The Royal College of
Emergency Medicine

The Faculty of
Intensive
Care Medicine

BETTER TOGETHER: COLLABORATIVE WORKING BETWEEN EMERGENCY AND CRITICAL CARE

A framework for improved collaborative working between Emergency Medicine (EM) and Intensive Care Medicine (ICM)

July 2021

Working Group members

John Butler, Ruth Creamer, Simon Fletcher, Bernard Foëx, Liza Keating, Sam McIntyre, Jonathan Mackenney, Chris Moulton, Virginia Newcombe, Anna Ripley, Mike Spivey, Daniel Waeland.

First published in July 2021.

Acknowledgements

Taj Hassan, Former RCEM President
Katherine Henderson, RCEM President
Carl Waldmann, Former FICM Dean
Alison Pittard, FICM Dean
Anna Crossley, RCN Professional Lead for Acute and Emergency Care

Endorsing Organisations

Royal College of Emergency Medicine (RCEM)
Faculty of Intensive Care Medicine (FICM)
Intensive Care Society (ICS)
Resuscitation Council UK
UK Critical Care Nursing Alliance (UKCCNA)

Review

Usually within three years or sooner if important information becomes available.

Conflicts of Interest

None

RCEM and FICM recognise that patients, their situations, Emergency Departments, Intensive Care Units and staff all vary. This guideline cannot cover all possible scenarios. The ultimate responsibility for the interpretation and application of this guideline, the use of current information and a patient's overall care and wellbeing resides with the treating clinician.

Key words for search

Resuscitation area, Emergency Medicine, emergency care, critical care, Intensive Care Medicine, collaborative working, processes, staffing, training, equipment.

Feedback

If you would like to provide feedback on this framework email FICM on contact@ficm.ac.uk

Copyright

Contents

Reason for development

The former RCEM President and FICM Dean were both keen to explore how emergency care and critical care could work together more closely and learn from each other to the benefit of patients. This document is a nationally agreed strategy document with practical outcomes to foster closer working relationships and to achieve consistency in clinical care for critically ill adult patients in the resuscitation area in emergency departments across the UK. The document is applicable to the care of adult patients in all acute care hospitals. Covid-19 has added greater emphasis to the need for close collaboration at the front door and put a spotlight on the requirement for adequate staffing, facilities, equipment and clarity around treatment pathways for the care of critically ill patients arriving in our emergency departments.

Introduction

Adverse effects on both patients and staff continue as the number of people presenting at the front door rises incessantly. The evidence for this mounts as patient flow through the hospital fails and substantially contributes to departmental crowding. This document is part of the effort to mitigate against such pressures. FICM and the RCEM have united to define a strategic direction for the care of the sick patient in the resuscitation area. The aim of this document is to improve patient outcomes through the promotion and maintenance of collaborative working between emergency medicine and critical care.

The authors of this document come from both emergency medicine and critical care teams and represent both large tertiary referral centres as well as smaller district general hospitals. In compiling this document one of the challenges for the writing group has been a lack of a high-quality evidence base in this area. Existing evidence has been reviewed and, in its absence, consensus has been reached based on both professional opinion and established practice. The focus is on the pathway for critically ill adult patients in the resuscitation area of the emergency department; highlighting processes, staffing, training, skill maintenance and the equipment required. The views of a patient focus group have also been sought and their feedback has been incorporated in the document. Approval has been sought from a range of stakeholders engaged in the care of the critically ill patient in the resuscitation area. This has been built upon from the work of previous guidance including the Royal College of Emergency Medicine (RCEM) [1], the Difficult Airway Society (DAS) [2] as well as the FICM/ICS Guidelines for the Provision of Intensive Care Services (GPICS v2) [3].

This is the first iteration of this document and further editions are anticipated based on feedback received, as new evidence becomes available and practice inevitably changes. This document has been divided into three sections: processes, staffing and training and equipment. Each section has highlighted relevant **standards** and best practice **recommendations** in keeping with previous critical care guidelines [3]. **Standards** are the essential elements of care that must be used to identify key priorities for the resuscitation area. **Recommendations** are statements that should be routine practice in the UK. Both **standards and recommendations** are endorsed by the key stakeholders including RCEM and FICM. For every emergency department in the UK there will be aspects of this framework that are not currently met, and it is hoped that these gaps will be used as a driver and focus for areas of development with the ultimate aim of improving patient outcomes.

Inclusions: This document relates to the care of adult patents aged 16 and over. This document relates to care provided in the resuscitation area, in all four-nations of the UK.

Abbreviations

ALS	Advanced Life Support
CCOT	Critical Care Outreach
CMP UK	Case Mix Programme UK
CT	Core Training
DAS	Difficult Airway Society
ECS	Expanded Care Set
ED	Emergency Department
EM	Emergency Medicine
FICM	Faculty of Intensive Care Medicine
GPICS	Guidelines for the Provision of intensive Care Medicine
HST	Higher Specialty Training
ICM	Intensive Care Medicine
ICNARC	Intensive Care National Audit and Research Centre
ILS	Immediate Life Support
KPI	Key Performance Indicator
LocSIPSS	Local Safety Standards for Invasive Procedures
NATSIPSS	National Safety Standards for Invasive Procedures
NICE	National Institute for Health and Care Excellence
NPSA	National Patient Safety Agency
ODP	Operating Department Practitioner
PoCUS	Point of Care Ultrasound
RCEM	Royal College of Emergency Medicine
RCUK	Resuscitation Council UK
ReSPECT	Recommended Summary Plan for Emergency Care and Treatment
RN	Registered Nurse
TEP	Treatment escalation plan

1. Processes

Best practice standards

- Unplanned admissions to the critical care unit must occur within four hours of making the decision to admit and the completion of essential resuscitation including imaging [4].

