken to ensure that patients, pharmacists and other health care professionals are protected when dealing with enquiries related to unlicensed/off-label medicines.
	Demonstrates knowledge and understanding of the governance, legal, safety, and supply issues and risks associated with the unlicensed use of medicines, or the use of unlicensed medicines e.g. "specials"; how to minimise these risks e.g. informed consent, patient counselling, ensuring continued supply etc.; and an ability to advise accordingly to ensure patient safety.
	Demonstrates knowledge and understanding of the role of unlicensed drugs in a number of conditions e.g. cardiology, respiratory, endocrinology, psychiatry, neurology, gastroenterology, rheumatology, musculoskeletal conditions, skin conditions, blood conditions, kidney disease, liver disease, infections, and minor ailments.
	Demonstrates knowledge and understanding of: the type, and spectrum of risk associated with products made under different regulatory frameworks e.g. other countries; and the factors to be taken into consideration when sourcing medicines made under different regulatory frameworks.

## 2.5. Drug Administration

Dose Calculations	Demonstrates knowledge and understanding of: the factors to be taken into consideration when advising on dose calculations; dose calculations and adjustments in adults including determination of body surface area, weight and age; and an ability to calculate doses from relevant parameters.
Drug Formulations	Demonstrates knowledge and understanding of formulation issues with medications e.g. crushing tablets, handling and stability of cytotoxic products.
	Demonstrates knowledge and understanding of the different routes of administration and the correct administration of different drug formulations.
	Demonstrates knowledge and understanding of the effects that different drug formulations and/or the manipulation of dosage forms has on pharmacodynamic and pharmacokinetic parameters e.g. bioavailability, bioequivalence etc.
	Demonstrates knowledge and understanding of, and an ability to advise on the manipulation of drug formulations to maximise compliance/ effectiveness.
	Demonstrates knowledge and understanding of, and an ability to apply the appropriate bioavailability calculations to convert between different formulations including tablets, liquids, and injections.
	Demonstrates knowledge and understanding of, and an ability to ensure that appropriate dose conversion occurs between short acting and extended release preparations.
	Demonstrates knowledge and understanding of: the formulation factors that will determine the suitability of a product for administration to a specific patient; and an ability to risk assess formulation suitability for specific populations e.g. children, elderly, including unlicensed formulations, specials and imports.
	Demonstrates knowledge and understanding of: the role of excipients and preservatives in formulations; their pharmacological actions; their adverse effects; the use of excipients in extemporaneous formulations; and the excipient and preservative related factors that should be considered before administering a medicine to a patient (e.g. lactose intolerance etc).
Drug Stability and Compatibility	Demonstrates knowledge and understanding of, and an ability to advise on the reconstitution of drugs including taking account of displacement values.
	Demonstrates knowledge and understanding of, and an ability to calculate appropriate volume of fluid required, and appropriate rate of administration for drugs administered by infusion.
Enteral Administration	Demonstrates knowledge and understanding of the factors that affect the rate and extent of absorption of oral drugs.
Formulary	Demonstrates knowledge and understanding of available drug formulations.
Inhaled Administration	Demonstrates knowledge and understanding of the stability, safety and methods of administration of nebulised medicines.
Intravenous Administration	Demonstrates knowledge and understanding of the commonly used infusion equipment and devices used for the safe administration of intravenous drugs; and the factors that influence selection.
	Demonstrates knowledge and understanding of, and an ability to convert between rate of administration in mL and drip rates for intravenous giving sets/infusion pumps.

## 2.6. Electronic Health

Pharmacy Computer System	Demonstrates knowledge and understanding of local procedures in the event of IT downtime.
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	Demonstrates knowledge and understanding of, and an ability to access information on the Trust Intranet e.g. clinical guidelines, Formulary, Trust policies.
	Demonstrates knowledge and understanding of, and an ability to access the local laboratory test results system.
	Demonstrates knowledge and understanding of, and an ability to use other local IT systems where available and appropriate e.g. prescription tracking.
	Demonstrates knowledge and understanding of, and an ability to use the Trust electronic prescribing system (where available).
	Demonstrates knowledge and understanding of, and an ability to use the pharmacy dispensing and stock control computer system, including an automated dispensing system if available; and an ability to locate stock, determine stock availability, identify non-pharmacy stock locations, and check Patient Medication Records or local equivalent.

## 2.7. Medication Safety

Patient Safety	Demonstrates knowledge and understanding of relevant safety alerts, and implement best practice in accordance with local policy.
	Demonstrates knowledge and understanding of the role the National Patient Safety Agency used to have, and the range and status of the safety alerts it used to issue.
	Demonstrates knowledge and understanding of the change control process as it affects product quality and patient safety.
	Demonstrates knowledge and understanding of: local and national incident reporting processes; an ability to identify when it is appropriate to report incidents; and an ability to report incidents in accordance with local and national policy.
	Demonstrates knowledge and understanding of the common errors associated with pharmaceutical packaging and labelling, and their causes.
	Demonstrates knowledge and understanding of the processes of deviation and incident management.
	Demonstrates knowledge and understanding of, and an ability to respond promptly and appropriately to the report of a dispensing error or medicine-related incident.
	Demonstrates knowledge and understanding of, and an ability to take into account identified pharmaceutical risks in a way which ensures safe patient care.
	Demonstrates knowledge and understanding of: the pharmaceutical risks associated with the prescribing, supply, storage and administration of medicines in clinical area(s); and an ability to respond appropriately.

## 2.8. Medicines Information

Answering Medicines Information Enquiries	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about administration of medicines, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about administration of medicines.

