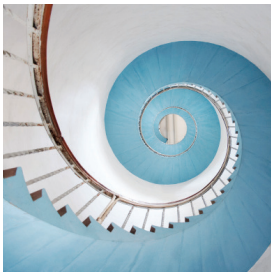
The Faculty of Intensive Care Medicine

CRITICAL FUTURES

ENHANCED CARE:

Guidance on service development in the hospital setting

May 2020



Royal College of Physicians

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This report was produced as part of the Critical Futures initiative, looking to the future for Critical Care services. **www.ficm.ac.uk/criticalfutures**

No-one could have predicted how quickly the landscape in Critical Care would change between delaying publication of the report in March and now. It seems appropriate therefore to provide further context in view of COVID-19 and its impact on service provision.

ENDORSING ORGANISATIONS

British Anaesthetic and Recovery Nurses Association
British Thoracic Society
Centre for Perioperative Care
Getting It Right First Time (GIRFT) Programme
Intensive Care Society
Royal College of Anaesthetists
Royal College of Surgeons, Edinburgh
Royal College of Surgeons, England
Society for Acute Medicine
UK Critical Care Nursing Alliance

The guidance is also supported by NHS Commissioning's Adult Critical Care Clinical Reference Group

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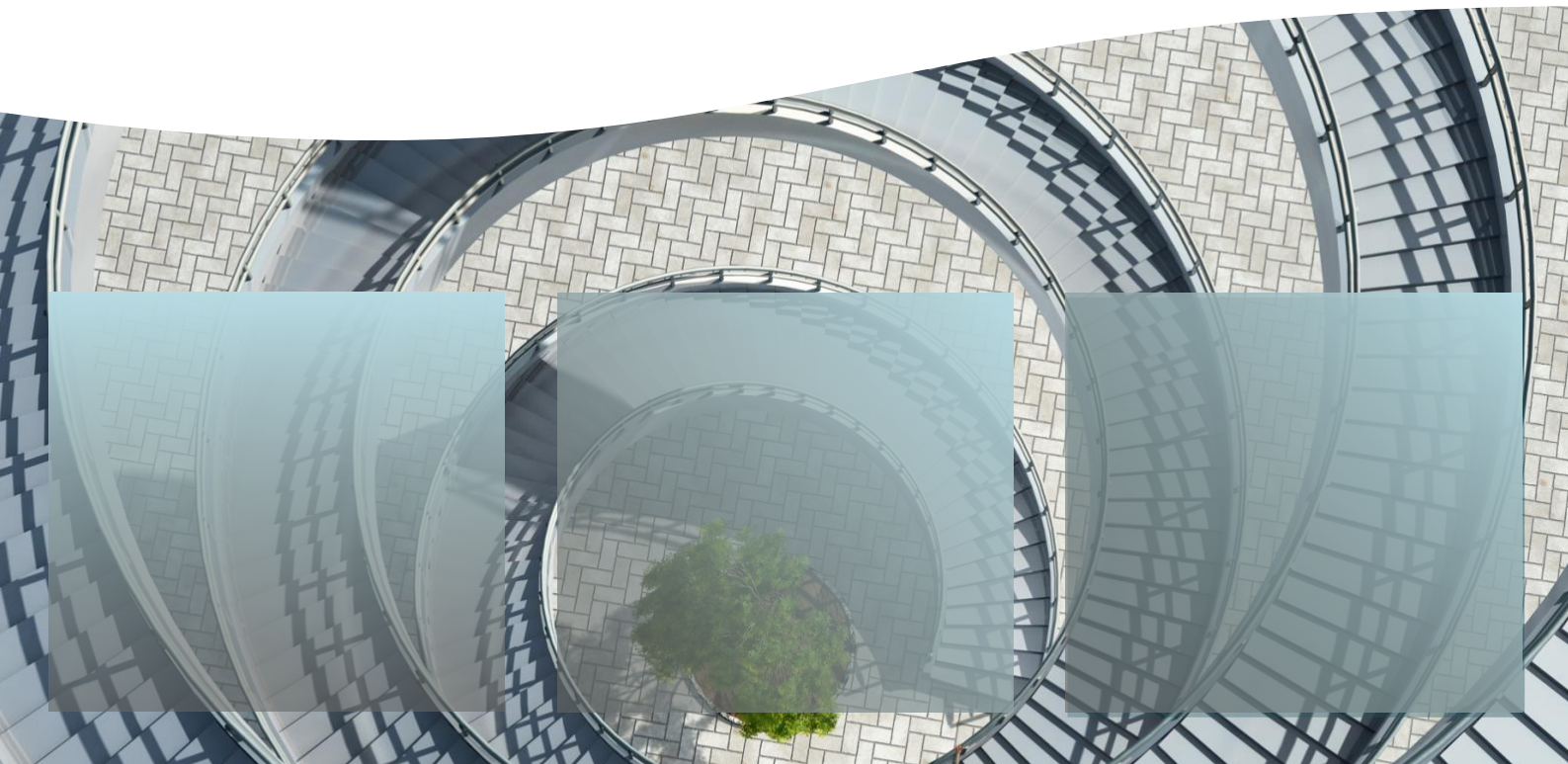

