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The specialist antimicrobial pharmacist: scope of practice and training in the UK.

TONNA, A.

2024

The specialist antimicrobial pharmacist - scope of practice and training in the UK

Friday 22nd November 2024

Masterpharm 2024, Torino

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DECLARATION ON COMMERCIAL INTERESTS

The undersigned Dr. Antonella Tonna

DECLARES:

the absence of commercial interests with companies operating in the healthcare sector


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01 Scope of pharmacist practice in the UK

Hospital Pharmacy

- Various Roles
- Dispensary
- Manufacture
- Clinical:
- General Ward Based
- Specialist Pharmacist in inpatient and outpatient setting

Primary Care

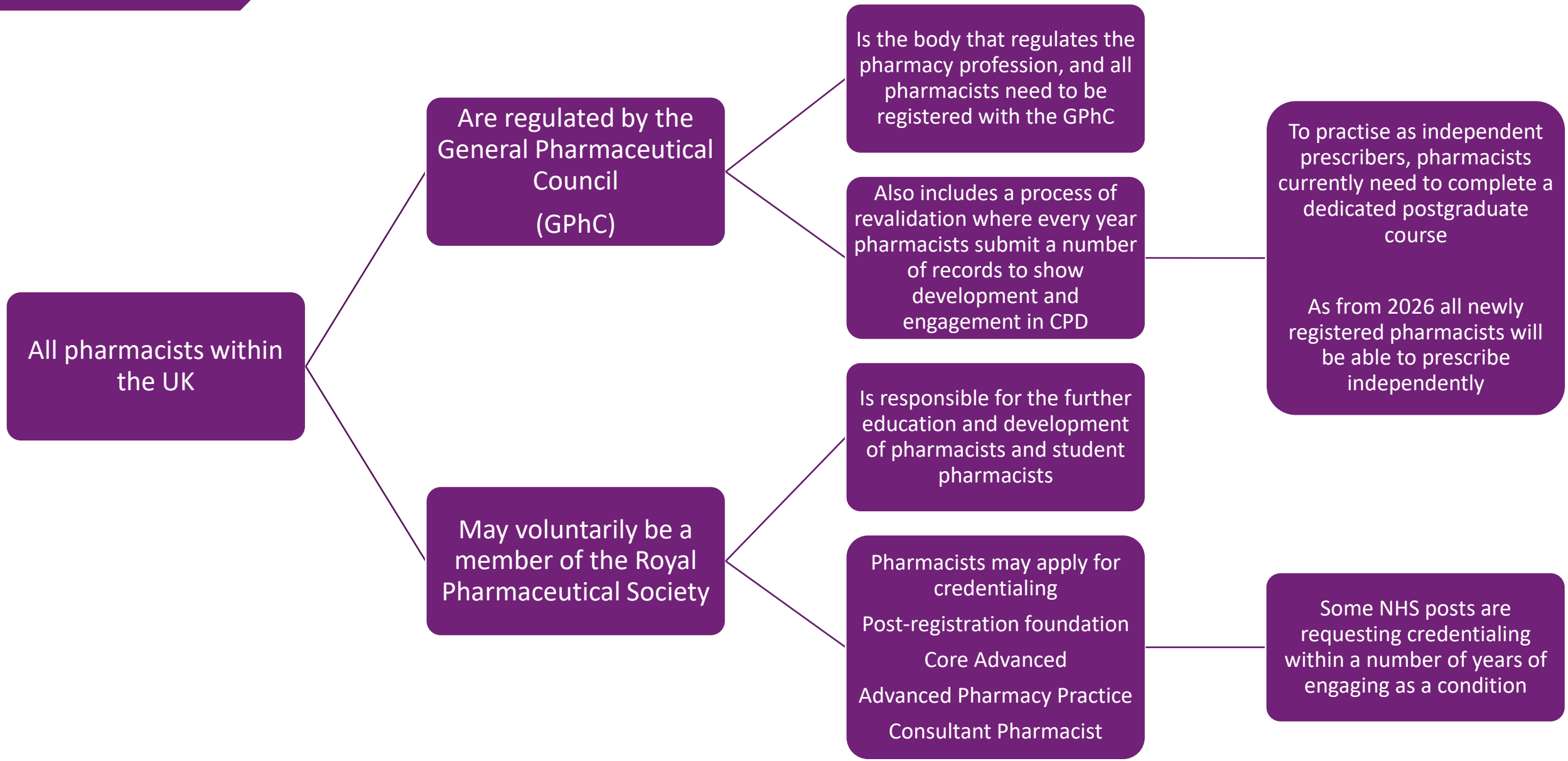
Newer role for pharmacists

Rapidly Expanding

- Pharmacist works in a patient facing role within a local community usually supporting general practitioners, nurses and other healthcare processionals
- May be involved in various activities including nursing/care home activities, run clinics usually relating to chronic conditions

Community Pharmacy

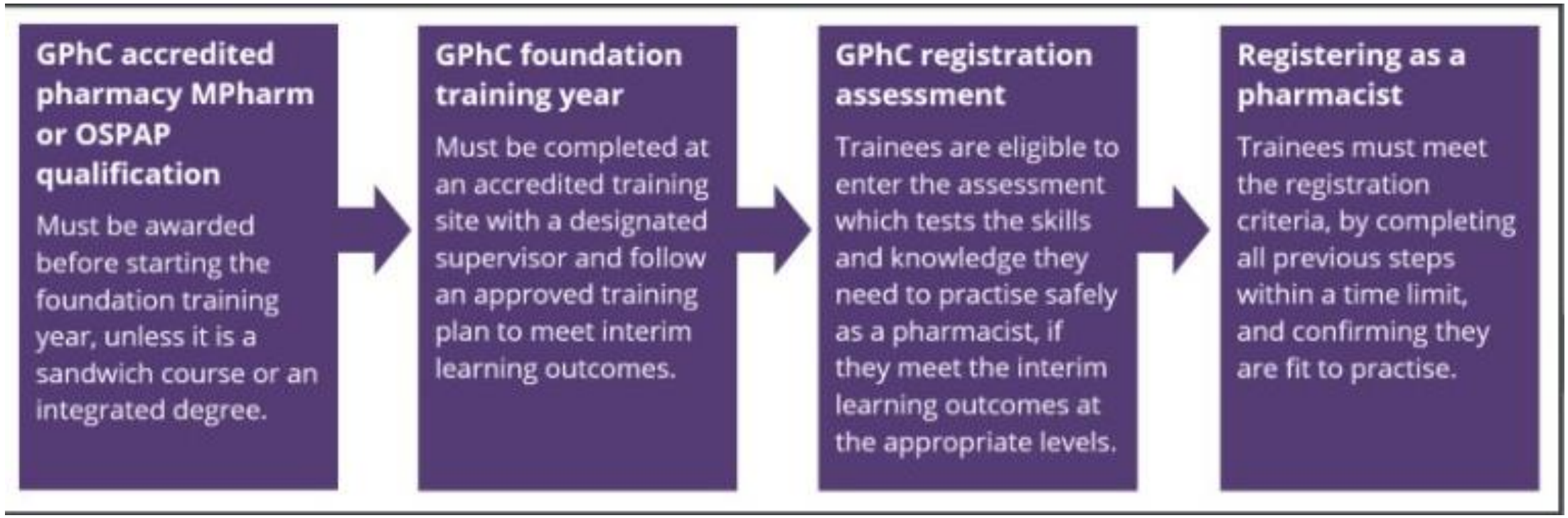
- Traditional pharmacist within a “shop”
- Offer various services including minor ailments, flu vaccination, travel clinics


