Core Standards for Intensive Care Units

The Faculty of Intensive Care Medicine

intensive care society
care when it matters

Royal College of Nursing

Royal College of Speech & Language Therapists

United Kingdom Clinical Pharmacy Association

BACCN
British Association of Critical Care Nurses

CCNN
Critical Care Network Nurse Leads

Chartered Society of Physiotherapy

BDA
British Dietetic Association

Critical Care Group
Critical Care Group of the UKCPA

Edition 1

2013

CONTENTS

DEFINITION

An Intensive Care Unit (ICU) is a specially staffed and equipped, separate and self-contained area of a hospital dedicated to the management and monitoring of patients with life-threatening conditions. It provides special expertise and the facilities for the support of vital functions and uses the skills of medical, nursing and other personnel experienced in the management of these problems. It encompasses all areas that provide Level 2 (high dependency) and/or Level 3 (intensive care) care as defined by the Intensive Care Society document *Levels of Critical Care for Adult Patients* (2009).

ICU staff also provide services outside of the ICU such as emergency response (e.g. rapid response teams) and critical care outreach services. Where applicable the hospital must provide adequate resources for these activities.

Depending upon the designated level, function, size and case mix of the hospital and/or region that it serves, an ICU may range from four to over 50 beds. Large ICUs should be divided into pods of 8-15 patients.

These standards apply to all units capable of looking after Level 2 or Level 3 critically ill patients, whether they are called Intensive Care, Critical Care or High Dependency Units and no distinction is made between them.

1. STAFFING

1.1. Medical Staff

	Standard	Additional rationale/consideration	References
1.1.1	**Care must be led by a Consultant in Intensive Care Medicine**	The Closed Unit model of intensive care has been shown to improve mortality and morbidity. A Consultant in Intensive Care Medicine is a Consultant who is a Fellow/Associate Fellow or eligible to become a Fellow/Associate Fellow of the Faculty of Intensive Care Medicine. A Consultant in Intensive Care Medicine will have Daytime Direct Clinical Care Programmed Activities in Intensive Care Medicine written into their job plan. These Programmed Activities will be exclusively in Intensive Care Medicine and the Consultant may not cover a second specialty at the same time.	Wilcox ME, Chong CKAY, Niven DJ et al. Crit Care Med. 2013, doi:10.1097/CCM.0b013e318292313a Baldock G, Foley P, Brett S.Intensive Care Med. 2001 May;27(5):865-72 Pronovost PJ, Angus DC, Dorman T, et al. JAMA. 2002;288(17):2151–2162. www.ficm.ac.uk/membership
1.1.2	**Consultant work patterns should deliver continuity of care**	Analysis of UK Intensive Care Medicine Consultants, demonstrate that the majority work blocks of days at a time. This is to be commended for maintaining continuity of care. 5 day blocks of day shifts on ICU have been shown to reduce burn-out in intensivists and maintain the same patient outcomes as 7 day blocks. A minority of units still have different Consultants covering for 24-hour blocks throughout the week.	Ali NA, Hammersley J, Hoffman SP, et al. Am J Respir Crit Care Med. 2011 Oct 1;184(7):803-8 FICM Workforce Advisory Group
1.1.3	**In general, the Consultant/ Patient ratio should not exceed a range between 1:8 – 1:15 and the ICU resident/Patient ratio should not exceed 1:8**	The best current evidence is a Consultant/ patient ratio in excess of 1:14 is deleterious to patient care and Consultant well being. However the actual ratio needs to be determined by the following factors: • Case Mix • Patient Turnover • Ratios of Trainees • Experience of Trainees • Telemedicine • Surge Capacity	Valentin A, Ferdinande P. Int Care Med. 2011; 37(10) Volume 37: 1575-1587 Ward NS,Afessa B, Kleinpell R. CCM. 2013; 41(2): 638–645 CICM. IC-01 (2011) Landrigan CP, Rothschild JM, Cronin JW, et al. N Engl J Med (2004) 351:1838–1848

Standard		Additional rationale/consideration	References
		An ICU resident may be a medical trainee, SAS doctor or Advanced Critical Care Practitioner. It is not appropriate for a Foundation Year doctor to be left as the sole resident doctor on an ICU. There must be immediate access to a practitioner who is skilled with advanced airway techniques.	
1.1.4	**There must be a designated Clinical Director and/or Lead Consultant for Intensive Care**	Intensive Care is recognised as essential to acute and elective care provision in the modern hospital. If there is only a Lead Consultant, there must be a clear line of managerial accountability. In larger hospitals, the Clinical Director should only have managerial responsibility for intensive care, although this may comprise more than 1 unit. For example, the Clinical Director may be managerially responsible for a General ICU, Neuro ICU, Paed ICU and Cardiac ICU. Each separate unit would be expected to have a lead Consultant.	Valentin A, Ferdinande P. Int Care Med. 2011; 37(10) Volume 37: 1575-1587 CICM. IC-01 (2011) DH. Comprehensive Critical Care. (2000)
1.1.5	**A Consultant in Intensive Care Medicine must be immediately available 24/7, be able to attend within 30 minutes and must undertake twice daily ward rounds**	The Consultant must see all patients under his/her care with trainee staff at least twice daily (including weekends and National holidays) and set a management plan, in the form of a structured bedside ward round. Consultant Intensivists must be available at all times to offer consultant level care to patients as necessary. Consultant Intensivists participating in a duty rota (including out of hours) must not be responsible for delivering other services, such as emergency medicine, acute general medicine and anaesthesia (including obstetric anaesthesia), while covering the critical care unit.	Paragraph 2, Schedule 12, National (English) Terms and Conditions of the Consultant Contract CICM. IC-01 (2011) Valentin A, Ferdinande P. Int Care Med. 2011; 37(10) Volume 37: 1575-1587 CICM. IC-01 (2011) AMoRC. The Benefits of Consultant Delivered Care. (2012) Barger LK, Ayas NT, Cade BE, et al. PLoS Med. 2006;3(12):e487