- The decision to admit to the critical care unit and the management plan must be discussed and agreed with the duty consultant in Intensive Care Medicine (ICM) [4].

- Patients no longer requiring critical care input should be discharged from critical care to the ward within 'four hours' [4].

- There must be documentation in the patient record of the decision to admit to critical care including the time that this decision was made [4].

- Patients admitted from the emergency department into a critical care bed must have a clear and documented treatment escalation plan.

- Ventilated patients in the resuscitation area must be supervised at all times by clinicians with the appropriate level of training and experience.

- A relatives' room, close to the resuscitation area, should be provided for relatives and friends to wait in or to have time away from the resuscitation area.

- Overall responsibility for the decision to transfer a patient and the level of support required must be taken by a named consultant.

- Only staff members with the appropriate skill set who have been trained in the transfer of critically ill patients should transfer patients.

- The reason for any inter-hospital transfer should be documented in the patient record. This should include an assessment of potential benefits against risks.

- There must be a robust reporting system in place for investigating and learning from both excellence reporting as well as all patient safety incidents including national patient safety alerts.

- Both the emergency department as well as the critical care team must maintain individual risk registers that are regularly reviewed and updated by both senior managerial and clinical staff.

- Both departments should identify key performance indicators (KPIs) that describe outcomes for the cohort of patients admitted from critical care from the resuscitation area.

1.1 The Patient Pathway

1.1.1 Admission processes:

- Minimising delays to definitive treatment and admission from the emergency department to critical care are associated with better outcomes for patients [4]. Escalation of care up to and including critical care admission must be timely, with referring and receiving consultants directly involved in the process. Studies from the UK Case-Mix Programme (CMP) of the Intensive Care National Audit and Research Centre (ICNARC) confirm the prognostic importance of timely admission to intensive care and initiation of definitive treatment for deteriorating illness. *[Recommendation]*

- Unplanned admissions to the critical care unit must occur within four hours of making the decision to admit and the completion of essential resuscitation including any imaging required [4]. Both emergency care and critical care clinicians should be aware of both the Emergency Care Services (ECS) 'four hour' target and the GPICS v2 'four hour' target and the importance of timely senior assessment to minimise the need for 'clinical breaches' of critically unwell patients [4]. *[Standard]*

- Whilst it is recognised that decision-making around escalation to critical care in some centres is undertaken in conjunction with the medical teams as well as critical care the final decision to admit to the critical care unit and the management plan must be discussed with the duty consultant in Intensive Care Medicine (ICM) and should include discussion with the critical care nurse in charge [4]. *[Standard].* There must be documentation in the patient record of the decision to admit to critical care including the time that this decision was made. *[Standard].*

- Hospital management teams should facilitate the optimal use of critical care capacity at all times. The admission and discharge of critical care patients must be prioritised, such that patients requiring critical care support are admitted without delay. This approach will also improve patient flow through the emergency department. Staffing unoccupied emergency capacity beds is an appropriate, straightforward method of ensuring timely admission. It is vitally important that the use of the 'escalation policy' to generate capacity is an infrequent occurrence and does not become 'normalised' behaviour amongst both clinical and operational teams. *[Recommendation]*

- Patients no longer requiring critical care input should be discharged from ICU to the ward within four hours of the clinical decision to discharge [4], ideally within daylight/office hours. The final decision on utilisation of critical care beds and staff rests jointly with the duty Critical Care consultant and the duty nurses in charge. Non-clinical operational management teams should not override clinical decisions under any circumstances. *[Standard]*

- Patients admitted from the emergency department into a critical care bed must have a clear and documented treatment escalation plan. If the patient has capacity this plan should have been discussed and agreed with the patient. The risks and benefits of ICU admission should be discussed with the patient. *[Standard]*

- The resuscitation area of the emergency department must provide facilities in order to stabilise patients' physiology prior to admission to critical care. All the necessary equipment and medications should be available to achieve this in the resuscitation area. Ventilated patients in the resuscitation area must be supervised at all times by clinicians with the appropriate level of training and experience. *[Standard]*

- Clinical teams across the emergency department and critical care interface should develop a consistent approach to patient-centred decision making, evaluating burdens and benefits of admission to critical care. The optimal management of critically ill patients involves multidisciplinary team working and requires timely interaction with multiple services, including anaesthesia and medicine. Effective communication is the foundation of successful interaction with other services. *[Recommendation]*

- Being critically ill is a life-changing event. Presentations to the emergency department with subsequent admission to critical care are often sudden and unexpected. It can be a very frightening experience for patients and their families. To reduce this burden patients and families must be given high quality verbal and written information while the patient is waiting to be admitted to critical care. This could include information about the patient's treatment, what the patient might experience and how they might feel. Good communication with both patients and relatives is essential from an early stage. *[Recommendation]*

- A relatives' room, close to the resuscitation area, should be provided for relatives and friends to wait safely in or to have time away from the resuscitation area. This room should be clean, comfortable, allow conversations with individual families and have its facilities regularly reviewed. Feedback should be sought from families as to whether additional facilities and support are required. *[Standard]*

- There should be clear documentation on the decision process for those who are referred and not accepted for critical care admission. If a decision is made not to admit then the appropriate in-patient team should be consulted. *[Recommendation]*

1.1.2 Transfer Processes:

- The extent to which any individual hospital provides intensive care services should depend upon the skills, expertise, specialties and facilities available within that hospital. The service provided should be based on the principle of providing support to a level appropriate to the complexity of patient-care needs. For some patients this will mean transfer to another hospital (inter-hospital) where more complex clinical needs can be met. Transfers must adhere to the national framework for inter-facility transfers [5, 6, 7].