	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about adverse drug reactions, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about adverse drug reactions.
	Demonstrates knowledge and understanding of, and an ability to identify clinical queries.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about common ailments and medicines use, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about alternative medicines, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about alternative medicines.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about drugs interactions, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about drug interactions.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about compatibility of parenteral drugs, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about compatibility of parenteral drugs.
	Demonstrates knowledge and understanding of the common types of medicines-related enquiries.
	Demonstrates knowledge and understanding of the effective use of questioning to gather all relevant background information in order to establish the nature of the medicines enquiry, and to be able to research and provide an answer.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about the suitability of drugs and/or dose adjustments for drugs in liver disease, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about the suitability of drugs and/or dose adjustments for drugs in liver disease.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about drug use during breast-feeding, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about drug use during breast-feeding.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about medicines use in children, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about medicines use in children.



	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about symptom control in palliative care, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the questions to ask an enquirer to obtain the relevant background information when answering enquiries about symptom control in palliative care.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about pharmacokinetics, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about pharmacokinetics.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about drug use during pregnancy, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about drug use during pregnancy.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about the suitability of drugs and/or dose adjustments for drugs in renal impairment, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about the suitability of drugs and/or dose adjustments for drugs in renal impairment.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about substance misuse and drug withdrawal, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the questions to ask an enquirer to obtain the relevant background information when asked about substance misuse and drug withdrawal.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about therapeutic drug monitoring and the interpretation of plasma drug levels, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about therapeutic drug monitoring and the interpretation of plasma drug levels.
	Demonstrates knowledge and understanding of the use of common information sources used when answering enquiries about immunisation programmes in the UK, and health protection for persons travelling abroad, including their advantages and disadvantages.
	Demonstrates knowledge and understanding of, and an ability to identify the standard questions to ask an enquirer to obtain the relevant background information when answering enquiries about immunisation programmes in the UK, and health protection for persons travelling abroad.
Enquiry Record Management	Demonstrates knowledge and understanding of the value of an enquiry management database to accurately record and retrieve enquiries.
Legal, Professional and Ethical Patient Centred Care	Demonstrates knowledge and understanding of: the Quality Standards that underpin a medicines information service; and the "Guidelines for Ensuring Quality in Enquiry Answering".

Medicines Information Services	Demonstrates knowledge and understanding of how to effectively search EMBASE and Medline.
	Demonstrates knowledge and understanding of the UKMi Essential Resources List: 1. how and when to use the information sources on the list, including textbooks, databases, bibliographic databases, websites etc.; 2. their advantages and limitations.
	Demonstrates knowledge and understanding of, and an ability to plan and record search strategies appropriate to the level and category of medicines information enquiry.
	Demonstrates knowledge and understanding of the structure of medicines information service provision within the UK.

## 2.9. Prescribing

Prescribing General Principles	Demonstrates knowledge and understanding of applied therapeutics for prescribing effectively in practice.
	Demonstrates knowledge and understanding of chemical and biochemical methods for monitoring the treatment of the condition(s) for which the pharmacist intends to prescribe on qualification and responses to results.
	Demonstrates knowledge and understanding of consultation, decision-making, assessment and review for prescribing effectively in practice.
	Demonstrates knowledge and understanding of evidence-based practice and clinical governance for prescribing effectively in practice.
	Demonstrates knowledge and understanding of management options including non-drug treatment and referral.
	Demonstrates knowledge and understanding of prescribing in a public health context.
	Demonstrates knowledge and understanding of prescribing in a team context.
	Demonstrates knowledge and understanding of repeat prescription advice.
	Demonstrates knowledge and understanding of safe and cost effective prescribing taking into account legal, ethical and professional considerations in the context of local and national guidance.
	Demonstrates knowledge and understanding of the influences on, and psychology of prescribing.
	Demonstrates knowledge and understanding of the legal, policy, professional and ethical aspects of prescribing effectively in practice.
	Demonstrates knowledge and understanding of, and an ability to choose and adopt common diagnostic aids to aid clinical decision making and monitor response to therapy.
	Demonstrates knowledge and understanding of, and an ability to critically assess patient care to formulate a treatment plan and assess patient response.
	Demonstrates knowledge and understanding of, and an ability to critically review patient care; and an ability to choose and make recommendations on the most appropriate treatment by applying clinical knowledge, and through the use of appropriate information sources.
	Demonstrates knowledge and understanding of, and an ability to evaluate the needs of an individual patient by applying effective consultation and clinical assessment skills.
	Demonstrates knowledge and understanding of, and an ability to formulate a working diagnosis.

	Demonstrates knowledge and understanding of, and an ability to select solutions to support individual patients in improving and managing their health, both in the context of their circumstances and the wider multidisciplinary support available to them.
	Demonstrates knowledge and understanding of, and an ability to undertake confirmation of diagnosis/differential diagnosis, further examination investigation, and referral for diagnosis.
	Demonstrates knowledge and understanding of: specialist team clinics and prescribing; and the role of the pharmacist in specialist team clinics and prescribing.

## 2.10. Pharmacokinetics and Pharmacodynamics

Principles of Pharmacokinetics and Pharmacodynamics	Demonstrates knowledge and understanding of, and an ability to apply pharmacokinetic principles, including calculations when appropriate, to individualise therapy for patients taking medicines with a narrow therapeutic range.
	Demonstrates knowledge and understanding of: the physical, pharmacokinetic and pharmacodynamic properties of drugs relevant to drug dosing; and an ability to advise on the dosing of drugs in populations for which there is an absence of data.

