ROYAL PHARMACEUTICAL SOCIETY

Critical Care
UK Clinical Pharmacy Association

RPS & UKCPA Advanced Pharmacist Critical Care Curriculum

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Contents

Preface

Collaboration is at the heart of providing effective care to patients in critical care settings. In a setting where patients are often at their most unwell and vulnerable, it takes the collective knowledge, skills and teamwork of the whole critical care multi-disciplinary team (MDT) to provide the complex and intensive care they need. Critical care pharmacists, including those working at an advanced level of practice, are core members of this team, providing medicines expertise in this highly complex clinical setting, improving patient outcomes while reducing costs. To deliver on the ambitions of a long term workforce plan for critical care pharmacists, a national curriculum and assessment pathway, supported by structured training, is essential to ensure that our pharmacist workforce is fit to meet the complex demands of patients in critical care.

To achieve this ambition, collaboration again has been key; the Royal Pharmaceutical Society (RPS) and UK Clinical Pharmacy Association (UKCPA), in partnership with Faculty of Intensive Care Medicine (FICM), have worked together to make this ambition a reality. This curriculum builds on the considerable work undertaken over the past twenty years by the UKCPA Critical Care Committee; this committee has led the way in defining advancing pharmacist practice in critical care, leading to the integration of advanced pharmacists into the FICM & ICS Guidelines for the Provision of Intensive Care Services.

The recent development of RPS post-registration credentialing (which built on the RPS Faculty model), publication of the RPS core advanced pharmacist curriculum, and the focus that COVID shone on the specialty, all provided impetus to advance and formalise this work. Consequently, critical care was selected as a pioneer group for the development of a specialist advanced curriculum and credential and was developed under an exciting new joint venture forged between RPS and UKCPA in close partnership with FICM.

There was a risk that, as pharmacists, we would be too inward looking and focus too heavily on only involving our own profession. To give a broader view, it was of great importance to have the support and involvement of FICM throughout the curriculum development process; this, again, reflects the importance of inter-professional working to advance practice and care for our patients.

We are delighted to share the fruits of this collaboration with you. As a supplement to the RPS Core Advanced curriculum, this curriculum provides a common standard and assurance mechanism to inform future advanced-level training and professional development for the pharmacist critical care workforce, ultimately supporting the advancement of critical care pharmacist practice in the best interests of patients within the wider MDT.

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Key curriculum definitions

ACTIVE PRESCRIBER

An active prescriber consults with patients and makes prescribing decisions based on clinical assessment with sufficient frequency to maintain competence. Reflects and audits prescribing practice to identify developmental needs.[1]

ADVANCED PHARMACIST ASSESSMENT PANEL (APAP)

The panel responsible for the quality assurance of RPS assessment and credentialing activity related to advanced pharmacist practice.

ADVANCED PHARMACIST COMPETENCY COMMITTEE (APCC)

A group of appropriately qualified experts who reach final decisions on individuals' progression to being credentialed.

ADVANCED PHARMACY FRAMEWORK (APF)

The legacy RPS framework used for identifying progressively more advanced stages of pharmacy practice.

APPROPRIATE

An action that is evidence-based, safe, cost-effective and in keeping with your clinical judgement, as well as the person's situation and preferences.

ASSESSMENT

All activity aimed at judging a learner's achievement of the curriculum's learning outcomes, whether for summative (determining satisfactory progression in or completion of training), or formative (developmental) purposes. An outcome can be defined as a level of performance or behaviour that a pharmacist is expected to achieve as part of their development according to their stage of training within the curriculum.

BLUEPRINT

A matrix used to define the content of an assessment. This ensures the assessment programme covers all the outcomes defined by the curriculum.

1. A Competency Framework for Designated Prescribing Practitioners, Royal Pharmaceutical Society

BOUNDARIES
Traditional boundaries in the healthcare system between different professions, areas of (clinical) practice, and/or geographies.

CAPABILITIES
High-level, complex professional capabilities are flexible and adaptive in a wide range of contexts and synthesise the knowledge, skills, behaviours and experience pharmacists need to manage real-life (patient) scenarios.

COLLABORATOR
Any individual supporting pharmacists undertaking this programme to record their learning e.g., a member of the team who contributes to multi-source feedback, a person who completes a patient survey or a senior who undertakes a supervised learning event.

CONSULTANT PHARMACIST CURRICULUM
The RPS consultant pharmacist curriculum is based on the Advanced Pharmacy Framework at the level described in the NHS Consultant Pharmacist Guidance and articulates the entry-level knowledge, skills, behaviours and levels of performance expected of consultant pharmacists.

CORE ADVANCED PHARMACIST CURRICULUM
The RPS core advanced curriculum articulates the entry-level knowledge, skills, behaviours and levels of performance expected of all advanced pharmacists irrespective of the sector of practice or area of specialist or generalist practice.

CREDENTIAL
An award recognising progression and successful completion of a critical progression point within an assessment programme. This assures satisfactory demonstration of the curriculum outcomes.

CRITICAL PROGRESSION POINT
A point where a learner transitions to a higher level of professional practice and responsibility or enters a new or more specialist area of practice. These gateways represent an increased level of risk to patients so transition through these points must be robustly managed, usually by summative assessment hurdles.

CURRICULUM
A statement of the intended aims and objectives, content, experiences, learning outcomes and processes of a programme, including a description of the structure and expected methods of learning, teaching, assessment, feedback and supervision.

DESCRIPTOR
A clarifying statement or example of the expected level and breadth of performance required to achieve the curriculum outcomes.

DOMAIN
A collection of commonly themed capabilities and outcomes.

EDUCATION AND STANDARDS COMMITTEE
The committee responsible for the overarching quality assurance of all RPS assessment and credentialing activity.

EQUALITY IMPACT ASSESSMENT (EQIA)
A systematic and evidence-based tool which enables us to consider the likely impact of work on different groups of people.

EXPERIENCE (BREADTH OF)
When a pharmacist has sufficient experience to be able to practise safely and competently at the expected level of performance. This is not linked to a quantitative measure rather when the pharmacist has acquired and consolidated the learning outcomes.

FACILITATE
Take action to make a process easier or to make a desirable outcome more likely to be achieved.

FINAL DECISIONS
Higher stakes critical progression points based on numerous data points reviewed holistically by a competency committee. The outcome of this decision will inform whether an individual has satisfactorily met the curriculum outcomes and can be credentialed.

OUTCOMES
Describe what is to be achieved by pharmacists undertaking the programme; these describe the knowledge, skills, behaviours and experience of those who successfully complete the programme of assessment.

PATIENT-FOCUSSED ROLES

Roles that have a direct impact on individual patients and/or patient populations although this may not involve regular direct patient-facing contact.

PERSON

The curriculum includes the term person-centred and refers to person / people throughout. This means 'the person receiving care.' The term may also apply to the person's carers, family or representatives depending on the situation.

POST-REGISTRATION FOUNDATION CURRICULUM

The RPS post-registration foundation curriculum defines the purpose, content of learning and the programme of assessment for post-registration foundation pharmacists ensuring that the person, medicines optimisation and service delivery is at the heart of the pharmacist's role.

PROGRAMME OF ASSESSMENT

The set of individual assessments planned to assess the curriculum outcomes. The synthesis of these individual assessments into a programme allows for integrated judgments on an individual's performance.

PROGRAMME OF LEARNING

A matrix of the capabilities, learning outcomes and descriptors determined as necessary to deliver the services defined by the curriculum purpose.

QUALITY ASSURANCE

The standards, system and processes in place to maintain and enhance quality to assure patients and the public that pharmacists meet the required standards.

QUALITY CONTROL

RPS has a role in quality control in terms of ensuring national curricula and assessments are consistently developed and delivered in line with the RPS curriculum quality standards.

RPS & UKCPA JOINT VENTURE BOARD

The governance body comprised of senior RPS and UKCPA representatives that ultimately govern any jointly developed curricula and assessment programmes between the RPS and UKCPA.

SUMMATIVE ASSESSMENT

Assessment of performance at a critical progression point or the end of a programme of learning.

SUPERVISED LEARNING EVENT (SLE)

SLEs are not formal examinations of knowledge or summative assessments, they present an opportunity for individuals to be observed in the (clinical) workplace setting, to see how they work with others (including the patient) and to be given feedback with the aim of improving their practice.

1 Introduction

Advanced pharmacists in critical care have the advanced capabilities and expertise to deliver care to critically ill people with complex needs with a higher degree of autonomy than less experienced pharmacists. They have the skills to transform critical care delivery at a service, team and/or organisational level, through leadership, education and research.

In the critical care setting pharmacists provide a key role managing medication within the complexity of various routes of administration, severe and rapidly shifting pharmacokinetic and dynamic parameters, and extremes of physiology of critical illness. Pharmacists intercept and resolve medication errors, optimise medication therapy and undertake broader professional activities within the job role that contribute to the smooth running of critical care. These activities are associated with improved quality, reduced mortality and reduced costs[2].