Standard		Additional rationale/consideration	References
1.1.6	**Consultant Intensivist led multi-disciplinary clinical ward rounds within Intensive Care must occur every day (including weekends and national holidays). The ward round must have daily input from nursing, microbiology, pharmacy and physiotherapy**	Management decisions must be made about critically ill patients in a time sensitive manner. The Consultant Intensivist, as key decision maker, needs to receive an appropriate amount of information to make decisions. This requires the presence or input of the other professionals to facilitate this process. At weekends, the input does not necessarily have to be onsite, but this is encouraged.	CICM. IC-01 (2011) NICE 83 AMoRC. The Benefits of Consultant Delivered Care. (2012)
1.1.7	**All treatment plans should have clear objective outcomes identified within a specific time frame and discussed with the patient where appropriate, or relatives/carers if appropriate**	All treatment plans and goals should be communicated effectively within the Multi-professional team and documented in a way that is easily accessible to all members of the team. Patient information should be given in an appropriate format suitable for the patient/carers requirements and in a language they can understand.	NICE CG83
1.1.8	**Intensive Care trainees must comply with the requirements set by the Faculty of Intensive Care Medicine**	Critical Care trainees must have appropriate experience to work in a critical care unit.	www.ficm.ac.uk/training-icm Valentin A, Ferdinande P. IntCare Med. 2011; 37(10) Volume 37: 1575-1587
1.1.9	**Intensive Care Units that receive trainees for training in Intensive Care Medicine must comply with the requirements for training set them by the Faculty of Intensive Care Medicine**	Critical care units recognised for medical training must provide training to the standards set by the FICM.	www.ficm.ac.uk/training-icm

1.2. Nursing Staff

	Standard	Additional rationale/consideration	References
1.2.1	**Level 3 patients (level guided by ICS levels of care) require a registered nurse/patient ratio of a minimum 1:1 to deliver direct care**	A greater ratio than 1:1 may be required to safely meet the needs of some critically ill patients, such as unstable patients requiring various simultaneous nursing activities and complex therapies used in supporting multiple organ failure. Enhanced Level 3 patient status takes in to account severity of illness and the related nursing demands.	Williams G, Schmollgruber S, Alberto L. *Crit Care Clin.* 2006 Jul;22(3):393-406 The European Federation of Critical Care Nursing Associations, 2007
1.2.2	**Level 2 patients (level guided by ICS levels of care) require a registered nurse/ patient ratio of a minimum 1:2 to deliver direct care**	The 1:2 ratios may need to be increased to 1:1 to safely meet the needs of critically ill patients, such as those who are confused/delirious requiring close monitoring and/or those being nursed in single rooms.	The European Federation of Critical Care Nursing Associations, 2007
1.2.3	**Each designated Critical Care Unit will have a identified Lead Nurse who is formally recognised with overall responsibility for the nursing elements of the service e.g. Band 8a Matron**	This person must be an experienced critical care nurse with detailed knowledge and skills to undertake the operational management and strategic development of the service. This person will have: • undertaken leadership/management training • be in possession of a post registration award in Critical Care Nursing • be in possession or working towards post graduate study in relevant area This person will be supported by a tier of Band 7 sisters/charge nurses who will collectively manage human resources, health & safety, equipment management, research, audit, infection prevention & control, quality improvement and staff development.	Williams G, Schmollgruber S, Alberto L. *Crit Care Clin.* 2006 Jul;22(3):393-406

Standard		Additional rationale/consideration	References
1.2.4	**There will be a supernumerary clinical coordinator (sister/ charge nurse bands 6/7) on duty 24/7 in critical care units** **Units with < 6 beds may consider having a supernumerary clinical coordinator to cover peak activity periods, i.e. early shifts**	The responsibilities of the clinical coordinators include: • Providing clinical nursing leadership, supervision and support to teams to optimise safe standards of patient care on each shift • Coordinate and supervise nurse staffing • Continuity of patient care • Facilitate admissions and discharges to ensure efficient and effective patient flow • Communicate with the multidisciplinary team and liaise with other departments to ensure efficient, effective, safe care is delivered in a timely manner • Be visible and accessible to staff, patients and relatives • Ensure effective use of human and non-human resources • Education and training All Clinical coordinators must be in possession of a post registration award in Critical Care Nursing and be a graduate or working towards a degree.	Francis Report, 2013
1.2.5	**Units with greater than 10 beds will require additional supernumerary (this person is not rostered to deliver direct patient care to a specific patient) registered nursing staff over and above the clinical coordinator to enable the delivery of safe care. The number of additional staff per shift will be incremental depending on the size and layout of the unit (e.g. multiple single rooms). Consideration needs also be given during events such as infection outbreaks**	The role of additional supernumerary registered nursing staff is to support the clinical coordinator. This will include assistance with admissions, transfers, supporting and supervising nursing staff, arranging staff sickness cover and relief in single rooms. The number of additional supernumerary registered nursing staff will be built around multiples of critical care beds and geographical layout of units and as a minimum will require: **11 – 20 beds** = 1 additional supernumerary registered nurse **21 – 30 beds** = 2 additional supernumerary registered nurses **31 – 40 beds** = 3 additional supernumerary registered nurses	

Standard		Additional rationale/consideration	References
1.2.6	**Each Critical Care Unit will have a dedicated Clinical Nurse Educator responsible for coordinating the education, training and CPD framework for critical care nursing staff and pre-registration student allocation**	The role will be supernumerary and additional Clinical Nurse Educators will be required for larger units, i.e. 1 WTE per circa 75 staff. Consideration needs to be given to local need such as rapid staff turn-over, large numbers of junior staff. The Clinical Nurse Educator will be in possession of a post registration award in Critical Care Nursing and appropriate post graduate certificate in education or equivalent.	Williams G, Schmollgruber S, Alberto L. *Crit Care Clin.* 2006 Jul;22(3):393-406 BACCN 2009
1.2.7	**All nursing staff appointed to Critical Care will be allocated a period of supernumerary practice**	This period is to allow adequate time for registered nurses to develop basic skills and competencies to safely care for a critically ill patient. All registered nurses commencing in critical care should be commenced on Step 1 of the National Competency Framework. The supernumerary period for newly qualified nurses should be a minimum of 6 weeks; this time frame may need to be extended depending on the individual The length of supernumerary period for staff with previous experience will depend on the type and length of previous experience and how recently this was obtained. All newly registered nursing staff should be allocated a preceptor. Newly appointed staff that have completed preceptorship should be allocated a mentor.	BACCN 2009 CC3N, 2013, National Competency Framework for Adult Critical Care Nurses. 2013
1.2.8	**A minimum of 50% of registered nursing staff will be in possession of a post registration award in Critical care Nursing**	Nurse education programmes should follow the National Standards for Critical Care Nurse Education (2012) and include both academic and clinical competence assessment.	Williams G, Schmollgruber S, Alberto L. *Crit Care Clin.* 2006 Jul;22(3):393-406 CC3N, 2012, National Standards for Critical Care Nurse Education CC3N, 2013, National Competency Framework for Adult Critical Care Nurses
1.2.9	**Units should not utilise greater than 20% of registered nurses from bank/agency on any one shift when they are NOT their own staff**	All registered nursing staff supplied by bank/agency should be able to demonstrate using documented evidence that they are competent to work in a critical care environment. All agency/bank staff are to be provided with unit orientation.	

