

**ROYAL
PHARMACEUTICAL
SOCIETY**

UKCPA
CLINICAL PHARMACY ASSOCIATION

**Knowledge and
Capability Guide
COVID-19
Critical Care
Training Resource**

NOVEMBER 2020



This guide has been extracted from the UKCPA Expert Practice Critical Care Curriculum. It is focused on developing knowledge and understanding aligned to the Expert Professional Practice cluster of the Advanced Pharmacy Framework. There are other domains of practice that are also critical when practising effectively at Foundation and Advanced levels. These are set out in the respective clusters of the RPS [Foundation](#) and [Advanced](#) Pharmacy Frameworks.

TOPIC OVERVIEW	TICK WHEN COMPLETE
Caring for the Critically Ill Patient	
Therapies specific to critical care	
Organ failure and support in critical care	
Common conditions in critical care	

CORE RESOURCE LIST	
RESOURCE	TICK WHEN COMPLETE
CR1. UKCPA Introduction to Critical Care Handbook	
CR2. RPS/UKCPA Critical Care Q&A Webinar 1 (Medication reconciliation, sedation, AKI)	
CR3. RPS UKCPA Critical Care Q&A Webinar 2 (ARDS, fluid management, renal replacement therapy)	
CR4. RPS UKCPA Critical Care Q&A Webinar 3 (Vasopressors, delirium, routine ITU care)	
CR5. RPS/UKCPA Thrombosis Q&A webinar	
CR6. UKCPA Fundamentals of Critical Care learning slides	
CR7. RPS/UKCPA PIN webinar from 2 Apr 20 (Antibiotic use and IPC)	
CR8. RPS/UKCPA PIN webinar (21 Oct 20 - Antivirals and corticosteroids)	
CR9. RPS/UKCPA PIN webinar (5 Nov 20 - Antibiotic and antifungal use during COVID-19)	

Using the Guide:

- Refer to [Step 1](#) and [Step 2](#) of our upskilling guide
- When rating your confidence against a topic (1-5), 1 = Not confident at all, 5 = Very confident
- Additional resources are hyperlinked in the guide
- Abbreviations: CC = Critical Care, PIN = Pharmacy Infection Network CR = Core resource (i.e. CR1 = UKCPA Intro to Critical Care Handbook)

For the most up to date version of this guide [click here](#)

CARING FOR THE CRITICALLY ILL PATIENT

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
<p>Levels of care (0-3) - the characteristics of patients that require these, levels of medical support provided and the goals of care</p>	<ul style="list-style-type: none"> Intro Guide (CRI) 	High	RATING DATE		
<p>Understands how to systematically review the critical care patient to identify and resolve medicines related issues using FLATHUGS or similar.</p>	<ul style="list-style-type: none"> Intro Guide (CRI) Q&A 1 (CR2) FLATHUGS review checklist (CR5) 	High	RATING DATE		
<p>Understands invasive devices used locally in the management of critically ill patients, and their influence on drug therapy.</p>	<ul style="list-style-type: none"> CC Fundamentals, Slide 6-9 (CR6) SPS Quick Guide: Handbook on Injectable Medicines and Medusa IV drug compatibility and central access (SHPA webinar) watch from 42:05 onwards. UKCPA Minimum Infusion Volumes guide (CR5) ICM standard concentrations list (CR5) Mixing medicines in a syringe (SPS) 	High	RATING DATE		
<p>Mechanisms of altered pharmacokinetics in critical care and the impact on dosing.</p>	<ul style="list-style-type: none"> Intro Guide (CRI) Guide to assessing renal function (CR5) Medicines Complete Critical Care Monographs PK changes in critical care video (Critic) 	High	RATING DATE		

CARING FOR THE CRITICALLY ILL PATIENT (CONT.D)