- Transfer of critically ill patients from the emergency department within and between hospitals is common. Adult critical care patients may require transfer both within the hospital (intra-hospital transfer) for a variety of reasons, and between hospitals (inter-hospital transfer). Such transfers may take place by road or air and may be over very large distances. During patient transfers there is potential for patients to deteriorate, or for an adverse event such as endotracheal tube or line displacement, to occur. The principles for safe transfer of critically ill patients from the resuscitation area are the same regardless of the type of transfer, or the means of transfer. Inter-hospital transfers must be undertaken in a timely fashion according to the patient's clinical condition.

- The decision to transfer the patient is based on the magnitude of the risk posed to the patient by the transfer in relation to the benefits of that transfer. Regional and local policies should be adhered to. All patients undergoing transfer should be managed with appropriate equipment and monitoring by staff trained in patient transfer.

- Only staff members with the appropriate skill set who have been trained in the transfer of critically ill patients should transfer patients. *[Standard]*

- Named consultants must take overall responsibility for the decision to transfer a patient and the level of support required although they do not necessarily have to undertake the transfer. *[Standard]* For inter-hospital transfers, there must always be a named consultant who will take responsibility for the patient on arrival at the receiving hospital. This must be agreed prior to the transfer being undertaken. *[Standard]*

- The reason for any inter-hospital transfer should be documented in the patient record. This should include an assessment of potential benefits against risks. Transfer decisions should only be made by consultant team members, and this information should also be documented. *[Standard]*

- Standardised regional transfer documentation should be completed for all critical care patient transfers. Substandard transfers and inadequate documentation should be reported and investigated through a risk reporting system which may require discussion across sites as well as between departments. The subsequent lessons learnt must be shared widely across anaesthesia, emergency medicine and critical care MDT. The numbers and reasons for transfers should be audited regularly. *[Recommendation]*

- Where possible both the patient and their next-of-kin should be involved with a decision of inter-hospital transfer, and an explanation given to them of the need for transfer. This discussion should be documented. Arrangements must be made to enable families to follow the patient to their destination hospital*. [Recommendation]*

- Emergency departments and critical care services should have an agreement with their local ambulance providers in relation to the contracted transport provision for intensive care patients and to ensure these standards are met throughout the entire patient pathway. This should be consistent with national guidance [5] *[Recommendation]*

1.1.3 Communication Processes:

- Ongoing communication with patients and relatives is essential in providing high quality emergency care. Feedback should be gathered to ensure high-quality communication. Patients with capacity should be kept informed of their clinical condition. Best practice dictates that those close to the patient should also be consulted. *[Recommendation]*

- Decision making related to care at the end of life should, wherever possible, involve patients and the people close to them, as well as medical professionals. If the patient lacks capacity and there is no individual with legal responsibility for determining treatments rests with treating clinicians of appropriate seniority, then decisions can be taken in the patient's best interest. Previous decisions should also be taken into account e.g. treatment escalation plans (TEP), ReSPECT (Recommended Summary Plan for Emergency Care and Treatment). Decision making surrounding care at the end of life, including the rationale for any decisions, must be documented clearly and communicated to patients and their next–of-kin or their legal representative where appropriate. The latter being of particular relevance if patients lack capacity. *[Recommendation]*

- Early prognostication and decisions to withdraw life sustaining treatment in mechanically ventilated patients in the emergency department are fraught with difficulty and should be avoided, particularly in patients with a perceived devastating brain injury. These patients should be admitted to ICU for a period of physiological stabilisation and prognostication before end of life decision making. Occasionally, early withdrawal of life sustaining treatment can be justified for example in the presence of an advance directive or because the patient continues to deteriorate

despite escalating therapeutic measures [9]. *[Recommendation]*.

- Ideally two consultants, supported by senior nursing agreement, should contribute to the process of recommending withdrawal or withholding life-sustaining treatments. Such processes are decided on a case-by-case basis and clarity of communication can be improved by outlining likely burdens and benefits of acts or omissions. Multi-professional teams that include senior medical and nursing staff should manage end of life care. The decision about whether to admit a dying patient to critical care should be made by the treating Consultants and senior nursing staff. Decisions around extubating patients in the resuscitation area should involve senior clinicians, including from intensive care, and should be communicated to the patient and family where possible. *[Recommendation]*

- Therapeutic plans should be made and anticipatory medications prescribed for all patients in their final hours, enabling prompt symptom control. This includes therapeutic options for analgesia, dyspnoea, anxiety and agitation. Doses should be titrated for symptom relief based on explicit assessments. This treatment can be started in the ED if appropriate*.* *[Recommendation]*

- Care should address dying patients' need for spiritual and emotional support and include the needs of the family members. *[Recommendation]*

- The discussion of Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) is intrinsic to palliative care in critically ill patients. This should be discussed with patients and families within that context. If instituted for incapacitated patients, DNACPR decisions should be discussed at the earliest opportunity. The British Medical Association, Resuscitation Council UK and Royal College of Nursing issue regularly updated guidance on DNACPR. *[Recommendation]*

