

Enhanced Care Units: Guidance on development and implementation within Acute Medicine

Joint Statement by the Society for Acute Medicine and Intensive Care Society

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Abstract

The Society for Acute Medicine (SAM) and Intensive Care Society (ICS) have produced joint guidance on the standards of care and infrastructure required to deliver enhanced care within Acute Medicine. The cohort of patients this relates to are in the most part already being looked after on the AMU, but co-location and providing enhanced monitoring and nursing input will ensure safe, high-quality care can be delivered to them. We strongly support the development of enhanced care units, whilst clearly acknowledging that they are not a replacement for critical care where that is indicated. Enhanced care and critical care complement each other and will help foster the close working between the two specialties that modern acute care requires.

This guidance draws on expertise and existing relevant guidance from the two societies, alongside that from the Faculty of Intensive Care Medicine (FICM), British Thoracic Society (BTS), National Institute for Health and Care Excellence (NICE) and NHS England / Improvement (NHSE/I). We recognise this is an area with limited evidence and so will aim to review it regularly as the knowledge and experience in this area increases.

Key recommendations

- Research into the delivery of enhanced care should be a priority for Acute Medicine and Intensive Care Medicine for the future.

Governance

- The ECU should have designated medical, nursing, physiotherapy and pharmacy leads and a clear operational policy
- ECUs should contribute to national audits such as SAMBA and seek to develop national quality indicators
- A robust monthly M&M process should be in place and include critical care input where relevant

Service model - physical infrastructure

- The number of beds required should be based on local clinical need and have capacity to flex for variations in demand
- Each bed space should have capabilities for continuous patient monitoring including oxygen saturations, blood pressure and ECG, and be displayed centrally on the ECU
- Each bed space should have 2 terminal units for oxygen, and at least one suction point
- We recommend co-location of a blood gas analyser within the ECU / AMU
- All units should have immediate access to an ultrasound machine. Ideally, clinicians with skills in point-of-care ultrasound should be available on an ECU

Service model - workforce

- Patients on an ECU should be reviewed at least twice a day by a senior decision maker, with one review being by a Consultant or equivalent
- There should be 24/7 consultant cover available who should ideally be from the same pool who deliver daytime work
- A senior decision maker should be available to assess patients within 30 minutes of admission and deterioration
- The nursing staff requirement of an ECU will be dependent on the number of beds within the unit and the complexity of each patient
- We recommend a minimum nurse:patient ratio of 1:4, rising to 1:2 where non-invasive respiratory support or vasopressors are used, or where side rooms are in use
- Nursing staff should be experienced and have demonstrable competence in the management of acutely unwell patients, with training facilitated by an AMU practice educator in collaboration with critical care
- In addition to staff required for direct patient care, there should also be a senior member of trained staff (band 6 or above) present on each shift to provide leadership and coordination
- There should be 7-day physiotherapy and pharmacy input
- There should be 7-day access to microbiology, palliative care and administrative support
- There should be at least 5-day access to other services, including speech and language therapy, occupational therapy, and dietetics

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Patient Pathway

- There should be locally agreed admission protocols
- Consultant Physicians Patients should have a review of treatment goals and priorities, and a treatment escalation plan (or similar) completed on admission to an ECU
- Patient management should be based on locally agreed protocols that apply uniformly across all clinical areas
- Where invasive blood pressure monitoring or peripheral vasopressor use are considered, clear protocols must be agreed with local critical care services and be supported by robust local training and governance
- Close collaboration with critical care teams is essential and there should be 24/7 access to critical care consultation
- There should be 7-day access to other specialty teams to provide urgent advice or interventions where indicated

Introduction

Acute medical units (AMUs) provide the bedrock of medical care for acute, undifferentiated medical patients. As early as 2007, an influential RCP London report titled 'Acute Medical Care - The right person, in the right setting – first time'¹ recommended the introduction of enhanced care areas - distinct from critical care - to deliver appropriate care to acutely unwell patients. Since that time, the increasing acuity of unplanned admissions, together with the expanding range of medical treatments available has led to an ever-increasing complexity of the care delivered to patients on AMUs.