All pharmacists within the UK
Are regulated by the General Pharmaceutical Council (GPhC)
Is the body that regulates the pharmacy profession, and all pharmacists need to be registered with the GPhC
Also includes a process of revalidation where every year pharmacists submit a number of records to show development and engagement in CPD
To practise as independent prescribers, pharmacists currently need to complete a dedicated postgraduate course
As from 2026 all newly registered pharmacists will be able to prescribe independently
May voluntarily be a member of the Royal Pharmaceutical Society
Is responsible for the further education and development of pharmacists and student pharmacists
Pharmacists may apply for credentialing
Post-registration foundation
Core Advanced
Advanced Pharmacy Practice
Consultant Pharmacist
Some NHS posts are requesting credentialing within a number of years of engaging as a condition

02 An overview of pharmacist initial education and training with emphasis on independent prescribing

General Pharmaceutical Council – responsible for setting standards for Initial Education & Training for pharmacists in the UK (2021)

- 5 years: 4 years UG and 1 year foundation training in practice
- Structured upon a competency-based, spiral curriculum
- Student/trainee pharmacists' skills, knowledge, understanding and professional behaviours will progress throughout their initial education and training.
- As they go through their MPharm degree they will be expected to demonstrate the learning outcomes to a greater depth, breadth and degree of complexity.
- The foundation training year will further expose student/trainee pharmacists to new situations and environments. Students sit a registration exam following completion of this year.
- This will give them opportunities to build upon their knowledge and skills and demonstrate these with patients in clinical settings.


GPhC accredited pharmacy MPharm or OSPAP qualification
Must be awarded before starting the foundation training year, unless it is a sandwich course or an integrated degree.
GPhC foundation training year
Must be completed at an accredited training site with a designated supervisor and follow an approved training plan to meet interim learning outcomes.
GPhC registration assessment
Trainees are eligible to enter the assessment which tests the skills and knowledge they need to practise safely as a pharmacist, if they meet the interim learning outcomes at the appropriate levels.
Registering as a pharmacist
Trainees must meet the registration criteria, by completing all previous steps within a time limit, and confirming they are fit to practise.