Lay and patient views were sought during the consultation period via the lead contributing organisations and their lay committees.

"Patients are right at the heart of the Enhanced Care initiative. The clear focus is on providing safe and effective personalised care for those whose needs mean they are at the boundary between the ward and Critical Care. The initiative addresses the pressing requirement to develop well-organised and well-led facilities where patients benefit from the improved quality of care flowing from collaboration and co-operation between health care professionals in the extended multidisciplinary team. Patient pathways are not a series of defined steps between levels and locations. Rather they represent a continuum of care. The Enhanced Care initiative recognises this and sets out principles to guide targeted investment in the development of responsive, locally appropriate services. I wholeheartedly welcome and support this initiative."

Pauline Elliott
Lay Representative, Board of the Faculty of Intensive Care Medicine

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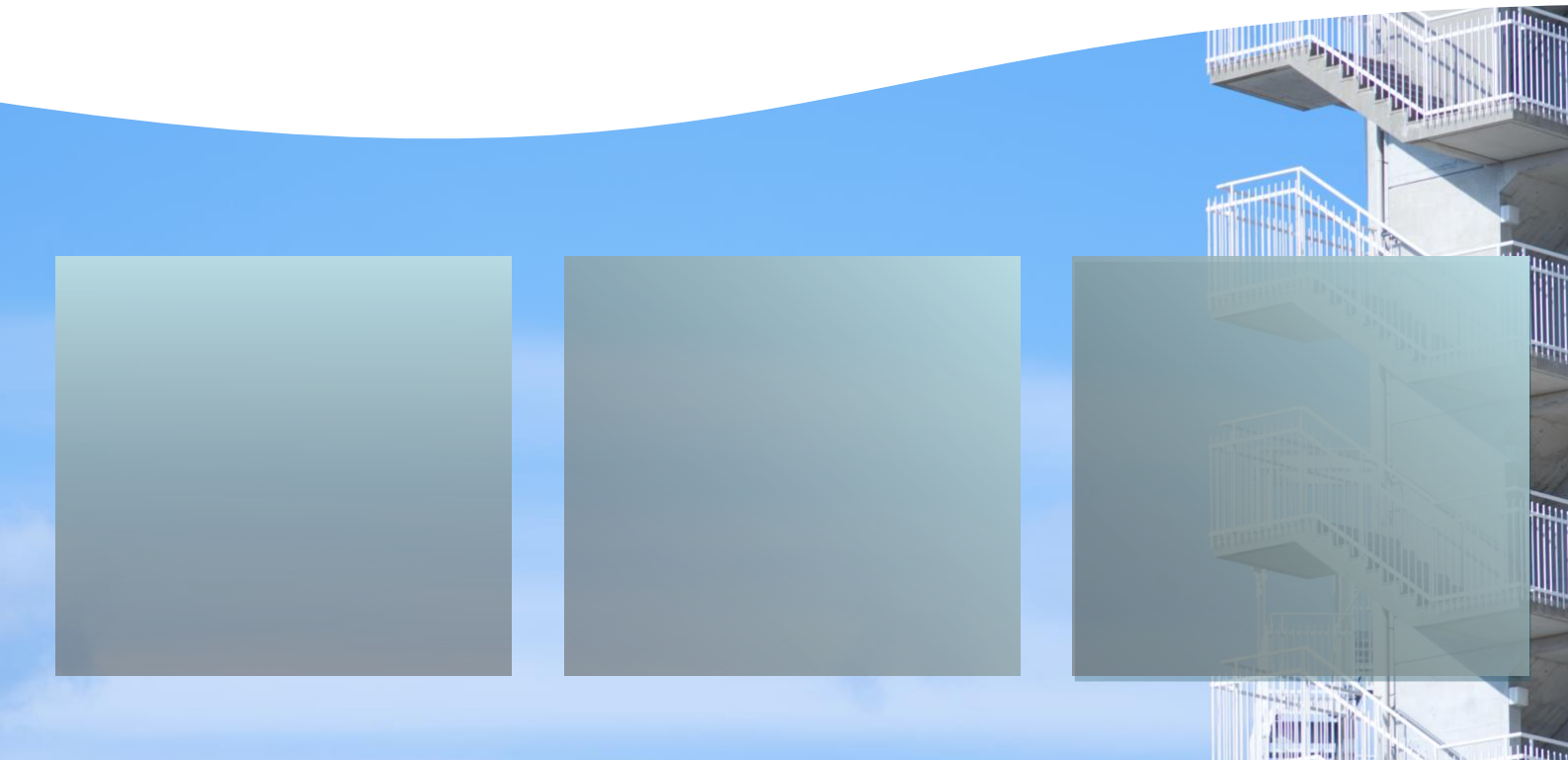