Alongside this, there is a growing recognition of the importance of enhanced care as a means to deliver high quality, safe care to acutely unwell patients who may not require (or be suitable for) critical care. In May 2020 the Faculty of Intensive Care Medicine (FICM) published overarching guidance on developing enhanced care services in the hospital setting,² and in March 2021 the Intensive Care Society (ICS) updated their definitions of critical care to explicitly include level 1 (Enhanced Care) as distinct from ward level care and level 2 and 3 care (critical care).³ A majority of level 1 care has historically been a core part of that which AMUs have delivered. This combination of work sets the foundations on which providers can plan care that bridges the gap between ward level care and critical care.

The above two documents have paved the way for specialty specific guidance to be developed, where more detail can be given to help plan services specific to the needs of individual patient cohorts. The first such guidance focused on perioperative care,⁴ and more recently the British Thoracic Society (BTS) and ICS published their work on Respiratory Support Units (RSUs)⁵ – from which this document draws heavily. Multiple guides are not developed to imply that hospitals need to provide these services as distinct entities, but to reflect the subtle differences in care that each group of patients may require. Neither are the recommendations here intended to present a set of standards that must be achieved by every individual unit – instead, they are a guide on which

services can be based to suit the local clinical demand and clinician skill mix. Each hospital must design their services to reflect their local patient cohort and overall service requirements. And it is important to emphasise that the patient cohort to which this guidance is relevant is one which is – by and large – already a core part of AMU work, day in and day out. Providing an enhanced care area is likely to improve the quality of care that can be given to these most vulnerable of patients.

Where possible, this guidance utilises the evidence base available on which to make recommendations, including from NICE, NCEPOD and NHSE/I. However, many of these areas are lacking a robust dataset due a lack of high-quality research; we strongly recommend this should form a core part of Intensive Care / Acute Medicine research moving forward. Where data are lacking, the consensus opinion of the expert working group has been used. These recommendations will be reviewed periodically to best reflect the contemporaneous evidence base.

It is hoped this guidance will find the balance of being able to support the development of acute medical enhanced care in those units where it does not exist, whilst also offering an opportunity to standardise some of the care that is delivered in the many units across the country that are already highly functional. In time, we would like to see an enhanced care unit as a core part of every AMU, to ensure the highest quality ward level medical care can be given to all patients who require it.

Research into the delivery of enhanced care should be a priority for Acute Medical / Intensive Care specialties for the future

Audience

This guidance should be read by all healthcare professionals working as part of the teams designing and delivering acute medical care. It will also be of interest to those delivering enhanced care in other settings (particularly respiratory support units), where there may be planned overlap in care delivery. Finally, critical care and outreach services will be heavily involved in the delivery of enhanced care and will find the guidance here of relevance.

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Scope

This guidance considers the clinical needs for adult patients and does not cover requirements for patients under 16 years of age. It is not intended to describe the service or care standards for patients who require critical care.

Methodology

The Society for Acute Medicine and Intensive Care Society agreed the need to develop guidance to support enhanced care in Acute Medical Units in order to help standardise the care for this set of patients. A joint working group was convened to include doctors, nursing staff, physiotherapists and pharmacists with experience in this area, and was co-chaired by Dr Nicholas Smallwood and Dr Tim Wenham.

The recent RSU guidance was used as the basis for this document, in part to reflect the commonality between specialty enhanced care units, but also to ensure consistency of approach between documents. Meetings were held virtually, with input where required from SAM and ICS special interest groups. The final document was sent to relevant stakeholders for review and agreement, and published following approval from the SAM and ICS Councils. The content of this document will require regular review and this will be provisionally scheduled for 3 years after the initial publication date.

Acute Medical Enhanced Care Units

Purpose

The ECU should:

- provide high quality, safe and effective care to patients with acute medical pathologies who require enhanced monitoring or treatments
- bridge the gap between ward level care and critical care, for those patients who do not require critical care, or may be unsuitable for it
- allow co-location of medical, nursing and multidisciplinary team members to facilitate this care
- maintain close links with critical care and outreach teams, facilitating the rapid transfer of patients into the unit and ensuring seamless admission to critical care if further required
- be an addition to the high-quality care already delivered on AMUs, and not an alternative to critical care admission for those patients who warrant it
- improve flow within acute care both by facilitating timely movement of high acuity patients out of ED, and allowing teams to focus on lower acuity patients on the AMU

