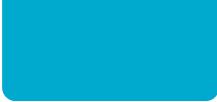# Initial Education and Training of Pharmacists: Antimicrobial Resistance (AMR) and Antimicrobial Stewardship (AMS) Indicative Curriculum

Version 1.2, Feb 2025

Contents

Initial Education and Training of Pharmacists: Antimicrobial Resistance (AMR) and Antimicrobial Stewardship (AMS) Indicative Curriculum 1

Introduction

This curriculum for Antimicrobial Resistance (AMR) and Antimicrobial Stewardship (AMS) has been developed by NHS England – Workforce Education and Training (WT&E) Directorate, NHS England AMR Programme – Antimicrobial Prescribing and Medicines Optimisation (APMO) workstream, Infection Prevention and Control workstream and the National Antimicrobial Pharmacy Educators Group (NAPEG) and Pharmacy Schools Council.

The revised General Pharmaceutical Council (GPhC) standards for the Initial Education and Training of Pharmacists (IETP) integrate learning outcomes that demonstrate competency as an Independent Prescriber at the point of registration. They span the entire initial five years of training. **Independent prescribing will not be incorporated into foundation training until the 2025/26 training year. The learning outcomes for training years 2021/22 – 2024/25 have been modified by the GPhC to reflect this.**

To support the implementation of the IETPs, a number of priority subjects were identified by NHS England WT&E and Pharmacy Schools Council for the development of indicative curricula. AMR and AMS were identified as one of these subjects. Indicative curricula are designed in the interest of an effective continuum of learning and training in practice across the 5 years of initial education and training.

This document is intended to provide a series of resources to guide the teaching content in both the MPharm and the Foundation Training Year to support effective initial education and training in England. This will support undergraduate pharmacy students and trainee pharmacists to successfully demonstrate the learning outcomes of the IETPs and Royal Pharmaceutical Society (RPS) Prescribing Competencies that link to AMR and AMS[1]. It is not compulsory to use but is there as a guide to support educators.

The resources are grouped across the 6 domains of the AMR and AMS curriculum:
- Infection Prevention and Control
- Antimicrobials and antimicrobial resistance
- Antimicrobial prescribing and stewardship
- Vaccine uptake
- Person-centred care
- Interprofessional collaborative practice

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[1] The mapping to the RPS competency framework has been crossed checked against the [Antimicrobial prescribing and stewardship competency framework - GOV.UK (](www.gov.uk) published August 23

Indicative Curriculum

Below is an indicative curriculum for Antimicrobial Resistance (AMR) and Antimicrobial Stewardship (AMS). It can be used to guide the design and delivery of teaching and training within the MPharm and Foundation Training Year. The resources in this document will provide underpinning context and knowledge that support learners to develop towards the following GPhC learning outcomes and RPS Prescribing Competencies.

Table 1 and table 2 below list the learning outcomes from the GPhC standards for the Initial Education and Training of Pharmacists and the competencies from the RPS competency framework for all prescribers that are covered by this Indicative Curriculum for Antimicrobial Resistance (AMR) and Antimicrobial Stewardship (AMS).

Table 2 GPhC Learning Outcomes

GPhC Learning Outcomes:	MPharm degree	Foundation training year
Domain: Person-centred care and collaboration		
1. Demonstrate empathy and keep the person at the centre of their approach to care at all times	Does	Does
2. Work in partnership with people to support and empower them in shared decision-making about their health and wellbeing	Shows how	Does
3. Demonstrate effective communication at all times and adapt their approach and communication style to meet the needs of the person	Does	Does
4. Understand the variety of settings and adapt their communication accordingly	Shows how	Does
5. Proactively support people to make safe and effective use of their medicines and devices	Shows how	Does
6. Treat people as equals, with dignity and respect, and meet their own legal responsibilities under equality and human rights legislation, while respecting diversity and cultural differences	Does	Does
7. Obtain informed consent before providing care and pharmacy services	Does	Does
8. Assess and respond to the person's particular health risks, taking account of individuals' protected characteristics and background	Shows how	Does
9. Take responsibility for ensuring that personal values and beliefs do not compromise person-centred care	Does	Does
10. Demonstrate effective consultation skills, and in partnership with the person, decide the most appropriate course of action	Does	Does
11. Take into consideration factors that affect people's behaviours in relation to health and wellbeing	Shows how	Does
12. Take an all-inclusive approach to ensure the most appropriate course of action based on clinical, legal and professional considerations	Shows how	Does
13. Recognise the psychological, physiological and physical impact of prescribing decisions on people	Shows how	Does
14. Work collaboratively and effectively with other members of the multi-disciplinary team to ensure high-quality, person-centred care, including continuity of care	Shows how	Does
Domain: Professional Practice		
16. Apply professional judgement in all circumstances, taking legal and ethical reasoning into account	Does	Does
17. Recognise and work within the limits of their knowledge and skills, and get support and refer to others when they need to	Does	Does