Standard		Additional rationale/consideration	References
1.2.10	**Where direct care is augmented using non-registered support staff, appropriate training and competence assessment is required**	All non-registered staff should have a defined period of induction, training for their role which includes competency assessment and personal development plan. All staff reporting to a registered nurse should work collaboratively to provide / support the provision of high quality compassionate care and support within clearly defined professional boundaries that complies with agreed employer's ways of working. Where Assistant Practitioner roles are introduced they should be in line with the National Education and Competence Framework for Assistant Critical Care Practitioners (DH, 2008).	Francis Report, 2013 Skills for Health, 2013

1.3. Therapy Team

Standard		Additional rationale/consideration	References
1.3.1	**Assessment of the rehabilitation needs of all patients within 24 hours of admission to Critical Care and NICE 83 eligible patients on discharge from critical care must receive a rehabilitation prescription**	Rehabilitation should be communicated verbally to the daily ward round for each patient receiving input. This should be ideally given by a Therapist of suitable seniority that they are able to understand the severity of illness for each patient and able to explain and amend treatment goals/plans as discussed at the time of the ward round.	NICE CG83
1.3.2	**All patients with a tracheostomy should have communication and swallowing needs assessed when the decision to wean from the ventilator has been made and the sedation hold has started**	Critical Care should have a Physiotherapist and access to a Speech and Language Therapist of adequate critical care experience and seniority who can help contribute/construct a suitable weaning plan for complex patients, in conjunction with the wider multi-professional team. Critical Care should have access to a wide variety of high and low tech communication aids, but these should only be prescribed by a professional who is trained to apply and adapt them as required.	Royal College of Speech and Language Therapists: Position Paper 2013
1.3.3	**All patients will be screened for delirium**	Delirium screening should be undertaken with a standardised assessment tool and use a multi-professional, multi-modal approach. Interventions should include both Pharmacological and non-Pharmacological considerations and highly trained Occupational Therapists; Psychologists; Pharmacists and Nursing staff should provide assessments and strategies for patients identified as suffering from delirium.	Ely EW, Shintani A, Truman B, et al. JAMA; 2004, Vol. 291(14): 1753-1762 Barr J, Fraser GL, Puntillo K, et al. CCM; 2013, Vol 41(1): 263-306
1.3.4	**Patients receiving rehabilitation are offered a minimum of 45 minutes of each active therapy that is required, for a minimum of 5 days a week, at a level that enables the patient to meet their rehabilitation goals for as long as they are continuing to benefit from the therapy and are able to tolerate it**	Intensive Care Unit Acquired Weakness (ICUAW) presents clinically as profound weakness that requires multi-professional treatment. Standards set in the stroke population for complex patient rehabilitation should be mirrored for this patient cohort.	NICE Quality standards for stroke 2010

Standard		Additional rationale/consideration	References
1.3.5	**Patients should have all Rehabilitation outcomes quantified using a tool that can track progression from the Acute sector into Primary care to facilitate care needs in the community**	Outcome measure should be consistent throughout the patient's pathway and able to facilitate care needs assessments. These outcomes should be reviewed consistently at Follow-up appointments and discussed with the patient and primary carer.	Herridge MS, Tansey CM, Matté A, N Engl J Med. 2011 Apr 7;364(14):1293-304 Griffiths J, Hatch RA, Bishop J, et al. Crit Care. 2013 May 28;17(3):R100
1.3.6	**The critical care team should have a Physiotherapist of adequate experience and seniority who can help contribute/construct a suitable weaning plan for complex patients, or long stay patients, in conjunction with the wider multi-professional team**	Weaning and rehabilitation strategies need to work in conjunction in order to optimize patient's physical capacity and reserve	Gosselink R, Bott J, Johnson M et al. Intensive Care Med. 2008 Jul;34(7):1188-99
1.3.7	**Physiotherapy staffing should be adequate to provide the respiratory management and rehabilitation components of care**	Physiotherapy should be available 24 hours a day if required, dependent on patient need. Suggested staffing levels are 1 WTE physiotherapist to 4 beds. A senior clinical physiotherapist with suitable post registration experience and/or qualifications should lead the team. Physiotherapy staffing should be adequate to provide both the respiratory management and rehabilitation components of care.	NICE CG83

1.4. Pharmacy

Standard		Additional rationale/consideration	References
1.4.1	**There must be a critical care pharmacist for every critical care unit**	The consensus of critical care pharmacists, the United Kingdom Clinical Pharmacy Association and the Royal Pharmaceutical Society is that there should be at least 0.1 WTE 8a specialist clinical pharmacist for each single Level 3 bed and for every two Level 2 beds. This minimum requirement does not take into account staffing for weekend service or annual leave etc. Organisation as a specific clinical pharmacy team specific to critical care brings additional benefits such as optimal staff skill mix and support. Pharmacy services are often overlooked despite clear evidence they improve the safe and effective use of medicines in critical care patients. As well as direct clinical activities (including prescribing), pharmacists should provide professional support activities (e.g. clinical governance and guideline development) For the larger hospital with more than one ICU, the critical care pharmacy service is best delivered in a team approach. An example of the team used for a hospital with 100 critical care beds would be band 8 specialist critical care pharmacists, comprising: a band 8C consultant pharmacist, a band 8b (as deputy), 2 to 3 at band 8a and 3 to 4 at band 7. A band 7 pharmacist is considered a training grade for specialist pharmacy services. This allows the work to be completed with high grade pharmacy expertise available to bear on critically ill patients.	NHS Modernisation Agency, 2002 Department of Health, 2004 Department of Health, 2005, Quality Critical Care: Beyond 'Comprehensive Critical Care Horn E *et al*. Crit Care Med 2006; **34**: S46–S51 Manias E *et al*. Br J Clin Pharmacol 2012, 74: 411-423
1.4.2	**There should be sufficient pharmacy technical staff to provide supporting roles**	Pharmacy technician roles are also often overlooked and yet are required for tasks such as top-up, stock control / rotation and additional specialist administrative support (e.g. budget reporting, management of drugs excluded by payment by results). They are an important resource for optimising clinical pharmacist activity e.g. by supporting medicines reconciliation.	Department of Health, 2004 Department of Health, 2005, Quality Critical Care: Beyond 'Comprehensive Critical Care
1.4.3	**Clinical pharmacists providing a service to critical care must be competent to provide the service**	Critically ill patients are at the extremes of human physiology and receive multiple medication therapies requiring a high degree of specialist knowledge and management. Staff caring for such patients must be competent to do so.	Department of Health, 2005, Adult Critical Care; Specialist Pharmacy Practice UKCPA, 2009