- be developed according to local clinical need and clinician skill mix, with interventions matched to these local factors
- support the regular in-reach of other specialty colleagues where patients require it
- have governance structures which ensure the infrastructure, staffing and care delivery remain appropriate and responsive to patient needs

Patient cohort (see also appendix 1 for example conditions)

The patient populations who are most likely to benefit from an ECU include:

- patients with acute medical pathologies who are at significant risk of deterioration
- patients with acute medical pathologies who require intensive (> hourly) monitoring and / or treatments
- patients with acute respiratory failure requiring high concentrations of oxygen, non-invasive respiratory support or regular blood gas monitoring, who may not have access to an RSU
- patients for consideration of thrombolytic therapy, or who require monitoring post thrombolytic therapy

Exclusions

The patient population this guidance does not cover include:

- patients requiring critical care
- patients with acute surgical pathologies or traumatic injuries
- patients who are not suitable for enhanced levels of care (determined as part of treatment escalation planning)
- patients who require and have access to other enhanced care areas, such as RSUs

Governance

Organisational and clinical leadership of ECUs

The running of ECUs should fall under the remit of the Acute Medical Unit with designated medical, nursing, physiotherapy and pharmacy leads responsible for operational delivery and service development. In some cases, these roles may be combined with the corresponding AMU lead roles.

It is essential that an operational policy exists laying out the roles and responsibilities of the individual members of the team, criteria for admission and plans for surges in activity (see here for example SOP available for download).

The ECU should have designated medical, nursing, physiotherapy and pharmacy leads and a clear operational policy

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Performance review including quality

ECUs should contribute to national audit within Acute Medicine as a specialty (such as the national Society of Acute Medicine Benchmarking Audit (SAMBA)) and through other nationally registered quality and safety initiatives. This includes adherence to NICE quality standards around sepsis and antimicrobial stewardship. As the coverage of ECUs evolve, it is anticipated that national quality indicators will be developed to allow benchmarking.

ECUs should contribute to national audits such as SAMBA and seek to develop national quality indicators

Safety

ECUs should use safety briefings or checklists twice daily in a similar fashion to those used on Intensive Care and in the operating theatre, tailored to the requirements of the local unit (see appendix 2 for example).

Quality improvement

ECUs should engage in national quality improvement and safety projects such as patient deterioration, sepsis and nosocomial infections. As ECU coverage increases it will be important to identify nationally benchmarked assessment criteria.

Mortality and morbidity

Regular review of all deaths should be timely and form part of the wider AMU clinical governance morbidity and mortality meeting. It is likely that in some cases joint discussions with the critical care morbidity and mortality meetings will prove beneficial.

A robust monthly M&M process should be in place and include critical care input where relevant.

Service Model

Physical infrastructure

Estates/Infection control

There are advantages to co-location of patients requiring Enhanced Care in terms of staff expertise, monitoring, and equipment. Co-location of the Enhanced Care Unit with the Acute Medical Unit allows for flexing of staff between two areas of high acuity, allows for multi-disciplinary training and has the potential to improve job satisfaction. It also allows easy movement of patients between the Enhanced Care Unit and the Acute Medical Unit, allowing maximum flexibility in caring for patients who naturally have rapidly changing acuity. Where possible, proximity to the critical care Units promotes multi-disciplinary working, allowing for seamless escalation of care for patients.

The number of ECU beds required will depend upon local demands and the range of conditions catered for within the ECU. It should be noted that successive BTS national audits, NCEPOD, and GIRFT all confirm that most trusts lack sufficient beds to meet demand for the provision of respiratory support, and the need for this should be planned in collaboration with respiratory teams and the development of RSUs. Local modelling should take place to determine capacity to ensure sufficient beds for all patients requiring Enhanced Care, with projections incorporated to accommodate winter pressures. Modelling should consider future epidemic surge planning, ideally at both trust and regional network levels.

It is recommended that the bed capacity includes a combination of both open bays and side rooms required for infection control purposes – the facilities and care provided should be consistent throughout. Where care is being provided in bays, provision of single sex accommodation is required as per NHS England recommendations. However, there will be times when the need to urgently admit and treat a patient can override the need for complete segregation of sexes. In these cases, all reasonable steps should be taken to maintain the privacy and dignity of all patients affected.