- Doctors have a professional obligation to facilitate organ donation by promoting best practice and incorporating the possibility of donation into all patients' end of life care plans. Facilitation of organ donation is a core service of the emergency department & critical care. Acute hospitals are a key stakeholder in implementing best practice in all stages of the organ donation pathway based on a well-defined UK professional, ethical and legal framework. All emergency departments & critical care services should have policies, guidelines and/or checklists in relation to the national and local recommendations. *[Recommendation]*

1.1.4 Governance processes:

- Both the emergency department and the critical care teams should hold regular joint structured multidisciplinary clinical governance meetings, where they discuss patient morbidity and mortality, including all deaths, critical incidents and near misses. In some instances it may be relevant to include anaesthesia, particularly with respect to difficult airway management.

- Ideally both teams should participate in a mortality review programme using appropriate methodology such as the Royal College of Physician Structures Judgment Review to maximise learning and improvements in care. Teams should work together with respect to joint learning from morbidity and mortality reviews and ensuring best practice around handovers of care [8]. Shared learning should be promoted to identify areas for improvement. *[Recommendation]*

- There must be a robust reporting system in place for investigating and learning from both excellence reporting as well as all patient safety incidents including national patient safety alerts. In response to safety incidents appropriate action plans must be formulated and enabled whenever preventable factors are found. A written record of actions taken, and lessons learnt should be kept and a timely and reliable method for dissemination of shared learning should be

in place. There should be clear structures in place for timely dissemination of findings to all staff, and deficiencies in care should lead to measurable change. *[Standard]*

- Both the emergency department and the critical care teams should regularly review guidelines from professional organisations and other sources of evidence to ensure that both departments comply with best practice. These evidence sources should be translated into comprehensive locally agreed guidelines or Standard Operating Procedures (SOPs). *[Recommendation]*

- Both the emergency department and the critical care teams must both maintain individual risk registers that are regularly reviewed and updated by both senior managerial and clinical staff**.** *[Standard]*

- Process of care measures including audits of the reliability of delivery of best practice should be undertaken. *[Recommendation]*

- The departments should identify key performance indicators (KPIs) that describe outcomes for the cohort of patients admitted from the resuscitation area to the critical care. Such KPIs may be generic and common to most departments or more specialised**.** Where possible this process should involve patients. *[Standard]*

- Research and audit activity are important indicators of an aspirational and self-critical environment. Engagement in research generally improves healthcare performance. The UK NIHR critical care and trauma and emergency care research community should encourage and develop a validated methodology to review referrals to critical care and evaluate decision making and subsequent outcomes relating to critical care admission and refusal. *[Recommendation]*

- Clinical documentation should be audited regularly against agreed national or local standards. *[Recommendation]*

2. Staffing and training

Best practice standards

- There must be one Registered Nurse (RN) for every patient in the resuscitation area.

- A ventilated patient in the resuscitation area must have a named member of staff with appropriate training present at the bedside.

- There must be a named senior doctor for the resuscitation area.

- A named Emergency Charge Nurse or Emergency Nurse with level 2 competencies will be the nominated shift lead for the resuscitation area.

- Every patient in resuscitation area must be seen by a senior doctor within 30 minutes.

- There must be extra support available for level 3 patients delayed in the resuscitation area.

- Link consultants and nurse consultants for the emergency department and critical care should be identified.

- Local policy for airway assistance in the resuscitation area must include the use of intubation checklists.

- Induction for new staff in both critical care and anaesthesia must include orientation to the resuscitation area.

- All staff undertaking transfers of critically ill patients (intra & inter hospital) must be competent in doing so as per national and locally agreed guidelines.

- All staff practicing sedation must only practice within the limits of their competence and the guidelines of their trust sedation committee.

- Senior emergency care staff must demonstrate that skills required for care of critically ill patients are maintained.

2.1 Staffing levels:

2.1.1 Nursing staff

- Minimum ED resuscitation area nurse staffing levels: there must be one registered nurse (RN) for each patient in the resuscitation area [10]. *[Standard]*

Nurse to patient ratios for the following situations when needed [10]:

- o Major trauma (two registered nurses to one patient)
- o Cardiac arrest (two registered nurses to one patient)
- o Priority ambulance calls (one registered nurse to one patient)
- o Stabilised patient awaiting transfer to critical care (one registered nurse to one patient as per GPICS v2)
- o Stabilised patient awaiting transfer to ward (one registered nurse to two patients)

The minimum staffing levels above should be the same 24 hours a day. The staffing of the resuscitation area needs to be flexible to cope with the higher acuity patients and those requiring low nursing ratios once stabilized [11]. The standard must be to have one [10] RN per patient to enable the department to flex up and down, and care for the highest acuity patients in the emergency department.

- A named Emergency Charge Nurse or Emergency Nurse with level 2 competencies will be the nominated shift lead for the resuscitation area [10]

- There must be a named and competent [12] person caring for a ventilated patient in the resuscitation area, present at the bedside with the appropriate training and skillset to do so. This staff member may be nursing, medical or ACCP. *[Standard]*

2.1.2 Medical Staff

- There should be a named senior doctor (ST4 equivalent or above) for the resuscitation area. *[Standard]*

- Every patient is to be seen by a senior doctor, ideally a consultant, within 30 minutes of arrival in the resuscitation area. *[Standard]*

- Senior and experienced decision makers must review the sickest patients being admitted to hospital through the emergency department soon after they arrive in the resuscitation area. The senior doctor may be a middle grade if there is no resident consultant.