Standard		Additional rationale/consideration	References
		The Royal Pharmaceutical Society launched a recognition programme in 2013 making it possible to identify levels of practice of pharmacists. Critical care pharmacists can be assessed against frameworks described by the DH (2005b), UKCPA and Royal Pharmaceutical Society.	Francis, 2013 Royal Pharmaceutical Society UKCPA & RPS, 2013
1.4.4	**Clinical pharmacists who provide a service to critical care areas and have the minimum competencies (Foundation Level) must have access to a more senior specialist critical care pharmacist (for advice and referrals)**	Critical care pharmacists must not operate in isolation. Access to experience and expertise may be within the Trust, or perhaps externally (e.g. within a critical care network or equivalent). In England, there are a number of Consultant pharmacists specialising in critical care. When highly specialist advice is required, their expertise should be sought.	Department of Health, 2005, Adult Critical Care; Specialist Pharmacy Practice Department of Health, 2005, Guidance for the Development of Consultant Pharmacist Posts
1.4.5	**Clinical pharmacy services should be ideally available 7 days per week. However, as a minimum the service should be provided 5 days per week (Monday-Friday). This should include attendance at Consultant-led Multidisciplinary Ward Rounds**	Appropriate care of critically ill patients requires frequent review and reassessment of therapies, this includes medication. Clinical Pharmacists attendance at Multidisciplinary Ward Rounds increases the effectiveness of the team.	Miller G et al. Clinical Medicine 2011; 11: 312–16 Lane D *et al*. Crit Care Med 2013; 41:2015–2029

1.5. Dietitians

Standard		Additional rationale/consideration	References
1.5.1	**All patients unable to take oral intake should normally have nutrition support (enteral or parenteral) commenced on admission, to ensure adequate nutrition to facilitate rehabilitation**	There must be guidelines in place for initiating nutrition support out of hours (ideally designed by the ICU lead dietitian) If it is not appropriate to commence nutrition on admission, then the reason must be documented clearly.	Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine and American Society for Parenteral and Enteral Nutrition (2009)
1.5.2	**There must be a dietitian as part of the critical care multidisciplinary team**	The British Dietetic Association recommends that there should be 0.05-0.1 WTE dietitian per 1 bed and that the lead dietitian for ICU should be at least a band 7. The lead dietitian may be supported by more junior dietetic staff, who will require regular supervision.	NHS Modernisation Agency, 2002. Role of Health Care Professionals within Critical Care Services Alberda 2009
1.5.3	**The ICU lead dietitian will be involved in the assessment, implementation and management of appropriate nutrition support route, in collaboration with the rest of the MDT team**	The role is necessary to reinforce the effectiveness of nutrition support protocols and this role is associated with an increase in energy provision, a reduction in energy deficits and earlier introduction of combined approaches to nutrition support when enteral nutrition is failing	CQC Outcome 5 2010 NICE G32 2006 NICE QS24 2012 Heyland D, Heyland R, Cahill N, et al. JPEN J Parenter Enteral Nutr. 2010;34:707-715 Soguel L, Revelly JP, Schaller MD et al. Crit Care Med. 2012;20:412-419

2. OPERATIONAL

Standard		Additional rationale/consideration	References
2.1	**There must be a hospital wide standardised approach to the detection of the deteriorating patient and a clearly documented escalation response.**	All deteriorating acutely ill patients must be detected and treated as quickly as possible. A national prediction scale should be used to allow peer comparison with other units.	NICE CG 50 RCP. National Early Warning Score (NEWS). (2012)
2.2	**There must be documentation in the patient record of the time and decision to admit to Intensive Care**	Documentation is vital to contribute to the dataset for the National Critical Care Dash Board.	GMC. Good Medical Practice (2013)
2.3	**Admission to Intensive Care should occur within 4 hours of making the decision to admit**	Minimising delays to definitive treatment is associated with better outcomes. In the critically ill this is best delivered on the intensive care unit.	Dellinger RP, Levy MM, Rhodes A, et al. CCM. 2013; 41(2): 580–637 Rivers E, Nguyen B, Havstad S, et al. N Engl J Med. 2001 Nov 8;345(19):1368-77
2.4	**Patients should not be transferred to other Intensive Care Units for non-clinical reasons**	Transferring patients for non-clinical reasons adds the risks of transfer, prolongs stay on intensive care and may be associated with distress to patients and their families. Repatriating a patient from a specialist ICU (e.g. neuro or cardiac) is considered a clinical reason for transfer.	Barratt H, Harrison DA, Rowan KM, Raine R.Crit Care. 2012. 16(5):R179
2.5	**On admission to Intensive Care all patients must have a treatment plan discussed with a Consultant in Intensive Care Medicine**	This provision is irrespective of the time of day.	AoMRC. The Benefits of Consultant Delivered Care. (2012)
2.6	**Patients should be reviewed in person by a Consultant in Intensive Care Medicine within 12 hours of admission to Intensive Care**		AoMRC. The Benefits of Consultant Delivered Care. (2012) AoMRC. Seven Day Consultant Present Care. (2012) Aylin P, Yunus A, Bottle A, Majeed A, Bell D.QualSaf Health Care. 2010;19(3):213-7 Bell CM, Redelmeier DA. N Engl J Med. 2001; 345:663–668.