Reflected by a change in the standards for initial education and training

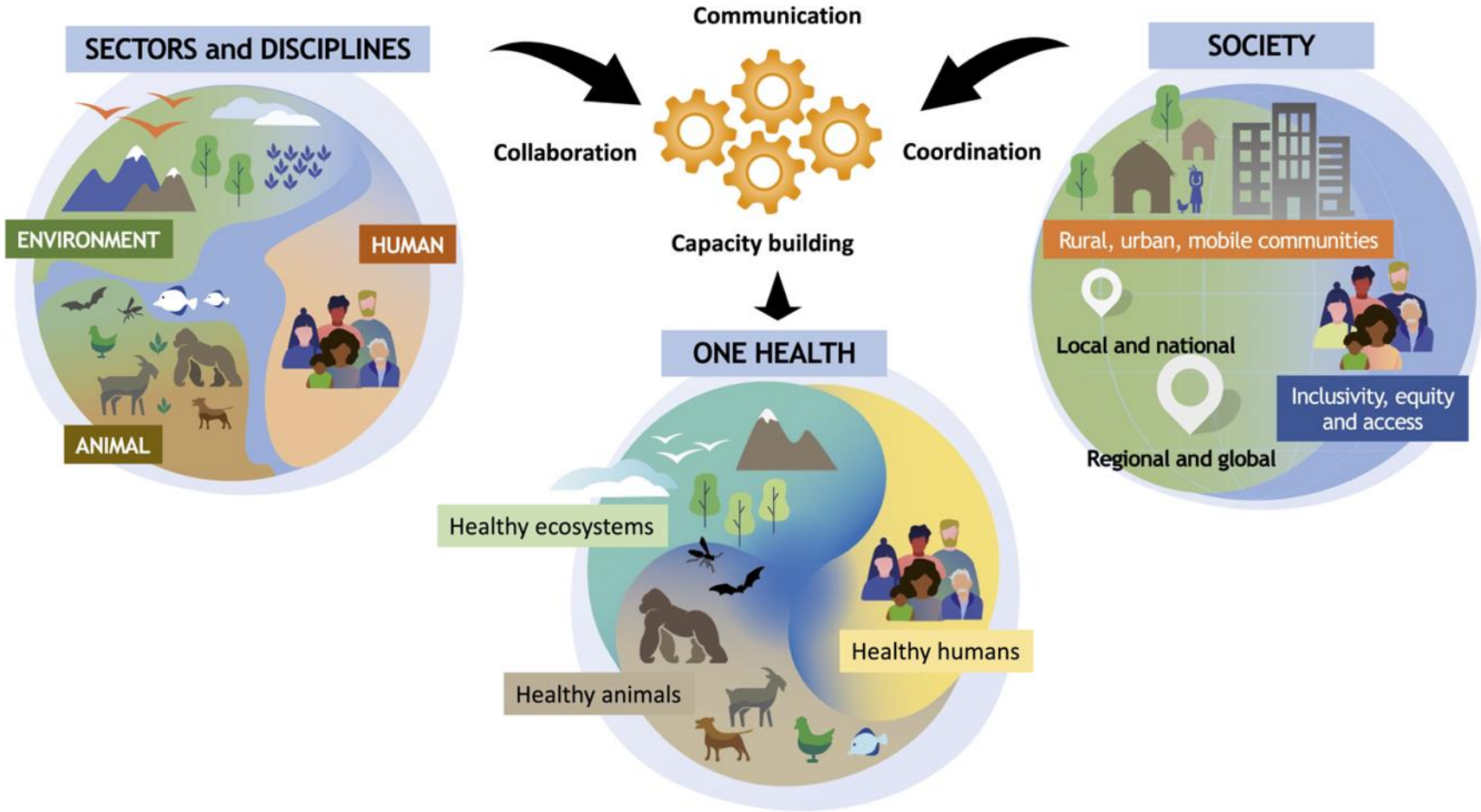
Competencies

Learning outcome	MPharm degree	Foundation training year
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**
24. Keep abreast of new technologies and use data and digital technologies to improve clinical outcomes and patient safety, keeping to information governance principles	**Shows how**	**Does**
25. Apply pharmaceutical principles to the safe and effective formulation, preparation, packaging and disposal of medicines and products	**Knows how**	**Shows how**
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**
27. Take responsibility for the legal, safe and efficient supply, prescribing and administration of medicines and devices	**Shows how**	**Does**
28. Demonstrate effective diagnostic skills, including physical examination, to decide the most appropriate course of action for the person	**Shows how**	**Does**
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**
32. Accurately perform calculations	**Does**	**Does**

Standards for the initial education and training of pharmacists 13

03 One Health as the underpinning principle of all antimicrobial stewardship activities

The WHO defines One Health as "*an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems*."



Applies also to Italian national plan to reduce AMR

Strategia nazionale di contrasto dell'antibiotico-resistenza 2022-2025

La strategia nazionale di contrasto all'ABR è stata elaborata dal Gruppo di lavoro per il coordinamento della Strategia nazionale di contrasto all'ABR (da qui: GTC AMR), istituito presso la Direzione Generale della Prevenzione sanitaria del Ministero della salute, e dai sottogruppi attivati su specifici temi.
Si basa sull'esperienza maturata nell'implementazione del primo Piano Nazionale di Contrasto all'Antimicrobico-Resistenza (PNCAR) 2017-2020, sulle esperienze di altri Paesi e sulle raccomandazioni europee ed internazionali.
Utilizza un approccio integrato One Health, ha una durata pluriennale e permette un'applicazione flessibile delle attività, in base ai contesti locali.

Obiettivi strategici

L'Italia sta affrontando la resistenza agli antibiotici con una serie coordinata di azioni attuate utilizzando un approccio One Health. La Strategia nazionale di contrasto all'antibiotico-resistenza definisce i seguenti obiettivi strategici per ridurre l'incidenza e l'impatto delle infezioni da batteri resistenti agli antibiotici:

1. Rafforzare l'approccio One Health, anche attraverso lo sviluppo di una sorveglianza nazionale coordinata dell'ABR e dell'uso di antibiotici, e prevenire la diffusione della resistenza agli antibiotici nell'ambiente;
2. Rafforzare la prevenzione e la sorveglianza delle infezioni correlate all'assistenza (ICA) in ambito ospedaliero e territoriale;
3. Promuovere l'uso appropriato degli antibiotici e ridurre la frequenza delle infezioni causate da batteri resistenti in ambito umano e animale;
4. Promuovere l'innovazione e la ricerca nell'ambito della prevenzione, diagnosi e terapia delle infezioni resistenti agli antibiotici;
5. Rafforzare la cooperazione nazionale e la partecipazione dell'Italia alle iniziative internazionali nel contrasto all'ABR;
6. Migliorare la consapevolezza della popolazione e promuovere la formazione degli operatori sanitari e ambientali sul contrasto all'ABR.

04 Examples of AMS involvement of the pharmacist in the UK

Some activities in which hospital pharmacists are involved in relation to antimicrobial stewardship are provided.

Activities in hospital are likely to be part of a structured institution wide antimicrobial stewardship programme.

The level of activity depends largely on whether a general ward pharmacist, specialist antimicrobial pharmacist, aseptic pharmacist, dispensary pharmacist.

Specialist antimicrobial pharmacist likely to be involved in more complex activities and take on more leadership roles.

Patient evaluation

- Carried out mainly on the ward with advice tailored to speciality
- Interpretation of lab results available in conjunction with medical team
- Ensuring that prescribing carried out in accordance with local guidelines
- Maybe independently prescribing as appropriate
- Assessing patient whether they are suitable for OPAT if on long-term treatment

Choice of antimicrobial to prescribe

- Assess prescriptions for appropriateness and safety of antimicrobial – on ward or dispensary
- Attend ward rounds and provide advice
- Ensure prescribing carried out in accordance with local guidelines
- Education on use of restricted antibiotics if these are prescribed
- Monitoring and feedback on trends
- Involvement in point prevalence studies

Prescription ordering and dispensing

- Provision of supply following screening to ensure prescribing suitable for patient and in accordance with guidelines
- Provision of guidance on dosage, administration; potentially preparation
- Review antimicrobial duration – usually on ward

Optimization for individual patient

- Ensuring appropriate duration
- Pharmacokinetic monitoring and dosing adjustment
- IV-to-oral switch
- Monitor antimicrobial use relevant to other medications and relevant to patient progress
- Provision of patient counselling and advice

More
defined role for pharmacists in primary care settings – i.e. care homes and GP practices

Patient management

- Independent prescribing potentially more of a role in primary care with pharmacist working within the community team.
- Management of simple, common infections such as Urinary Tract Infections
- Lack of GPs ensures that patients have rapid access to healthcare
- Provision of advice to patients on self-care should no antibiotic treatment be required

Provision of advice

- Advising GP team on evidence-based practice
- Undertaking audits and provision of feedback
- Development of local regional formularies based on local culture and sensitivities

Optimization for individual patient

- Ensuring appropriate duration
- Provision of patient counselling and advice
- Ensuring patient electronic records are up-to-date e.g. drug allergies appropriately recorded
- Current national programme – penicillin de-labelling in conjunction with secondary care

Community pharmacy setting Interventions may/may not be as part of an organised AMS programme but are mainly opportunistic

An area of pharmacy practice currently being explored by PhD student Federico Zerbinato, Padova.