Foreword

Enhanced Care takes place in a ward setting, by a motivated and upskilled workforce, but provides ready access to the Critical Care team through established communication links. It is a pragmatic approach to reducing the risk of patients falling into a service gap: patients who would benefit from higher levels of monitoring or interventions than expected on a routine ward, but who do not require admission to Critical Care. This type of care has grown organically, originally for perioperative patients (elective and emergency), expanding into the fields of maternity and medicine to deliver safe care to the patient at risk of deterioration.

Patient outcomes have significantly improved as a result of the development of Critical Care services. Demands on the service are constantly growing as patients' needs vary and the importance of anticipatory care is increasingly recognised. Development of Enhanced Care is part of the essential modernisation of effective, safe and efficient services. It carries the necessary hallmarks of success – developed by clinical staff to meet patient need; collaborative, being multi-specialty and inter-disciplinary; flexible and non-prescriptive; promoting staff development at all levels through education and training and developed specifically to improve patient centred care.

The need for guidance in this area – which is both welcome and necessary – is clear. Enhanced Care is already happening, but not everywhere and this document provides practical advice from those experienced in the field. It does this in an open and pragmatic fashion, which will prove essential to embed the concept wherever it is required and to provide the basis for future direction to enhance safer patient care.

Professor Carrie MacEwan
Chair, Academy of Medical Royal Colleges

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Unwarranted clinical variation in NHS practice has long been accepted as a barrier to quality care. Getting It Right First Time (GIRFT) is a recent initiative sponsored jointly between NHS England, NHS Improvement and the Royal National Orthopaedic Hospital NHS Trust. The programme uses national data sources to inform clinical peer to peer discussions at trust level to explore practice variation in a wide spectrum of hospital specialties.

In the context of access to Critical Care services, the GIRFT programme has uncovered a greater than twofold variation between comparable organisations, for patients with similar care requirements including post-acute or elective major surgery, acute Diabetic Ketoacidosis (DKA) or acute exacerbations of Chronic Obstructive Pulmonary Disease (COPD). In many cases this variation is related to the history of service development, an engrained service culture, deficiencies in current resource allocation, or more simply through a valiant attempt to provide as good a service as possible with what is available.

The change in provision of higher levels of care, as with other changes in medicine and surgery, has been an evolutionary process. Intensive Care began with the polio epidemics of the 1950s and became the place that cared for the very sickest hospital patients. It also contributed significantly to the successful advancement of complex major surgery, in increasingly older and sicker patients. The publication of

Comprehensive Critical Care and the allocation of significant financial investment to the specialty in 2000 saw the creation of High Dependency Units (HDUs) for patients who required single organ support and those that could be managed with a reduced nurse:patient ratio. As the process continues to evolve, Critical Care has developed as a service that supports the delivery of the most appropriate level of care for hospital inpatients, whilst playing an important role in recognising actual or potential deterioration and responding to prevent or abort further deterioration.