This curriculum defines the purpose, programme of learning and the programme of assessment for entry-level advanced pharmacists practising in critical care. This sits **supplementary to** the capabilities defined in the RPS core advanced curriculum and the two documents should be read in tandem. These ensure that the person, medicines optimisation and service delivery is at the heart of the advanced pharmacists in critical care role. The completion of this curriculum, **in addition to** the RPS core advanced curriculum, assures an individual's capability to practise as an advanced pharmacist in critical care.

The curriculum has been developed collaboratively between the Royal Pharmaceutical Society (RPS) and the UK Clinical Pharmacy Association (UKCPA) with support from The Faculty of Intensive Care Medicine (FICM).

The RPS is the professional leadership body for pharmacists in England, Scotland and Wales. It has developed a post-registration development pathway for patient-focussed pharmacists across all sectors in the UK. The continuum of development progresses from post-registration foundation, through advanced to consultant pharmacist levels of practice.

2. Borthwick M. The role of the pharmacist in the intensive care unit. Journal of the Intensive Care Society. 2019;20(2):161-164. doi:10.1177/1751143718769043 www.ncbi.nlm.nih.gov/pmc/articles/PMC6475995

UKCPA is the UK's largest clinical pharmacy community. With around 3000 members, UKCPA provides opportunities for networking, collaborations, sharing best practice and inspiring innovation. UKCPA has been involved in developing curricula and advanced assessment programmes for clinical pharmacy practitioners for nearly two decades.

FICM is the professional and statutory body for the speciality of intensive care medicine, the doctors who lead critical care services and advanced critical care practitioners. Critical care pharmacists have also been members since July 2020, where the pharmacist sub-committee leads on workstreams including advanced-level pharmacy practice and credentialing.

The level of practice described in this curriculum is the entry to advanced pharmacist critical care practice and lays the groundwork for pharmacists wishing to progress towards consultant level practice in critical care.

The need for an advanced pharmacist workforce in critical care settings is clear. Pharmacists with advanced critical care knowledge and skills have more proactive practice, increasing the number, and clinical impact, of medicines optimisations[3]. Critical care units with advanced-level clinical pharmacists embedded in routine practice, enable pharmacists to contribute significantly more clinically impactful medicines optimisations compared to critical care units without this resource[4].

Reflecting this, the UK wide guidelines for the provision of intensive care services (GPICS)[5] set a requirement for each critical care unit to have a designated advanced pharmacist, this is also reflected in the critical care specification in England[6] and the Scottish Intensive Care Society Audit Group's quality indicators[7].

The RPS & UKCPA advanced pharmacist critical care curriculum supports the development of a consistent, portable and flexible advanced critical care pharmacist workforce by articulating the common capabilities of all advanced critical care pharmacists.

The RPS & UKCPA advanced pharmacist critical care curriculum and credential have been developed to provide assurance to pharmacists, employers, the wider multi-professional team and the public, of the capability of advanced pharmacists working in critical care settings.

The advanced pharmacist critical care curriculum is open to all pharmacists practising with appropriate critical care experience. Membership of the RPS or UKCPA is not a requirement to access either the curriculum or credentialing assessment.

1.1 How can different stakeholders use this document?

Pharmacists working towards advanced critical care credentialing can monitor their progress towards achieving the outcomes, ensuring they are gaining the appropriate learning, training and experience. This will contribute to appraisal, self-assessment, self-directed learning, and formative and summative assessment against the outcomes.

Supervisors and mentors can support pharmacists to develop the appropriate skills, knowledge, and behaviours; and access the appropriate experiences to gain these. They can use the curriculum to verify that they are providing teaching, support and guidance in the appropriate areas of practice.

Training providers can design structured learning programmes and ensure local teaching maps to the curriculum.

3. Rudall N, McKenzie C, Landa J, Bourne RS, Bates I, Shulman R. PROTECTED-UK - Clinical pharmacist interventions in the UK critical care unit: exploration of relationship between intervention, service characteristics and experience level. Int J Pharm Pract. 2017 Aug;25(4):311-319 academic.oup.com/ijpp/article/25/4/311/6096088?login=false
4. Bourne RS, Shulman R, Jennings JK. Reducing medication errors in critical care patients: pharmacist key resources and relationship with medicines optimisation. Int J Pharm Pract. 2018;26:534–40 academic.oup.com/ijpp/article/26/6/534/6099669?login=false
5. The Faculty of Intensive Care Medicine, June 2019, Guidelines for the Provision of Intensive Care Services Edition 2 www.ficm.ac.uk/standardssafetyguidelinesstandards/guidelines-for-the-provision-of-intensive-care-services
6. NHS England, May 2019 Adult Critical Care service specification www.england.nhs.uk/wp-content/uploads/2019/05/2205025-adult-critical-care-service-specification.pdf
7. Scottish Intensive Care Society Audit Group December 2015, Minimum Standards and Quality Indicators for Critical Care in Scotland www.sicsag.scot.nhs.uk/quality/20151215-Quality-Indicators-Booklet-V3-0.pdf

Employers can use the curriculum to support professional and personal development plans for employees. They can understand the scope of practice for advanced critical care pharmacists. They can use achievement of the credential as independent assurance of the capability of individuals seeking employment in an advanced critical care pharmacist role.

Service planners and commissioners can refer to the curriculum to understand the capabilities of the advanced critical care pharmacist workforce when developing and commissioning services.

Patients and lay people will be able to see the standard required for a pharmacist to practise at an advanced level in critical care settings.

Assessors and collaborators will be able to refer to the curriculum outcomes and descriptors to support and standardise assessment activities and judgments.

1.2 What are the proposed roles and responsibilities of different stakeholders in this curriculum?

The GPhC

- Sets minimum standards for pharmacy professionals.

The four UK governments and their related organisations

- Identify and prioritise strategic, system, service or workforce needs including, through their respective educational organisations, the funding, planning, commissioning and quality management of training programmes.

RPS

- Collaboratively designs and develops the RPS advanced curricula, including the respective programmes of assessment, in line with the standards articulated in the RPS curriculum quality framework.
- Maintains, monitors and evaluates the RPS curricula, including the respective programmes of assessment, in partnership with other curriculum authoring organisations if relevant (e.g., UKCPA).

UKCPA

- Collaboratively designs and develops relevant RPS & UKCPA advanced curricula, including the respective programmes of assessment, in line with the standards articulated in the RPS curriculum quality framework.
- Maintains, monitors and evaluates the RPS & UKCPA curricula, including its programme of assessment in partnership with the RPS.
- Provides clinical expert assessors for the RPS & UKCPA advanced pharmacist critical care credential.

The RPS & UKCPA joint venture

- Oversees and signs off curricula developed collaboratively by the RPS & UKCPA specialist groups.
- Administers a single common assessment against the curriculum outcomes and awards the RPS & UKCPA advanced pharmacist critical care credential.

Faculty of Intensive Care Medicine (FICM)

- Review and endorse the curriculum content on behalf of the wider critical care professional groups.
- Support critical care clinicians and practitioners to engage with and support pharmacist learners.
- Engage critical care clinicians and practitioners to participate in the assessment process.

Statutory education bodies

- Commission and/or provide elements of training and/or support programmes to support learners to meet the curriculum learning outcomes.
- Quality assure the provision of commissioned training programmes.

Higher education institutions/ local education and training providers

- Provide training programmes to meet relevant elements of the curriculum programme of learning, which may include support with supervision and the completion of supervised learning events.

Employers

- Implement elements of learning at a local level.
- Provide supervision to learners in practice.
- Undertake/facilitate supervised learning events in the workplace.
- Provide quality control and participate in quality management of education and training.

1.3 How was this curriculum developed and how will it be governed?

The capabilities and outcomes in this curriculum were developed collaboratively between the RPS, UKCPA Critical Care Committee and the FICM Pharmacist sub-committee.

The outcomes are based on the RPS Core Advanced curriculum and the UKCPA Professional Curriculum for Advanced Pharmacy Practice in Critical Care. The curriculum builds on the RPS core advanced curriculum (2022) articulating the **additional** specialist capabilities of advanced pharmacists in critical care. The outcomes describe the expected level of practice of entry-level advanced pharmacists in critical care.

This RPS & UKCPA advanced pharmacist critical care curriculum was developed in line with the RPS curriculum quality framework by a specialist task and finish group.

The group comprised of a wide range of stakeholders to ensure the programme of learning and assessment are inclusive to different sectors and geographies, including representation from:

- RPS, UKCPA and FICM
- Representatives from across the countries of the UK
- Academic institutions
- Learners from across the post-registration spectrum
- Non-pharmacy multiprofessional critical care clinicians and practitioners

The ongoing oversight of the curriculum, including the periodic review of its content, will be undertaken jointly by the RPS Advanced Pharmacist Assessment Panel, the RPS Education & Standards Committee, UKCPA Board of Directors and ultimately the RPS & UKCPA Joint Venture board.

2 Curriculum purpose

2.1 How is the curriculum aligned to services and patient need?

The complexity and dynamic course of a critically ill patient's treatment, including their medication therapy, requires the input of advanced level pharmacists with specialist knowledge and skills to ensure that the medicines related risks involved are effectively managed and medicines related benefits are optimised.