Standard		Additional rationale/consideration	References
2.7	**Each patient must have an assessment of their rehabilitation needs within 24 hours of admission to Critical Care**	This provision is irrespective of the day of admission and applies equally to patients admitted at the weekend and bank holidays. All NICE 83 eligible patients must have a rehabilitation prescription on discharge from critical care. This must be updated throughout the rest of the patient's stay in hospital.	NICE 83 Aylin P, Yunus A, Bottle A, Majeed A, Bell D.QualSaf Health Care. 2010;19(3):213-7 Bell CM, Redelmeier DA. N Engl J Med. 2001; 345:663–668.
2.8	**There should be a standardised handover procedure for medical, nursing and AHP staff for patients discharged from critical care units**	Continuity of patient care must be maintained on discharge from critical care.	Ilan R, LeBaron CD, Christianson MK, et al. BMC Health Serv Res. 2012;12:11 Joy BF, Elliott E, Hardy C, et al. PediatrCrit Care Med. 2011;12(3):304-8 O'Horo JC, Omballi M, Tran TK. J Grad Med Educ. 2012;4(1):42-6
2.9	**Patients need a clear and safe pathway for escalation of care from Level 2 care to Level 3**	Patients receiving Level 2 critical care support may deteriorate. It is not acceptable or logical to provide a ceiling of Level 2 critical care in isolated sites, as this may result in harm to patients. If a unit usually provides Level 2 care, it must be capable of the immediate provision of short term Level 3 care without calling in extra staff members in order to provide optimal patient care. The unit should be capable of providing up to 24 hours of level 3 care prior to a patient being safely transferred to a more suitable unit. The staff of the Level 2 unit should have the competencies required to provide this level of care. All recommendations of this document apply to units that usually provide only Level 2 care, whether in the NHS or the private sector.	
2.10	**Transfer from Critical Care to a ward must be formalised**	The handover must include: a. A summary of critical care stay including diagnosis, treatment and changes to chronic therapies b. A monitoring and investigation plan c. A plan for ongoing treatment d. Physical and rehabilitation needs e. Psychological and emotional needs f. Specific communication needs g. Follow-up requirements	NICE 50 O'Horo JC, Omballi M, Tran TK. J Grad Med Educ. 2012;4(1):42-6

Standard		Additional rationale/consideration	References
2.11	**Discharge from Intensive Care to a general ward should occur within 4 hours of the decision**	Patients must be moved to a more suitable environment without unnecessary delay. There should not be a non-clinical reason preventing such a move.	
2.12	**Discharge from Critical Care should occur between 07:00hrs and 21:59hrs**	Discharges overnight have been historically associated with an excess mortality. Patients perceive it as extremely unpleasant being moved from ICU to a general ward outside of normal working hours.	Priestap FA, Martin CM.Crit Care Med. 2006;34(12):2946-51 Hanane T, Keegan MT, Seferian EG, et al. Crit Care Med. 2008;36(8):2232-7
2.13	**Unplanned readmission rate to ICU within 48hrs of discharge, to a ward, should be minimal**	Readmitting a patient could imply hasty discharge or inadequate care.	
2.14	**The Intensive Care team must engage, contribute and participate in a Critical Care Operational Delivery Network (ODN), including audit activity and regular peer review**	It is recognised that Critical Care Operational Delivery Networks are an integral component of the new NHS. Benchmarking against peers is an important process that ensures good practices are maintained.	
2.15	**Level 3 units should have access to a Regional Home Ventilation and weaning unit. Arrangements should be in place to collaboratively manage patients with weaning difficulties and failure, including the transfer of some patients with complex weaning problems to the Regional centre**	Approximately 6% of ventilated patients admitted to critical care will require a prolonged period of weaning and 1% will fail to wean. Many of these patients will have neuromuscular problems and will benefit from non-invasive ventilation. A few will require long-term ventilation by tracheostomy. These patients and others with weaning difficulties are best managed by Regional Home Ventilation services with the expertise and resources to provide home support for this group of patients with complex needs.	NHS Modernisation Agency. Weaning and long term ventilation Respiratory complex home ventilation - NHS England Service specification 2013
2.16	**Patients discharged from ICU should have access to an ICU follow-up clinic**	Following a period of critical illness, patients should be offered the support of a specialised critical care follow-up clinic. Critically ill patients have been shown to have complex physical and psychological problems that can last for long time. These patients benefit from the multi-modal approach that an ICU follow-up clinic can deliver. The clinic does not necessarily have to be provided by the hospital that the patient was treated in. It could be delivered on a Regional basis.	NICE CG83

Standard		Additional rationale/consideration	References
2.17	**Geographically remote ICUs should have an established review/referral relationship with a bigger centre.**	Provision of mechanical ventilation and simple invasive cardiovascular monitoring for more than 24 hours is acceptable when the treating specialist is, or is eligible to become, a Fellow / Associate Fellow of the Faculty. If the treating specialist is not a Fellow / Associate Fellow of the Faculty, this provision should only occur within the context of ongoing daily discussion with the bigger centre. There should be mutual transfer and back transfer policies and an established joint review process. These units are encouraged to discuss their plans with their National Intensive Care Society and the Joint Standards Committee of the FICM/ICS.	Wilcox ME, Chong CKAY, Niven DJ et al. Crit Care Med. 2013, doi: 10.1097/CCM.0b013e318292313a

3. EQUIPMENT

Standard		Additional rationale/consideration	References
3.1	**Intensive Care facilities should comply with national standards**	Whilst it is acknowledged that not all facilities currently meet national standards, providers of Intensive Care services should establish a program of work/time line to establish when national standards will be met. This should be overseen/undertaken by the Intensive Care clinical team. All new build units must comply with HBN 04-02. Existing facilities that do not comply with HBN 04-02 should note that as part of their risk register. Trusts should indicate when facilities will be upgraded to comply with the current HBN. (HBN 27 was published in 1992, HBN 57 in 2003 and HBN 04-02 in 2013. It is imperative that critical care is delivered in facilities designed for that purpose). This should be inspected as part of the peer review process and slippage should be investigated.	HBN 04-02. *NHS Estates* (2013) Francis Report (2013)
3.2	**All equipment must conform to the relevant safety standards and be regularly serviced**	There must be a program in place for the routine replacement of capital equipment.	Standard for Equipment in Critical Care. *ICS* MHRA
3.3	**All staff must be appropriately trained, competent and familiar with the use of equipment**	There should be a training log held by the unit to demonstrate that all staff have complied with this provision. It applies to medical, nursing and AHP staff.	MHRA GMC NMC

4. DATA COLLECTION

Standard		Additional rationale/consideration	References
4.1	**Units must hold multi-professional clinical governance meetings, including analysis of mortality and morbidity**	There should be evidence of associated action planning. Minutes must be taken which must be incorporated into the Hospital's clinical governance process. Lessons learnt must be shared in regular multi-professional meetings. These meetings should occur on at least a monthly basis. That is there should be a minimum of 12 meetings per year.	
4.2	**The ICU should participate in a National database for Adult Critical Care**	Intensive Care Units must publish the nationally agreed dashboard, including the Standardised Mortality Rate. It is recommended that this is accessible on the unit website, which should be updated on a regular basis (annually as a minimum).	
4.3	**Presence of a risk register and associated audit calendar**	This must be regularly updated and acted upon. Evidence should be provided at the network peer review process that this is happening. Support should be given to the intensive care team by the ODN, should the Trust management not understand the implications of major risks identified.	