18. Take responsibility for all aspects of pharmacy services, and make sure that the care and services provided are safe and accurate	Does	Does
21. Apply the science behind pharmacy in all activities	Does	Does
22. Demonstrate how the science behind pharmacy is applied in the discovery, design, development and safety testing of medicines and devices	Shows how	Knows how
23. Recognise the technologies that are behind developing advanced therapeutic medicinal products and precision medicines, including the formulation, supply and quality assurance of these therapeutic agents	Shows how	Does
26. Consider the quality, safety and risks associated with medicines and products and take appropriate action when producing, supplying and prescribing them	Knows how	Shows how
29. Apply the principles of clinical therapeutics, pharmacology and genomics to make effective use of medicines for people, including in their prescribing practice	Shows how	Does
30. Appraise the evidence base and apply clinical reasoning and professional judgement to make safe and logical decisions which minimise risk and optimise outcomes for the person	Shows how	Does
31. Critically evaluate and use national guidelines and clinical evidence to support safe, rational and cost-effective procurement for the use, and prescribing of, medicines, devices and services	Shows how	Does
34. Apply the principles of effective monitoring and management to improve health outcomes	Shows how	Does
35. Anticipate and recognise adverse drug reactions, and recognise the need to apply the principles of pharmacovigilance	Does	Does
36. Apply relevant legislation and ethical decision-making related to prescribing, including remote prescribing	Shows how	Does
37. Prescribe effectively within the relevant systems and frameworks for medicines use	Shows how	Does
39. Take responsibility for people's health records, including the legality, appropriateness, accuracy, security and confidentiality of personal data	Shows how	Does
41. Effectively make use of local and national health and social care policies to improve health outcomes and public health, and to address health inequalities	Shows how	Does
Domain: Leadership and management		
47. Develop, lead and apply effective strategies to improve the quality of care and safe use of medicines	Knows how	Does
49. Use tools and techniques to avoid medication errors associated with prescribing, supply and administration	Shows how	Does

Table 3 RPS Prescribing Competencies

RPS Prescribing Competencies:
1.6 Takes and documents an appropriate medical, psychosocial and medication history including allergies and intolerances.
1.7 Undertakes and documents an appropriate clinical assessment.
1.8 Identifies and addresses potential vulnerabilities that may be causing the patient/carer to seek treatment
1.9 Accesses and interprets all available and relevant patient records to ensure knowledge of the patient's management to date.
1.10 Requests and interprets relevant investigations necessary to inform treatment options.
1.11 Makes, confirms or understands, and documents the working or final diagnosis by systematically considering the various possibilities (differential diagnosis)
1.12 Understands the condition(s) being treated, their natural progression, and how to assess their severity, deterioration and anticipated response to treatment.
1.13 Reviews adherence (and non-adherence) to, and effectiveness of, current medicines
1.14 Refers to or seeks guidance from another member of the team, a specialist or appropriate information source when necessary.
2.1 Considers both non-pharmacological and pharmacological treatment approaches
2.2 Considers all pharmacological treatment options including optimising doses as well as stopping treatment (appropriate polypharmacy and deprescribing).
2.3 Assesses the risks and benefits to the patient of taking or not taking a medicine or treatment.
2.4 Applies understanding of the pharmacokinetics and pharmacodynamics of medicines, and how these may be altered by individual patient factors.
2.5 Assesses how co-morbidities, existing medicines, allergies, intolerances, contraindications and quality of life impact on management options.
2.6 Considers any relevant patient factors and their potential impact on the choice and formulation of medicines, and the route of administration.
2.7 Accesses, critically evaluates, and uses reliable and validated sources of information.
2.8 Stays up to date in own area of practice and applies the principles of evidence-based practice.
2.9 Considers the wider perspective including the public health issues related to medicines and their use and promoting health.
2.10 Understands antimicrobial resistance and the roles of infection prevention, control and antimicrobial stewardship measures.
3.1 Actively involves and works with the patient/carer to make informed choices and agree a plan that respects the patient's/carer's preferences.
3.2 Considers and respects patient diversity, background, personal values and beliefs about their health, treatment and medicines, supporting the values of equality and inclusivity, and developing cultural competence.
3.3 Explains the material risks and benefits, and rationale behind management options in a way the patient/carer understands, so that they can make an informed choice
3.4 Assesses adherence in a non-judgmental way; understands the reasons for non-adherence and how best to support the patient/carer
4.1 Prescribes a medicine or device with up-to-date awareness of its actions, indications, dose, contraindications, interactions, cautions and adverse effects.
4.2 Understands the potential for adverse effects and takes steps to recognise, and manage them, whilst minimising risk.