## 2.11. Substance Dependence and Misuse

Drug Dependence and Misuse	Demonstrates knowledge and understanding of the terms 'drug misuse or abuse', and 'drug withdrawal'.
	Demonstrates knowledge and understanding of: examples of drugs involved in substance misuse; their associated broad pharmacological effect; and routes of administration.
Drug Dependence and Misuse	Demonstrates knowledge and understanding of opioid dependence: 1. drug-drug, drug-patient e.g. drug handling in the elderly, drug-disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of opioid dependence: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of opioid dependence: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of opioid dependence: 1. cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.

## 2.12. Therapeutic Drug Monitoring

Therapeutic drug monitoring	Demonstrates knowledge and understanding of the basic principles of therapeutic drug monitoring for agents with a narrow therapeutic index, e.g. gentamicin and vancomycin; local guidance for prescribing, administration and monitoring.
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## 2.13. Toxicology

Adverse Drug Reactions	Demonstrates knowledge and understanding of the Yellow Card Scheme for reporting adverse drug reactions, and the role of the Medicines and Healthcare Products Regulatory Agency in monitoring data on adverse drug reactions.
Licensing and Regulation of Medicines, Devices and Hazardous Substances	Demonstrates knowledge and understanding of control of substances hazardous to health assessment and its relevance to medicines.

## 3. Patient and Disease

### 3.1. Cancer

Legal, Professional and Ethical Patient Centred Care	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with cytotoxic medicines.
Medicines: Oral Chemotherapy	Demonstrates knowledge and understanding of all aspects of oral cytotoxics, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Vinca Alkaloids	Demonstrates knowledge and understanding of all aspects of vinca alkaloids, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

### 3.2. Children

Common ailments in children	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of common ailments in children including teething and nappy rash ; primary and secondary prevention of common ailments in children; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for common ailments in children.
Drug Formulations	Demonstrates knowledge and understanding of problem excipients and their effects when used in children.
Prescribing in Neonates and Children	Demonstrates knowledge and understanding of the potential risks of prescribing in neonates and children and problems that can occur.

### 3.3. Critical Care

Medicines: Flumazenil	Demonstrates knowledge and understanding of all aspects of flumazenil, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Naloxone	Demonstrates knowledge and understanding of all aspects of naloxone, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

Medicines: Suxamethonium	Demonstrates knowledge and understanding of all aspects of suxamethonium, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
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### 3.4. Elderly

Dementia	Demonstrates knowledge and understanding of dementia: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of dementia: 1. identify monitoring parameters; 2. prioritise monitoring parameters. 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of dementia: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of dementia: 1.cause; 2. signs and symptoms; 3. Prevention; 4. risk factors/exacerbating factors.
Medicines: Bisphosphonates	Demonstrates knowledge and understanding of all aspects of bisphosphonates, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Dopaminergic Drugs	Demonstrates knowledge and understanding of all aspects of dopaminergic drugs used in parkinsonism, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Parkinson's Disease	Demonstrates knowledge and understanding of Parkinson's disease: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of Parkinson's disease: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of Parkinson's disease: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of Parkinson's disease: 1.cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.

### 3.5. End of life

Subcutaneous Administration	Demonstrates knowledge and understanding of: the principles of continuous subcutaneous administration of medicines via a syringe driver; the use and role of syringe drivers in palliative care; and the mixing of medicines in a syringe driver including compatibility, stability and legal issues.
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### 3.6. HIV

Human Immunodeficiency Virus (HIV)	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of HIV; primary and secondary prevention of HIV; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for HIV.
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### 3.7. Infection

Antimicrobial interactions, adverse events and allergy	Demonstrates knowledge and understanding of interactions of antimicrobials with other medicines and management of common antimicrobial interactions e.g. clarithromycin.
Antimicrobial Stewardship	Demonstrates knowledge and understanding of the importance of local initiatives and monitoring of antimicrobial prescribing.
	Demonstrates knowledge and understanding of the principles of good antimicrobial prescribing and the roles and responsibilities of prescribers, pharmacists and nursing staff in ensuring good practice.
	Demonstrates knowledge and understanding of the relationship of local initiatives to the national antimicrobial stewardship agenda.
	Demonstrates knowledge and understanding of: the process of antimicrobial resistance (AMR); antimicrobial stewardship (AMS) including its role in tackling antimicrobial resistance; prudent antimicrobial use and interventions for reduction of AMR; key elements of an AMS programme and its application in hospital and community settings; the rationale for antimicrobial policies including AMS practice; and the application of infection control and AMS policies.
Antimicrobial use in special populations	Demonstrates knowledge and understanding of antimicrobial use in special populations (e.g. pregnancy, breastfeeding, paediatrics), including local guidelines, physiological, pharmacological and safety issues which should be considered.
Antimicrobials and Surgery	Demonstrates knowledge and understanding of monitoring of surgical antibiotic prophylaxis, including: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of use of antibiotics in surgical antibiotic prophylaxis, including: 1. rationale, choice of agent, risk/benefit, definition of surgical types e.g. clean, clean-contaminated etc., typical durations for surgical antibiotic prophylaxis; 2. list the commonly used drugs, usual doses and routes of administration; 3. describe place in therapy of each drug with regards to guidelines/evidence; 4. describe the mechanism of action and pharmacokinetics of drugs used; 5. describe adverse effects: identify & advise appropriate action to manage/prevent.
	Demonstrates knowledge and understanding of use of antibiotics in surgical antibiotic prophylaxis, including: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage.