"An exploration of Antimicrobial Stewardship interventions involving Community Pharmacy Teams: a protocol for a scoping review"
Full details are available at:

https://osf.io/aqrz6

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ABSTRACT SCIENTIFICO n° 44 - counseling e comunicazione al paziente

A study exploring public opinion and attitudes towards being vaccinated on a community pharmacy

Federico Zerbinato[1,2], *Antonella Tonna*[1]
[1] Robert Gordon University, Aberdeen; [2] Farmacia Zerbinato SNC, Pozzonovo (PD)

INTRODUCTION

There is growing evidence that vaccination campaigns in Community Pharmacies (CPs) lead to greater awareness of the importance of vaccination and increased vaccination rates [1]. Italian community pharmacists have been administering vaccines since the COVID-19 pandemic [2]. In particular, in Veneto Region, properly trained community pharmacists started administering COVID-19 vaccines in July 2021 and the related booster doses in November 2021 [3].

AIMS

This study explored the public's opinion of attitudes towards being vaccinated in a community pharmacy and aimed to determine whether there is a role for the community pharmacist as a vaccination health educator.

METHODS

The study was conducted at a pharmacy in Pozzonovo (Padova, Veneto Region, ~ 3500 inhabitants). All the patients who have been vaccinated at this pharmacy and could be contacted via email or WhatsApp, were invited to participate. If consenting, they received a short questionnaire which had been piloted for face and content validity with other Italian community pharmacists. Staff members and their relatives vaccinated here were excluded.

RESULTS

84 questionnaires were returned out of 171 sent (49% response rate). Participants were mainly 50 to 59 years old (29.8%).

Population stratification by age

"Ease of access" was chosen by 47 participants (56%) as main motivation for vaccination in a CP. Other reasons included straightforward system (48.8%), short waiting times (44%) and familiarity with pharmacy staff (42.9%). All participants showed high degrees of satisfaction towards the pharmacy staff and the CP as a vaccination hub.

Motivation for vaccination in Community Pharmacy

All participants would choose a CP again for future vaccination. 28 participants (34.6%) stated their awareness of the importance of being vaccinated increased following vaccination in the CP; 16 of these said they were uncertain about the importance of vaccination on first attending the CP.

Increased awareness following vaccination in Community Pharmacy

Distribution of "increased awareness" based on conviction before 1st dose

CONCLUSIONS

This study is limited by the fact that it is conducted only in one pharmacy but gives important pilot data in a rapidly developing area of pharmacy practice. In conclusion, the CP is accepted by the patients as a potential vaccination hub. Increased participant awareness of the importance of vaccination may have been due to factors such as opportunities to discuss vaccination with the pharmacy staff indicating a role for the community pharmacist as a vaccination health educator.

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1. Proukl, A., Lau, E., Dieldot, M., Campbell, C., Waite, N. and Nissen, L., 2019. Pharmacist role in vaccination: Evidence and challenges. Vaccine, 37(40), pp. 5939-5945.
2. GOVERNO ITALIANO, REGIONI E PROVINCE AUTONOME, FEDERFARMA and ASSOFARM, 2020. Legge di Bilancio 2021. Art.1 Comma 471 edn. Gazzetta Ufficiale della Repubblica Italiana.
3. REGIONE VENETO, 07/05/2021. Deliberazione della Giunta Regionale. 61 edn. Bollettino Ufficiale della Regione Veneto.

Patient management

- Providing “over-the-counter” preparations if/when appropriate
- Involvement in vaccination campaigns
- Prescribing and providing antibiotics for simple infections – for example trimethoprim for uncomplicated UTIs in females

Provision of advice

- Education, advice and support to patients particularly on aspects of self-care when viral infection most likely
- Identifying red flag symptoms that required referral for medical review
- Delivering public health campaigns – for example EAAD
- Provision of advice if patients have recurrent infections – e.g. recurrent UTIs, chest infections, vaccination advice for those with infections such as COPD
- Antibiotic amnesty campaign for safe disposal of left over antibiotics

Optimization for individual patient

- Potentially provision of near-patient-testing for detection of bacterial infection – still as a pilot project

Searched for farmacista/i in document

There is an apparent desire to increase pharmacist involvement in Italian strategic plan

Supply

Patient Concordance

Piano Nazionale di Contrasto all'Antibiotico-Resistenza (PNCAR) 2022-2025

Ciascuno di noi può fare la sua parte per combattere l'antibiotico-resistenza

1 **Industrie farmaceutiche**
Adattare il confezionamento degli antibiotici alle indicazioni d'uso approvate e promuovere la ricerca di alternative agli antimicrobici

2 **Produttori di mangimi e farmacisti**
Fornire mangimi medicati e medicinali per gli animali solo dietro prescrizione medico-veterinaria

3 **Personale sanitario di strutture di ricovero**
Implementare le buone pratiche di prevenzione e controllo delle infezioni

4 **Personale delle istituzioni**
Assicurare l'esistenza di un'appropriata legislazione

5 **Ricercatori**
Aumentare le conoscenze sul fenomeno ABR e sviluppare nuovi farmaci e vaccini

6 **Medici di Medicina Generale e Pediatri di Libera Scelta**
Prescrivere antibiotici attenendosi alle linee guida basate su evidenze

7 **Cittadini e pazienti**
Assumere antibiotici solo dietro prescrizione medica seguendo scrupolosamente le indicazioni del medico

8 **Medici Veterinari**
Prescrivere antibiotici solo se necessario basandosi, ove possibile, su test di sensibilità

9 **Proprietari/detentori di animali**
Seguire sempre le indicazioni del medico veterinario per tutelare la salute dei propri animali e la salute pubblica.