4.3 Understands and uses relevant national, regional and local frameworks for the use of medicines.

4.7 Recognises potential misuse of medicines; minimises risk and manages using appropriate processes.

4.11 Prescribes unlicensed and off- label medicines where legally permitted, and unlicensed medicines only if satisfied that an alternative licensed medicine would not meet the patient's clinical needs

6.1 Establishes and maintains a plan for reviewing the patient's treatment

6.3. Adapts the management plan in response to on-going monitoring and review of the patient's condition and preferences

8.2 Accepts personal responsibility and accountability for prescribing and clinical decisions, and understands the legal and ethical implications

8.3 Knows and works within legal and regulatory frameworks affecting prescribing practice.

8.4 Makes prescribing decisions based on the needs of patients and not the prescriber's personal views.

8.5 Recognises and responds to factors that might influence prescribing.

9.7. Considers the impact of prescribing on sustainability, as well as methods of reducing the carbon footprint and environmental impact of any medicine

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
Infection Prevention and Control (Domain 1) *All newly qualified pharmacists must understand the core knowledge underpinning infection prevention and control and use this knowledge appropriately to prevent the spread of infection by applying the principles of the national infection prevention and control manual*	**Key themes:** - Micro-organisms - Colonisation vs infection - Infection transmission - Screening - Standard precautions - PPE - Healthcare associated infections - IPC policies and procedures **Classification of Antimicrobials:** Resources below outline the nature and classification of pathogenic micro-organisms, including the structural differences between Gram-positive, Gram-negative and atypical bacteria and their association with different human anatomical sites of infection. Zero to Finals (created by an NHS doctor) is a learning resource to help students break through those sticking points. There is a chapter on Infectious Diseases, which includes a vast number of Infectious Disease/ Antimicrobial topics. The bacteria page provides information on: Physiology and Antibiotics, gram stains and antibiotic classifications	21, 31,41,42	2.8, 2.9, 2.10

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	• Bacteria – Zero To Finals (Overview website: Infectious Disease – Zero To Finals) Introduction to Practical Microbiology covers a number of topics including basics of microbes, mechanisms of action, Pharmacokinetics and Pharmacodynamics and how to increase efficacy of antimicrobials. • Introduction to Practical Microbiology - Microbiology Course - FutureLearn Germbugs is an online resource for medical healthcare professional with a number of revision modules and quizzes. • The GermBugs: TiME: Technology in Medical Education (leeds.ac.uk) The article below provides an extensive amount of literature on classification and pathogenicity of microbes. • Classification and pathogenicity of microbes - PMC (nih.gov) **Infection Prevention and Control** The prevention and control of infection is an essential part of the management of all patients. All staff are responsible for infection prevention in their area of work, including hand hygiene. The Infection Prevention Society (IPS) contains a number of resources and education on IPC, quality improvement projects and includes information on conferences/ networking. • Infection Prevention Society (IPS) | For Health Professionals (https://www.ips.uk.net) The Infection Prevention and Control Hub - A non-UK resource that provides IPC training and resources for healthcare professional, the public and students.		