Advanced specialist knowledge and skills are required to support critical care teams to effectively use medicines to resuscitate, stabilise and optimise the patient during their illness and through discharge and rehabilitation where appropriate, and to manage medicines for pre-existing conditions throughout their critical illness. Organ dysfunction and deranged physiology can affect the pharmacokinetics and pharmacodynamics of medicines, adding complexity and the need for advanced level therapeutic reasoning, applied specifically in the context of critical illness. The medicines used are often of high clinical risk, with frequent changes to the treatment plan and route of administration as the patient's clinical condition rapidly evolves. The above factors increase the risk of Adverse Drug Events (ADE) in patients who are at higher risk of morbidity from ADEs, due to critical illness. The vulnerability of this patient group to harm, the broad case mix, and rapidly changing clinical priorities drives the need to have advanced pharmacists supporting improved outcomes from medicines.

The importance of pharmacists with the appropriate advanced level of expertise in the critical care setting has long been recognised[8,9,10] with both the UK wide Guidelines for the Provision of Intensive Care Services[11] standards, and the

8. Adult Critical Care Specialist Pharmacy Practice webarchive.nationalarchives.gov.uk/ukgwa/20130124070139/http:/www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4114093.pdf
9. Core Standards for Intensive Care Units icmwk.com/wp-content/uploads/2014/02/Core-Standards-for-ICUs-Ed-1-2013.pdf
10. Adult critical care GIRFT Programme National Speciality Report www.gettingitrightfirsttime.co.uk/wp-content/uploads/2021/08/Adult-Critical-Care-Aug21L.pdf
11. Guidelines for the provision of intensive care services www.ficm.ac.uk/sites/default/files/gpics-v2.pdf

NHS England service specification[12] requiring an advanced pharmacist in critical care to be embedded into daily practice. The entry-level standard expected of advanced pharmacists in critical care is articulated by this curriculum. This standard is applied by healthcare regulators (e.g., CQC) in assessing the safety of critical care service provision.

The COVID-19 pandemic in 2020/21 demonstrated that the importance of robust multiprofessional critical care services and teams, including advanced critical care pharmacists, were key in delivering the required flexible response. The legacy of the pandemic will continue to drive the need for increased numbers of advanced pharmacists with the capability to support critical care teams to deliver care for this complex cohort of patients.

While the advanced pharmacist in critical care will be working at the same level of practice as other advanced level pharmacists there are additional specific knowledge, skills, behaviours and capabilities that an advanced pharmacist in critical care must be able to demonstrate.

2.2 What is the scope of practice of an advanced pharmacist in critical care?

While the advanced pharmacist in critical care will be working at the same level of practice as other credentialed advanced level pharmacists, there are specific knowledge, skills, behaviours and capabilities that an advanced pharmacist in critical care must be able to demonstrate **in addition to** those articulated in the RPS core advanced curriculum. These supplementary capabilities are outlined by this curriculum.

The advanced pharmacist critical care curriculum describes the requirements of an entry-level advanced pharmacist in critical care who, in addition to the capabilities described in the RPS core advanced curriculum, will be able to:

- Provide holistic pharmaceutical care to the breadth of critically unwell patients, with highly complex needs in a critical care environment
- Apply the knowledge of pathophysiology and therapeutics described in the specialist knowledge guide (Section 4) to critically unwell patients
- Make decisions that recognises the altered risk: benefit ratio that exists in the provision of critical care, accessing and interpreting information that is not readily available and may be conflicting, and applying scientific and therapeutic first principles in reaching an appropriate individualised decision
- Create and implement individualised treatment plans, including for patients requiring non-standard approaches, taking into account:
  - The pharmacodynamic and pharmacokinetic changes that occur in critically unwell patients (including those with organ failures)
  - The available routes of access (including the various parenteral and enteral routes) routinely used to administer medication in critical care settings
  - Issues relating to medicines compatibility and routes of access
  - The principles of fluid management in critical illness
  - Pharmacological organ support using inotropes and vasopressors in the various shock states
  - Appropriate approaches to sedation and paralysis
  - Pain, agitation, and delirium in critical care patients
  - Fluctuating renal function (including augmented renal clearance) and the use of different renal replacement modalities
  - The impact of extracorporeal processes
  - Ventilation modalities
  - The complex antimicrobial requirements of critically unwell patients

12. Adult critical care services www.england.nhs.uk/publication/adult-critical-care-services/

- Interpret, diagnose and act based on assessments and tests undertaken in a critical care setting
- Facilitate the timely supply of medicines working with procurement teams to access unlicensed, rare and specialist medicines
- Use, monitor and implement local care bundles in the critically ill patient
- Collaborate effectively with the critical care multidisciplinary team, managing differences of opinion and tensions between different care teams
- Act decisively, taking account of the increased acuity and potential for risk from action or inaction in critical care settings
- Remain effective despite the challenges encountered in critical care settings, including:
    - Rapidly and frequently changing situations
    - Distressed and emotional visitors
    - Regular exposure to severe illness, trauma and death
- Communicate effectively with patients, families, and other healthcare professionals, taking action to minimise distress including:
    - With people who may be distressed or disorientated
    - Explaining to people treatments they may have had when they were unable to consent or understand
    - Openly discussing serious iatrogenic harm from medicines
    - Supporting person-centred decision making where evidence is lacking and the desired outcome may be difficult to articulate
- Manage the legal complexities of working in a critical care setting, including consent issues and regular use of off-label and unlicensed medicines

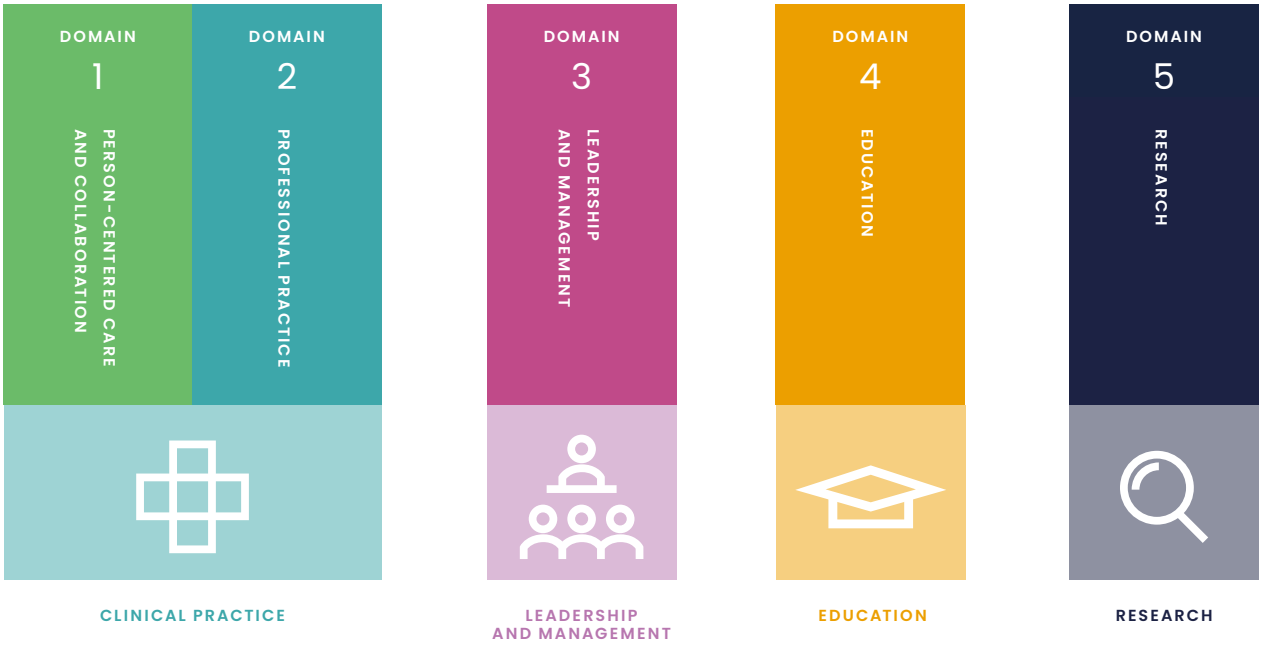
2.2.1 Defining advanced level autonomy, complexity and sphere of influence

As pharmacists gain experience and develop their knowledge and skills, they are expected to assume increasing levels of autonomy and manage increasing levels of complexity within a wider sphere of influence. **Autonomy, complexity** and **sphere of influence** are used throughout the document to describe the expected level of practice to demonstrate the curriculum outcomes and, in particular, to differentiate practice from the expectations of the RPS post-registration foundation and consultant curricula. Full definitions of these concepts can be found in the RPS Core Advanced curriculum.

2.3 How does this curriculum fit in with the wider education and professional development pathway for pharmacists?

The domain headings in the GPHC Standards for the initial education and training of pharmacists and all RPS post-registration curricula are aligned providing a clear continuum of professional learning and development from the point of entering the MPharm degree through to consultant practice. The domains closely mirror the four pillars of advanced practice[13] recognised across healthcare professionals: clinical practice, leadership and management, education and research.