BIBLIOGRAPHY

National Body Publications

- Academy of Medical Royal Colleges, 2012, Benefit of Consultant Delivered Care.
- Academy of Medical Royal Colleges, 2012, Seven Day Consultant Presence.
- Australian College of Critical Care Nurses, 2003, Staffing Position Statement on Intensive Care Nurse Staffing
- British Association of Critical Care Nurses, 2009, Standards for Nurse Staffing in Critical Care.
- College of Critical Care Medicine of Australia and New Zealand, 2011, IC-1 Minimum Standards for Intensive Care Units
- College of Critical Care Medicine of Australia and New Zealand, 2010, IC-13 Recommendations on Standards for High Dependency Units for Training in Intensive Care Medicine
- Critical Care National Network Nurse Leads Forum, 2012, National Standards for Critical Care Nurse Education
- Critical Care National Network Nurse Leads Forum, 2013, National Competency Framework for Adult Critical Care Nurses
- NHS Modernisation Agency, 2002. Role of Health Care Professionals within Critical Care Services
- National Institute for Health and Care Excellence, 2006, CG32. Nutrition Support in Adults.
- National Institute for Health and Care Excellence, 2009, CG83. Rehabilitation after critical illness.
- National Institute for Health and Care Excellence, 2012, QS24. Quality standards for nutrition support in adults.
- Care Quality Commission, 2011, Essential Standards of Quality and Safety
- Department of Health, 2000, Comprehensive Critical Care
- Department of Health, 2002, Terms and Conditions of Service NHS Medical and Dental Staff (England)
- Department of Health, 2004, The Recruitment and Retention of Staff in Critical Care
- Department of Health, 2005, Quality Critical Care: Beyond 'Comprehensive Critical Care
- Department of Health, 2005, Adult Critical Care; Specialist Pharmacy Practice
- Department of Health, 2005, Guidance for the Development of Consultant Pharmacist Posts
- Department of Health, 2008, The National Education and Competence Framework for Assistant Critical Care Practitioners.
- European Federation of Critical Care Nursing Associations, 2007, Position Statement on Workforce Requirements in Critical Care Units.
- Intensive Care Society, 2009, Levels of Critical Care for Adult Patients
- NHS England, 2013, A14 Respiratory: Complex Home Ventilation
- NHS Estates, 1992, Hospital Building Note 27: Intensive Therapy Unit
- NHS Estates, 2003, Hospital Building Note 57: Facilities for Critical Care
- NHS Estates, 2013, Hospital Building Note 04-02: Critical Care Units
- NHS Modernisation Agency, 2002, Weaning and long term ventilation
- National Outreach Forum, 2012, Operational Standards and Competencies for Critical Care Outreach Services
- Robert Francis, 2013, Report of the Mid Staffordshire NHS Foundation Trust Public Enquiry
- Royal College of Physicians of London, 2012, National Early Warning Score (NEWS): Standardising the Assessment of Acute-illness Severity in the NHS.
- Royal College of Physicians of London, 2013, Future Hospital: Caring for medical patients
- Royal Pharmaceutical Society & United Kingdom Clinical Pharmacy Association, 2013, Professional curriculum: advanced pharmacy practice in critical care
- Scottish Intensive Care Society Audit Group, 2012, Quality Indicators for Critical Care in Scotland.
- Skills for Health, 2013, National Minimum Training Standards for Healthcare Support Workers and Adult Social Care Workers in England.
- Skills for Health, 2013, Code of Conduct for Healthcare Support Workers and Adult Social Care Workers in England.
- United Kingdom Clinical Pharmacy Association, 2009, Critical Care Syllabus Foundation and Excellence Level

Publications

1. Alberda, Cathy, Leah Gramlich, Naomi Jones, Khursheed Jeejeebhoy, Andrew G Day, Rupinder Dhaliwal, and Daren K Heyland. "The Relationship Between Nutritional Intake and Clinical Outcomes in Critically Ill Patients: Results of an International Multicenter Observational Study." *Intensive Care Medicine* 35, no. 10 (October 2009): 1728–1737. doi:10.1007/s00134-009-1567-4.
2. Ali, Naeem A, Jeffrey Hammersley, Stephen P Hoffmann, James M O'Brien Jr, Gary S Phillips, Mitchell Rashkin, Edward Warren, Allan Garland, and Midwest Critical Care Consortium. "Continuity of Care in Intensive Care Units: a Cluster-randomized Trial of Intensivist Staffing." *American Journal of Respiratory and Critical Care Medicine* 184, no. 7 (October 1, 2011): 803–808. doi:10.1164/rccm.201103-0555OC.
3. Arabi, Yaseen, Abdullah Alshimemeri, and Saadi Taher. "Weekend and Weeknight Admissions Have the Same Outcome of Weekday Admissions to an Intensive Care Unit with Onsite Intensivist Coverage." *Critical Care Medicine* 34, no. 3 (March 2006): 605–611.
4. Aylin, Paul, A Yunus, A Bottle, A Majeed, and D Bell. "Weekend Mortality for Emergency Admissions. A Large, Multicentre Study." *Quality & Safety in Health Care* 19, no. 3 (June 2010): 213–217. doi:10.1136/qshc.2008.028639.
5. Barger, Laura K, Najib T Ayas, Brian E Cade, John W Cronin, Bernard Rosner, Frank E Speizer, and Charles A Czeisler. "Impact of Extended-duration Shifts on Medical Errors, Adverse Events, and Attentional Failures." *PLoS Medicine* 3, no. 12 (December 2006): e487. doi:10.1371/journal.pmed.0030487.
6. Barr, Juliana, Gilles L Fraser, Kathleen Puntillo, E Wesley Ely, Céline Gélinas, Joseph F Dasta, Judy E Davidson, et al. "Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit." *Critical Care Medicine* 41, no. 1 (January 2013): 263–306. doi:10.1097/CCM.0b013e3182783b72.
7. Barratt, Helen, David A Harrison, Kathryn M Rowan, and Rosalind Raine. "Effect of Non-clinical Inter-hospital Critical Care Unit to Unit Transfer of Critically Ill Patients: a Propensity-matched Cohort Analysis." *Critical Care (London, England)* 16, no. 5 (October 3, 2012): R179. doi:10.1186/cc11662.
8. Bell, Chaim M., and Donald A. Redelmeier. "Mortality Among Patients Admitted to Hospitals on Weekends as Compared with Weekdays." *New England Journal of Medicine* 345, no. 9 (2001): 663–668. doi:10.1056/NEJMsa003376.
9. Braga, Jennifer M, Alice Hunt, Janet Pope, and Elaine Molaison. "Implementation of Dietitian Recommendations for Enteral Nutrition Results in Improved Outcomes." *Journal of the American Dietetic Association* 106, no. 2 (February 2006): 281–284. doi:10.1016/j.jada.2005.10.039.
10. Brilli, R. J., A. Spevetz, R. D. Branson, G. M. Campbell, H. Cohen, J. F. Dasta, M. A. Harvey, M. A. Kelley, K. M. Kelly, and M. I. Rudis. "Critical Care Delivery in the Intensive Care Unit: Defining Clinical Roles and the Best Practice Model." *Critical Care Medicine* 29, no. 10 (2001): 2007–2019.
11. Capuzzo, Maurizia, Rui P Moreno, and Raffaele Alvisi. "Admission and Discharge of Critically Ill Patients." *Current Opinion in Critical Care* 16, no. 5 (October 2010): 499–504. doi:10.1097/MCC.0b013e32833cb874.
12. Dara, S. I., and B. Afessa. "Intensivist-to-Bed RatioAssociation With Outcomes in the Medical ICU." *CHEST Journal* 128, no. 2 (2005): 567–572.
13. Ely, E Wesley, Ayumi Shintani, Brenda Truman, Theodore Speroff, Sharon M Gordon, Frank E Harrell Jr, Sharon K Inouye, Gordon R Bernard, and Robert S Dittus. "Delirium as a Predictor of Mortality in Mechanically Ventilated Patients in the Intensive Care Unit." *JAMA: The Journal of the American Medical Association* 291, no. 14 (April 14, 2004): 1753–1762. doi:10.1001/jama.291.14.1753.
14. Gajic, O., B. Afessa, A. C. Hanson, T. Krpata, M. Yilmaz, S. F. Mohamed, J. T. Rabatin, L. K. Evenson, T. R. Aksamit, and S. G. Peters. "Effect of 24-hour Mandatory Versus On-demand Critical Care Specialist Presence on Quality of Care and Family and Provider Satisfaction in the Intensive Care Unit of a Teaching Hospital*." *Critical Care Medicine* 36, no. 1 (2008): 36–44.