Detailed guidance on the design and standards for an Enhanced Care Unit can be adapted from Health Building Note 04-02- critical care Units.⁷ If there is consideration of provision of respiratory support, standards of an isolation facility used for the treatment of patients with airborne pathogens is included in the Health Building Note 04-01 Supplement 1 Isolation facilities for infectious patients in acute settings.⁸ Local estates, microbiology and infection prevention and control teams must be engaged from the early stages of design or any refurbishment project in order to ensure optimisation of ventilation systems and infection control and prevention measures.

Staff should wear appropriate PPE which should take into account the disease mix and local and national infection control guidance.⁹

The number of beds required should be based on local clinical need and have capacity to flex for variations in demand

Equipment and monitoring

Continuous monitoring (minimum of oxygen saturations, blood pressure, ECG) should be available at each bedspace and displayed centrally on the nursing station. Data should ideally be recorded and available remotely (for example to review cardiac rhythms). Monitoring should be clearly visible to staff at all times, including when patients are in isolation rooms.

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Where invasive monitoring is proposed, it requires modules with the capability to transduce and display arterial waveforms - ideally using the same monitoring equipment as in the critical care department.

Each bed space should have capabilities for continuous patient monitoring including oxygen saturations, blood pressure and ECG, and be displayed centrally on the ECU

Oxygen supply and other terminal units

Collaboration between medical gas committee, estates engineering, pharmacy and clinical teams is essential to establish the medical oxygen requirements of an ECU, including potential surge requirements. Specific medical gases requirements can be found in HTM 02-01 Medical gas pipeline systems.¹⁰

We recommend each bed space should have 2 terminal units for oxygen, and at least one suction point. If the use of high flow nasal oxygen (HFNO) therapy is anticipated, these bed spaces will require at least 60L/min oxygen delivery capability. Overall, the unit should be capable of delivering an average of at least 10L/min of oxygen per bed space.

Clinicians working on an ECU should be aware of the effect treatments given have on the hospital oxygen supply, and consideration must be given to the number and type of high flow devices which can be used within a ECU; this will require close liaison with respiratory and critical care teams. Clinicians working on an ECU should be alerted at times of increased hospital oxygen demand.

Multiple open respiratory circuits can increase ambient oxygen concentrations and consideration should be given to fire risk. There are national guidelines for fire safety and emergency evacuation for intensive care units.¹¹ The general principles of these guidelines are also applicable to ECUs where non-invasive respiratory support is provided.

Each bed space should have 2 terminal units for oxygen, and at least one suction point

Access to diagnostics

Pathology samples from patients within Enhanced Care Units should be prioritised, similar to samples taken from the Emergency Department and critical care Units.

All ECUs should have immediate access to co-located blood gas analysis, with the following results available as a minimum:

- pH, pCO₂ and pO₂
- lactate
- haemoglobin
- bicarbonate
- chloride
- sodium and potassium

Additional point of care (POC) tests which may be of benefit include blood ketones, BNP, troponin, INR and d-dimer, and should be organised according to clinical need.

Ultrasound is an important tool in the assessment and management of acutely unwell patients (including for vascular access), and we recommend immediate access to a POC ultrasound machine with suitably trained clinicians available.

We recommend co-location of a blood gas analyser within the ECU / AMU

All units should have immediate access to an ultrasound machine. Ideally, clinicians with skills in point-of-care ultrasound should be available on an ECU

Workforce

A service lead should be identified each for medicine, nursing, pharmacy, physiotherapy and other AHPs. They should have evidence of competence and experience in the management of acute medical conditions. Administrative time should be available within job plans for service development, quality improvement and regular meetings between service leads. A clear handover policy for all staff groups should be established.

Medical

Each patient on an ECU should be reviewed twice a day by a senior decision maker. At least one of these reviews must be by a consultant (or equivalent). ECU consultants should have experience and competence in managing acutely unwell undifferentiated medical patients, ideally with some critical care training and / or experience. They may include consultants in Acute, General or Intensive Care medicine. Consultants should not have other clinical commitments whilst seeing patients on an ECU, and should be available in an emergency. Out of hours cover should ideally be from the same pool of consultants as daytime cover.