Figure 1.
The four pillars of advanced practice



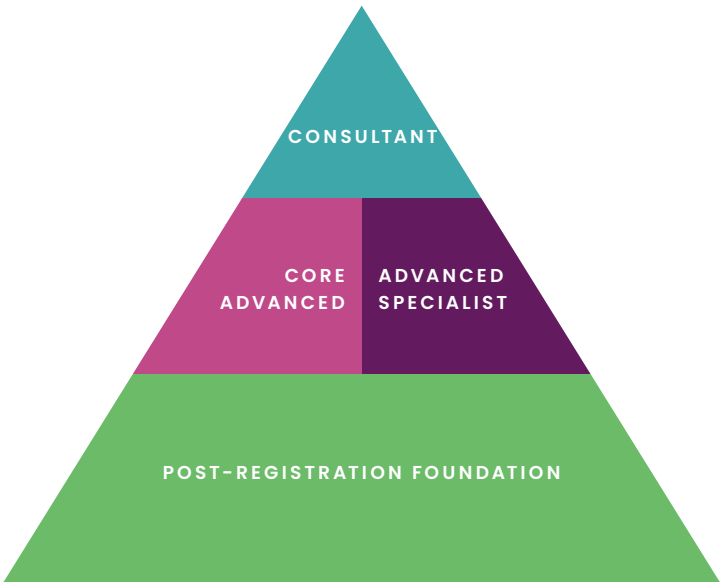


Figure 2.
RPS Post-registration credentialing model

13. Manley, K. (1997) A conceptual framework for advanced practice: an action research project operationalising an advanced practitioner/nurse consultant role, Journal of Clinical Nursing, 6(3), pp. 179–190

The advanced pharmacist critical care curriculum is pitched at an equivalent level of practice as the RPS Core Advanced curriculum, but defines the specific context and **supplementary** capabilities expected of an advanced pharmacist in critical care.

Figure 3.
Credentialing model for advanced pharmacists in critical care

3 The programme of learning

The advanced pharmacist critical care curriculum consists of two additional specialist **capabilities** which describe the key clinical and professional aspects of advanced pharmacist practice in critical care. These are **supplementary to** the capabilities articulated in the RPS Core Advanced curriculum . These specialist capabilities describe the key clinical and professional aspects of advanced critical care pharmacist practice. The capabilities and outcomes have been grouped together to supplement the following core domains:

- Person-centred care and collaboration
- Professional practice

As in the core RPS curricula, each capability is a synthesis of **outcomes** which describe the knowledge, skills and behaviours that should be demonstrated by an entry-level advanced specialist critical care pharmacist.

Each outcome is supported by a set of **descriptors** which clarify the expected level and breadth of performance required to demonstrate the outcome.

The learner does not need to provide evidence for every descriptor but should ensure their evidence reflects the breadth and depth described. The example descriptors are not exhaustive and alternative supporting evidence may be used when deciding how to demonstrate achievement of the outcomes.

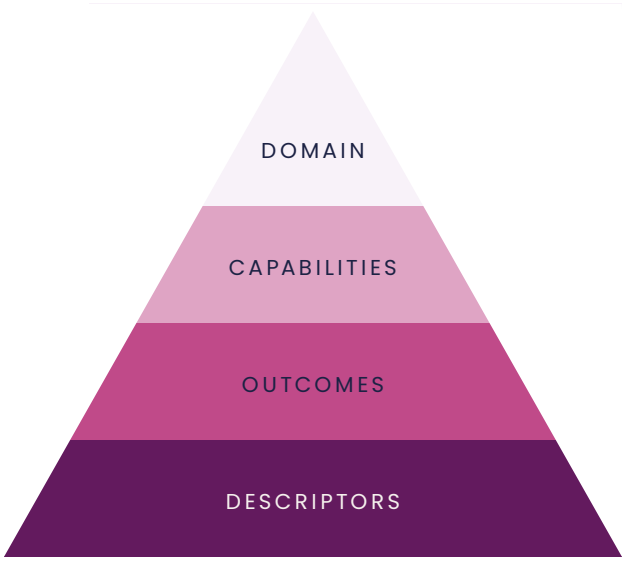


Figure 4.
Overview of domains and capabilities

3.1 Capabilities, outcomes and descriptors

Remember that the descriptors are to guide individuals and supervisors to the level of performance and breadth of evidence required. Individuals are not required to include evidence in their e-Portfolio for every descriptor.

DOMAIN 1. PERSON-CENTERED CARE AND COLLABORATION			
CAPABILITIES	**CC**	**OUTCOMES**	**DESCRIPTORS**
Communicates effectively when dealing with challenging situations; Delivering person-centred care for individuals who are critically unwell	1.1	Communicates effectively, addressing the communication challenges present in critical care settings.	Applies the principles of consent and assent when obtaining information, from an appropriate range of sources, regarding people receiving care who may be incapacitated due to critical illness.
			Succinctly communicates highly complex information in writing and verbally with other clinicians involved in a person's care to support the team in making decisions about treatment in the critically unwell.
			Effectively enables continuity of care through effective handover, within critical care, on transfer to other care settings and upon discharge.
			Maintains an open dialogue, appropriately debriefing, with the pharmacy and multi-professional team to support their own and the team's psychological welfare.
	1.2	Follows ethical and legal frameworks to deliver person-centred holistic care for people who are critically unwell.	Liaises with appropriate individuals when making treatment decisions or recommendations (e.g. family, carers, independent mental capacity advocates (IMCAs)).
			Follows all relevant legal frameworks when delivering care for people who cannot consent or contribute to treatment decisions for themselves.
			Appropriately follows processes in situations where the wishes of family members with regard to the treatment plan may differ from those of the person receiving care or other family members.

DOMAIN 2: PROFESSIONAL PRACTICE			
CAPABILITIES	**CC**	**OUTCOMES**	**DESCRIPTORS**
Applies advanced clinical knowledge and skills in the delivery of care for critically unwell individuals or groups	2.1	Delivers care using advanced pharmaceutical knowledge and skills, for individuals or groups requiring critical care support (Level 2 / 3) for illness including multi-organ failure.	Can apply the knowledge described in the advanced pharmacist critical care knowledge guide.
			Initiates, implements, reviews and alters treatment plans for critically unwell people.
			Undertakes holistic, structured medication reviews, creating and implementing treatment plans to optimise the benefits and minimise the risk of harm from a critically unwell person's treatment.
			Engages with multi-professional ward rounds in the critical care setting, proactively improving the person's treatment.
	2.2	Undertakes a holistic clinical review of critically unwell individuals using a range of assessment methods, appropriately adapting assessments and communication style based on the individual. Can utilise advanced clinical assessment skills in the management of the critically unwell.	Can interpret and apply the range of point of care tests used in a critical care setting, understanding the relative accuracy and utility of different tests measuring similar physiological functions.
			Uses appropriate assessment techniques in the diagnosis of conditions associated with the delivery of critical care e.g. delirium.
			Employs structured medication reviews in the critically ill patient.
			Can anticipate the impact of a broad range of medical and surgical interventions on the management of a critically unwell person and apply this to their approach to treatment.
			Elicits information from appropriate sources when the individual receiving care cannot communicate – considering the preferences of the individual where possible.
			Uses appropriate measures to estimate physiological activity (e.g., renal function, hepatic function) recognising the limitations of some standard approaches in the critically unwell.
			Synthesises a treatment plan that takes account of the relevant pharmacological and non-pharmacological treatments the critically ill individual is receiving.
			Undertakes the clinical assessment skills described in the knowledge guide.
	2.3	Demonstrates effective clinical reasoning skills, making autonomous, evidence informed, person-centred decisions about treatment for critically ill individuals or groups, managing risk in the presence of significant uncertainty.	In the absence of clear data or where multiple options exist can evaluate the pros and cons and select and initiate appropriate interventions for critically unwell people.
			Prioritises interventions for an individual based on their current needs, recognising the speed and frequency with which this can change in a critical care setting.
			Acts decisively and in a rapid manner when it is warranted by the gravity of the situation in critical care settings
	2.4	Collaborates with the multi-professional team to improve the delivery of critical care for individuals and cohorts receiving care.	Participates in ward rounds demonstrating leadership in the development and implementation of treatment plans.
			Appropriately communicates and justifies treatment recommendations to the multi-professional critical care team as part of ward rounds and/or when making clinical interventions, accounting for the altered risk: benefit ratio seen in critical illness.
			Adapts approach to appropriately influence the broad range of professions, teams and situations encountered in the critical care environment demonstrating situational awareness and an understanding of critical care team dynamics.
			Collaborates with the critical care leadership team in the development and improvement of critical care services considering critical care service commissioning and funding models and appropriate national standards.
			Demonstrates knowledge and the implication of critical care national standards and recommendations (national service specification and GPICS).