This document on Enhanced Care is a major step forward in recognising how services can be further evolved to deliver in the care gap that exists between the Intensive Care or High Dependency Care Unit and normal ward care. It is recognised that many hospitals have already developed this service in a way that suits their particular needs. There is no simplistic 'correct' model and in most cases cross-specialty collaboration will determine the most appropriate model for that hospital. However, too many hospitals continue to struggle to reduce frequent cancellations from elective major surgery, whilst trying to optimise the management of other patients requiring enhanced support.

Delivering the right level of care to the right patients at the right time is an overriding ethos for Critical Care. This document aims to provide guidance to ensure that through efficient resource utilisation, Enhanced Care may be targeted towards providing the best possible patient outcome with the swiftest possible return to the community.

GIRFT is very happy to support this and we look forward to working with organisations to implement Enhanced Care.

Dr Anna Batchelor
National GIRFT Clinical Lead for Intensive and Critical Care

Dr Mike Jones
National GIRFT Clinical Lead for Acute and General Medicine

Dr Chris Snowden and Dr Mike Swart
Joint National GIRFT Clinical Leads for Anaesthesia and Perioperative Medicine

Executive Summary

Enhanced Care is a relatively new concept. It can act as a bridge between Critical Care and normal ward care and takes different forms. It is an efficient way to utilise resources and may result in improved quality of care, reduced cancellation of elective surgery and provide cost savings. This document provides guidance on how Enhanced Care could be developed, based on current knowledge and expertise, recognising that the model will vary both between and within organisations. It is not a substitute for High Dependency Care but fills a gap allowing patients to be managed safely in an appropriate environment dependent on their needs. It facilitates access to Critical Care teams for enhanced advice and support, but not delivery of, Enhanced Care for the benefit of patients. This document will be of interest to clinicians as well as commissioners and policy makers.

The last 15 years have seen a significant change in the delivery of healthcare in hospitals and a national drive to recognise deterioration of health and deliver a timely response. Indeed, the National Early Warning Score (NEWS2) has successfully become our descriptive language to describe a patient's acuity, supplemented by the institution of medical emergency teams and/or Critical Care outreach to deliver the response to deterioration and hasten admission to Critical Care. Concurrently, the number of patients aged 85 and over, being admitted to acute medical beds, has grown by over 58%, a rate greater than any other age group over the past decade. Older patients with complex comorbidities increasingly have 'Treatment Escalation Plans' establishing a ceiling of treatment, often appropriately precluding the escalation to Critical Care facilities. Specialty specific, higher care Acute Medical and Surgical Units have been developed in response to the above challenges where sicker emergency patients are cohorted, though they remain the exception rather than the rule. These units frequently have a higher ratio of nurses per patient and a corresponding skill mix to match the needs of the patient population, becoming default places of safety.

Alongside this transformation of emergency ward care, significant changes to elective high-risk surgical pathways have occurred. This area of practice has benefited from the introduction of objective predictors of individual patient risk and measures to minimise this risk in the preoperative, perioperative and postoperative phases of a patient's pathway. The frailty and comorbidity of patients undergoing elective surgery has increased and the ability to assess this has resulted in a greater degree of predictability in elective high-risk surgical patients' postoperative course. This facilitates clear identification, at an early stage, of any deviation from the predictable path. For the majority of this population, admission to Critical Care has become the norm with the possibility of delayed transfers to wards for ongoing care and risking loss of information due to multiple handovers.

At the same time there has been an expansion of Critical Care capacity, predominantly at the High Dependency Unit (HDU) level, supporting changes in ward care and the development of predictable pathways for elective surgical patients. It has also helped address the increasing demands for Critical Care from complex comorbid medical and surgical patients and to accommodate high-risk elective surgical patients. Some patients use these facilities for less than 24 hours, require no organ support or receive continuous monitoring alone. Despite not meeting the current criteria for admission to HDU, patients do need a level of observation and monitoring that cannot be provided on a general ward. In the absence of an alternative they are referred for HDU care as the safest option. Despite the increased capacity, there remains a daily challenge to meet the needs of both patients who are critically ill and those for whom there is a risk of critical illness developing. Flow into and out of Critical Care is challenging; the greatest impact of this is on the high-risk elective surgical patients. Inadequate capacity results in patient cancellation on the day of surgery with rates in some providers being above 5% of all patients being pre-booked into Critical Care. Some providers have commissioned designated units offering a level of care between high dependency and ward level care. These facilities are frequently described as 'Enhanced Care' or 'High Care'