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	• https://mainfectioncontrol.populationhealthexchange.org/ NHS England: The Standard Infection Control Precautions outline a number of precautions that are to be used by all staff, in all care settings, at all times, for all patients whether infection is known to be present or not, to ensure the safety of those being cared for, staff and visitors in the care environment. • NHS England » Chapter 1: Standard infection control precautions (SICPs) This document sets out the code of practice (the code) on the prevention and control of infections under the Health and Social Care Act 2008 (H&SCA 2008). This act sets out the overall framework for the regulation of health and adult social care activities by the Care Quality Commission (CQC). • Health and Social Care Act 2008: code of practice on the prevention and control of infections and related guidance - GOV.UK (www.gov.uk) This resource contains general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections. Provides learning on how to prevent infection, chain of infection and transmissions and ways to reduce risk. • Infection prevention and control: resource for adult social care - GOV.UK (www.gov.uk)		

Healthcare Associated Infections (HCAI)

Healthcare-associated infections (HCAIs) can develop either as a direct result of healthcare interventions such as medical or surgical treatment, or from being in contact with a healthcare setting. There is an increased risk of HCAIs with poor IPC.

NICE includes a number of clinical guidelines, advice, quality standards on healthcare-associated infections.

Pages recommended to visit:
- Main NICE page on Healthcare Associated Infections
- Clinical guideline [CG139]: Healthcare-associated infections: prevention and control in primary and community care. Overview | Healthcare-associated infections: prevention and control in primary and community care | Guidance | NICE

Most well-known HCAIS in UK include methicillin-resistant Staphylococcus aureus (MRSA) and Clostridioides difficile (C. difficile).

Below include further resources for these:
1. MRSA: MRSA in primary care | Health topics A to Z | CKS | NICE
2. British Society for Antimicrobial Chemotherapy (BSAC): Journal of Antimicrobial chemotherapy (JAC) – Antimicrobial Stewardship (AMS publishes first update of UK MRSA guidelines in more than a decade. This UK guideline includes evidence-based treatment options of methicillin-resistant Staphylococcus aureus (MRSA)
3. Clostridioides difficile infection:
    - Overview | Clostridioides difficile infection: antimicrobial prescribing | Guidance | NICE
    - Management of Clostridioides difficile infection in adults and challenges in clinical practice: review and comparison of current IDSA/SHEA, ESCMID

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	and ASID guidelines	Journal of Antimicrobial Chemotherapy	Oxford Academic (oup.com) ○ Clostridioides difficile infection: management - The Pharmaceutical Journal (pharmaceutical-journal.com) HCAIs are associated with a number of burdens including cost. The publication below gives an entail of the annual NHS costs of HCAIs in England. • HCAI cost associations: Modelling the annual NHS costs and outcomes attributable to healthcare- associated infections in England. Link to access: e033367.full.pdf (bmj.com) Public Health England have developed an Infectious Diseases Strategy to address urgent threats in the 21st century. This Strategy defines the mission and describes the strategy will be delivered. • PHE_Infectious_Diseases_Strategy_2020-2025.pdf (publishing.service.gov.uk) **Other online resources useful for this Domain** • KAW Resources (bsac-kaw.co.uk) • FutureLearn: Online Courses and Degrees from Top Universities		

Antimicrobials and antimicrobial resistance (Domain 2)	**Key themes:**
	• Classes of antimicrobials
	  ○ Spectrum of activity
	• Broad vs narrow spectrum
	  ○ Intrinsic vs acquired resistance
		21, 30, 41	2.8, 2.9, 2.10