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
<p>Patient monitoring and critical care scoring systems used locally: e.g. GCS, Apache II, SOFA, pain score, therapeutic intervention scoring system.</p>	<ul style="list-style-type: none"> LIFTL: ICU scoring systems 	High	RATING DATE		
<p>Drug administration in complex situations e.g nil-by-mouth, ileus, enteral devices etc.</p>	<ul style="list-style-type: none"> CC Q&A 1 (CR2) CC Fundamentals, Slides 27-29 (CR6) Enteral Feeding Handbook (if accessible) PJ article 	High	RATING DATE		
<p>Supportive Care in ICU: Bowel Management</p> <ul style="list-style-type: none"> Optimise use of laxatives and prokinetics QT interval monitoring for prokinetics Ability to interpret stool chart 	<ul style="list-style-type: none"> CC Q&A 3 (CR4) 	High	RATING DATE		
<p>Supportive Care in ICU: eye care</p>	<ul style="list-style-type: none"> NHS Southampton poster (CR5) 	Medium	RATING DATE		
<p>Infection Prevention and Control</p>	<ul style="list-style-type: none"> Local policies and procedures For general guidance, see the NHS website 	Medium			

THERAPIES SPECIFIC TO CRITICAL CARE

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
Anaesthesia and Sedation					
Monitoring of sedated patients	<ul style="list-style-type: none"> CC Q&A1 (CR2) CC Fundamentals, Slide 10 (CR6) 	High	RATING DATE		
The basic modes of invasive and non-invasive mechanical ventilation , and the implications on drug therapy	<ul style="list-style-type: none"> SHPA webinar⁵ See Acid-base balance 	Medium	RATING DATE		
Pharmacological management and clinical indications for analgesia , including strategies to deal with medication shortages and unavailability of infusion devices	<ul style="list-style-type: none"> CC Q&A1 (CR2) CC Fundamentals, Slides 18-21 (CR6) 	High	RATING DATE		
Pharmacological management of sedation and neuromuscular paralysis as well as clinical indications for initiating these, including strategies to deal with medication shortages and unavailability of infusion devices	<ul style="list-style-type: none"> CC Q&A1 (CR2) CC Fundamentals, Slides 10-22 (CR6) ICM drug demand-supply guidance 	High	RATING DATE		

THERAPIES SPECIFIC TO CRITICAL CARE (CONT.D)

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
Inotropes and vasopressors					
The differences between classes of inotropes and vasopressors and how this influences their choice in the treatment of shock and other conditions requiring cardiovascular support.	<ul style="list-style-type: none"> CC Q&A 3 (CR4) CC Fundamentals, Slides 24-26 (CR6) 	High	RATING DATE		
Enteral and parenteral Nutrition					
Appropriate local use of artificial nutrition and management of patients that have feeding tubes or are on parenteral nutrition.	<ul style="list-style-type: none"> BDA/ICM guidance (CR5) CC Fundamentals, Slide 37 (CR6) 	High	RATING DATE		
COVID-19 therapies and clinical trials					
Experimental therapies and clinical trials relating to COVID19	<ul style="list-style-type: none"> PIN Q&A 2 (CR8) COVID-19 management section of RPS hub NICE COVID-19 corticosteroid prescribing brief NHS Interim Clinical Commissioning Policy: Remdesivir 	High	RATING DATE		

ORGAN FAILURE AND SUPPORT IN CRITICAL CARE

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
Renal function and dysfunction					
Assessment of renal function in the critical care context, including acute kidney injury; considerations for medicines management	<ul style="list-style-type: none"> CC Q&A 1 (CR2) Assessing renal function (CR5) Intro Guide (CR1) ICM guidance page 19 (Renal) 	High	RATING DATE		
Types of medicines that are removed by renal replacement therapies ; considerations and use of information sources when reviewing dosing	<ul style="list-style-type: none"> CC Fundamentals, Slides 36 (CR6) SPS Q&A Medicines Complete Critical Care CC Q&A 2 (CR3) Joint guidance on RRT - Appendix 1 	High	RATING DATE		
Indications for and key differences between different methods of renal replacement therapies , including ancillary medications used to manage them.	<ul style="list-style-type: none"> CC Q&A 2 (CR3) CC Fundamentals, Slides 34-35 (CR6) 	Medium	RATING DATE		
Respiratory					
Type 1 and 2 respiratory failure ; ARDS and its management	<ul style="list-style-type: none"> CC Q&A 2 (CR3) SHPA webinar ICM guidance - sections 5 	High	RATING DATE		