- Timely senior review is a theme in line with national standards for example trauma [13] and the NICE Quality Standard 161 for sepsis [14]. The time frame of 30 minutes to review, is shorter than Quality Standard 161, but appropriate for this cohort of patients in a dedicated resuscitation area.

- There must be a named and competent [12] person caring for a ventilated patient in the resuscitation area, present at the bedside with the appropriate training and skillset to do so. This staff member may be nursing, medical or ACCP. *[Standard]*

2.1.3 AHP Staff

- There must be a locally agreed policy for requesting additional support from the acute care team (which may include critical care/ODPs/anaesthesia) when there is any delay in transferring a ventilated patient from the resuscitation area. ***[Standard]***

- The National Outreach Forum defines Critical Care Outreach (CCO) as a multidisciplinary organisational approach to ensure safe, equitable and quality care for all acutely unwell, critically ill and recovering patients, irrespective of location or pathway. Local CCO services may be involved in the management of these critical care patients in the resuscitation area. ***[Recommendation]***

- There must be a named and competent [12] person caring for a ventilated patient in the resuscitation area, present at the bedside with the appropriate training and skillset to do so. This staff member may be nursing, medical or ACCP. ***[Standard]***

2.2 Training

2.2.1 Promoting collaborative working:

- A link consultant and Registered Nurse Lead should be identified between the emergency department and critical care to attend departmental meetings in both specialties. ***[Standard]*** [10]

- ED resuscitation area orientation should be mandated for the induction of all multidisciplinary critical care and anaesthetic staff. ***[Standard]***

- Joint simulation training in the resuscitation area should occur regularly with ED, critical care and anaesthesia teams. If available consider the use of video emergency drills with a qualified debriefer, which can assist with staff development and action plans. ***[Recommendation]***

- Both ED and critical care research teams should work collaboratively to allow the recruitment of critically ill patients to NIHR studies where appropriate ***[Recommendation]***

2.2.2 Improving staff training:

- All ED staff involved with transfers to undertake transfer training. ED nurses are frequently involved in intra-hospital transfers and must be trained to do so utilizing locally agreed guidelines based on national standards [10] ***[Standard]***.

- The development of rotational critical care/ED/CCO posts for members of the nursing workforce. Rotational posts and placements will be beneficial for both departments, enabling the transfer of skills and training between both areas. ***[Recommendation]***

- Develop combined multi-disciplinary emergency care/critical care/anaesthetic training days locally so that all staff can demonstrate the relevant competencies for the care of the critically ill patient, which should include airway management (including tracheostomy), the use of an intubation checklist and cohesive MDT working [19]. ***[Recommendation]***

- Healthcare professionals should undergo Resuscitation Council UK (RCUK) Immediate Life Support (ILS) courses or the local equivalent as a minimum. ***[Standard]***

- Medical professionals working in the resuscitation area should remain current in RCUK Advanced Life Support (ALS) training or equivalent. *[Standard]*

- It is the responsibility of EM trainees at CT3 (or equivalent) and above to maintain critical care skills and MDT working that they may expect to use. Emergency departments must facilitate this as appropriate. *[Standard]* This could include:
    - Attend theatre lists to maintain airway skills
    - Keep a procedural logbook
    - Days on ICU/in theatre to maintain vascular access skills
    - Skills courses with anaesthetic and ICU staff.

- There must be locally agreed standardised practice for use of sedation (e.g. training, drugs and dose) that is agreed between ED, anaesthesia and ICM, that aligns with the most recent RCEM guidance on ED sedation [15, 16]. *[Standard]*

- Development of a national network of dual EM/ICM consultants to provide guidance for dual EM/ICM trainees in regions without dual trained consultants *[Recommendation]*

- Facilitation of short placements or keeping in touch days for dual trainees in EM/ ICM when there may be prolonged periods of time spent out of each specialty. *[Recommendation]*

2.3 Staff wellbeing

- The authors recognise that the demands of caring for unwell patients can be great for all staff groups and additional support maybe required at times. Please refer to the RCEM Wellness Compendium, the Intensive Care Society Wellbeing Hub and RCN Wellbeing, Self Care and Resilience library for further information and guidance [17, 18, 19].

- Staff from critical care and emergency departments should be encouraged to utilise health and well-being support offered via local Resilience Hubs, or equivalent services, where these are in place.

2.4 Equality and diversity

- The authors fully support diversity, equality and inclusion as an integral cultural values in both critical care and emergency department staffing. Please refer to RCEM guidance and the Equality Act 2010 [20, 21].

3 Equipment

Best practice standards

- Equipment should be stocked, checked and maintained by appropriate staff familiar with its use.

- The following should be standardised and immediately available in both emergency medicine and critical care areas
    - Emergency critical care equipment trolleys, with standardised layout
    - Basic and difficult airway equipment including video laryngoscopes
    - Central venous and arterial catheterisation packs
    - Basic ultrasound equipment
    - Out of theatre intubation checklists
    - Emergency transfer bags.

- The same LocSSIPs and guidelines on emergency critical care procedures should be available to and shared between departments.

- Portable ventilators capable of basic ventilation modes should be immediately available to staff in resuscitation and critical care areas.

- More sophisticated ventilators should be accessible in the emergency department when this is required.

- Commonly used medications for critically ill patients should be immediately available in the emergency department.

- Drug infusions for critically ill patients should have concentrations standardised between the ED and critical care areas.