Common Pathogens and Anti-infectives	Demonstrates knowledge and understanding of: basic microbiology e.g. typical colonising organisms in humans, basic structure, Gram classification and pathogenic differences; common pathogens, pathogenic processes in infection, likely sites of infection how the host defence system works e.g. urinary tract infections, respiratory tract infections, skin and soft tissue infections; anti-infective agents commonly used in the UK including antibacterials, anti-virals, anti-fungals and anti-protozoals; influence of bacterial structure on drug action and innate sensitivity.
Concordance and Adherence	Demonstrates knowledge and understanding of, and an ability to apply, the principles of concordance and adherence to antimicrobial use, to support self-management of medicines with particular reference to the development of antimicrobial resistance, e.g. completing antibiotic course and not sharing antibiotics with others.
Coughs and Colds	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of coughs and colds; primary and secondary prevention of coughs and colds; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for coughs and colds including the application of the principles of antimicrobial stewardship.
Ear, Nose and Throat Infections	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for infections of the ears, nose and throat including sore throats, earache and dental infections; ability to provide advice for these conditions and appropriate and safe use of antimicrobials and other management options for infections of the ears, nose and throat.
Gastrointestinal Infections	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of common parasitic gastrointestinal infections including threadworm; primary and secondary prevention of common parasitic gastrointestinal infections; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for common parasitic gastrointestinal infections.
Genito-urinary Infections	Demonstrates knowledge and understanding of infections of the urinary tract i.e. UTI and pyelonephritis: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of infections of the urinary tract i.e. UTI and pyelonephritis: 1.cause; 2. signs and symptoms. 3. prevention. 4. risk factors/exacerbating factors
	Demonstrates knowledge and understanding of monitoring of management of infections of the urinary tract i.e. UTI and pyelonephritis: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the use of medicines in management of infections of the urinary tract i.e. UTI and pyelonephritis: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance; 4. management during pregnancy, in children and special considerations in male population; 4. management of urinary catheters/special populations.
Healthcare Associated Infections	Demonstrates knowledge and understanding of healthcare associated infections i.e. methicillin-resistant Staphylococcus aureus, Clostridium difficile and neutropenic sepsis: 1.cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.

	Demonstrates knowledge and understanding of the management of healthcare associated infections i.e. methicillin-resistant <i>Staphylococcus aureus</i> , <i>Clostridium difficile</i> and neutropenic sepsis: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of the monitoring of management of healthcare associated infection i.e. methicillin-resistant <i>Staphylococcus aureus</i> , <i>Clostridium difficile</i> and neutropenic sepsis: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the use of medicines in management of healthcare associated infection i.e. methicillin-resistant <i>Staphylococcus aureus</i> , <i>Clostridium difficile</i> and neutropenic sepsis: 1. drug-drug, drug-patient e.g. drug handling in the elderly, drug-disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
Infection Prevention and Control	Demonstrates knowledge and understanding of: local and national guidance for infection prevention and control (IPC); local organisational structures for governance; the link between antimicrobial stewardship teams, IPC and patient safety.
Infectious Disease Markers	Demonstrates knowledge and understanding of, and an ability to interpret clinical signs and laboratory tests of patients with infectious diseases.
Medicines: Aminoglycosides	Demonstrates knowledge and understanding of all aspects of aminoglycosides, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antifungals	Demonstrates knowledge and understanding of all aspects of antifungals commonly used in practice, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antivirals	Demonstrates knowledge and understanding of all aspects of antivirals commonly used in practice, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Carbapenems	Demonstrates knowledge and understanding of all aspects of carbapenems, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Cephalosporins	Demonstrates knowledge and understanding of all aspects of cephalosporins (including cephalosporin-beta-lactamase inhibitor combinations), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.



Medicines: Chloramphenicol	Demonstrates knowledge and understanding of all aspects of chloramphenicol, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Co-trimoxazole	Demonstrates knowledge and understanding of all aspects of co-trimoxazole, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Macrolides	Demonstrates knowledge and understanding of all aspects of macrolides, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Metronidazole	Demonstrates knowledge and understanding of all aspects of metronidazole, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Penicillins	Demonstrates knowledge and understanding of all aspects of penicillins including penicillin-beta-lactamase inhibitor combinations, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Quinolones	Demonstrates knowledge and understanding of all aspects of quinolones, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Rifampicin	Demonstrates knowledge and understanding of all aspects of rifampicin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Teicoplanin	Demonstrates knowledge and understanding of all aspects of teicoplanin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Tetracyclines	Demonstrates knowledge and understanding of all aspects of tetracyclines, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Trimethoprim	Demonstrates knowledge and understanding of all aspects of trimethoprim, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

Medicines: Vancomycin	Demonstrates knowledge and understanding of all aspects of vancomycin, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Respiratory Infections	Demonstrates knowledge and understanding of primary and secondary respiratory infections i.e. community and hospital- acquired pneumonia, aspiration pneumonia, and exacerbation of chronic obstructive pulmonary disease/asthma: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of primary and secondary respiratory infections i.e. community and hospital- acquired pneumonia, aspiration pneumonia, and exacerbation of chronic obstructive pulmonary disease/asthma: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of primary and secondary respiratory infections i.e. community and hospital- acquired pneumonia, aspiration pneumonia, and exacerbation of chronic obstructive pulmonary disease/asthma: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of primary and secondary respiratory infections i.e. community and hospital- acquired pneumonia, aspiration pneumonia, and exacerbation of chronic obstructive pulmonary disease/asthma: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
Skin and Soft Tissue Infections	Demonstrates knowledge and understanding of cellulitis: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of the management of cellulitis.: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of the monitoring of the management of cellulitis: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the use of medicines in the management of cellulitis: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
Skin and Soft Tissue Infections	Demonstrates knowledge and understanding of: the pathophysiology of, and risk factors for the development of common skin and soft tissue infections (SSTIs), including bacterial (cellulitis, impetigo, paronychia, wound infections and bites), viral (shingles, warts and herpes simplex), fungal (athlete's foot, thrush and other yeast infections) and parasitic (body lice, head lice and scabies); and the management of these SSTIs including investigations, surgical intervention and antimicrobial therapy.