Doctors in training from Acute, Internal and Intensive Care Medicine programmes will benefit from rotation through an ECU. A separate rota should be considered depending upon local numbers of patients, trainees and middle grades. A senior decision maker (IMT3/ST3 equivalent and above) with the required competencies should be available to assess patients within 30 minutes of admission or deterioration, and in accordance with NEWS2 protocols. This decision maker may include non-medical consultant workforce (such as nurse and physiotherapist consultants).

Physician Associates (PAs), Advanced Clinical Practitioners (ACPs) and other AHPs are a valuable part of the Acute Medical workforce. We strongly

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support their integration into the teams looking after the ECU, dependent on local skill mix and rota design.

Patients on an ECU should be reviewed at least twice a day by a senior decision maker, with one review being by a Consultant or equivalent

There should be 24/7 cover available who should ideally be from the same pool of consultants who deliver daytime work

A senior decision maker should be available to assess patients within 30 minutes of admission and deterioration

Nursing

The nursing staff requirement of an ECU will be dependent on the number of beds within the unit and the complexity of each patient. Ensuring that the competencies and skill mix of ward staff (including nurses, allied health professionals and healthcare support workers) on every shift is tailored to the needs and acuity of patients on the unit is more important than specific nurse: patient staffing ratios. These calculations can be supported by the Safer Nursing Care Tool (Shelford)¹² and NICE guidance.¹³

Where patients are receiving non-invasive ventilation, we recommend 1 nurse to 2 patients, as per BTS¹⁴ and NCEPOD¹⁵ guidance. Other forms of non-invasive respiratory support and the use of side rooms will also require high nurse: patient ratios. Where patients are not on non-invasive respiratory support and being nursed in a bay then we recommend a minimum nurse: patient ratio of 1:4 as per the FICM guidance,² with a low threshold to increase depending on patient acuity (for example where vasopressors are in use). We would not recommend running units below this ratio.

Staffing ratios must be maintained over a 24-hour, 7 day per week period to ensure consistent safe staffing levels at all times. There needs to be a degree of flexibility inbuilt into staffing levels to ensure ability to cope with the fluctuating demands on the unit and staff sickness.

Local competencies should be developed for nursing staff, with protected time to achieve them. An example is the national competency framework which has been developed for the recognition and management of the critically ill.¹⁶ The competency framework for the ECU needs to include the variety of conditions that are expected to be managed on the ECU, the specialised equipment used in the area and skills such as arterial/capillary blood gas sampling. This should be overseen by the AMU practice educator to ensure all staff receive appropriate support to achieve and maintain these competencies.

This individual, alongside the duty consultant, will also be responsible for liaison with other

services (e.g. AMU, Emergency Department, critical care, bed management) and for overseeing data management for governance, audit and quality purposes.

The nursing staff requirement of an ECU will be dependent on the number of beds within the unit and the complexity of each patient

We recommend a minimum nurse: patient ratio of 1:4, rising to 1:2 where non-invasive respiratory support or vasopressors are used, or where side rooms are in use

Nursing staff should be experienced and have demonstrable competence in the management of acutely unwell patients, with training facilitated by an AMU practice educator in collaboration with critical care

In addition to staff required for direct patient care, there should also be a senior member of trained staff (band 6 or above) present on each shift to provide leadership and coordination

Physiotherapy

Physiotherapists are essential members of the Multi-Disciplinary Team (MDT) when treating acute medical patients, from admission through rehabilitation to discharge; daily physiotherapy input is essential. An Agenda for Change Band 7 and above physiotherapist should be identified as a service lead to support ECUs, and where patients with acute respiratory pathologies are admitted they should have experience of managing patients on all forms of non-invasive respiratory support. If undertaken by physiotherapists, the initiation of CPAP, HFNO, NIV, airway clearance and cough augmentation strategies and obtaining blood gases should only be performed with relevant training, and may be dependent on individual provider's local policies. They may also need to be competent in treating patients with tracheostomies. Specific competencies should be designed as such to ensure staff have the appropriate training and skill sets. Funded, protected time should be made available to ensure staff can meet these requirements.

