



**PUBLISHED**  
02.22

**VERSION**  
1.0

**FOCUS**  
Guidelines

[ukclinicalpharmacy.org](https://ukclinicalpharmacy.org)

Critical care

# Pharmacy services needed for enhanced care

This report was produced by the Critical Care Committee of the [UK Clinical Pharmacy Association](https://ukclinicalpharmacy.org).

## Authors

- **Mark Borthwick**, Consultant Pharmacist Critical Care, Oxford University Hospitals NHS Foundation Trust
- **Greg Barton**, Principal Clinical Pharmacist, Education & Training Clinical specialty, Critical Care & Burns St Helens and Knowsley Teaching Hospital NHS Trust
- **Jan Basey**, Consultant Pharmacist Acute Admissions, Royal Liverpool University Hospital
- **Richard Bourne**, Consultant Pharmacist Critical Care, Sheffield Teaching Hospitals NHS Foundation Trust
- **Ruth Forrest**, Lead Clinical Pharmacist, Theatres, Anaesthetics and Critical Care, NHS Greater Glasgow and Clyde
- **Fraser Hanks**, Principal Critical Care Pharmacist, Guy's and St Thomas NHS Foundation Trust
- **Christie James**, Lead Critical Care Pharmacist, Aneurin Bevan University Health Board
- **David Kean**, Lead Critical Care Pharmacist, Regional Intensive Care Unit (RICU), Belfast Trust
- **Reena Mehta**, Consultant Pharmacist Critical Care, Kings College Hospital NHS Foundation Trust
- **David Sapsford**, Consultant Pharmacist Critical Care, Cambridge University Hospitals NHS Foundation Trust
- **Alan Timmins**, Lead Clinical Pharmacist, Victoria Hospital, Kirkcaldy, NHS Fife

For more information, please contact Mark Borthwick: [Mark.Borthwick@ouh.nhs.uk](mailto:Mark.Borthwick@ouh.nhs.uk)

## Endorsing organisations



# Introduction

The provision of pharmacy services to critical care areas is well described<sup>1</sup> with widespread awareness and adoption of these standards<sup>2,3</sup>. Critical care bed numbers are defined by the 'level of care', with Level 2 beds (high dependency) and Level 3 beds (intensive care) classed as critical care and normal ward care described as Level 0<sup>4</sup>. This leaves Level 1 beds as a largely undefined grouping when it comes to specifying acceptable pharmacy service levels.

In the wake of the COVID-19 pandemic, the concept of 'enhanced care' beds is receiving heightened attention due to the need to service growing surgical waiting lists, whilst building resilient surge capacity for any future local or national surges in COVID cases, or other potential pathogens that impact the wider health service (such as flu or RSV). Transformation of clinical services is expected, with the construction of new patient pathways underway. Some guidance on enhanced care areas has already been published<sup>5</sup>.

For enhanced care to succeed, pharmacy services need to be integrated into planning cycles that are building the patient pathways. This document seeks to provide a basis for those discussions to ensure uniformity of approach.

## Clinical pharmacist services

Pharmacist's daily activities on ward areas can be broadly grouped into three categories:

- Individual patient medication review
- Medication review within the MDT ward round/board round
- 'Everything else' (including professional support activities, clinical governance, clinical guidelines, research and evaluation / audit, and education and training).

Each of these broad categories is supported by an evidence base demonstrating improvement in a variety of outcomes from medicines safety and optimisation, to reduced medication error, reduced length of stay, reduced mortality, and improved economic outcomes<sup>6-10</sup>.

These outcomes can only be achieved with the deployment of an appropriately trained workforce who are in receipt of the appropriate job time within which to undertake the activities required.

We know that the pharmacist's individual medication review of patients in UK critical units (Level 2 and Level 3) takes 3.75 hours per day for a 10 bedded unit (22.5mins per review)<sup>6,7</sup> and we know from a UK multicentre service evaluation that critical care pharmacists contribute to patient care in one in every 6 prescription items they review, most of which are clinically significant.<sup>6,7</sup>

We expect the medication review to take proportionately more time in units with a short length of stay or where there are more complex or unstable patients, because of rapid changes in kinetics, dynamics, routes of administration or new therapies for example. The time will be proportionately shorter with longer stay or more stable patients.