- Transfer monitors should have capnography and invasive pressure monitoring capabilities.

- A blood gas analyser must be easily available to staff in the ED.

- Transfer documentation standards should be adhered to.

- Critical Care documentation and drug charts should be available in the ED.

- Staff in the resuscitation area and critical care wards should have access to appropriate IT facilities without having to leave these areas.

- The ability to isolate patients and safely undertake any procedure of high risk to staff should be available within the resuscitation area, including the facility to safely don and doff PPE.

3.0 Equipment Governance

- All equipment should be regularly serviced and maintained as per local policy and manufacturer guidelines. *[Standard]*

- Staff responsible for stocking and checking critical care equipment must understand its use and log checks where appropriate *[Standard]*

- It is recognised that provision of additional equipment in the resuscitation area generates the need for specific staff training. Recommendations relating to this are suggested in section 2, "Staffing and Training".

3.1 Standardisation of Emergency Critical Care Equipment

- Standardizing equipment across critical care areas of hospital benefits staff and patients. Standardisation of equipment aims to reduce the risk of harm to patients because staff who work between these areas will have greater familiarity with a smaller number of devices, thereby reducing the risk of error.

- The same LocSSIPs and guidelines should be available to and shared between departments. This facilitates consistency ad transferability in staff training and allows the possibility of moving equipment between departments to meet demand. *[Standard]*

- There could be cost benefits if larger equipment orders are placed to cover both ED and critical care.

3.1.1 Airway and difficult airway trolleys

- National guidance recommends that every emergency department and critical care area should have immediate access to a difficult airway trolley (DAT) and that its content and layout be identical to the DAT available throughout the organisation [22].

- In order that basic and advanced equipment is identified rapidly and safely, all airway trolleys should be standardised across the organisation. *[Standard]*

- The resuscitation area should stock endotracheal tubes with subglottic suction ports as standard. *[Recommendation]*

- Video-laryngoscopes and other difficult airway equipment including tracheostomy tubes [23] must be available in both the ED and ICU; all staff expected to use them should be trained in their use. *[Standard]*

- A standardised, hospital-wide out-of-theatre intubation checklist (as recommended in the NAP 4) [24] should be attached to each airway trolley or otherwise be readily available in each ICU/resus bay. *[Standard]*

3.1.2 Resuscitation trolleys

- The content and layout of basic resuscitation trolleys should be identical across the hospital. *[Standard]*

- The same make and model of defibrillator capable of defibrillation, DC cardioversion, pacing and cardiac monitoring should be used in both the ED and across all critical care areas. *[Recommendation]*

3.1.3 Ventilators

- The resuscitation area should be equipped with ventilators which allow rapid, safe and effective delivery of mandatory ventilation modes, positive end inspiratory pressure and non-invasive ventilation. *[Standard]*

- The exact makes and models required should be established in conjunction with representatives from the hospital's critical care and anaesthesia departments.

- Transport ventilators should be the same make and model in both emergency department and critical care area. *[Recommendation]*

- In certain clinical situations more sophisticated ventilators may be required. The necessary equipment and staff trained in their use should be rapidly available to a patient in the resuscitation area should the need arise. *[Standard]*

- It is essential that ventilators are serviced and checked by appropriate staff at appropriate intervals. *[Standard]*

3.1.4 Anaesthetic Machines

- In rare circumstances an anaesthetic machine may be required in both the emergency department and critical care area, particularly where volatile anaesthetic agents are required at induction or for the on-going treatment of bronchospasm. If not present in the emergency department and critical care area, an anaesthetic machine should be rapidly available when required. *[Recommendation]*

- The anaesthetic machine should only be used by staff trained in its use. A trained anaesthetic assistant should be present in this situation. *[Recommendation]*

- Anaesthetic machines should undergo daily pre-use checks as described in national guidelines [27]. *[Standard]*

3.1.5 Bronchoscopes

- A fibre-optic bronchoscope may be urgently required. This equipment should be rapidly available to appropriately trained staff in both areas with support from appropriately trained staff *[Recommendation]*

3.1.6 Vascular access

- The contents of central venous catheter and arterial catheterisation packs should be standardised. *[Standard]*

- Methods of securing and dressing vascular access catheters should be agreed between departments. *[Recommendation]*

3.1.7 Ultrasound

- The use of Point of Care Ultrasound (PoCUS) is established in emergency care and critical care both in the UK and abroad [24]. NICE recommends the use of ultrasound in order to safely insert central venous catheters [25]. Gaining ultrasound competencies are also a requirement for the completion of emergency medicine training [26, 27].

- For the above reasons, ultrasound machines suitable for vascular access, basic echocardiography, abdominal and lung sonography must be immediately accessible to staff in both the emergency department and critical care area. **[Standard]**

3.1.8 Major trauma

- Equipment relevant to major trauma, such as, but not limited to, intercostal drains, rapid volume infusors, thoracotomy kits, must be immediately available and should ideally be the same as those used in theatres and critical care. **[Recommendation]**

3.1.9 Miscellaneous equipment

- Other devices routinely used in critical care, such as nasogastric tubes for feeding and/or drug administration, temperature probes, targeted temperature management equipment, should all be available in the resuscitation area and critical care. **[Recommendation]**

- Clinicians working in the resuscitation area should have easy access to a blood gas analyser which includes lactate analysis (i.e. within the ED). **[Standard]**