There should be adequate physiotherapy cover on an ECU to facilitate early mobilisation of patients where clinically appropriate, to minimise the risk of hospital acquired deconditioning. Adequate equipment should be available to support early mobilisation. The therapy service should be provided in line with the SAM Physiotherapy and Occupational Therapy Service in AMU Guidelines.¹⁷

Physiotherapy staffing ratios will depend on the acuity of the unit and may vary depending on this. ECUs will require more intensive physiotherapy staffing than AMUs, general or unenhanced respiratory wards. Flexible models should exist

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to meet the demand on workforce and available resource. This may include 24-hour access to physiotherapy, with some of the provision being via an on-call service.

Pharmacy

Close liaison with pharmacy teams is crucial to the running of Acute Medical and critical care units. We recommend approximately a 0.8 WTE pharmacist for a 7-day service for an 8 bedded facility to provide direct patient care;^{18, 20} 7 day cover is recommended as per NHS England guidance.¹⁹ Cover should be maintained during periods of planned and unplanned absence (such as annual leave, study leave, sickness). Pharmacists should attend ward rounds to facilitate good patient care.

Medicine Management Technicians (MMTs) can provide support to release pharmacists to utilise the more skilled functions within their role e.g., medicines optimisation. MMTs can perform medicines reconciliation and some medicines management functions (e.g., ordering medicines, stock control) but are not permitted to prescribe. Pharmacy assistants will provide a medicines top up and distribution service that can free up time of pharmacists and MMTs for other roles.

The enhanced care service pharmacist could be a ward-based pharmacist equipped with extra experience/skills, or they could be members of an expanded critical care pharmacy team. They should be encouraged to be an independent prescriber to aid the efficiency of individual medication reviews. Close liaison is required with the critical care pharmacy team and would be beneficial for training.²⁰

The impact of the introduction of new enhanced care services, or reconfigured services, on the wider pharmacy service must also be considered and accommodated. This includes but is not limited to dispensary services, aseptic services, stores and distribution functions, and on call services.

There should be 7-day physiotherapy and pharmacy input

Microbiology

Frequently patients with sepsis or intercurrent infections will be managed on ECUs and regular antimicrobial rounds or input from the microbiology team will be key. It is also important that the unit has a close relationship with Infection Prevention and Control teams to manage any infectious outbreaks that might occur.

Palliative Care

Palliative care teams will have a key role in ECUs in helping with patients who have difficult to

manage symptoms or are in the end stages of life. All patients should have Treatment Escalation Plans including decisions regarding the appropriateness of resuscitation on admission to the ECU. Palliative care teams will help patients and families with decisions regarding possible transfers to hospices, or to enable transfers home to die in certain circumstances. They can also provide key support and information for bereaved relatives.

Administrative Support

Appropriate administrative support is essential to maximise patient contact for clinical staff. Duties will include reception, admission and discharge documentation and data collection.

There should be 7-day access to microbiology, palliative care and administrative support

Wider multi-professional team and MDT working

Other members of the multi-professional team may include:

- Dietitians
- Occupational Therapists
- Speech and Language Therapists

These services are important to provide safe and high-quality care to patients on an ECU. Ideally 5-day access to these members of the multi-professional team should be a part of a business case for an ECU. Depending upon the local set-up and patients mix, 7-day access to these professionals may be preferable.

Multi-professional liaison and robust communication should be routine, and an MDT meeting after the morning ward round to prioritise urgent assessment and treatments should be embedded in the daily standard work.

There should be at least 5-day access to other services including speech and language therapy, occupational therapy, and dietetics

Patient pathway

Admission

Patients requiring Enhanced Care will most commonly be identified within the Emergency Department or Acute Medical Unit. Admission to the ECU should be agreed between the ECU consultant and the relevant consultant(s) overseeing the patient's care. In all cases, appropriately trained staff should be available to assess patients, initiate and deliver treatments and monitor response pending transfer to the ECU, and transfer should occur within 4 hours of decision to admit. This will often be supported by critical care Outreach Teams and reinforces the importance of close liaison

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between ECU and critical care teams. Patients at further risk of deterioration should be discussed with critical care prior to ECU admission. Beds on an ECU should be ring-fenced for patients with the conditions or treatment requirements outlined within this document; this is a necessary part of ensuring optimal use of this resource. In order to facilitate this, ECUs should have 24/7 consultant physician cover to ensure appropriate admission and management decisions are made. The decision to admit a patient to the ECU should be consultant led and specifically discussed in instances where capacity is limited.