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
All newly qualified pharmacists need to understand the core knowledge underpinning the action of antibiotics and the concept of antimicrobial resistance; and use this knowledge to help prevent antimicrobial resistance.	• Consequences of resistance to population and individual • One Health concept **Antimicrobial Resistance (AMR):** The reference below gives an understanding of the mechanisms and the drivers of antimicrobial resistance, including the transmission of resistance and approaches to optimising antimicrobial use. • Understanding the mechanisms and drivers of antimicrobial resistance - PubMed (nih.gov) Scottish Antimicrobial Prescribing Group (SAPG) provides leadership and support for NHS boards for antimicrobial stewardship and infection management. SAPG have developed a range of guidance, quality improvement toolkits and other resources to support clinical teams and patients to ensure safe, effective and patient-centred care when using antimicrobials. • Guidance & QI Tools (sapg.scot) ReAct is an independent network dedicated to the problem of antimicrobial resources. This website contains toolkits and resources on antimicrobial resistant. The link below gives an introduction into what antibiotics resistance is, alongside a number of animated videos to explain multi drug resistance organisms. • Antibiotic resistance – Understand – ReAct (reactgroup.org) European Centre for Disease Prevention and Control is a public health agency of the European Union (EU). The Factsheet below outlines the following: what a micro-		

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	organism is, classification of antimicrobials, what AMR is and the mechanism of its action and antimicrobial resistance's burden. • Factsheet for experts - Antimicrobial resistance (europa.eu) The Department of Health have released several documents to tackle the global problem of AMR. This includes national plans to outline visions and ways to reduce AMR. • AMR information and resources • UK 5-year action plan for AMR 2019-2024 • UK 20 -year vision for AMR • Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis - The Lancet • English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) report - GOV.UK (www.gov.uk) • UK One Health Report: antibiotic use and antibiotic resistance in animals and humans - GOV.UK (www.gov.uk) The research journal below includes a review of publications on Antimicrobial Resistance (AMR) and One Health. The research indicates that AMR is the one that most clearly illustrates the One Health approach. • Antimicrobial resistance: One Health approach - PMC (nih.gov) **Other online resources useful for this Domain** • Antimicrobial resistance (Roger Harrison Manchester)		

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	• Antimicrobials 1: origins, consumption and resistance - Overview | Rise 360 (articulate.com) • Kaw Resources: https://bsac-kaw.co.uk/ • Future Learn courses: Browse Free Online Courses - FutureLearn • BSAC Challenges in Antibiotic Resistance Course		

Antimicrobial prescribing and stewardship (Domain 3)
 	
All newly qualified pharmacists need to demonstrate knowledge of how infections are diagnosed and managed and use this knowledge appropriately to manage patients with infections including the appropriate use of
	Key themes:
	• Appropriate use of antimicrobials
	    ○ Sepsis
	• Clinical decision tools
	    ○ Diagnostic criteria
	• Antibiotic review
	    ○ Antibiotic side effects
	• Antibiotic interactions
	    ○ Antibiotic allergies
	• PK-PD principles of antibiotics and TDM
	    ○ IV to oral switch
	• Prescribing for surgical prophylaxis
	    ○ Prescribing for common infections
	• Antimicrobial prescribing guidance national vs local
	• Antimicrobial prescribing empirical vs targeted
		21, 30, 31,41	1.6, 1.7, 1.9, 1.10, 1.11, 1.12, 1.12, 1.14
			
			2.1, 2.2, 2.3, 2.4, 2.5, 2.5, 2.6, 2.7, 2.8, 2.9,2.10
			
			4.1, 4.2, 4.3, 4.5, 4.6, 4.14
			
			6.1, 6.2, 6.3, 6.4
			
			8.1, 8.2
			
			9.6, 9.7

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
antimicrobial agents.	• Antimicrobial prescribing and patient factors		10.4
	The Antimicrobial Prescribing and Stewardship Competency Framework is to improve the quality of antimicrobial treatment and stewardship and so reduce the risks of inadequate, inappropriate, and adverse effects of treatment. • Antimicrobial prescribing and stewardship competency framework - GOV.UK (www.gov.uk)		
	This toolkit provides an outline of evidence-based AMS in the secondary healthcare setting and assists in adherence to the Code of Practice. • Antimicrobial stewardship: Start smart - then focus - GOV.UK (www.gov.uk)		
	TARGET Antibiotics toolkit hub. TARGET stands for Treat Antibiotics Responsibly, Guidance, Education and Tools. It is a toolkit designed to support primary care clinicians to champion and implement antimicrobial stewardship activities. • Course: TARGET antibiotics toolkit hub (rcgp.org.uk)		
	From TARGET toolkit hub a number of resources can be found including: • Antibiotic and diagnostic quick reference tools: Summary of antimicrobial prescribing guidance - managing common infections (rcgp.org.uk) • Antibiotic stewardship tools, audits and other resources: Audit toolkits (rcgp.org.uk) • Learning resources for prescribers: Webinars (rcgp.org.uk) • Urinary tract infection resource suite: Patient facing materials (rcgp.org.uk)		