Medicines reconciliation on patient admission accounts for approximately 25 minutes per patient<sup>11</sup>. In addition to this, time is required for medicines reconciliation when patients move to other care areas or step to a different level of care (such as critical care discharge medicines reconciliation). In UK practice, clinical pharmacy staff provide cost-effective medicines reconciliation, identifying approximately 1.3 medication errors per medicines reconciliation completed, 40 percent of which are clinically significant<sup>12</sup>.

Ward round or board round attendance ('proactive care': ensuring good communication and prompt input or actioning of decisions) takes a variable amount of time depending on the culture of the unit, but a typical estimate is approximately 10 minutes per patient, or 1.5 hours per day for a 10 bedded unit. Multi-professional ward round attendance increases the input and contribution of clinical pharmacists to patient medication safety and quality of care<sup>6,7</sup>. Additional rounds are common and attendance time for these will also need factoring in (such as microbiology rounds, acute pain rounds, nutrition team rounds, a second consultant round or 'afternoon round').

Direct pharmacist to patient care thus takes a minimum of five hours per day for a 10 bedded unit, before the third component of 'everything else' is accounted for (clinical governance and incident investigation, guidelines, formulary, department meetings, education, audit, CD and safe and secure storage as well as clinical audit, research, management, finance and medicines expenditure governance).

Enhanced care areas therefore require approximately 0.75 whole time equivalent (wte) pharmacist for a 5/7 service or 1 wte pharmacist for a 7/7 service for a 10 bedded unit for the direct care aspect (although it is recognised that some enhanced care services may operate on a weekday only basis).

These figures do not include cover for planned or unplanned absence (such as annual leave, study leave, sickness). A factor of 1.25 is widely recognised as required to provide staff continuity (0.94 wte 5/7; 1.25 wte 7/7)<sup>13</sup>. These figures also do not include time for any additional specialty rounds (microbiology, acute pain, nutrition, etc) which will need to be added in where undertaken.

The enhanced care pharmacist could be a standard ward based pharmacist equipped with extra experience or skills (such as some of the Advanced Stage 1 skills in the Royal Pharmaceutical Society Critical Care Curriculum)<sup>14</sup> and would use these to manage the more physiologically vulnerable or unstable patient, or they could be members of an expanded critical care pharmacy team.

Given that enhanced care is intended to relieve some critical care capacity pressures, it makes more sense for the enhanced care pharmacist to be an extension of the standard ward care team, rather than the critical care team. However, close liaison is essential and would be beneficial for training, surge planning and contingency reasons.

An additional consideration is that pharmacists frequently have responsibility for several services, and thus the final configuration within any particular organisation will depend on how these aspects combine to create manageable 1.0wte jobs, as well as maintaining adequate cover arrangements. If any calculation comes out with a part post, the preferred option would be to round up, not down, because of the disproportionate effect that small changes in job time have on small teams.

The pharmacist should be encouraged to be an independent prescriber (as is the case with critical care pharmacists). This significantly aids the efficiency and timeliness of actions related to the individual medication reviews undertaken by pharmacists and that of the multiprofessional team, particularly

where medication safety and optimisation are required. For example, correction of a medication error or the pharmaceutical forms required by patients changes rapidly (IV to NG to PO), drug doses change due to changeable pharmacokinetic reserve (renal, hepatic surgical drain outputs), and in suspending or restarting pre-existing medication therapy.

## Embedded support roles

Organisations are increasingly employing medicines management technicians (MMTs) who can support some of the activities that pharmacists have traditionally performed, in order to release pharmacists to utilise the more skilled functions within their role. MMTs comprise of pharmacy technicians who are also regulated by the General Pharmaceutical Council. Typically, MMTs perform medicines reconciliation and do some of the medicines management functions (such as ordering medicines, stock control, managing medicines shortages, completion of mandatory audits and monitoring functions) so that the pharmacist can concentrate on medicines optimisation roles. MMT roles are not yet common in critical care areas. The implementation of enhanced care areas provides an opportunity to create a more efficient staff skill mix whereby MMTs work alongside enhanced care pharmacists, reducing the whole-time equivalent pharmacist time required.