15. Gosselink, R, J Bott, M Johnson, E Dean, S Nava, M Norrenberg, B Schönhofer, K Stiller, H van de Leur, and J L Vincent. “Physiotherapy for Adult Patients with Critical Illness: Recommendations of the European Respiratory Society and European Society of Intensive Care Medicine Task Force on Physiotherapy for Critically Ill Patients.” *Intensive Care Medicine* 34, no. 7 (July 2008): 1188–1199. doi:10.1007/s00134-008-1026-7.
16. Griffiths, John, Robert A Hatch, Judith Bishop, Kayleigh Morgan, Crispin Jenkinson, Brian H Cuthbertson, and Stephen J Brett. “An Exploration of Social and Economic Outcome and Associated Health-related Quality of Life after Critical Illness in General Intensive Care Unit Survivors: a 12-month Follow-up Study.” *Critical Care (London, England)* 17, no. 3 (May 28, 2013): R100. doi:10.1186/cc12745.
17. Hanane, Tarik, Mark T Keegan, Edward G Seferian, Ognjen Gajic, and Bekele Afessa. “The Association Between Nighttime Transfer from the Intensive Care Unit and Patient Outcome.” *Critical Care Medicine* 36, no. 8 (August 2008): 2232–2237. doi:10.1097/CCM.0b013e3181809ca9.
18. Herridge, Margaret S, Catherine M Tansey, Andrea Matté, George Tomlinson, Natalia Diaz-Granados, Andrew Cooper, Cameron B Guest, et al. “Functional Disability 5 Years after Acute Respiratory Distress Syndrome.” *The New England Journal of Medicine* 364, no. 14 (April 7, 2011): 1293–1304. doi:10.1056/NEJMoa1011802.
19. Heyland, Daren K., Richard D. Heyland, Naomi E. Cahill, Rupinder Dhaliwal, Andrew G. Day, Xuran Jiang, Siouxzy Morrison, and Andrew R. Davies. “Creating a Culture of Clinical Excellence in Critical Care Nutrition The 2008 ‘Best of the Best’ Award.” *Journal of Parenteral and Enteral Nutrition* 34, no. 6 (November 1, 2010): 707–715. doi:10.1177/0148607110361901.
20. Horn, Ed, and Judith Jacobi. “The Critical Care Clinical Pharmacist: Evolution of an Essential Team Member.” *Critical Care Medicine* 34, no. 3 Suppl (March 2006): S46–51. doi:10.1097/01.CCM.0000199990.68341.33.
21. Ilan, Roy, Curtis D LeBaron, Marlys K Christianson, Daren K Heyland, Andrew Day, and Michael D Cohen. “Handover Patterns: An Observational Study of Critical Care Physicians.” *BMC Health Services Research* 12 (2012): 11. doi:10.1186/1472-6963-12-11.
22. Iyegha, Uroghupatei P., Javariah I. Asghar, Elizabeth B. Habermann, Alain Broccard, Craig Weinert, and Greg Beilman. “Intensivists Improve Outcomes and Compliance with Process Measures in Critically Ill Patients.” *Journal of the American College of Surgeons* 216, no. 3 (March 2013): 363–372. doi:10.1016/j.jamcollsurg.2012.11.008.
23. Joy, Brian F, Emily Elliott, Courtney Hardy, Christine Sullivan, Carl L Backer, and Jason M Kane. “Standardized Multidisciplinary Protocol Improves Handover of Cardiac Surgery Patients to the Intensive Care Unit.” *Pediatric Critical Care Medicine: a Journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies* 12, no. 3 (May 2011): 304–308. doi:10.1097/PCC.0b013e3181fe25a1.
24. Kerlin, Meeta Prasad, Dylan S. Small, Elizabeth Cooney, Barry D. Fuchs, Lisa M. Bellini, Mark E. Mikkelsen, William D. Schweickert, et al. “A Randomized Trial of Nighttime Physician Staffing in an Intensive Care Unit.” *New England Journal of Medicine* 368, no. 23 (2013): 2201–2209. doi:10.1056/NEJMoa1302854.
25. Kuijsten, H. A. J. M., S. Brinkman, I. A. Meynaar, P. E. Spronk, J. I. van der Spoel, R. J. Bosman, N. F. de Keizer, A. Abu-Hanna, and D. W. de Lange. “Hospital Mortality Is Associated with ICU Admission Time.” *Intensive Care Medicine* 36, no. 10 (2010): 1765–1771.
26. Lane, Daniel, Mauricio Ferri, Jane Lemaire, Kevin McLaughlin, and Henry T Stelfox. “A Systematic Review of Evidence-Informed Practices for Patient Care Rounds in the ICU*.” *Critical Care Medicine* 41, no. 8 (August 2013): 2015–2029. doi:10.1097/CCM.0b013e31828a435f.
27. Manias, Elizabeth, Allison Williams, and Danny Liew. “Interventions to Reduce Medication Errors in Adult Intensive Care: a Systematic Review.” *British Journal of Clinical Pharmacology* 74, no. 3 (September 2012): 411–423. doi:10.1111/j.1365-2125.2012.04220.x.
28. McClave, Stephen A, Robert G Martindale, Vincent W Vanek, Mary McCarthy, Pamela Roberts, Beth Taylor, Juan B Ochoa, Lena Napolitano, and Gail Cresci. “Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.).” *JPEN. Journal of Parenteral and Enteral Nutrition* 33, no. 3 (June 2009): 277–316. doi:10.1177/0148607109335234.
29. Miller, Gavin, Bryony Dean Franklin, and Ann Jacklin. “Including Pharmacists on Consultant-led Ward Rounds: a Prospective Non-randomised Controlled Trial.” *Clinical Medicine (London, England)* 11, no. 4 (August 2011): 312–316.