### 3.8. Mental health

Depression	Demonstrates knowledge and understanding of the pathophysiology of, and risk factors for the development of depression; and the mechanism of action, pharmacology, pharmacokinetic characteristics and clinical use of treatments for depression.
Medicines: Antidepressants	Demonstrates knowledge and understanding of all aspects of mirtazepine, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antidepressants	Demonstrates knowledge and understanding of all aspects of antidepressants (SSRIs, SNRIs, tricyclics), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Antipsychotics	Demonstrates knowledge and understanding of all aspects of antipsychotics (atypical & typical), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Hypnotic and Anxiolytic Drugs	Demonstrates knowledge and understanding of all aspects of benzodiazepines, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Hypnotic and Anxiolytic Drugs	Demonstrates knowledge and understanding of all aspects of chlordiazepoxide, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Hypnotic and Anxiolytic Drugs	Demonstrates knowledge and understanding of all aspects of midazolam, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Lithium	Demonstrates knowledge and understanding of all aspects of lithium, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.

### 3.9. Organ transplantation

Medicines: Immunosuppressants	Demonstrates knowledge and understanding of all aspects of immunosuppressant, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy (taking into account national guidance for each agent); 8. monitoring requirements.
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### 3.10. Pain

Headache and Facial Pain	Demonstrates knowledge and understanding of: the clinical features and differential diagnosis of headache and facial pain; and the specific pharmacological and non-pharmacological treatment of the causes of headache and facial pain.
Medicines: Analgesics	Demonstrates knowledge and understanding of all aspects of analgesics (non-opioid and compound), including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Non-steroidal Anti-inflammatory Drugs	Demonstrates knowledge and understanding of all aspects of non-steroidal anti-inflammatory drugs, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Opioids	Demonstrates knowledge and understanding of all aspects of opioids, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Pain Assessment and Management	Demonstrates knowledge and understanding of pain management: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of pain management: 1. drug-drug, drug-patient e.g. drug handling in the elderly, drug-disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of pain management: 1. identify monitoring parameters; 2. Prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of pain management: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.

### 3.11. Surgery

Antiplatelet and Anticoagulant Management	Demonstrates knowledge and understanding of anticoagulants in peri-operative care, including: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of monitoring of the use of anticoagulants in peri-operative patients including: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the use of anticoagulants in peri-operative patients, including: 1. drug-drug, drug-patient e.g. drug handling in the elderly, drug-disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.

Diabetes Mellitus and Surgery	Demonstrates knowledge and understanding of monitoring the peri- operative management of diabetes including: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the peri-operative management of diabetes including: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of the peri-operative management of diabetes including: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of the use of medicines in peri-operative management of diabetes including: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
Fluid Therapy	Demonstrates knowledge and understanding of fluid balance in surgery (pre-, peri- and post-operative period) including acute hypovolaemia and fluid overload: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of fluid balance in surgery (pre-, peri- and post-operative period) including acute hypovolaemia and fluid overload: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of fluid balance in surgery (pre-, peri- and post-operative period) including acute hypovolaemia and fluid overload: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
	Demonstrates knowledge and understanding of fluid balance in surgery (pre-, peri- and post-operative period) including acute hypovolaemia and fluid overload: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
Medicines: Lidocaine	Demonstrates knowledge and understanding of all aspects of lidocaine, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Nausea and Vomiting/Emesis	Demonstrates knowledge and understanding of nausea and vomiting/emesis, including drug-induced and post-operative: 1. cause; 2. signs and symptoms; 3. prevention; 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of nausea and vomiting/emesis, including drug-induced and post-operative: 1. drug- drug, drug- patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.

	Demonstrates knowledge and understanding of nausea and vomiting/emesis, including drug-induced and post-operative: 1. identify monitoring parameters; 2. prioritise monitoring parameters; 3. advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of nausea and vomiting/emesis, including drug-induced and post-operative: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.
Nil-by-Mouth Patients	Demonstrates knowledge and understanding of the management of nil by mouth patients in the pre-, peri- and post-operative period: 1. cause. 2. signs and symptoms. 3. prevention. 4. risk factors/exacerbating factors.
	Demonstrates knowledge and understanding of the management of nil by mouth patients in the pre-, peri- and post-operative period: 1. drug- drug, drug-patient e.g. drug handling in the elderly, drug- disease interactions: identify, prioritise and manage; 2. treatment targets: identify, prioritise, manage; 3. optimise patient concordance.
	Demonstrates knowledge and understanding of the management of nil by mouth patients in the pre-, peri- and post-operative period: 1. Identify monitoring parameters. 2. Prioritise monitoring parameters. 3. Advise suitable actions to ensure appropriate monitoring.
	Demonstrates knowledge and understanding of the management of nil by mouth patients in the pre-, peri- and post-operative period: 1. list the commonly used drugs, usual doses and routes of administration; 2. describe place in therapy of each drug with regards to guidelines/ evidence; 3. describe the mechanism of action and pharmacokinetics of drugs used; 4. adverse effects: identify & advise appropriate action to manage/ prevent.