ORGAN FAILURE AND SUPPORT IN CRITICAL CARE (CONT.D)

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
Other					
Acid-base balance: Physiology and management of disturbances (acidosis and alkalosis)	<ul style="list-style-type: none"> Australian Prescriber article Local protocols (for prescribing and administration) 	Medium	RATING DATE		
Able to identify and correct electrolyte imbalances in critical care	See local protocols for potassium, calcium, phosphate, magnesium correction, if available. Also see: <ul style="list-style-type: none"> SPS IV potassium Q&A SPS phosphate replacement Q&A Critical care perspective (EMCRIT) 	Medium	RATING DATE		

COMMON CONDITIONS IN CRITICAL CARE

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
Infection					
Coronavirus disease 2019 (COVID-19)	<ul style="list-style-type: none"> NICE COVID-19 critical care rapid guidance including admission algorithm ICM guidance - Section 3 RCPCJ Guidance - Paediatric multisystem inflammatory syndrome temporally associated with COVID-19 	High	RATING DATE		
Locally endorsed guidelines, or in the absence of this, national guidelines on the management of common infections in the critically ill patient, e.g. CAP, HAP/ VAP, Urosepsis, Intra-abdominal, skin and soft tissue.	<ul style="list-style-type: none"> RPS/UKCPA webinars (CR7 and CR9) See local protocols for antibiotic regimens Common nosocomial infections in ICU (LIFTL) NICE COVID-19 guideline - pneumonia in hospitalised patients Start Smart then Focus 	High	RATING DATE		
Identification and treatment priorities in sepsis and septic shock ; Local sepsis pathways	<ul style="list-style-type: none"> Surviving sepsis campaign guidelines 	High	RATING DATE		

COMMON CONDITIONS IN CRITICAL CARE (CONT.D)

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
<p>Risk factors for hospital-acquired infections, such as ventilator-associated pneumonia, <i>C. diff</i>, and multi-resistant organisms infections; strategies to prevent these.</p>	<ul style="list-style-type: none"> RPS/UKCPA webinars (CR7 and CR9) <u>Mechanisms & drivers of AMR</u> (registration required) Risk factors for VAP (CID) See the '<i>C difficile</i>' section in this <u>NICE evidence summary</u> 	High	<p>RATING</p> <p>DATE</p>		
<p>Risk factors for and awareness of infections with opportunistic respiratory pathogens e.g. <i>Aspergillus</i> species.</p>	<ul style="list-style-type: none"> PIN Q&A 3 (CR9) 	Medium	<p>RATING</p> <p>DATE</p>		

COMMON CONDITIONS IN CRITICAL CARE (CONT.D)

LEARNING TOPIC	RESOURCES	PRIORITY	CONFIDENCE RATING (1-5) DATE OF LAST LEARNING	LEARNER COMMENTS	TUTOR COMMENTS
Delirium					
Risk factors for delirium , prevention and treatment	<ul style="list-style-type: none"> CC Q&A 3 (CR4) CC Fundamentals, Slides 38-39 (CR6) ICU delirium hub, contains information on assessing, preventing and managing delirium 	Medium	RATING DATE		
Arrhythmias					
Management of atrial fibrillation , including relevant antithrombotic strategies	<ul style="list-style-type: none"> NICE AF guideline section 1.7 Local drug protocols (e.g. IV amiodarone) ESC 2016 guidelines: Tables 15 and 16 ICU considerations section of this summary (LITFL) and <u>modifiable risk factors</u> 	Medium	RATING DATE		
Pathophysiology of, and risk factors for the development of arrhythmias in critical care	<ul style="list-style-type: none"> EHRA 2018 guidelines Joint guidance for prevention, detection and management of thromboembolic disease in COVID-19 (June 2020) 	Medium	RATING DATE		
Clotting disorders					
Management and prevention of thromboembolism in critical care including local practice	<ul style="list-style-type: none"> Local VTE prophylaxis protocol Webinar 1 Thrombosis ICM guidance page 19 (<u>thromboprophylaxis and treatment of thromboembolus</u>) 	High	RATING DATE		

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