Prior to admission to an ECU, all patients should have a review of treatment goals and priorities. During ECU admission, a treatment escalation plan (TEP) should be discussed with patients and their next-of-kin, and clearly documented. All decisions should have patient and consultant involvement.

ECUs should not be used routinely as a 'step-down' area for critical care discharges. On some occasions it may be appropriate to discharge a patient from critical care to an ECU prior to them being discharged to the appropriate speciality ward (e.g. for a short period requiring increased monitoring). This should be consultant to consultant decision based on patient need. Patients requiring prolonged critical illness rehabilitation are not best placed on an ECU.

There should be locally agreed admission protocols

Consultant Physicians should be available 24/7 to discuss admission and patient care decisions. Patients should have a review of treatment goals and priorities, and a TEP (or similar) completed on admission to an ECU.

Treatment and monitoring protocols

The ECU should aim to have locally developed protocols (based on published best practice guides) for every specified condition that is planned to be cared for within it (see appendix 1). These protocols should be uniformly applied across all clinical areas, including situations where these treatments are given outside of an ECU whilst awaiting transfer in – this will involve close collaboration with critical care outreach and Emergency Department teams. These protocols should define guidance for the initiation, ongoing management and weaning/discontinuation of these treatments.

Requirement for increased frequency of monitoring may, in itself, be an indication for admission to an ECU.

When blood pressure readings are required at an interval of less than 1-hour, invasive blood pressure monitoring should be considered, as well

as discussion with the critical care team, if escalation has been deemed appropriate. The requirement for regular biochemical or acid-base measurement should also prompt consideration of an indwelling arterial or venous catheter to facilitate this. The decision to utilise indwelling arterial catheters and invasive blood pressure monitoring within the ECU setting will be a local decision and should be accompanied by robust and appropriate training in the insertion and management of such devices, both within medical and nursing teams. This practice should be undertaken only where there is experience within the ECU team at all times to manage these devices safely and deal with potential complications.

It may be appropriate for ECUs associated with a well-established Acute Medical Unit, with the requisite medical and nursing experience, to deliver vasopressors as part of their practice. This should occur in collaboration with local critical care and outreach teams, and must not be used as an alternative to critical care admission. Where these medications are used, strict local treatment and monitoring protocols should be followed that are developed in collaboration with local critical care teams, and are based on ICS guidance;²³ these should include maximum infusion rates. If peripheral vasopressors are used then this should generally be as a bridge to critical care admission (for example initiated in a septic patient and awaiting bed availability). We recommend the use of invasive blood pressure monitoring if vasopressors are started.

Robust auditing of complications and patient centred outcomes must be recorded. In these individual cases daily pharmacy input will be required, and we recommend patients receiving vasopressor therapy are discussed at least daily with critical care teams, including at the initiation of therapy.

Patient management should be based on locally agreed protocols that apply uniformly across all clinical areas.

Where invasive blood pressure monitoring or peripheral vasopressor use are considered, clear protocols must be agreed with local critical care services and be supported by robust local training and governance.

Discharge

In order to maintain efficient patient flow through the ECU, patients deemed ready for discharge should be prioritised by bed managers for ward level beds, in a similar manner to patients fit for critical care discharge. Delays in discharge will reduce the efficiency and responsiveness of the ECU and may result in increased bed day costs.

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Although most patients will be transferred to a lower acuity setting prior to discharge, some patients will be discharged home straight from an ECU. These patients should be discharged in accordance with local policies including: have a medication review prior to discharge, have follow up arrangements made, and ensure adequate communication with GPs or the community team. Patients with complex rehabilitation requirements should be able to access the local services they require as assessed by the multi-professional team during and following ECU admission.

Collaborative working with critical care

Although ECUs will largely be run by acute medical teams, there is an important role for critical care. Access to critical care consultation, either via outreach teams and/or direct support from critical care senior decision makers should be available 24/7. There should be at least daily liaison between the ECU and critical care clinical teams focusing on patients who might require escalation or de-escalation in each setting, or those receiving vasopressors or invasive blood pressure monitoring. The patients who may benefit from de-escalation from critical care to an ECU are patients with ongoing single organ failure or those with an increased requirement for monitoring but with an improving clinical trajectory. ECUs should have access to the equipment required for intubation and stabilisation if a patient is not stable enough for transfer to critical care.