10 **Farmacisti e Infermieri**
Guidare cittadini e pazienti nell'applicare le indicazioni sul corretto uso degli antibiotici e sulla prevenzione delle infezioni

11 **Scuole**
Promuovere la conoscenza del problema dell'antimicrobico-resistenza e dei metodi per contrastarla nella comunità scolastica

12 **Università**
Prevedere corsi e crediti formativi dedicati al fenomeno dell'antimicrobico-resistenza e sull'uso prudente di antimicrobici nei programmi universitari

21

Uso prudente degli antibiotici in ambito umano

sensibilità non coinvolti nell'intervento primario, ecc.) e di risultato. Deve anche essere definito il core minimo di competenze, attività e relative risorse necessarie per l'attuazione del programma. Il programma nazionale di stewardship antibiotica deve prevedere il coinvolgimento e l'integrazione di tutte le competenze e servizi essenziali al programma. In particolare il programma deve coinvolgere le direzioni sanitarie e gli specialisti ospedalieri (infettivologi, specialisti delle diverse discipline mediche e cliniche, igienisti), i medici dell'assistenza territoriale (medici di medicina generale, pediatri di libera scelta), i microbiologi clinici, i farmacisti sia ospedalieri che territoriali e le figure responsabili della somministrazione degli antibiotici. Il programma deve inoltre essere inclusivo, interessando tutti gli ambiti di

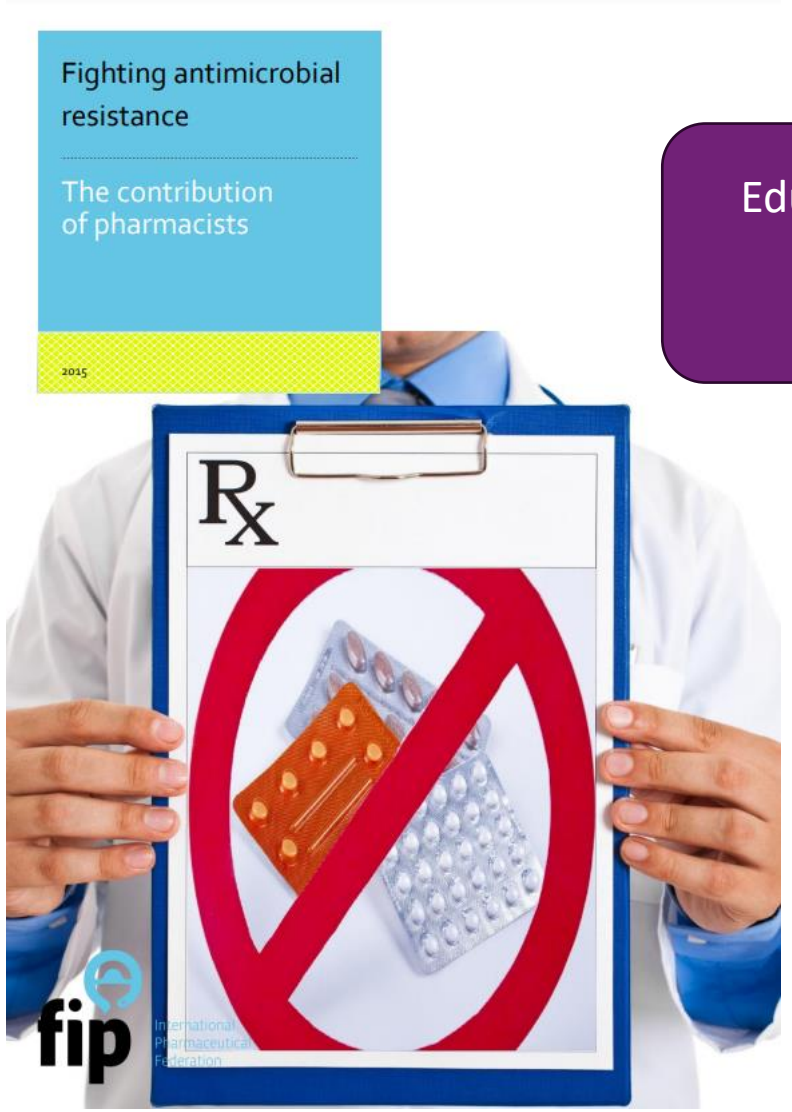
Encouragement of multidisciplinary team working with reference to pharmacists …

Involvement of pharmacists in conjunction with other members of the team to develop national strategies (P93)

Other objectives put forward including …

Standardisation of specialist education relating to AMS (P78)

A desire to move towards the specialist antimicrobial pharmacist role ...
come introdurre tale formazione anche per farmacisti specializzati in antimicrobici. (P107)



Front line and point of entry into a healthcare systems in most countries
Likely to be the most accessible healthcare profession

Educators on behaviour change relating to infection prevention and control
Lead on immunization programmes

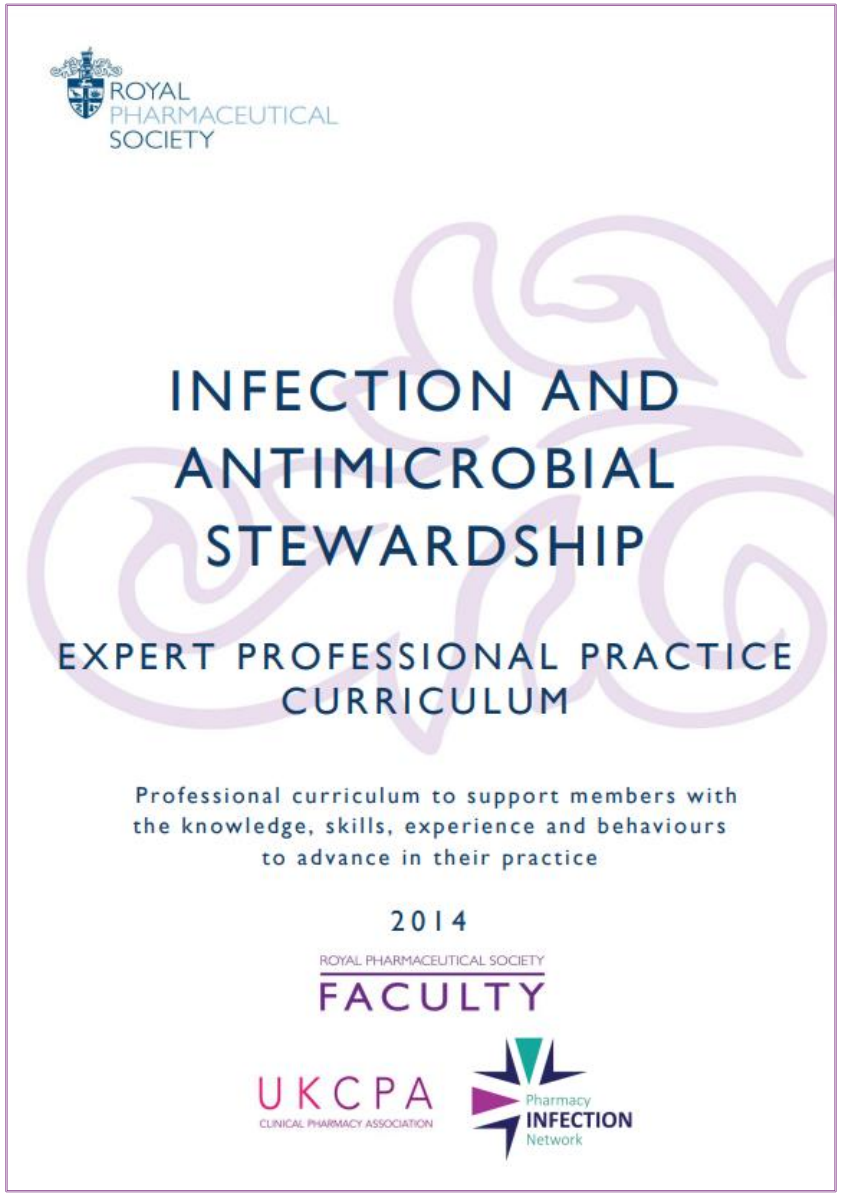
Collect unused medication with less antimicrobials reaching the environment