3.2 How will we ensure the curriculum learning content is inclusive?

- The RPS and UKCPA are committed to celebrating the diversity of the pharmacy profession and ensuring their curricula are inclusive and accessible to all. To ensure this, an Equality Impact Assessment (EQIA) of the curriculum was undertaken as part of the consultation period and will be available to access

  As part of the public consultation for the curriculum, there was engagement with representative groups to ensure that diverse voices shape the curriculum and assessment programme, including where possible:

- Pharmacists from different ethnicities
- Pharmacists with disabilities
- Pharmacists from across the spectrum of sexual orientation
- Pharmacists from across the spectrum of gender
- Pharmacists who work less than full-time
- Pharmacists who have taken a break from training e.g. those taking or who have taken family-friendly leave

4 Advanced pharmacist in critical care: specialist knowledge and skills guide

The below outlines the assumed clinical and non-clinical knowledge and assessment skills required by advanced pharmacists practising in critical care. These form the foundations of successfully demonstrating the outcomes and capabilities in the programme of learning.

CLINICAL KNOWLEDGE

Presentations, conditions, treatments and issues are listed either because they are common and/or serious (having high morbidity, mortality and/or serious implications for treatment or public health). As well as the specialist knowledge indicated in the knowledge guide, pharmacists are expected to have generalist knowledge expected of all advanced pharmacists.

The knowledge set out below, will be required to demonstrate achievement of curriculum outcome 2.1.

For each condition/presentation, advanced pharmacists in critical care will need to be able to apply the following aspects to the treatment plans of individuals:

- Aetiology and prognosis
- Physiology
- Clinical features
- Investigation
- Pharmacological and non-pharmacological management and monitoring
- Evolution/progression of the disease

For pharmacological treatments, advanced pharmacists in critical care will need to be able to apply the following aspects to the management of individuals:

- The pharmacology, pharmacodynamics and pharmacokinetics
- Formulation/route of administration
- The place in therapy, taking critical illness into account
- Monitoring of treatment in a critical care environment
- Relevant up to date related evidence and guidance

CLINICAL KNOWLEDGE GUIDE

General

- The implications of altered drug handling on dosing decisions in the critically ill patient
- The implications of organ failure on pharmacokinetics in the critically ill patient
- Key critical care scoring systems in use e.g. Glasgow Coma Score, APACHE II, Sequential Organ Failure Assessment (SOFA), pain score, Therapeutic Intervention Scoring System (TISS)
- Invasive devices used in the management of critically ill patients, and their influence on drug therapy
- Management of acid base balance in the critically unwell
- Ability to link the effects of disparate organ systems together in order to treat the patient holistically
- Implications of chronic and co-morbid disease in the critically ill patient
- Management of drug-drug and drug-disease interaction in critically unwell patients

Analgo-sedation and paralysis

- Analgo-sedation management and monitoring in the critical care setting
- Use and monitoring of neuromuscular blocking agents in the critical care setting

Circulatory failure, including the shock states

- Use of common cardiovascular medication including inotropes and vasopressors
- Invasive and non-invasive cardiovascular monitoring
- Fluid resuscitation

Cardiovascular conditions and their management

- Cardiac failure
- Arrythmias (including cardioversion)
- Myocardial infarction
- Endocarditis antimicrobial treatment

Abnormal conditions of haemostasis (including iatrogenic causes) and their management

- Thrombosis
- Thrombolysis
- Heparin Induced Thrombocytopenia (HIT)
- Disseminated intravascular coagulation (DIC)

CLINICAL KNOWLEDGE GUIDE

Gastrointestinal (GI) conditions and their management

- GI haemorrhage including stress ulcer prophylaxis
- GI dysmotility including pseudo-obstruction
- Pancreatitis
- Inflammatory Bowel Disease

Respiratory conditions and their management

- The impact of invasive and non-invasive ventilation on drug therapy
- Acute lung injury and acute respiratory distress syndrome
- Chronic obstructive pulmonary disease (COPD)
- Lung fibrosis
- Autoimmune lung disease,
- Secondary pulmonary hypertension
- Severe intractable asthma
- Management of oral/ respiratory secretions

Cystic fibrosis, including the management of

- GI complications
- Respiratory complications
- Infective complications

Central nervous system conditions and their management,

- Use of analgesics in the critically unwell
- Seizures (including myoclonic jerks and non-epileptiform seizures),
- Managing medicines that may induce seizures or lower seizure threshold
- Delirium
- Parkinson's disease
- Guillain Barre disease
- Raised intracranial pressure
- Head and spinal injuries
- Central Nervous System (CNS) infections
- Autoimmune encephalitis
- Acute psychiatric conditions e.g., schizophrenia
- Neuromuscular disorders

CLINICAL KNOWLEDGE GUIDE

Infections, their prevention, and management,

- Sepsis and septic shock
- Prevention of ventilator-associated pneumonia
- Management of infections caused by multi-resistant organisms
- Management of infections in severely immunocompromised people
- Therapeutic Drug Monitoring (TDM) in critically unwell people
- Viral epidemics/pandemics (e.g. COVID-19)
- Prophylaxis of infection
  (e.g., tetanus, pneumococcal, Hepatitis B, HIV Post Exposure Prophylaxis (HIV PEP))

Endocrine conditions and their management,

- Diabetic emergencies
- Blood glucose control in the critically unwell
- Metabolic emergencies (e.g., thyroid disease, inherited metabolic disorders)
- Management of people with adrenal insufficiency
- Carcinoid tumours
- Use of steroids in the critically unwell

Pre-, peri- and post-operative pharmaceutical management of people

- Anticoagulation management
- Pain management
- Infection prevention and treatment
- Implications of anatomical changes (e.g., short bowel, amputation)
- Anaesthetic emergencies (anaphylaxis, malignant hyperthermia)

Obstetric conditions and their management

- Haemolysis, Elevated Liver enzymes and Low Platelets (HELLP) syndrome
- Post-partum haemorrhage
- Pre-eclampsia

CLINICAL KNOWLEDGE GUIDE

Management of nutrition and fluids in the critically unwell person

- Parenteral and enteral nutrition
- Fluid management, including current concepts and debates around fluid management and the metabolic impact of different types of fluids
- Fluid management requirements of specialist groups (e.g. burns, sub-arachnoid haemorrhages, short bowel)

Autoimmune conditions and their management

- Autoimmune vasculitis
- Myasthenia gravis
- Multiple Sclerosis
- Lupus
- The use of and implications of plasma exchange
- Use of intravenous immunoglobulin (IVIG) following national guidance

Electrolyte disturbance

- Severe electrolyte disturbances and their management

Liver disease and its management

- Liver failure (including drug induced)
- Application of advanced pharmacokinetic principles in complex hepatic failure patients to inform dosage decisions

Kidney disease and its management

- Application of renal monitoring variables to ascertain degree of renal failure in complex clinical situations
- Application of advanced pharmacokinetic principles in complex renal failure patients to inform dosage decisions, including managing different renal replacement modalities
- The role of and implication of different renal replacement fluids
- Haemostasis management in patients undergoing renal replacement therapy
- Augmented renal clearance - recognition, groups at risk and how it affects pharmacological management

Toxicology and its management

- Management of toxicological emergencies including overdoses involving paracetamol, salicylates, opioids, benzodiazepines, antidepressants, antipsychotics beta-blockers, calcium-channel blockers, illicit drugs
- Management of poisoning by ethylene glycol/methanol
- Use of lipid infusions and/or high dose insulin in toxicological emergencies

Transplant

- Immunosuppression management in the critically unwell
- Rejection
- Graft versus Host Disease (GvHD)
- Management of patients prior to organ donation

NON-CLINICAL KNOWLEDGE

In addition to the presentations and treatments described above, advanced pharmacists in critical care must understand how critical care services are commissioned and structured, the reporting arrangements and the legal and ethical frameworks affecting care delivery.

The advanced pharmacist in critical care will also be able to apply the following non-clinical knowledge to critical care practice.

NON-CLINICAL KNOWLEDGE GUIDE

Service specification and standards

- Be able to interpret and apply national service specifications (or equivalent), and guidelines for the provision of intensive care services (GPICS) in the development of critical care pharmacy clinical services

CLINICAL AND ASSESSMENT SKILLS

As well as the specialist knowledge outlined above, the advanced pharmacist in critical care is expected to be able to perform the following clinical assessment skills independently on critically unwell patients:

CLINICAL AND ASSESSMENT SKILLS

- Delirium screening (e.g. Confusion Assessment Method for the ICU (CAM-ICU), Intensive Care Delirium Screening Checklist (ICDSC))
- Subjective sedation monitoring (e.g. Richmond Agitation-Sedation Scale (RASS), Sedation Agitation Scale (SAS))
- Pain Assessment (e.g. Behavioural Pain Scale (BPS), Critical Care Pain Observation Tool (CPOT), Numeric Rating Scale (NRS), Visual Analogue Scale (VAS))

5 Education & training provision

5.1 How can specialist training against the curriculum be delivered?

The curriculum has been designed to offer significant flexibility in how learning and training is accessed and evidenced. It is expected that pharmacists working towards this credentialing will direct their own development against the curriculum, in addition to working towards the outcomes in the RPS Core Advanced curriculum, with appropriate support and supervision in the workplace.