Depending on local service design and consultant job plans, there may be a role for routine Consultant Intensivist input to facilitate joint decision making and advanced care planning for deteriorating patients with a marginal chance of benefit from critical care.

Finally, critical care will be important in the governance structure of ECUs. This may include advice on equipment, protocols and a shared governance pathway including joint mortality and morbidity meetings.

Close collaboration with critical care teams is essential and there should be 24/7 access to critical care consultation

Collaborative working with other specialties

There will be patients on an ECU who may require input from other specialties, and this should be available 7 days per week where clinical need arises (through established on call rotas or specialty networks if required). There should be established links with respiratory, cardiology, endoscopy and interventional radiology services to facilitate urgent intervention where indicated.

There should be 7-day access to other specialty teams to provide urgent advice or interventions where indicated

Disclaimer

This document reflects the expert views of a group convened by the Society for Acute Medicine and the Intensive Care Society. Production of this document did not involve a formal evidence review and has not been developed in accordance with clinical practice guideline methodology. This guidance document is not intended as a legal document or a primary source of detailed technical information.

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Appendix

Table 1. Example conditions for an ECU

This is not an exclusive list but describes the selection of unwell patients cared for on a daily basis on AMU that would benefit from an enhanced care unit (ECU) during the acute and high-risk phase of their illness.

Respiratory (note: may also be suitable for an RSU)

- COPD / type 2 respiratory patients requiring regular arterial blood gases to monitor for deterioration
- Patients with an intercostal chest drain
- Patients with type 1 respiratory failure on higher concentrations of oxygen ($\geq 60\%$)
- Acute asthma not at risk of or requiring ventilatory support, but needing close monitoring
- Patients at risk of or requiring thrombolysis for acute pulmonary embolism

Cardiac (note: may also be suitable for a coronary care unit)

- Patients with acute pulmonary oedema requiring GTN infusions or non-invasive respiratory support
- Patients requiring continuous cardiac monitoring (e.g., high risk syncope), especially if present out of hours

Gastro

- High risk upper gastrointestinal bleed patients (pre and post endoscopy)
- Acute liver decompensation (if not requiring or not suitable for critical care)

Renal

- Patients with Acute Kidney Injury (AKI) requiring vigilant fluid balance and electrolyte monitoring

Endocrine

- Patients with DKA or HHS who require close blood gas, electrolyte and fluid balance monitoring
- Severe electrolyte abnormalities that require close monitoring (e.g., profound hyponatraemia) – including high risk of refeeding (low BMI / malnourished)

Neuro

- Low Glasgow Coma Scale / Score (GCS) (e.g., post-ictal) that are anticipated to recover with time and not requiring airway support
- Inflammatory / autoimmune neuromuscular conditions that require monitoring for potential deterioration (e.g., GBS)

General / other

- Sepsis with hypotension and / or AKI
- Overdose patients requiring close neurological or cardiac monitoring

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Table 2. Enhanced Care Area Safety Briefing

Enhanced Care Area Safety Briefing

START OF SHIFT CHECKLIST

STAFF ALLOCATIONS ON WHITE BOARD ☐

NURSE IN CHARGE POSTER UPDATED ☐

SWAB STATUS CHECK ☐

CHECK SIDE ROOM NOTICES (PPE) ☐

O2 & AIR SUPPLY + CORRECT STORAGE ☐

CHECK TRIAGES ☐

CHECK PHARMACY CAGE ☐

CRASH TROLLEY CHECK ☐

DATE:

Bed 1

Bed 2

Bed 3

Bed 4

Bed 5

Bed 6

SR1			
SR2			
SR3			
SR4			
HIGH NEWS/CLINICAL RISK			
CONFUSED	FALLS RISK	WANDERING	
PSYCH REVIEW & SECTIONS	DOLS	LEARNING DISABILITY	TELEMETRY
UNDER 18's	ANY OTHER ISSUES		

CRASH TROLLEY ☐

BG MACHINE ☐

FRIDGE CHECKS ☐

CD's ☐

CHECK LINEN ROOMS ☐

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