areas. Within these facilities, providers cohort patients with the same level of dependency and a predictable skillset is required from the clinical team. It is imperative that such facilities do not exist in isolation from Critical Care in order to permit the seamless escalation of care, should this be required. Patients ready to step down from Critical Care will not normally be admitted to an Enhanced Care area unless this forms part of a Standard Operating Procedure (SOP). Rotation of staff from wards and Critical Care will provide a rich educational environment alongside optimal clinical care, will facilitate learning and mitigate the risk of deskilling. It will also enhance quality of patient care and staff wellbeing. One of the immediate learning points from the pandemic response was the ability to rotate staff into critical care areas to enable rapid learning. Additionally, critical care staff have been 'enablers' to allow the delivery of Enhanced Care in ward areas. This has been most notably seen in the rapid expansion of medical ward capacity to deal with COVID-19 affected patients along with additional respiratory support on existing medical wards. This has meant predominantly increased use of CPAP and High Flow Nasal Oxygen in ward areas.

This document provides examples of successful implementation of Enhanced Care areas with clear benefit to patients and the overall system. It highlights relevant educational opportunities and adoption of The National Outreach Forum's Competency Framework for registered practitioners working in Enhanced Care areas. This approach complements courses such as the Royal College of Surgeons of England's 'Systematic Training in Acute Illness Recognition and Treatment for Surgery' (START Surgery) and 'Care of the Critically Ill Surgical Patient' (CCrISP®) as well as the multi-professional, 'Acute Life-threatening Events - Recognition and Treatment' (ALERT™), 'Ill Medical Patients' Acute Care & Treatment' (IMPACT) and 'Acute Illness Management' (AIMS) courses. We have made recommendations for the planning, delivery and governance of Enhanced Care services that could be incorporated into a business case. At present there is no central source of funding and staff recruitment may be a barrier but despite this, many organisations either already have, or are about to establish Enhanced Care services. It is hoped that, in time, evidence will be gathered on the effectiveness of these recommendations, which will then become minimum standards and key performance indicators. An appropriate legacy from the COVID-19 pandemic must include capturing the good practice and cooperation that has been developed between critical care and other areas to enable the continued delivery of Enhanced Care. Recognising and ensuring effective integration and partnership with Critical Care will be essential. A clear understanding of the patient population will govern the required competence of the extended multidisciplinary team and the determination of what constitutes safe team staffing. At the heart of service design for the perioperative patient will be the predictability of the patient population to be admitted. The pathway for acutely unwell patients is much more variable and therefore Enhanced Care for this patient population will require a different model. Development of Enhanced Care will ensure patients receive the right care, at the right time and by the right people.

Dr Alison Pittard
Chair, FICM Enhanced Care Working Party and Dean, Faculty of Intensive Care Medicine

Professor Jane Eddleston
Chair, NHS England Adult Critical Care Clinical Reference Group

Dr Sanjay Krishnamoorthy
Chair, National Working Group for Enhanced Care in Medicine

Recommendations

A summary of the key recommendations in this guidance, mapped to one of the five domains of the Care Quality Commission's (CQC) inspection framework, is as follows:

1. PERSONALISED CARE

1.1	The environment should be quiet, calm with adjustable lighting to allow rest and sleep. There should be natural daylight and an appropriate level of darkness during the night.	Responsive
1.2	The environment should be welcoming for the patient and their family/friends with an area to wait before visiting and a private room for consultations. Relatives will need access to food and drink. Toilets and washing facilities should be available which, for patients, should ideally be single sex. There should be access to open Wi-Fi.	Responsive
1.3	We recommend open visiting but accept that this is balanced by clinical care and patient privacy and dignity.	Responsive
1.4	Ideally, patients should be cohorted on the basis of medical need however, in order to provide single sex accommodation, we recommend giving consideration to the minimum number of beds required for efficient service delivery.	Responsive
1.5	Post COVID-19, triage using a traffic light system or using 'clean' and 'dirty' streams will become the norm for a period. The ability to transition patients in and out of these areas will provide challenges but must be considered essential as part of reconfigured services.	Responsive