Employers, statutory education bodies, higher education institutions and other training providers have an important role to play in supporting individual pharmacists in their development, enabling appropriate supervision and mentorship as well as targeted educational and vocational learning opportunities.

The majority of learning experiences should be available within the individual's own workplace and can be facilitated by remote technology, where required.

5.2 What types of experience should any training include?

To successfully demonstrate the outcomes of the programme of learning, experience of working with patients within the critical care setting is essential.

The specific requirements for individual learners will be determined by their own development needs and the available opportunities. The curriculum outcomes have been designed to allow flexible achievement using a broad range of educational and vocational opportunities.

Pharmacists will need exposure to a variety of learning experiences working as part of the multiprofessional critical care team, with other members of the pharmacy team, and alongside other teams providing care to patients in the critical care environment. They will need the opportunity to further develop their existing diagnostic, clinical and pharmaceutical knowledge

and skills to be able to provide autonomous care to those with complex needs.

The nature of the learning experiences will depend on the work setting and programme, and may include directed study, self-directed study, study days (virtual or face to face) and learning in practice.

Suggested learning experiences to support the development of the clinical capabilities include, but are not limited to:

- Practice supervision with other clinicians, exposure to a breadth of practice with active participation to support development of clinical skills and competencies
- Regular use of supervised learning events (Section 5.3) in the workplace gathering feedback from a range of experienced clinicians and reflecting on own decisions with support from practice supervisors, simulation and peer review
- Active participation in activities to develop clinical decision-making skills such as observing and questioning experienced clinicians on their decision-making process
- Educational programmes and courses to support the development of relevant clinical and assessment skills
- Practice supervision and exposure to practice, in services that will be referred to during routine work.
- Observation and active participation in ward rounds as well as other related clinical situations (outreach teams, post-discharge follow-up, best interest meetings)
- Active participation in inter-professional learning sessions including simulation
- Peer and mentor discussions around learning from practice and experience e.g. case based discussions, problem-based learning, team-based learning

5.3 What supervision and support structures should be in place to support learning?

Pharmacists working towards advanced credentialing in critical care will need to access support from a range of sources to effectively and robustly demonstrate their capability against the curriculum outcomes. This may be in addition to, or integrated with, the support they are receiving to work towards the broader RPS core advanced curriculum.

Three broad types of support are recommended and further details on each role can be found in section 4.3 of the RPS Core Advanced curriculum. These roles are not mandatory, but are strongly recommended:

Educational supervision

Practice supervision

Mentorship

While the described support roles are different, it is possible that one person may take on both roles. While these roles are distinct, it is possible, in some work settings or smaller organisations, that one person may take on two or even all three roles. If this occurs it is important to define the discrete roles and responsibilities. It is also possible that one role, in particular mentorship, may be provided by more than one person (e.g. domain specific, or for a fixed project or period of time).

It is advised that the pharmacist has regular scheduled meetings with their educational supervisor and other supervisors and mentors. These meetings should support the pharmacist to construct an individualised training and development plan based on the curriculum outcomes. Meetings may be carried out remotely. The pharmacist will need to ensure they act as a link between their educational supervisor and anyone else who is providing supervision or mentorship.

All those involved in supporting the pharmacist should be familiar with the programme of learning, the educational approach and the assessment processes of this curriculum.

Individuals undertaking these support roles:

- May be based outside the pharmacist's organisation
- Do not need to be pharmacists and may be drawn from other professions or areas of expertise
- Do not need to be members of the RPS or UKCPA
- Should demonstrate cultural effectiveness and take active steps to promote equality and diversity, address any issues which may lead to differential attainment, and promote an inclusive culture and learning environment for all
- Should provide high quality, supportive and constructive feedback which is essential for the professional development of the pharmacist, and when combined with self-reflection, promotes deeper learning

Further information on these roles can be found in the RPS Core Advanced curriculum.

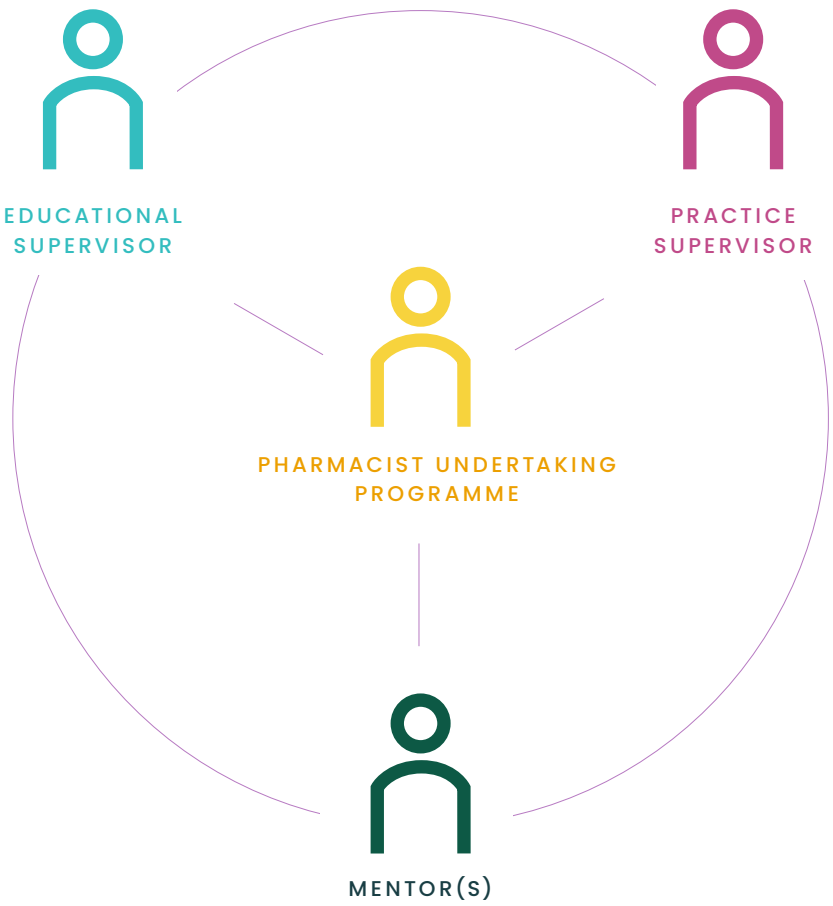


Figure 5.
Recommended support structure

6 The programme of assessment

6.1 What is the purpose of the programme of assessment?

The purpose of the programme of assessment is to:

- Provide a comparable assessment process for all advanced pharmacists in critical care across different critical care settings and geographical settings
- Assess individuals' performance in the workplace against the curriculum outcomes
- Enhance learning through multiple assessments (at 'low stakes'), enabling individuals to receive immediate feedback in order to understand their own performance and identify areas for development
- Drive the learning process by clarifying what is required of individuals undertaking the programme and motivating them to ensure they receive suitable training, supervision, and experience
- Demonstrate that learners have acquired the knowledge, skills and behaviours required to meet the curriculum outcomes and provide safe and effective care to people at an advanced level
- Demonstrate learners have had the appropriate experience to meet the curriculum outcomes

Further information on this programmatic approach to assessment can be found in the RPS Core Advanced curriculum.

The assessment of the supplementary advanced pharmacist critical care outcomes described in this curriculum may be undertaken at the same time as, or separately to, those in the RPS Core Advanced curriculum.

6.2 What is a supervised learning event?

Supervised learning events provide an important opportunity for authentic learning and development in the workplace and are used successfully within other healthcare disciplines. All supervised learning events undertaken as part of this programme should involve a formative aspect ensuring the pharmacist receives immediate high-quality feedback, allowing them to reflect on their own performance and identify areas

for development against the outcomes. It is not possible to pass or fail a supervised learning event, but they will be reviewed as part of the final summative assessment to determine if the individual has met the curriculum outcomes. Most encounters experienced in day to day practice can provide an opportunity for reflection and/or feedback and this process should, as a rule of thumb, occur weekly. Learners will obtain most benefit from undertaking supervised learning events if they receive feedback from a variety of different people, including the multidisciplinary team.

Supervised learning events do not necessarily need to take place in person and may be undertaken remotely using digital technologies if this is possible and appropriate to the educational context. All assessments must be undertaken in line with information governance principles, ensuring patient confidentiality is always maintained.

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6.3 What supervised learning event tools will be available to assess learners in practice on the e-Portfolio?

A range of tools are included within the advanced critical care e-Portfolio. These mirror those available for the RPS core advanced programme of assessment.

Pharmacists, their supervisors and collaborators can use these tools to record learning and demonstrate progress towards the outcomes. All the supervised learning event tools below have been selected to sample highly integrated skills and outcomes at the top of all learning taxonomies and provide feedback on the learner's performance in practice. **Individuals are not expected to use all the tools.** Some tools lend themselves better to particular working environments or using remote technology.