### 3.12. Women

Breastfeeding	Demonstrates knowledge and understanding of the advantages to mother and baby of breast feeding.
Foetal Medicine	Demonstrates knowledge and understanding of the different stages of foetal development.
Lactation	Demonstrates knowledge and understanding of why the same drug used throughout pregnancy cannot be assumed to be safe and unlikely to cause any problems in the breastfeeding infant.
	Demonstrates knowledge and understanding of why, when answering a query regarding drug treatment in the woman who is breastfeeding, it is important to ask the age of the infant, whether the infant was born prematurely or at full term, and whether the infant is healthy.
Pregnancy	Demonstrates knowledge and understanding of the timescale of a normal female menstrual cycle, and the importance of establishing the date of the last period to estimate the date of conception.
	Demonstrates knowledge and understanding of: the factors which affect the choice of drug treatment in the woman who is pregnant, including the range of adverse outcomes associated with drug exposure during pregnancy, the baby's gestational age and health; and the factors which influence the risk/benefit assessment including the risk to the foetus of drug exposure, and the risk of non-treatment.

## 4. Patient/Pharmaceutical care

### 4.1. Legal, Professional and Ethical Patient Centred Care

Formulary	Demonstrates knowledge and understanding of, and an ability to follow, in the context of the formulary, local procedures for authorising doctors' self-prescribing.
Legal, Professional and Ethical Patient Centred Care	Demonstrates knowledge and understanding of professional responsibilities with respect to controlled drug regulations.
	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with controlled drugs returned from wards.
	Demonstrates knowledge and understanding of, and an ability to follow all local controlled drug policies and standard operating procedures.
	Demonstrates knowledge and understanding of the action to take in the event of a suspected forged, fraudulent prescription.
	Demonstrates knowledge and understanding of, and an ability to identify legal queries.
	Demonstrates knowledge and understanding of, and an ability to use relevant information sources to screen prescriptions.
	Demonstrates knowledge and understanding of, and an ability to check accurately and in accordance with local and national guidelines.
	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with expired medicines.
	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with returns from patients.
	Demonstrates knowledge and understanding of, and an ability to follow local procedures when assessing 'patients own drugs'.
	Demonstrates knowledge and understanding of, and an ability to follow local procedures when validating prescriptions.
	Demonstrates knowledge and understanding of: the pharmaceutical risks associated with the prescribing, supply, storage and administration of medicines in clinical areas; and an ability to respond appropriately.
	Demonstrates knowledge and understanding of the legal and ethical issues that relate to providing medicines-related information and advice.
	Demonstrates knowledge and understanding of the risks associated with providing medicines-related information and advice.
	Demonstrates knowledge and understanding of the sections of the Medicines Act 1968 relevant to technical pharmacy.
	Demonstrates knowledge and understanding of, and an ability to comply with the storage requirements of controlled drugs awaiting destruction.
	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with controlled drugs expired stock.
	Demonstrates knowledge and understanding of, and an ability to comply with waste medicines regulations associated with controlled drugs returned from patients.
	Demonstrates knowledge and understanding of, and an ability to delegate tasks and queries appropriately.
	Demonstrates knowledge and understanding of, and an ability to follow local procedures for maintaining the security of the department.
	Demonstrates knowledge and understanding of, and an ability to handle pressures and conflicting demands.

	Demonstrates knowledge and understanding of, and an ability to keep appropriate records, and work within relevant clinical governance frameworks.
	Demonstrates knowledge and understanding of, and an ability to negotiate deadlines e.g. with patient, colleagues, other staff members.
	Demonstrates knowledge and understanding of, and an ability to take into account identified pharmaceutical risks; and an ability to identify methods of changing practice to reduce risk.

## 4.2. Nutritional Management

Medicines: Calcium and Vitamin D	Demonstrates knowledge and understanding of all aspects of calcium and vitamin D, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Glucose	Demonstrates knowledge and understanding of all aspects of glucose, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Magnesium	Demonstrates knowledge and understanding of all aspects of magnesium preparations, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Phosphate-binders	Demonstrates knowledge and understanding of all aspects of phosphate-binders, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Potassium Chloride	Demonstrates knowledge and understanding of all aspects of potassium chloride, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Sodium Chloride	Demonstrates knowledge and understanding of all aspects of sodium chloride, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Thiamine	Demonstrates knowledge and understanding of all aspects of thiamine/Pabrinex, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Vitamins and Minerals	Demonstrates knowledge and understanding of all aspects of vitamins, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.