2. GOVERNANCE

2.1	ORGANISATIONAL	
2.1.1	The service should sit within a lead Directorate and Division, engaging in appropriate national data collection, QI activity, patient and carer feedback at this level or as part of local processes.	Well-Led
2.1.2	A designated leadership structure with a named lead clinician and lead nurse will be required with a clear reporting path up the Directorate or Divisional management chain.	Well-Led
2.1.3	The Enhanced Care service should have a distinct identity for operational and governance purposes. Operational and governance data should be clearly identified with and attributable to the unit.	Well-Led
2.1.4	To promote cooperation, all specialties and clinical leads interfacing with the Enhanced Care service, including Critical Care, should meet on a regular basis.	Effective

2.1.5	In order to deliver a safe and efficient service the educational needs of all staff should be addressed during the development phase. Consideration should be given to staff delivering the education as this will need to be adequately funded. We recommend development of training resources prior to service implementation.	Effective

2.2	**OPERATIONAL**	
2.2.1	There should be clear Standard Operating Procedures (SOPs) for admission, daily operation, transfer and discharge.	Well-Led
2.2.2	Nurse:patient ratios should be reviewed on a regular basis, especially during implementation, and be in accordance with current national guidance.	Safe
2.2.3	Clear arrangements for gatekeeping and escalation decisions will be required in the event of clinical disagreement or the inability to match capacity to demand.	Well-Led
2.2.4	There should be clear clinical escalation procedures in the event of patient deterioration, including referral to Critical Care.	Safe
2.3	**QUALITY**	
2.3.1	The service should engage in Trust/Health Board-wide audit and data activity, including nosocomial infection, pressure sore and falls audits.	Effective
2.3.2	A common data set, linked to population treated, should be established that includes longer-term patient-centred outcomes, as well as structure and process, with robust systems for prospective collection and review.	Effective
2.3.3	In conjunction with Colleges, Faculties and specialist organisations, national clinical performance indicators should be identified for mortality, specific outcomes and patient experience.	Effective
2.3.4	Consideration should be given to the key research questions to be prioritised that will provide information to drive improvement in care and develop standards for the delivery of Enhanced Care services.	Effective
2.3.5	Regular multidisciplinary meetings will facilitate the ongoing review of current care, including incidents and significant events, morbidity and mortality, as well as the operational aspects of the unit, including appropriate staffing and levels of care.	Safe
2.3.6	There should be a strict policy on changing operational parameters of the service at times of capacity strain, which needs considering during service development.	Well-Led

3. SERVICE MODEL

3.1	**CONFIGURATION**	
3.1.1	Consideration should be given to the staff and patients' environment. The location of the service will determine if amenities will be dedicated or shared with another area such as the general ward. Access to natural light, toilets, washing facilities and food are essential.	Responsive
3.2	**RISK MANAGEMENT**	
3.2.1	A policy, agreed with other specialist teams including Critical Care, should be established detailing the agreement for providing clinical input for patients receiving Enhanced Care.	Effective
3.2.2	A clear process and clearly documented criteria for escalation and transfer of the deteriorating patient will be required.	Safe
3.2.3	Staffing levels should be organised to meet the needs of patients, the service and the organisation.	Safe
3.2.4	Any proposed amendments to established safe staffing levels should be considered through the local governance structure.	Safe
3.2.5	A clear policy on the level of monitoring and treatment that it is appropriate to provide should be established in conjunction with Critical Care. This will vary depending on local need, but the use of local protocols/SOPs will ensure patient safety. Regular reviews should be undertaken.	Safe
3.3	**SAFE STAFFING**	
3.3.1	By first describing the service and then defining the required skills, it will be easier to identify the personnel best equipped to deliver this safely. The team will consist of a variety of medical and non-medical staff based on local factors and will vary both within and between organisations.	Safe
3.3.2	We recommend referring to the relevant curriculum and published guidance to determine the grade of doctor or Advanced Non-Medical Practitioner most appropriate to deliver care. There may be a requirement to provide additional training, and funding must be identified for this prior to implementation.	Safe
3.3.3	Enhanced Care is an interface between the ward and Critical Care. We recommend a combination of staff from both areas to benefit the service and patients.	Safe
3.3.4	Safe staffing models need to be adhered to wherever possible. Changes in staffing ratios need to be based on immediate need and may be necessary in 'surge' situations. Where they are downgraded there needs to be a clear time frame for review and should only be considered as temporary arrangements.	Safe
MEDICAL		
3.3.5	It will be necessary to identify a consultant lead for the Enhanced Care service.	Well-Led