Where the learner uses approved remote technology to record video or telephone consultations for the purpose of a supervised learning event, the recording should not be stored within the e-Portfolio to maintain confidentiality; and the learner / supervisor should follow local guidance for gaining consent and managing the audio or visual recordings (e.g. security, confidentiality, storage, disposal).

ASSESSMENT TOOL	DESCRIPTION
Direct observation supervised learning events	
Acute Care Assessment Tool (ACAT)	Evaluates the individual's clinical assessment and management, decision making, team working, time management, record keeping, prioritisation and handover over a continuous period of time across multiple patients. Can be used in all sectors.
Case Presentation (CP)	Evaluates the individual's ability to orally present a case to colleagues.
Direct Observation of Practical Skills (DOPS)	Evaluates the individual's ability to undertake a practical procedure.
Mini-Clinical Evaluation Exercise (mini-CEX)	Evaluates a global clinical encounter with a patient and assesses the synthesis of essential information for clinical care such as history taking, communication, examination and clinical reasoning.
Indirect observation supervised learning events	
Case Based Discussion (CbD)	Retrospectively evaluates the individual's input into patient care. A structured discussion is undertaken remotely from the patient and is used to explore clinical reasoning, decision making and application of clinical knowledge in practice.

ASSESSMENT TOOL	DESCRIPTION
Other tools	
Educational Supervisor Report	Educational supervisor records a longitudinal, global report on an individuals' progress based on a range of assessments.
Mentor Report	Captures the views of the individual's mentor(s) based on observation of an individual's performance and evidence across the different domains of practice.
Multi-source Feedback (MSF)	Evaluates the individual's performance using feedback from colleagues.
Patient / Carer Feedback	Evaluates the individual's communication and consultation skills from the patient's perspective.
Patient / Carer Feedback Reflection	Allows the individual to reflect on the feedback received through patient surveys.
Reflective Account (RA)	Flexible tool for individuals to document reflection and learning from a wide range of settings.

6.4 What other evidence types can be used in addition to supervised learning events?

Evidence types additional to supervised learning events may also be required to demonstrate achievement of the curriculum outcomes. The individual undertaking this programme is free to upload any evidence type they feel demonstrates achievement of the curriculum outcomes.

6.5 What are the evidence requirements for the final RPS & CMHP assessment?

These are described in detail in the **assessment blueprint** in section 6.10.

For some of the outcomes, it may be necessary for the learner to be directly observed in practice (this may include the use of remote technology to facilitate this). Any mandatory evidence requirements are detailed in the assessment blueprint below.

Where demonstration of performance in practice is required, supervised learning events including multi-source feedback are likely to form the highest quality of evidence upon which a competence committee can base their judgement.

The **assessment blueprint** shows the recommended assessment tools for each outcome; it is, however, at the individual's discretion as to which assessment tool they choose to evidence each outcome. It is **not** expected for the individual to use all the recommended potential tools below for each outcome – these are provided simply as guidance.

Relevant evidence may be mapped to learning outcomes in both the core advanced curriculum and the advanced critical care curriculum.

Outcome 2.1 of the curriculum requires pharmacists to demonstrate they have the requisite knowledge and **outcome 2.2** requires pharmacists to demonstrate they have the requisite clinical skills to practice at an advanced level in critical care. The knowledge and skills guide is provided in Section 4. This provides candidates and education providers with a clear syllabus for the knowledge expected of an advanced critical care pharmacist as well as the list of practice skills that must be competently and autonomously demonstrated in the workplace.

6.6 Is there a requirement for reflective practice?

Evidence of reflective practice should flow longitudinally through the evidence. Where possible, reflective accounts should be supplemented with other validating evidence supporting the reflections. It is recognised that it may not always be possible to undertake contemporaneous reflection if some time has elapsed since the learning event; if this is the case, examples of retrospective reflection are equally acceptable.

6.7 What are the outcome stakes ratings and what do these mean in terms of evidence requirements?

In line with the programmatic assessment approach, each outcome has been given a stakes rating of either **H**igh, **M**edium or **L**ow based on their potential risk to patient safety.

The depth and breadth of evidence in the e-Portfolio should be proportionate to its stakes to inform robust decisions involving patient safety i.e., the higher the stakes rating for an outcome, the more evidence of learning should be mapped to that outcome. Individuals are therefore advised to ensure those outcomes stated as high stakes are supported by as wide a range of robust evidence as possible.

The stakes rating does not relate to the importance of the outcome. All the curriculum outcomes should be considered as equally important in terms of demonstrating advanced level practice and **all outcomes must be achieved in the programme of assessment to be credentialed.**

All the learning outcome for the advanced pharmacist critical care curriculum are rated as high stakes.

6.8 What will the e-Portfolio include?

Pharmacists will be granted access to the RPS advanced pharmacist critical care e-Portfolio to record and compile their learning and assessment evidence against the specialist outcomes in this curriculum. This will be a supplementary module to the RPS core advanced e-Portfolio. The pharmacist will be able to invite collaborators to provide feedback by generating ticketed supervised learning events. Educational supervisors, practice supervisors and mentors will be given access to the RPS e-Portfolio to undertake supervised learning events, record feedback and critically review evidence submitted against the outcomes. Individuals will also be able to record the outcomes of their meetings with their educational supervisor and mentors using the relevant report templates and develop action plans to inform next steps.

6.9 How are the knowledge elements and practical skills elements of the curriculum assessed?

The advanced pharmacist critical care specialist knowledge and skills guide in Section 4, sets out the underpinning knowledge and skills required of pharmacists wishing to credential as advanced pharmacists in critical care.

The advanced pharmacist critical care assessment will not assess the entirety of the knowledge guide. Through the portfolio review, assurance will be provided that the advanced critical care pharmacist can:

- Provide care for critically unwell patients, competently and autonomously, managing complex situations related to analgesia-sedation, shock and the PK/PD changes experienced in the critically unwell patient
- They will also demonstrate their broader capability to manage other presentations in the critical care environment and importantly their ability to manage potentially unfamiliar situations, identifying, utilising and applying appropriate resources, including in the absence of clear guidance and/or where there is conflicting or ambiguous evidence

The required clinical skills must be demonstrated and assessed in practice by a suitable observer.

6.10 Assessment blueprint

The table shows the possible methods of assessment for each outcome. It is not expected that every assessment tool will be used for each of the outcomes and additional evidence may be used.

	SPECIALIST OUTCOMES	STAKES[1]	ACAT	DOPS	MINI-CEX	CbD	PS	PSR	MRF	LEVEL OF PERFORMANCE	MANDATORY EVIDENCE REQUIREMENTS[2]
1.1	Communicates effectively, addressing the communication challenges present in critical care settings.	HIGH	×	×	×		×	×	×	DOES	
1.2	Follows ethical and legal frameworks to deliver person-centred holistic care for people who are critically unwell.	HIGH		×	×	×	×	×	×	DOES	
2.1	Delivers care using advanced pharmaceutical knowledge and skills, for individuals or groups requiring critical care support (Level 2 /3) for illness including multi-organ failure.	HIGH	×	×	×	×				DOES	See Mandatory evidence requirements[3]
2.2	Undertakes a holistic clinical review of critically unwell individuals using a range of assessment methods, appropriately adapting assessments and communication style based on the individual. Can utilise advanced clinical skills in the management of the critically unwell.	HIGH	×	×	×	×				DOES	Mandatory clinical assessment skill evidence[4] Direct Observation
2.3	Demonstrates effective clinical reasoning skills, making autonomous, evidence informed, person-centred decisions about treatment for critically ill individuals or groups, managing risk in the presence of significant uncertainty.	HIGH	×		×	×				DOES	Requirement to use ACATs
2.4	Collaborates with the multi-professional team to improve the delivery of critical care for individuals and cohorts receiving care.		×		×	×			×	DOES	Requirement to use ACATs

KEY			
ACAT	Acute care assessment tool	**CP**	Case presentation
DOPS	Direct observation of procedural skills	**Mini-CEX**	Mini-clinical evaluation exercise
CbD	Case based discussion	**MSF**	Multisource feedback
PS	Patient survey	**PSR**	Patient survey Reflection

1	Stakes	H	High stakes
		M	Medium stakes
		L	Low stakes
2	Direct observations	Pharmacist must be observed undertaking activities. Can be done remotely.	
	Indirect observation	Requires discussion between supervisor and learner. Can be done remotely.	
	Blank	No specific interaction required.	
3	Mandatory knowledge evidence requirements	The evidence submitted for this outcome must demonstrate in-depth application of knowledge in the following **three** areas: • Analgesia and Sedation • Shock • PKPD (Pharmacokinetic/Pharmacodynamic) changes in critically unwell patients The evidence must also demonstrate care provision for at least another **three** different clinical areas listed in the knowledge guide. In-depth application of knowledge can be demonstrated by using a range of cases that demonstrates complexity, application of evidence base, use of a range of approaches in negotiating areas of conflicting evidence or limited evidence and that captures MDT input.	
4	Mandatory clinical assessment skills evidence requirements	The evidence submitted for this outcome must include evidence of proficiency in clinical assessment in the following areas • Delirium screening (e.g., CAM-ICU, ICDSC) • Subjective sedation monitoring (e.g., RASS, SAS) • Pain Assessment (e.g., BPS, CPOT, NRS, VAS) The individual must have at least **three** Direct Observation of Practical Skills (DOPS) for each clinical assessment skill. The minimum level for each clinical assessment skill is: 'Able to perform the procedure with limited supervision / assistance.'	