A variety of configurations are possible. For example, there could be 0.5wte enhanced care pharmacist for a 7/7 service to 10 beds, alongside a 0.5 wte MMT (factored for continuity = 0.63 wte both 7/7 + weekend enhancements). Similarly, a more junior pharmacist could be utilised in place of the MMT and the experience gained forms part of the junior pharmacists training. MMTs are not permitted to prescribe and there are currently no plans to change this.

Pharmacy assistants perform top-up to ensure stock medicines are ordered for the clinical area. The frequency of top-up needs to be agreed and will depend on factors such as patient throughput, size of clinical area, and space available for storage. Often when the medications are delivered, it is ward nursing staff that put the medicines away. Serious consideration must be given to the appropriateness of pulling nursing staff from clinical duties to do this. A strategy of employing more pharmacy assistant time to fulfil this function releases ward staff back to delivering patient care.

Pharmacy assistants also ensure good stock rotation, perform expiry checks in medicine cabinets, controlled drug cabinets and fridges, perform medicine returns for re-use, check patients own drugs (PODs) where necessary for inpatient use, and specifically monitor quantities of essential or rare use medicines to ensure availability when needed in an emergency.

## Operational pharmacy services

As well as the largely ward based role, pharmacy services fulfil a wide range of functions that underpin medicines use across hospital services, including in enhanced care areas. There is a significant risk that the impact on these functions is not accounted for when introducing new clinical services or when reconfiguring existing services within the organisation.

The impact of proposals on interrelated pharmacy services needs to be undertaken whenever an organisation plans to introduce new facilities, or reorganises, develops or reformats existing clinical services, including enhanced care. It is unreasonable to expect pharmacy services to absorb increased workload associated with such developments without this consideration.

**The table below outlines services provided by pharmacy that may be impacted.  
This is not an exhaustive list.**

Service Provided	Brief Description
Dispensary	Dispensing of non-stock medications for specific patients Dispensing of Controlled Drugs for stock or specific patients
Manufacturing	Production of bespoke liquids for enteral tube administration Production of bespoke creams/ointments/lotions
Aseptic manufacturing Aseptic dispensing	Production of parenteral nutrition Production of parenteral cytotoxic doses Production of prefilled syringes (or other dose forms)
Procurement	Sourcing of licensed and unlicensed medication Management of medicines shortages
Stores and distribution	Provision of stock medications to clinical area Top-up services Put away services Provision of 'kits' (eg PE kits, intubation kits, cardiac arrest kits) Maintenance of emergency trollies (eg intubation trolley, line trolley, resuscitation trolley) Maintenance of transfer bag contents
On-call services	Provision of advice or product out-of-hours
Medicines Information	Provision of specialist in depth advice based on thorough literature review for - specific patients - introduction of new medicines (eg formulary)
Monitoring	Mandatory audits (eg safe and secure handling of medicines) Service Quality Assurance (eg fridge monitoring, room temperature monitoring) Financial reporting and spend analysis Prevention of lost income by ensuring high cost drug, Individual Funding Requests, Blueteq data are submitted for reimbursement of high cost drugs from commissioners.

## Overall key points

- ❖ There must be a designated enhanced care pharmacist for every enhanced care area
- ❖ The enhanced care pharmacist must have sufficient job time within which to do the job, taking into account all the factors described above
- ❖ Clinical pharmacy services must be available for the enhanced care area on every day the area is open
- ❖ Pharmacists who provide a service to enhanced care areas must have the minimum competencies to allow them to do so (completion of foundation framework<sup>15</sup>, appropriate Advanced Stage I skills for the enhanced care area served<sup>14</sup>)
- ❖ Enhanced care pharmacists must have access to a critical care pharmacist for advice and referrals
- ❖ As a minimum, the enhanced care pharmacist must attend daily multi-professional ward rounds on weekdays (excluding public holidays)
- ❖ There must be agreed and sufficient patient-facing pharmacy technical staff to provide supporting roles
- ❖ There must be agreed and sufficient pharmacy assistant staff to support the clinical area
- ❖ There must be an appropriate contribution to supporting operating pharmacy services as part of any setting up or expansion of enhanced care areas.