3.3.6	We recommend a closed model of care by identifying a consultant to take overall responsibility of patients whilst receiving Enhanced Care.	Well-Led
3.3.7	The parent team should be consulted regarding issues arising while the patient is receiving Enhanced Care. How this is delivered will vary at a local level but it is important to preserve continuity of care.	Responsive
3.3.8	There should be a daily, consultant-led ward round with the nurse in charge and input from other appropriate specialties.	Responsive
3.3.9	At all times a senior clinical decision maker should be clearly identified and undertake twice daily (24 hour pro rata) ward rounds, one of which should be with a consultant.	Responsive
3.3.10	A competent clinical decision maker should be identified to undertake an initial patient assessment, request investigations, review and respond to results and be able to prescribe. Their role should be clearly defined when managing the acutely deteriorating patient as well as their responsibility when a patient requires transfer to a higher level of care.	Responsive
3.3.11	A robust handover policy should be established, including documentation of clear parameters for escalation.	Safe
NURSING		
3.3.12	A nurse lead/unit manager should take responsibility for the clinical supervision of patients and staff, manage the unit and nurse staffing and maintain oversight of the strategic development or maintenance of the service.	Well-Led
3.3.13	Staff caring for patients in acute hospital settings are required to have a level of competence commensurate with the level of care being provided. We recommend the 'National Competency Framework for registered practitioners: Level 1 and Enhanced Care Areas', developed by the National Outreach Forum (NOrF) and Critical Care Networks - National Nurse Leads (CC3N), as the recommended standard of competence for registered practitioners working in Enhanced Care areas.	Safe
3.3.14	The nurse:patient ratio should match patient acuity, skill mix, volume of work and the variety of services offered. Due to the variability of patients and care delivered it is not possible to set clear staffing ratios. However, it is highly unlikely that Enhanced Care can be consistently delivered where the nurse patient ratio falls below 1:4. Consideration must be given to the dependency of the patient on admission. If, due to the planned casemix, a short period of increased dependency is to be expected, a higher nurse:patient ratio should be factored into the nursing establishment to safely accommodate this flexibility. Where national guidance exists (for example for the delivery of Non-Invasive Ventilation (NIV)/the use of arterial lines), it should be followed.	Safe

ALLIED HEALTH PROFESSIONALS AND ALLIED SERVICES		
3.3.15	We recommend that there are clearly defined referral pathways where these services are not required routinely. The type of service provided, its location, patient acuity and length of stay will determine to what extent each is required.	Effective

4. PATIENT PATHWAY

4.1	**ADMISSION**	
4.1.1	There should be local collaborative development of criteria for admission that will be heavily dependent on the type and location of service provision.	Responsive
4.1.2	A clear booking process should be enacted for patients admitted following elective procedures (operative, endoscopic or interventional radiology delivered). For other patients, appropriate risk models should be adopted.	Responsive
4.1.3	We recommend using a fitness assessment tool (such as the CFS), or an individualised patient assessment, as a simple, measure to identify patients who might benefit from Enhanced Care.	Responsive
4.1.4	The National Early Warning Score 2 (NEWS2) should be used to help identify patients who may require Enhanced Care. Identifying a trigger, where the clinical response includes a senior clinical decision maker, Critical Care staff or outreach will be required.	Safe
4.2	**WARD ROUNDS**	
4.2.1	As a minimum there should be one multidisciplinary ward round a day with an increased frequency decided at a local level. This should be led by the responsible consultant and include, where rostered, the nurse in charge. We support other senior clinical decision makers in this role where deemed appropriate.	Effective
4.2.2	We recommend that there is a formalised handover process when care is transferred either between clinicians on different shifts or ward locations.	Safe
4.3	**REFERRALS AND ESCALATION**	
4.3.1	Local policy in terms of frequency of observations, NEWS2 scores and deteriorating patient escalation should be followed.	Safe
4.3.2	There should be input from Critical Care/Outreach to facilitate timely escalation of the patient, if required. The degree of input will be dependent on casemix.	Safe
4.3.3	Clear referral processes to specialties for input and advice should be established.	Effective
4.3.4	We recommend that an escalation plan of treatment is agreed on admission and documented in the patient record.	Responsive
4.4	**DISCHARGE**	
4.4.1	Length of stay in an Enhanced Care service should depend on clinical need. However, to promote efficient use of the service, it is important that patients are cared for in the correct environment and therefore discharge should be considered during the admission process.	Responsive
4.4.2	Discharge decisions should be made during a multidisciplinary ward round. We support nurse-led discharge where it is based on prerequisites, such as NEWS2, but this should be a local agreement and will be dependent on diagnosis.	Safe