### 4.3. Pharmaceutical Care Planning

Clinical Examination	Demonstrates knowledge and understanding of clinical examination skills relevant to the condition(s) for which the pharmacist intends to prescribe or provide advice.
	Demonstrates knowledge and understanding of, and an ability to use common diagnostic aids for assessment of the patient's general health status e.g. stethoscope, sphygmomanometer, tendon hammer, examination of the cranial nerves; and an ability to recognise and respond to common signs and symptoms that are indicative of clinical problems.
Concordance and Adherence	Demonstrates knowledge and understanding of behavioural change / health coaching.
	Demonstrates knowledge and understanding of: concordance and adherence; an ability to identify and discriminate between intentional and non-intentional non-adherence; the behaviours, health beliefs and psychology that affect adherence; barriers to adherence; and an ability to identify solutions/support for overcoming barriers to adherence.
	Demonstrates knowledge and understanding of: the behaviours, health beliefs and psychology that affect adherence; and an ability to identify solutions/support for overcoming barriers to adherence.
Disease State Management	Demonstrates knowledge and understanding of, and an ability to critically review the overall management and monitoring of patients with a range of common disease states.
Education and Training	Demonstrates knowledge and understanding of, and an ability to independently develop clinical pharmacy knowledge and skills in order to identify, prioritise and resolve complex pharmaceutical problems in a range of common conditions.
Evidence-based Medicine	Demonstrates knowledge and understanding of the evidence-based approach to management of a range of common conditions, and apply evidence-based medicine to individualised patient care.
Formulary	Demonstrates knowledge and understanding of, and an ability to appropriately manage requests for non-formulary medicines.
	Demonstrates knowledge and understanding of, and an ability to discuss, in the context of the formulary, the appropriateness of a prescription with the prescriber.
	Demonstrates knowledge and understanding of, and an ability to identify formulary queries.
Management of Co-morbidities	Demonstrates knowledge and understanding of: common disorders and common co-morbidities including aetiology, physiology, signs and symptoms, epidemiology and risk factors; and the principles of managing multiple disease states.
Medication Reconciliation and Review	Demonstrates knowledge and understanding of, and an ability to accurately document a drug history.
	Demonstrates knowledge and understanding of, and an ability to accurately document the medicines reconciliation process and outcome(s) in accordance with local policy.
	Demonstrates knowledge and understanding of, and an ability to accurately identify a patient's diagnosis from the medical notes or general information gathering.
	Demonstrates knowledge and understanding of, and an ability to appropriately follow up on interventions made.
	Demonstrates knowledge and understanding of, and an ability to differentiate between the use of the following processes: 1. drug history taking; 2. medicines reconciliation; 3. medication review; 4. medicines use review.

	Demonstrates knowledge and understanding of, and an ability to evaluate and comment appropriately on the quality of information collected during the reconciliation process e.g. accuracy, currency, relevance.
	Demonstrates knowledge and understanding of, and an ability to identify and document intentional and unintentional discrepancies.
	Demonstrates knowledge and understanding of, and an ability to identify pharmaceutical issues in order to optimise patient care.
	Demonstrates knowledge and understanding of, and an ability to locate and interpret relevant information from medical notes.
	Demonstrates knowledge and understanding of, and an ability to prioritise the issues identified according to their importance.
	Demonstrates knowledge and understanding of, and an ability to reconcile medicines prescribed on admission with medicines being taken pre- admission.
	Demonstrates knowledge and understanding of, and an ability to resolve issues identified, or refer to another healthcare professional if appropriate when undertaking medicines reconciliation.
	Demonstrates knowledge and understanding of, and an ability to retrieve relevant data from information sources, including laboratory, end of bed data and other general resources.
	Demonstrates knowledge and understanding of, and an ability to take appropriate action to ensure the prescription is appropriate.
	Demonstrates knowledge and understanding of, and an ability to take appropriate action to resolve issues and ensure interventions are carried out in a timely manner.
	Demonstrates knowledge and understanding of, and an ability to use a structured approach to elicit information.
	Demonstrates knowledge and understanding of: how to accurately obtain a medical and medication history from a variety of sources e.g. patient, carer, general practitioner; and an ability to accurately obtain a drug history including current and previously prescribed medicines, non-prescribed medicines, supplements, complementary remedies, allergies and intolerances.
	Demonstrates knowledge and understanding of: the most appropriate treatments for acute conditions; and an ability to make recommendations on the most appropriate treatment for acute conditions by applying clinical knowledge to the critical review of their medication regimes.
	Demonstrates knowledge and understanding of: the most appropriate treatments for chronic conditions; and an ability to make recommendations on the most appropriate treatment for chronic conditions by applying clinical knowledge to the critical review of their medication regimes.
Medicines Management	Demonstrates knowledge and understanding of, and an ability to apply a systematic approach to medicines management for patients with a range of common conditions.
	Demonstrates knowledge and understanding of, and an ability to identify, prioritise and resolve the medicines management needs of patients, carers and other social and health care professionals.
	Demonstrates knowledge and understanding of, and an ability to manage or support the optimal management of medicines for groups of patients through effective use of formularies and guidelines.
Patient Monitoring	Demonstrates knowledge and understanding of any monitoring equipment used within the context of the treatment/clinical management plan.
	Demonstrates knowledge and understanding of the assessment of responses to treatment against the objectives of the treatment/clinical management plan.

	Demonstrates knowledge and understanding of the principles and methods of patient monitoring.
	Demonstrates knowledge and understanding of, and an ability to critically assess clinical indicators relating to patient response to, and the adverse effects of, drug therapy.
	Demonstrates knowledge and understanding of, and an ability to evaluate treatment plans and prescription review.

#### 4.4. Public Health

Fever	Demonstrates knowledge and understanding of the clinical features, differential diagnosis and appropriate management of fever, whether community or hospital presentation, including fever in the returning traveller.
Medicines: Nicotine Replacement Therapy	Demonstrates knowledge and understanding of all aspects of nicotine replacement therapy, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Medicines: Statins	Demonstrates knowledge and understanding of all aspects of statins, including: 1. mechanism of action; 2. pharmacology; 3. pharmacokinetics; 4. pharmaceutical aspects; 5. adverse effects, contraindications and interactions; 6. usual doses and routes of administration; 7. place in therapy; 8. monitoring requirements.
Patient Information and Education	Demonstrates knowledge and understanding of, and an ability to identify a patients' need for information about medicines.
	Demonstrates knowledge and understanding of, and an ability to provide non-pharmacological advice on lifestyle management to support priority NHS targets, e.g. smoking cessation, reduction in alcohol intake, exercise etc.
Public Health Assessment	Demonstrates knowledge and understanding of: public health assessments; and an ability to design a public health assessment of a local group or community.
Public Health Strategies	Demonstrates knowledge and understanding of strategies for the promotion of well-being.
	Demonstrates knowledge and understanding of, and an ability to develop strategies to address identified public health needs.
	Demonstrates knowledge and understanding of: public health theories; and ability to critically appraise theories around public health.