## References

1. Faculty of Intensive Care Medicine / Intensive Care Society. Guidelines for the Provision of Intensive Care Services: 2<sup>nd</sup> Edition (2019). <https://www.ficm.ac.uk/sites/default/files/gpics-v2.pdf>
2. NHS England. Adult Critical Care Service Specification (D05, 170118S), 2020. <https://www.england.nhs.uk/wp-content/uploads/2019/05/Adult-Critical-Care-Service-Specification-FINAL.pdf>
3. Getting It Right First Time Programme. Adult Critical Care: GIRFT Programme National Specialty Report. 2021. <https://www.gettingitrightfirsttime.co.uk/wp-content/uploads/2021/08/Adult-Critical-Care-Aug21L.pdf>
4. The Intensive Care Society. Levels of Adult Critical Care: Second Edition. Consensus Statement. [https://www.cc3n.org.uk/uploads/9/8/4/2/98425184/2021-03\\_levels\\_of\\_care\\_second\\_edition.pdf](https://www.cc3n.org.uk/uploads/9/8/4/2/98425184/2021-03_levels_of_care_second_edition.pdf)
5. The Faculty of Intensive Care Medicine, Centre for Perioperative Care. Guidance on establishing and delivering Enhanced Perioperative Care Services, October 2020. [https://www.ficm.ac.uk/sites/default/files/enhanced\\_perioperative\\_care\\_guidance\\_v1.0.pdf](https://www.ficm.ac.uk/sites/default/files/enhanced_perioperative_care_guidance_v1.0.pdf)
6. Shulman R, McKenzie CA, Landa J, Bourne RS, Jones A, Borthwick M, Tomlin M, Jani YH, West D, Bates I. Pharmacist's review and outcomes: Treatment-enhancing contributions tallied, evaluated, and documented (PROTECTED-UK). J Crit Care. 2015;30 (4) :808-13.
7. 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, International Journal of Clinical Pharmacy Practice, 2017; 25(4): 311-319.
8. Lee H, Ryu K, Sohn Y, Kim J, Suh GY, Kim EY. Impact on Patient Outcomes of Pharmacist Participation in Multidisciplinary Critical Care Teams: A Systematic Review and Meta-Analysis. Critical Care Medicine, 2019; 47(9): 1243-1250.
9. Leguelinel-Blache G, et al. Impact of quality bundle enforcement by a critical care pharmacist on patient outcome and costs. Crit Care Med 2018; 46: 199–207.
10. Hammond DA, Flowers HJC, Meena N, Painter JT, Rech MA. Cost avoidance associated with clinical pharmacist presence in a medical intensive care unit <https://doi.org/10.1002/jac5.1111> Journal of the American College of Clinical Pharmacy.
11. Bosma LBE, Hunfeld NGM, Quax RAM, Meuwese E, Melief PHGJ, van Bommel J, et al. The effect of a medication reconciliation program in two intensive care units in the Netherlands: a prospective intervention study with a before and after design. Ann Intensive Care; 2018;8:19.
12. Dodds L. Results of a Collaborative Audit of Pharmacy-led Medicines Reconciliation (MR) in 56 trusts across E & SE England. Medicines Use and Safety Division, East and South East Specialist Pharmacy Services 2010.
13. Drake R. Staff unavailability and safe staffing: are headroom allowances 'realistic'? Br J Nurs 2020; 29(7): 406-413.



14. Royal Pharmaceutical Society. Critical Care Expert Professional Practice Curriculum. RPS 2014.  
<https://www.rpharms.com/LinkClick.aspx?fileticket=Jxr3U9sNuXc%3D&portalid=0>
15. Royal Pharmaceutical Society. Foundation Pharmacy Framework. RPS 2014.  
<https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Frameworks/RPS%20Foundation%20Pharmacy%20Framework.pdf>

**UK Clinical Pharmacy Association**

PO Box 10916  
Wigston LE18 9HY

admin@ukcpa.com  
[ukclinicalpharmacy.org](http://ukclinicalpharmacy.org)



@UKCPA



@UKCPACritCare