Lead on stewardship programmes in hospitals

Play a role in triaging patients referring them on to medical profession ONLY if infection suspected
Provide self-care advice if viral infection particularly URTI

Diagnostic tests – point-of-care testing
e.g. influenza, Strep A (GAS) testing

Participation in public health campaigns e.g. WAAR week and EAAD (18th November 2024)



05 Education of practising pharmacists

A curriculum outlining the competencies that need to be met by pharmacists practising within the infection speciality … Curriculum is currently being updated

- The curriculum is not mandatory and therefore not officially implemented in practice.
- It is intended to be a guide to allow practitioners to reflect on their practice depending upon the level they are at.

https://www.rpharms.com/LinkClick.aspx?filetick et=P2GrcOBP_MY%3D&portalid=0

Advanced Stage I

- New to specialist post with background in clinical pharmacy. More senior Antimicrobial Pharmacist is line manager. Provides basic antimicrobial pharmacy service including review of policy/guidance (under supervision), data collection and analysis and education of healthcare staff, usually in a single hospital setting.
- May also have a clinical commitment and/or a primary care remit.

Advanced Stage II

- Experience in antimicrobial pharmacy or related clinical post e.g. Infectious Diseases. May be sole post within a region and line manager is more senior clinical pharmacist or team leader or more senior Antimicrobial Pharmacist.
- Has greater autonomy and involvement in some strategic areas relating to use of antimicrobials at hospital/regional level. Member of Antimicrobial Team and may be pharmacy representative on Infection Prevention Control Team.
- Provides basic antimicrobial pharmacy service including review of policy/guidance, data collection and analysis and education of healthcare staff. May also have a clinical commitment and/or a primary care remit.

Mastery

- Experience in antimicrobial pharmacy and management of staff and/or service. Chief Pharmacist/Director of Pharmacy is line manager.
- Pharmacy representative on Antimicrobial Team and Infection Prevention Control Team plus extensive links with Risk Management staff and Board/Trust Management.
- Key role in developing and delivering strategy for antimicrobial stewardship at hospital and regional levels and inputs to national strategy. Input to hospital and regional HAI agenda including outbreak management and significant event analysis.
- Responsible for implementation of national guidance on antimicrobial use/infection, provision of local antimicrobial muse and audit data and development/ delivery of antimicrobial education at regional level.
- May provide some elements of basic antimicrobial pharmacy service but main role is in leading the antimicrobial pharmacy team and wider clinical pharmacy team in delivering stewardship.

Divided into distinctive stages depending upon the experience within the field of practice

Sphere of influence of practice varies from a single setting with focus on own patients to a national remit at Mastery Stage

Progresses from own practice and responsibility for own practice to responsibility for the whole antimicrobial pharmacy team

Applies to both hospital and primary care. Though there may also be community pharmacy interventions these are usually more opportunistic

Each includes several descriptors that pharmacists should meet prior to moving on to the next Stage

1.1 EXPERT SKILLS AND KNOWLEDGE	ADVANCED STAGE I	ADVANCED STAGE II	MASTERY
APF competency developmental descriptors	Demonstrates general pharmaceutical skills and knowledge in core areas. In addition for patient focussed roles: Is able to plan, manage, monitor, advise and review general pharmaceutical care programmes for patients in core areas.	Demonstrates in-depth pharmaceutical skills and knowledge in defined area(s). In addition for patient focussed roles: Is able to plan, manage, monitor, advise and review in-depth/complex pharmaceutical care programmes for patients in defined area(s).	Advances the knowledge base in defined area(s). In addition for patient focussed roles: Advances in-depth/complex pharmaceutical care programmes for patients.
Recommended knowledge, skills, experience and behaviours	Able to apply and comply with the relevant legal, ethical, professional and organisational policies and procedures and codes of conduct issues that have implications for the pharmaceutical care of patients with infections. Able to apply pharmacoeconomic principles and support drug expenditure analysis work for antimicrobials.	Able to support other staff in advanced aspects of specialist pharmaceutical and related care of patients with infections. Able to influence the structure of the antimicrobial stewardship service, the system of care, and the roles of the healthcare professionals and other relevant teams, disciplines or agencies involved in patient care. Able to advise on the relevant legal, ethical, professional and organisational policies and procedures and codes of conduct issues that have implications for the pharmaceutical care of patients with infections. Interprets, undertakes and communicates drug expenditure analysis and advises on relevant pharmacoeconomic issues relating to antimicrobials.	Displays expert practice on the relevant legal, ethical, professional and organisational/strategic policies and procedures and codes of conduct issues that have implications for the pharmaceutical care of patients with infections. Interprets, undertakes and communicates drug expenditure analysis and advises on relevant pharmacoeconomic issues relating to antimicrobials at a higher/strategic level.