- Use tamper tags for equipment, such as Transfer Bags and Intubation Drug Boxes, which may be deployed but not always used, to ensure that all items are present when needed. A clear process is needed to ensure re-stocking and expiry date checking after each use. **[Recommendation]**

3.2 Transfer equipment

- Inter and intra hospital transfer bags for critically ill patients should be available in the emergency department and critical care area. The contents and layout should be standardised across the hospital. **[Standard]**

- Transfer monitors should have capnography and invasive pressure monitoring capability. **[Standard]**

- Removable modules should be compatible with the bedside monitors in the emergency department and critical care area. **[Recommendation]**

- Documentation of patient transfers from both emergency department and critical care area should adhere to the requirements of the regional adult Critical Care Network [28]. **[Standard]**

3.3 Invasive Procedures- Equipment and LocSSIPs

- Local Safety Standards for Invasive Procedures (LocSSIPS) are part of the National Safety Standards for Invasive Procedures (NatTSSIPs) project. This NHS England initiative is a response to never-events and aims to reduce the risk to patients undergoing invasive procedures [29]. LocSSIPS are produced locally and adapted from the NatSSIPs framework. A number of procedures that take place in the ED and on critical care wards lend themselves to LocSSIPS including emergency intubations and the invasive procedures outlined above.

- The same procedure-specific LoCSSIP should be used in the resuscitation area and critical care thereby standardising the expected consent procedure, safety measures, procedural elements, documentation, debrief and after-care. **[Standard]**

3.4 Drug administration

- Drugs to facilitate safe intubation and on-going ventilation should be immediately available in the resuscitation area and the critical care unit. *[Standard]*

- Pre-filled infusion syringes of anaesthetic and vasoactive drugs with standardised concentrations (e.g. propofol 1% vs 2%) have been recommended by NPSA in response to previous adverse incidents. [32, 33]   These include minijets for emergency use and pre-prepared syringes for use as infusions. The same pre-filled syringes (for example, noradrenaline and GTN) should be stocked in the resuscitation area and critical care. *[Standard]*

- Commonly used sedative and analgesic infusions should have volumes and concentrations standardised across the ED and critical care units. *[Standard]*

- An appropriate number of programmable syringe drivers should be stocked by the ED and critical care. Coordination of investment in the same make and model would allow exchange of identical equipment between departments without necessitating disconnection, exchange of infusions and reprogramming on arrival in the critical care unit from the ED*. [Recommendation]*

3.5 Documentation

- Critical care documentation, paper-based or electronic, should ideally be available in the resuscitation area as it is on the critical care unit to allow staff to seamlessly document care of the patient. *[Standard]*

- Clinicians working in the resuscitation area should have full access to all local IT systems so that they can view electronic patient records, investigation results, and local policies and guidelines without leaving the resuscitation area. They should also have access to online National and International Guidelines. *[Standard]*

-

3.6 Isolation facilities

- Every major ED should have the majority of its resuscitation area bays capable of isolation to allow any high risk procedure to be undertaken safely. This area should feature an external anteroom (with a sink) for donning and doffing PPE and a negative pressure airflow system. *[Standard]*

- Decontamination facilities are a key element in preparedness for a terrorist or chemical, biological, radiological and nuclear (CBRN) incident. Every major ED should have a fixed and purpose-built decontamination room with external and internal doors and hot and cold showers. There should also be a contaminated waste management system. *[Standard]*

References

Introduction:

1. Royal College of Emergency Medicine Guidance
    https://www.rcem.ac.uk/RCEM/Quality_Policy/Clinical_Standards_Guidance/RCEM_Guidance/RCEM/Quality-Policy/Clinical_Standards_Guidance/RCEM_Guidance.aspx

2. Higgs A., McGrath B.A., Goddard C., Rangasami J., Suntharalingam G., Gale R., Cook T.M., Royal College of Anaesthetists. Guidelines for the management of tracheal intubation in critically ill adults (2018) *British Journal of Anaesthesia*, 120 (2) , pp. 323-352.

3. General Provision of Intensive Care Services, Edition 2. The Faculty of Intensive Care Medicine & The Intensive Care Society, June 2019.
    https://www.ficm.ac.uk/standards-research-revalidation/guidelines-provision-intensive-care-services-v2

Processes section:

4. General Provision of Intensive Care Services, Edition 2. The Faculty of Intensive Care Medicine & The Intensive Care Society, June 2019.https://www.ficm.ac.uk/standards-research-revalidation/guidelines-provision-intensive-care-services-v2

5. National Framework for Inter-Facility Transfers. NHS England, March 2021
    https://www.england.nhs.uk/publication/inter-facility-transfers-framework/

6. The Transfer Of The Critically Ill Adult. The Faculty of Intensive Care Medicine & The Intensive Care Society, May 2019.
    https://www.ficm.ac.uk/sites/default/files/transfer_critically_ill_adult_2019.pdf

7. Adult Critical Care Transfer Services. NHS England. June 2021
    https://www.england.nhs.uk/publication/adult-critical-care-transfer-services/

8. Using the structured judgement review method. A clinical governance guide to mortality case record reviews. The Royal College of Physicians of England, 2016.
    https://www.rcplondon.ac.uk/sites/default/files/media/Documents/NMCRR%20clinical%20governance%20guide_1.pdf?token=AS-qWBcA

9. Harvey D, Butler J, Groves J, Manara A, Menon DK, Thomas E, Wilson M. Management of perceived devastating brain injury after hospital admission - A consensus statement from stakeholder professional organisations. British Journal of Anaesthesia 2018; 120: 138-145. doi: 10.1016/j.bja.2017.10.002