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	This reference provides a breadth of information on all antimicrobials including dosing, administrations, mechanisms of actions, overview of stewardship with hospital and outpatient settings. • https://www.uptodate.com/contents/table-of-contents/infectious-diseases/antimicrobial-drugs General Principles of Antimicrobial Therapy - PMC (nih.gov) provides general principles that all prescribers should be able to use when prescribing antimicrobial agents, to ensure that benefits both the individual patient and the community. This Pharmaceutical Journal article outlines how a pharmacist would access the appropriateness of an antimicrobial prescription. • How to evaluate the clinical appropriateness of an antimicrobial - The Pharmaceutical Journal (pharmaceutical-journal.com) **Other online resources useful for this Domain** FutureLearn Courses: Browse Free Online Courses - FutureLearn • A Social Science Approach • Managing Antibiotic Resistance • Antimicrobials Resistance and Social Science • The Role of Antifungal Stewardship • Outpatient Parental Antimicrobial Therapy (OPAT) • IV-Oral Antibiotic Switch Therapy Course Other courses:		

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	• BSAC ARK – The Antibiotic Review Kit ARK - The Antibiotic Review Kit - Infection Learning Hub		

Vaccine uptake (Domain 4)
 	
All newly qualified pharmacists need to demonstrate knowledge of the importance of vaccines for reducing antimicrobial resistance and use this knowledge appropriately to promote vaccination.
	Key themes:
	• National and local immunisation programmes
	• Clinical risk groups
	    ○ Staff vaccination requirements
	• General principles of immunisation
	    ○ Risks and benefits of vaccination
	• Controversies or misconceptions and how to 'myth bust'
	• Awareness of cultural sensitivities
	
	Immunisation against infectious disease- The Green Book has the latest information on vaccines and vaccination procedures, for vaccine preventable infectious diseases in the UK Immunisation against infectious disease - GOV.UK (www.gov.uk).
	
	• Immunisation Schedules in UK
	    ○ The routine immunisation schedule
	    ○ NHS vaccinations and when to have them - NHS (www.nhs.uk)
	    ○ Supporting immunisation programmes - GOV.UK (www.gov.uk)
	• Joint Committee on Vaccination and Immunisation-The Joint Committee on Vaccination and Immunisation (JCVI) advises UK health departments on immunisation. Publications JCVI - Search - GOV.UK (www.gov.uk)
		21, 30, 31, 42	1.8, 2.7, 2.8, 2.9, 2.10

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	FutureLearn courses: • Vaccines and Infectious Diseases - Online Course (futurelearn.com) • Finding a Vaccine for COVID-19 - Online Course - FutureLearn		

Person-centred care (Domain 5)
 	
All newly qualified pharmacists must seek out, integrate and value as a partner the input and engagement of the patient /carer in designing and implementing care.
	Key themes:
	• Shared care decision making
	   o Delayed antibiotic prescribing
	• Public health campaigns
	   o Safety netting advice
	• Education and support using appropriate resources
	• Counselling on antimicrobial use and antimicrobial resistance
	• Health inequalities
	
	Patient Education
	
	The following links provide valuable information that healthcare professionals can use to signpost patients.
	• Discussing antibiotics with patients: Overview (rcgp.org.uk)
	• Leaflets to discuss with patients: How to use these leaflets (rcgp.org.uk)
	• Resources for the community pharmacy setting: Overview (rcgp.org.uk)
	• Public Health England's national campaign: Keep Antibiotics Working – Antibiotic Guardian
	
	Antimicrobial Awareness:
		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13	1.2, 1.5, 1.8,
			