Increased support for pharmacist independent prescribing (PIP)

- Easing pressure on other areas of the NHS such as General Practitioners
- Ensure that care is available closer to the patient's home
- Existing workforce currently being trained by completing a qualification that takes around 6 months to complete
- Currently pharmacists need to be at least two years post-registration prior to completing a prescribing course – dramatic change when newly qualified pharmacists will be prescribers from 2026

05 Education of undergraduate student pharmacists

How do we ensure that future workforce is "fit-for-purpose?"

- September 2022: National AMS Pharmacy Education Group (NAPEG) set up
- Membership comprises: academics with interest in AMS, teacher practitioners, antimicrobial specialist pharmacists, pharmacists involved in national policy, students (through the British Pharmaceutical Student Association) and a pharmacy professional body (Royal Pharmaceutical Society)
- Representation from all four nations of the UK

What is the aim of this project?

- To facilitate the development of a UK-wide AMS competency framework tailored for student pharmacists
- To ensure that the principles of AMS are embedded within the undergraduate curriculum to prepare future pharmacists to ensure antimicrobials are prescribed sustainably in future employment
- Having UK-wide competencies ensures a standardized approach to curricula boosting AMS education and future applicability in clinical practice

Overview of curriculum

6 Domains

- Infection Prevention and control
- Antimicrobials and antimicrobial resistance
- Antimicrobial prescribing and stewardship
- Vaccine uptake
- Person-centred care
- Interprofessional collaborative practice

… and 74 descriptors

Domain 2
Antimicrobials and antimicrobial resistance

Competency statement

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.

Descriptors Examples (2 of 8)

2.01. Demonstrate an understanding of the major classes of antimicrobials, their mechanisms of action and their spectrum of antimicrobial activity in terms of Gram-positive, Gram-negative, anaerobic and atypical bacteria and viruses, fungi and parasites

2.08. Demonstrate an understanding of the concept of One Health where AMR is concerned and the inter-dependencies between human health, animal health, agriculture, food and the environment

Domain 3
Antimicrobial prescribing and stewardship

Competency statement

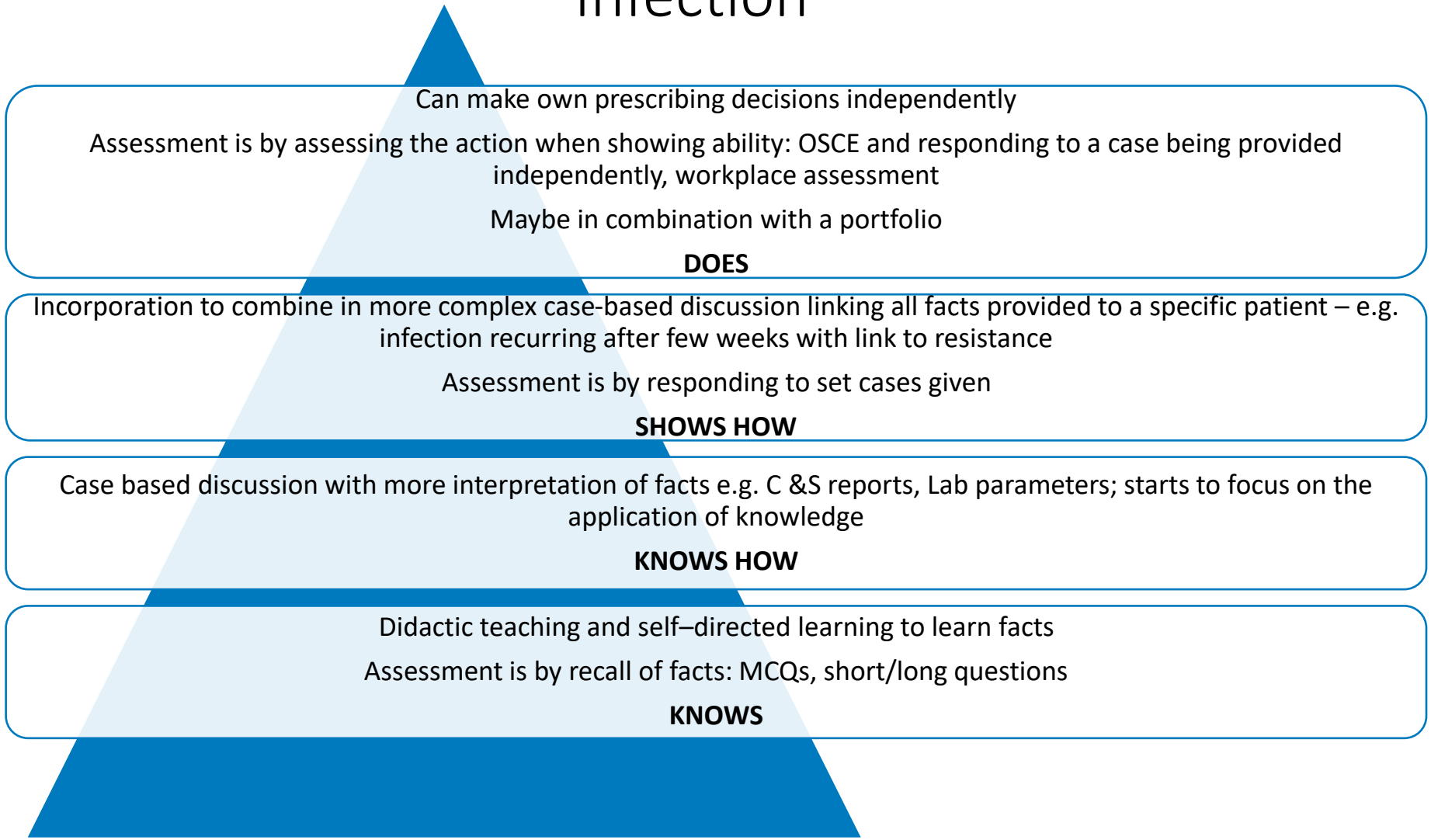
All newly qualified pharmacists need to demonstrate knowledge of how infections are diagnosed and managed and use this knowledge appropriately to manage patients with infections including the appropriate use of antimicrobial agents.