Staffing and training section:

10. RCEM and RCN Nursing workforce standards for Type 1 Emergency Departments, October 2020
    https://www.rcem.ac.uk/docs/RCN-RCEM%20Nursing%20Workforce%20Standards.pdf

11. Safe, sustainable and productive staffing in urgent and emergency care. NHS Improvement, June 2018.
    https://improvement.nhs.uk/resources/safe-staffing-urgent-emergency-care/

12. Step Competency Framework. Critical Care National Network Nurse Leads Forum, 2018
    https://www.cc3n.org.uk/step-competency-framework.html

13. TARN Dashboard. The Trauma Audit and Research Network

https://www.tarn.ac.uk/Content.aspx?ca=4

14. Sepsis Quality standard [QS161]. NICE, September 2017
https://www.nice.org.uk/guidance/qs161/chapter/Quality-statements

15. Safe Sedation of Adults in the Emergency Department. The Royal College of Anaesthetists and the Royal College of Emergency Medicine, November 2012.
https://www.rcem.ac.uk/docs/College%20Guidelines/5z7.%20Safe%20Sedation%20in%20the%20Emergency%20Department%20-%20Report%20and%20Recommendations.pdf

16. Pharmacological Agents for Procedural Sedation and Analgesia. The Royal College of Emergency Medicine, October 2020,
https://www.rcem.ac.uk/docs/RCEM%20Guidance/Pharmacological_Agents_for_Procedural_Sedation_and_Analgesia_(October_2020_Revised).pdf .

17. The Wellness Compendium iBook. The Royal College of Emergency Medicine, 20120.
https://www.rcem.ac.uk/docs/Sustainable%20Working/Wellness%20Compendium%20v3.pdf

18. Wellbeing Hub. Intensive Care Society.
https://www.ics.ac.uk/ICS/Education/Wellbeing/ICS/Wellbeing.aspx

19. Royal College of Nursing Wellbeing, Self Care and Resilience Library.
https://www.rcn.org.uk/library/subject-guides/wellbeing-self-care-and-resilience

20. https://www.rcem.ac.uk/RCEM/About/Equality_and_Diversity/RCEM/About_Us/Equality_and_Diversity.aspx?hkey=57654efb-e199-4332-bd6a-e4424366a025

21. https://www.legislation.gov.uk/ukpga/2010/15/contents

Equipment:

22. Setting up a Difficult Airway Trolley. Difficult Airway Society.
https://das.uk.com/content/difficult_airway_trolley

23. National Tracheostomy Safety Project website www.tracheostomy.org

24. NAP4: Major Complications of Airway Management in the United Kingdom, The Royal College of Anaesthetists, March 2011 https://www.nationalauditprojects.org.uk/NAP4_home#pt

25. Point-of-Care Ultrasound Governance Position Statement. The Royal College of Emergency Medicine, July 2014.
https://www.rcem.ac.uk/docs/Training/1.14.7%20RCEM%20Governance%20Statement%20v6%20April%202015%20(1).pdf

26. Guidance on the use of ultrasound locating devices for placing central venous catheters. NICE, October 2002. https://www.nice.org.uk/guidance/ta49/chapter/1-Guidance

27. AAGBI SAFETY GUIDELINE: Checking Anaesthetic Equipment. The Association of Anaesthetists of Great Britain and Ireland, Jun 2012. https://rcoa.ac.uk/sites/default/files/documents/2019-11/3%20Checking%20Anaesthetic%20Equipment%20-%202012.pdf

28. The CCT in Intensive Care Medicine. The Faculty of Intensive Care Medicine, v2.4 2009.
https://www.ficm.ac.uk/trainingcurricula-and-assessment/curriculum

29. Curriculum and Assessment Systems For Training in Emergency Medicine. The Royal College of Emergency Medicine, August 2015.
http://www.rcem.ac.uk/docs/Training/RCEM_2015_Curriculum___Applicable_from_August_2016__approved_23_Nov_2015_ATCF_RTT_DRE-EM_additions_July2017%20-%20JCST%20amendments.pdf

30. Critical Care Networks. Index of UK Critical Care Networks (or Operational Delivery Networks). https://www.acprc.org.uk/resources/critical-care/critical-care-networks/

31. Examples of Local Safety Standards for Invasive Procedures. NHS Improvement. https://improvement.nhs.uk/resources/examples-local-safety-standards-invasive-procedures/#background

32. NPSA Alert 20. Promoting safer use of injectable medicines. National Patient Safety Agency, 28 March 2007.https://improvement.nhs.uk/documents/301/NHSI_Patient_Safety_Alert_-_Restricted_use_of_open_systems.pdf

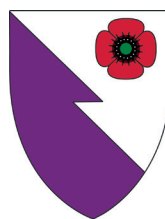33. Guidance on intravenous infusions. NICE, 2021. https://bnf.nice.org.uk/guidance/guidance-on-intravenous-infusions.html

The Faculty of
Intensive
Care Medicine™

www.ficm.ac.uk

@FICMNews

Churchill House | 35 Red Lion Square | London
WC1R 4SG | *tel* 020 7092 1688
email contact@ficm.ac.uk

The Royal College of
Emergency Medicine

www.rcem.ac.uk

@RCollEM

7-9 Bream's Buildings | Chancery Lane | London
EC4A 1DT | *tel* 020 7404 1999
email communications@rcem.ac.uk