#### 4.5. Quality Improvement

Quality Assurance and Improvement	Demonstrates knowledge and understanding of pharmacy practice quality improvement principles.
	Demonstrates knowledge and understanding of the key characteristics of the different types of documentation (forms, procedures and policies) required within a Quality Management System.
	Demonstrates knowledge and understanding of the need for standard operating procedures, and the importance of documentation control in the workplace.
	Demonstrates knowledge and understanding of the role of training to ensure staff are competent to perform their role in assuring product quality.

## 4.6. Travel

Travel Health	Demonstrates knowledge and understanding of the general precautions that travellers should observe when travelling to hot climates or areas of poor sanitation.
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## 5. Collaborative Working Relationships

Communicating with Health Professionals	Demonstrates knowledge and understanding of, and an ability to demonstrate, effective communication skills when giving information about medicines to health professionals.
	Demonstrates knowledge and understanding of, and an ability to ensure an issue or query is communicated to the most appropriate health professional.
	Demonstrates knowledge and understanding of: effective communication with health professionals; an ability to speak to relevant health professionals about queries; and an ability to record interventions appropriately.
Communicating with Patients and Carers	Demonstrates knowledge and understanding of, and an ability to demonstrate awareness of patients with particular needs e.g. disabled, non-English speaking.
	Demonstrates knowledge and understanding of, and an ability to demonstrate effective communication skills when giving information to patients about their medication.
	Demonstrates knowledge and understanding of, and an ability to maintain patient confidentiality.
	Demonstrates knowledge and understanding of: effective communication and consultation with patients and their parents/carers; and an ability to undertake, accurate assessment and history taking.
	Demonstrates knowledge and understanding of: person centred care; identifying patient priorities including shared decision making; and communicating risk and benefits.
	Demonstrates knowledge and understanding of: the range of models of consultation and consultation skills; an ability to choose an appropriate consultation model to engage patients in discussion; and an ability to take the individual beliefs of patients into account to improve and optimise treatment success.
Communication Principles and Skills	Demonstrates knowledge and understanding of good writing skills in preparing formal written responses to enquiries.
	Demonstrates knowledge and understanding of how to deal with complaints in accordance with local complaints procedures.
	Demonstrates knowledge and understanding of negotiating skills.
	Demonstrates knowledge and understanding of the principles of good communication when applied to enquiry answering, including verbal and written communication.
	Demonstrates knowledge and understanding of, and an ability to adjust communication appropriately according to the individual.
	Demonstrates knowledge and understanding of, and an ability to demonstrate effective communication when using the telephone.
	Demonstrates knowledge and understanding of, and an ability to demonstrate effective written communication.
	Demonstrates knowledge and understanding of, and an ability to identify what others are communicating e.g. through listening; and an ability to respond appropriately.

	Demonstrates knowledge and understanding of, and an ability to manage conflict appropriately.
	Demonstrates knowledge and understanding of, and an ability to provide individualised information in a professional manner.
	Demonstrates knowledge and understanding of, and an ability to refer complaints to the appropriate member of pharmacy staff.
Multidisciplinary and Multi-agency Care	Demonstrates knowledge and understanding of, and an ability to identify the practical and operational challenges encountered in delivery of healthcare practice including inter-professional team working and the implementation of national guidance; and an ability to make recommendations to overcome these.
	Demonstrates knowledge and understanding of: care interface considerations, including social care; and an ability to work as part of a multidisciplinary team.
Performance Management and Development	Demonstrates knowledge and understanding of feedback and methods of evaluation.
	Demonstrates knowledge and understanding of, and an ability to provide constructive feedback to colleagues with respect to their performance, including both positive and negative feedback.
Pharmacy Service Roles and Responsibilities	Demonstrates knowledge and understanding of the roles and responsibilities of pharmacy technicians.
	Demonstrates knowledge and understanding of the roles and responsibilities of the pharmacist.

Also see Foundation Pharmacy Framework (FPF).

## 6. Management

See Foundation Pharmacy Framework (FPF).

## 7. Leadership

See Foundation Pharmacy Framework (FPF), and Leadership Development Framework (LDF)

## 8. Education, Training and Development

See Foundation Pharmacy Framework (FPF).

## 9. Research & Evaluation

See Foundation Pharmacy Framework (FPF).

## Contributing Authors

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Neonatal and Paediatric Pharmacists Group  
NHS Pharmaceutical Production Committee  
NHS Pharmacy Education and Development Group  
NHS Technical Services Education and Training  
NHS Pharmaceutical Quality Assurance Committee  
Pharmaceutical Aseptic Services Group  
Primary and Community Care Pharmacy Network  
Primary Care Pharmacists' Association  
Robert Gordon University  
Scottish Palliative Care Pharmacist's Association  
Solid Organ Transplant Pharmacists Association

United Kingdom Clinical Pharmacy Association:  
UKCPA Cardiac  
UKCPA Care of Elderly  
UKCPA Community  
UKCPA Critical Care  
UKCPA Diabetes and Endocrinology  
UKCPA Education and Training  
UKCPA Generalist  
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UKCPA Rheumatology Pharmacy  
UKCPA Respiratory  
UKCPA Surgery and Theatres  
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