Descriptors Examples (2 of 24)

3.09. Understand the concepts of empirical therapy and pathogen-directed therapy, how local microbial/antimicrobial susceptibility patterns impact on the choice of empirical therapy and the significance of using local or national empirical therapy guidelines.

3.24. Understand the importance of timely intravenous-to-oral switch and demonstrate the application of appropriate criteria to identify patients eligible for switch.

Example from my teaching practice Infection



Case-based approach

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Mr AM is a 75-year-old man admitted to hospital with new onset confusion, worsening shortness of breath (respiratory rate 32 breaths per min), production of purulent sputum and cough. His chest X-Ray shows a left-sided consolidation and his blood pressure was recorded as 120/80mmHg. Mr AM has no other significant past medical history. He is diagnosed with community acquired pneumonia (CAP). A sputum sample has been taken for culture and sensitivities but results will not be available for 48 hours.

Descriptor 26: Understand the importance of following local antimicrobial policies and follow these policies in practice.

Descriptor 17: Recognise the symptoms of infection

Stage 3 student pharmacist assessment

At this stage:
KNOWS HOW
Element of
SHOWS HOW

Hospital Empirical Antibiotic Guidelines – Community acquired pneumonia		
Use CURB65 score to assess severity: each parameter scores 1: **Confusion; Urea >7mmol/L; Respiratory rate ≥30/min; BP systolic <90 or diastolic ≤60; Age ≥65;**		
Infection	1st Choice Antibiotic	2nd Choice Antibiotic
Mild CAP **(CURB65 = 0 or 1)**	Oral amoxicillin 1g every 8hrs Duration = 5 days	doxycycline 100mg daily Duration = 5 days
Moderate CAP **(CURB65 = 2)**	Oral amoxicillin 1g every 8hrs + oral clarithromycin 500mg twice daily Duration = 5 -7 days	doxycycline 100mg twice daily. Duration 5 -7 days
Severe CAP **If CURB65 ≥3**	IV amoxicillin 1g every 8hrs + oral clarithromycin 500mg twice daily Duration = 7 – 10 days	IV co-trimoxazole 960mg twice daily. Duration = 7 – 10 days

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Calculate the CURB65 score for Mr AM and recommend appropriate antibiotic therapy, including dose, frequency and duration, using the hospital empirical antibiotic guidance provided

Explain the rational for using empirical antibiotic guidelines in the treatment of Mr AM's community acquired pneumonia

The culture and sensitivity results from the sputum sample become available. Recommend an appropriate antibiotic to treat Mr WG's infection based on the sensitivity results available. Justify your recommendation.

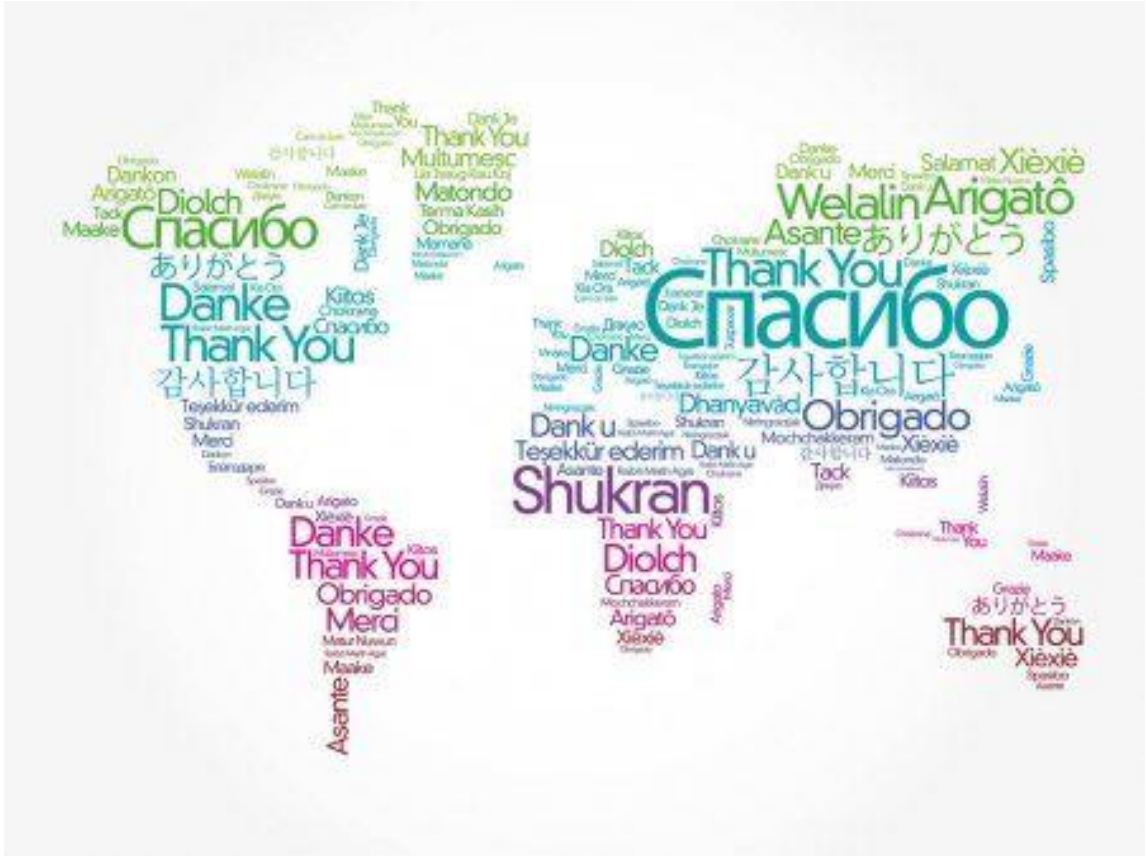
APPLICATION OF KNOWLEDGE

Culture and sensitivity:	Sputum sample	Mr WG
Organism	Resistant	Sensitive
Streptococcus pneumoniae	amoxicillin doxycycline	co-trimoxazole clindamycin

INCREASE COMPLEXITY
Need to think about sensitivities
Why cotrimoxazole over clindamycin

Descriptor 23: Interpret microbiology results/reports from the laboratory at a basic level.

Descriptor 28: Demonstrate an understanding of the factors that need to be considered when choosing an antimicrobial



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