			2.7, 2.9, 2.10
			
			3.1, 3.2, 3.3, 3.4, 3.5, 3.6
			
			5.1, 5.2, 5.3, 5.4, 5.5
			
			6.3, 8.4

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
	• Antibiotic awareness: toolkit for healthcare professionals in England • Resources for planning World Antimicrobial Awareness Week (WAAW) and European Antibiotic Awareness Day (EAAD) activities Antibiotic awareness: toolkit for healthcare professionals in England - GOV.UK (www.gov.uk) The Antimicrobial Stewardship (AMS) Hub, hosted as part of a PrescQIPP collaboration with NHS England and Improvement to support CCG Antimicrobial Stewardship activity, and delivery of the NHS Antimicrobial Resistance programme and associated ambitions within the UK 5-year action plan for antimicrobial resistance 2019 to 2024. Access to the AMR Hub content is open and registration and Login are not required for this site. • Antimicrobial stewardship | PrescQIPP C.I.C		

Interprofessional collaborative practice (Domain 6)
 	
All newly qualified pharmacists need to understand how different professions collaborate in
	Key themes:
	• Awareness of roles in different teams across systems
	• Collaborative effective communication
	   ○ Trusting relationships
	• Prescribing etiquette
	   ○ Governance
	• Benchmarking
	   ○ Quality improvement
	• National initiatives
		12, 14, 16, 17, 24, 45, 46, 47, 51, 55	1.14, 2.9, 2.10, 4.14, 8.5, 9.1, 9.2, 9.3, 9.4, 9.5, 10.1, 10.2, 10.3, 10.4

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)
relation to how they contribute to antimicrobial stewardship and quality improvement.	Role of the multidisciplinary team in antifungal stewardship | Journal of Antimicrobial Chemotherapy | Oxford Academic (oup.com) outlines the role of a clinical pharmacists working within a multi-disciplinary team, specifically in antifungal stewardship, but the principles apply to any clinical pharmacist working within antimicrobials or a clinical setting. Understanding the determinants of antimicrobial prescribing within hospitals: the role of "prescribing etiquette" - PubMed (nih.gov) provides key determinants of antimicrobial prescribing behaviours (APB) in hospitals and an understanding of these determinants is required for the successful design, adoption, and implementation of quality improvement interventions in antimicrobial stewardship programs. How to evaluate clinical appropriateness of an Antimicrobial includes information on how a pharmacist can recommend the most appropriate antimicrobial agent, determine the duration of therapy for an antimicrobial course and effectively counsel patients on antimicrobial therapy; Identify and manage antimicrobial prescribing issues. Royal Pharmaceutical Society policy focuses on the pharmacist's role as part of a multidisciplinary approach in tackling the challenges of inappropriate use of antibiotics. The recommendations in this policy have been produced to contribute to wider efforts in meeting the challenge set by the UK Government in 2016 of reducing inappropriate antibiotic prescribing by 50% by 2020. • AMS policy.pdf (rpharms.com) **Other online resources useful for this Domain** • Public – Antibiotic Guardian		

Element	Suggested resources	IETP Learning Outcomes	RPS Prescribing competencies (if relevant)

	• Keep Antibiotics Working campaign returns - GOV.UK (www.gov.uk)
	• Raising awareness about AMR: toolkits for healthcare professionals - UK Health Security Agency (blog.gov.uk)
	• BSAC Online Courses:
	    o Point Prevalence Surveys - Online Course - FutureLearn
	    o Behaviour Change - Online Course (futurelearn.com)		

Appendix 1: Version history and editorial review process

This Antimicrobial Resistance (AMR) and Antimicrobial Stewardship (AMS) Indicative Curriculum was first published in December 2023.

We encourage education colleagues to share in the development of this guidance and welcome your comments and suggestions via this link.

A joint editorial team consisting of NHS England – Workforce, Education and Training Directorate and Pharmacy Schools Council representatives will review these submissions on a 6-monthly basis and an updated version will be posted on our website.

Version	Change
1.0	Pre-publication version
1.1	Checked for broken links.
1.2	Checked for broken links

Next review date: August 2025

Next publication date: September 2025

In the meantime, please contact england.pharmacyteam@nhs.net to report any broken links or errors.

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