6.11 How should pharmacists receive high quality feedback during programmes?

Assessment **for** learning (*formative* assessment) = **Supervised learning event**

Assessment **of** learning (*summative* assessment) = **Assessment of performance**

The provision of high-quality formative feedback to inform learning is essential to effective programmatic assessment. The individual undertaking the programme should request regular formative feedback from a wide range of sources, including from, but not limited to, the following people:

- Collaborators observing the individual whilst undertaking supervised learning events
- Colleagues from both within and outside of their organisation
- Colleagues from the wider pharmacy team
- Colleagues from the wider multidisciplinary team
- Both peers and more senior individuals
- Patients

Formative assessment opportunities through the supervised learning events should encourage individuals working towards advanced level practice to reflect on their practice and learning needs. It is expected that the final portfolio will contain evidence of formative feedback from a range of sources with evidenced progression as a result of this feedback.

Individuals should also receive formal formative feedback at their regular review meetings with their mentors and educational supervisor. This feedback should be more general and relate to intermediate decisions about their overall progress towards achieving the outcomes across a particular domain or across the curriculum as a whole. This feedback should be captured in the mentor and educational supervisor reports.

Regular review meetings with mentors and the educational supervisors will identify individuals who are struggling to make the expected progress against the outcomes. This may result from poor performance in the workplace, extended absence from practice or other issues which prevent the individual experiencing sufficient learning and development opportunities. Supported by their mentors and educational supervisor, the individual should identify when this is the case to enable the required support to be put in place as soon as possible. Any individual completing this programme should always be encouraged to work with their mentors, supervisor(s) and employer to resolve any issues affecting progress or performance in the first instance.

6.12 How does the final credentialing assessment work?

Individuals can submit their advanced pharmacist critical care e-Portfolio for a final assessment when they believe they have compiled sufficient evidence of learning against the outcomes. They can choose to do this at the same time as submitting their evidence for RPS core advanced credentialing or separately.

When an individual submits their advanced pharmacist critical care e-Portfolio for assessment, a competence committee will review the portfolio evidence to assess whether the candidate has met the minimum level of performance to be credentialed.

To be credentialed as an advanced pharmacist in critical care, the candidate will need to:

- Meet the standard for all domains of the RPS Core Advanced curriculum

AND

- Meet the standard for all domains of this critical care curriculum

Achieving the advanced critical care outcomes in this curriculum alone does not confer advanced level practice; these are designed to supplement the core advanced outcomes to assure advanced practice specifically in the critical care setting.

The summative portfolio assessment

Advanced Pharmacist Competency Committees (APCCs) are based on the concept of clinical competency committees which are recognised in the literature as an effective approach to

reaching final decisions on individuals' progression through a programmatic approach to learning and assessment.

APCC assessors will independently undertake a holistic review of the individual's portfolio content including, but not limited to, supervised learning event feedback, patient surveys, multi-source feedback, other evidence formats, action plans, reflective accounts mentor reports. The APCC will then have a group discussion to agree if the curriculum requirements have been met. This may be both the core and specialist outcomes in a single assessment or the separate assessment of the specialist outcomes.

The evidence will be assessed directly against the curriculum outcomes, using the descriptors to guide the assessment only. There will be no additional marking scheme or framework. The number of outcomes assessed will depend on whether the candidate is submitting for core and/or specialist credentialing simultaneously or separately.

For pharmacists who are submitting the two critical care domains in addition to the five core advanced domains, the APCC will consist of at least three panel members fulfilling the following roles:

- Two advanced pharmacists in critical care or one advanced pharmacist in critical care and one advanced critical care professional (e.g. doctor, ACCP).
- An assessor with appropriate research expertise.
- An assessor with appropriate educational expertise.

Each assessor will review the portfolio and make a judgement as to whether the candidate has met the standard for each of the two critical care domains and the five core advanced domains.

For a pharmacist who has already credentialed as 'Core Advanced' and is submitting the two critical care domains alone, the assessment will be undertaken by an APCC which will consist of at least two panel members that fulfil the following roles:

- Two advanced pharmacists in critical care or one advanced pharmacist in critical care and one advanced critical care professional (e.g. doctor, ACCP).

Each assessor will review the portfolio and make a judgement as to whether the candidate has met the standard for each of the two critical care domains. If the two assessors reach a different decision, a review meeting will be held. If a consensus is not reached from the review meeting, then the portfolio will be reviewed by a third assessor.

APCCs will be chaired by trained chair who is likely to be one of the panel members. If not, it will be a trained independent chair.

The potential domain outcomes are as follows:

Standard met – the individual has provided satisfactory evidence to demonstrate achievement of the advanced pharmacist curriculum outcomes under assessment in that domain.

Standard not met – the individual has not provided satisfactory evidence to demonstrate achievement of all the advanced pharmacist curriculum outcomes under assessment. Clear feedback will be provided as to which outcomes have not been met and why and the individual will need to be reassessed in one or more domains of the curriculum. The individual will not be required to resubmit evidence for those domains where the APCC agreed all the outcomes in that domain had been met.

Insufficient evidence – While some of the evidence provided indicated that the individual may be practising at the expected level, the gaps in the evidence were such that the committee was unable to confidently conclude the domain had been fully achieved. The individual will be required to resubmit for reassessment of the domain(s) where there was insufficient evidence provided. The individual will not be required to resubmit evidence for those domains where the APCC agreed all the outcomes in that domain had been met.

All domains under assessment must be achieved as standard met for the individual to be credentialed. All applicants will receive formative feedback on their submission regardless of the final outcome of the assessment.

6.13 What is the award for credentialing?

Candidates who meet the above criteria (6.12) will be credentialed as an advanced pharmacist in critical care. All candidates will receive a statement of results confirming demonstration of the RPS core advanced curriculum domains and the supplementary advanced critical care domains.

RPS members and fellows who have successfully demonstrated the RPS core advanced curriculum domains will be eligible to use the modified membership post-nominals: MRPharmS (Advanced) or FRPharmS (Advanced).

6.14 How is the final credentialing assessment quality assured?

Quality assurance mechanisms are in place to ensure the continued quality of the programme of assessment to ensure assessment outcomes are fair and valid. These include:

- The provision of detailed guidance for those undertaking the programme as well as other stakeholders involved in their learning to ensure transparency in the expected standard and assessment process
- All those undertaking the programme, including those submitting for the assessment, will be invited to provide feedback on their experience to inform future improvement
- Learner performance and assessment outcome data will be subjected to psychometric analysis which will be reviewed regularly by RPS Advanced Pharmacist Assessment Panel and the RPS Education & Standards Committee. These governance structures are responsible for reviewing longitudinal performance trends
- Guidance and training are provided to supervisors and collaborators to ensure they understand their roles and responsibilities and to improve the quality of the support and feedback provided during the programme
- Robust operational processes are in place to ensure consistency and fairness in the running of the APCCs
- Members of the APCC pool will be subjected to mandatory training prior to reviewing live portfolios
- Members of the APCC pool will be asked to declare any potential conflicts of interest with candidates to ensure an independent and fair assessment
- The programme of assessment will be independently reviewed by an assessment expert after its first year to ensure it is valid and fit for purpose. The curriculum, including the programme of assessment, will also be subject to annual review by the subcommittee of the Advanced Pharmacist Assessment Panel to ensure it remains relevant to practice
- A transparent appeals process will be available to individuals undergoing assessment if they believe their outcome has been affected by procedural or administrative irregularities

6.15 How is prior certified learning recognised?

The RPS will consider accreditation of prior certified learning (APCL) for low and medium stakes outcomes.

As all the learning outcomes in the advanced pharmacists critical care curriculum are high stakes, there will be no APCL awarded against the outcomes. All curriculum outcomes need to be demonstrated through the portfolio assessment at point of credentialing.

6.16 How do we ensure the final credentialing assessment will be inclusive and any potential bias will be mitigated?

The RPS and UKCPA are committed to developing and delivering inclusive assessments which allow any individual to demonstrate the curriculum outcomes without bias.

In addition to the measures outlined in section 3.2, the RPS and UKCPA have a number of measures in place to mitigate bias and discrimination against learners with protected characteristics. These include:

- Promoting inclusivity and diversity in our assessment governance structures to ensure their membership mirrors the diversity of those undertaking the assessment programmes
- Ensuring assessment panels have undertaken mandatory training, including around conscious and unconscious bias
- Tasking our assessment panels and overarching quality governance board with monitoring and addressing differential attainment in our assessment programmes
- Collating and transparently publishing equality and diversity data related to assessment performance
- Providing clear reasonable adjustment processes for anyone undertaking the assessment who requires them on the grounds of a disability

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