30. Milbrandt, Eric B, Stephen Deppen, Patricia L Harrison, Ayumi K Shintani, Theodore Speroff, Renée A Stiles, Brenda Truman, Gordon R Bernard, Robert S Dittus, and E Wesley Ely. "Costs Associated with Delirium in Mechanically Ventilated Patients." *Critical Care Medicine* 32, no. 4 (April 2004): 955–962.
31. O'Horo, John Charles, Mohamed Omballi, Mohammed Omballi, Tony K Tran, Jeffrey P Jordan, Dennis J Baumgardner, and Mark A Gennis. "Effect of Audit and Feedback on Improving Handovers: a Nonrandomized Comparative Study." *Journal of Graduate Medical Education* 4, no. 1 (March 2012): 42–46. doi:10.4300/JGME-D-11-00181.1.
32. Priestap, Fran A, and Claudio M Martin. "Impact of Intensive Care Unit Discharge Time on Patient Outcome." *Critical Care Medicine* 34, no. 12 (December 2006): 2946–2951. doi:10.1097/01.CCM.0000247721.97008.6F.
33. Pronovost, P. J., D. C. Angus, T. Dorman, K. A. Robinson, T. T. Dremsizov, and T. L. Young. "Physician Staffing Patterns and Clinical Outcomes in Critically Ill Patients." *JAMA: The Journal of the American Medical Association* 288, no. 17 (2002): 2151–2162.
34. Sapirstein, A., D. M. Needham, and P. J. Pronovost. "24-hour Intensivist Staffing: Balancing Benefits and Costs*." *Critical Care Medicine* 36, no. 1 (2008): 367–368.
35. Soguel, Ludivine, Jean-Pierre Revelly, Marie-Denise Schaller, Corinne Longchamp, and Mette M Berger. "Energy Deficit and Length of Hospital Stay Can Be Reduced by a Two-step Quality Improvement of Nutrition Therapy: The Intensive Care Unit Dietitian Can Make the Difference." *Critical Care Medicine* 40, no. 2 (February 2012): 412–419. doi:10.1097/CCM.0b013e31822f0ad7.
36. Taylor, S J, S B Fettes, C Jewkes, and R J Nelson. "Prospective, Randomized, Controlled Trial to Determine the Effect of Early Enhanced Enteral Nutrition on Clinical Outcome in Mechanically Ventilated Patients Suffering Head Injury." *Critical Care Medicine* 27, no. 11 (November 1999): 2525–2531.
37. Treggiari, M. M., D. P. Martin, N. D. Yanez, E. Caldwell, L. D. Hudson, and G. D. Rubenfeld. "Effect of Intensive Care Unit Organizational Model and Structure on Outcomes in Patients with Acute Lung Injury." *American Journal of Respiratory and Critical Care Medicine* 176, no. 7 (2007): 685–690.
38. Valentin, A., and P. Ferdinande. "Recommendations on Basic Requirements for Intensive Care Units: Structural and Organizational Aspects." *Intensive Care Medicine* 37, no. 10 (2011): 1575–1587.
39. Van der Sluis, Frederik J, Cornelis Slagt, Barbara Liebman, Jan Beute, Jan WR Mulder, and Alexander F Engel. "The Impact of Open Versus Closed Format ICU Admission Practices on the Outcome of High Risk Surgical Patients: a Cohort Analysis." *BMC Surgery* 11 (August 23, 2011): 18. doi:10.1186/1471-2482-11-18.
40. Wallace, D. J., D. C. Angus, A. E. Barnato, A. A. Kramer, and J. M. Kahn. "Nighttime Intensivist Staffing and Mortality Among Critically Ill Patients." *New England Journal of Medicine* 366, no. 22 (2012): 2093–2101.
41. Ward, Nicholas S., Bekele Afessa, Ruth Kleinpell, Samuel Tisherman, Michael Ries, Michael Howell, Neil Halpern, and Jeremy Kahn. "Intensivist/Patient Ratios in Closed ICUs." *Critical Care Medicine* 41, no. 2 (February 2013): 638–645. doi:10.1097/CCM.0b013e3182741478.
42. Williams, G., and T. Clarke. "A Consensus Driven Method to Measure the Required Number of Intensive Care Nurses in Australia." *Australian Critical Care* 14, no. 3 (2001): 106–115.
43. Wilcox, M Elizabeth, Christopher A K Y Chong, Daniel J Niven, Gordon D Rubenfeld, Kathryn M Rowan, Hannah Wunsch, and Eddy Fan. "Do Intensivist Staffing Patterns Influence Hospital Mortality Following ICU Admission? A Systematic Review and Meta-Analyses." *Critical Care Medicine* (August 7, 2013). doi:10.1097/CCM.0b013e318292313a.

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