4.4.3	Where admission is part of a care pathway, e.g. elective surgery, the length of stay may be predetermined. To maintain patient flow, we recommend that there is a local policy, agreed with Critical Care, for when the patient is not ready to be discharged.	Responsive
4.4.4	When a patient's stay is much shorter than expected we recommend consideration is given to the admission criteria and amendments made accordingly as part of routine review processes.	Responsive
4.4.5	It is possible that Enhanced Care areas will compete with Critical Care for ward beds when patients are ready to step down to a ward. We recommend that this is considered when establishing the service to ensure that ward beds are equally available to Enhanced Care and Critical Care.	Responsive
4.4.6	The escalation plan of treatment should be reviewed at the time of discharge including suitability of readmission for Enhanced Care.	Responsive

Introduction

Historically patients were admitted to a hospital ward based on the diagnosis or admitting consultant rather than acuity. In an attempt to improve efficiency and safety, acutely unwell patients or those requiring more nursing interventions would be cohorted close to the nurse's station. As life expectance increased, patients presented increasingly with complex comorbidities requiring a more practical solution of cohorting patients on the basis of need. In Medicine this led to the development of Acute Medical Units.[1] Concurrently, an increasing awareness of the inadequacy of care for patients requiring organ support fuelled the ad-hoc development of Intensive Care Units. The publication of Comprehensive Critical Care in 2000[2] introduced the concept of levels of care and for the first time, identified the critically ill patient based on the level of care required rather than their hospital location.

The boundaries between levels of care have blurred since the initial publication by the Intensive Care Society in 2002.[3] The changing landscape in terms of an ageing population, increased comorbidity, frailty, novel therapies and more complex surgery, means that services must adapt if they are to deliver the right care, to the right patient, in the right place and at the right time. Patients are becoming sicker, requiring more frequent or continuous monitoring and interventions and, although the patients do not require organ support, they are referred to High Dependency Units for closer monitoring. Often, due to lack of capacity, they remain on a general ward. Furthermore, older patients with complex comorbidities increasingly have escalation plans of treatment, often appropriately precluding the escalation to Critical Care areas, adding to the workload on a general ward. Recognising this chasm in care delivered, The Royal College of Physicians' (London) Acute Medicine Taskforce[1] recommended the establishment of Enhanced Care areas, distinct from HDU, for the care of patients developing acute medical illnesses. The higher acuity ward patients and increasing demand for Critical Care also has a number of consequences on planned care such as cancellation of elective surgery.

In the UK the ratio of critical care beds to size of population is below many comparable western countries.[4] However, Critical Care is expensive in terms of cost and staffing and it is important to ensure that there is targeted investment for maximal impact. The National Emergency Laparotomy Audit[5] identified a lack of critical care capacity as a reason for suboptimal care and the NCEPOD *Inspiring Change* report[6] similarly recommends that Non-Invasive Ventilation (NIV) should be provided in an area with enhanced nursing and monitoring capabilities. Looking at the casemix, it may be possible to meet the needs of our patients by developing a novel service rather than merely expanding what we already have. This is exactly what happened as a result of the unprecedented demand on critical care during the COVID-19 pandemic. Expanded medical and nursing teams received rapid learning to facilitate delivery of Enhanced Care on wards. Defining which patient populations would benefit from a level of care that is more than ward level but less than HDU, and identifying the most appropriate governance structures to permit vertical, seamless integration for patients should their condition deteriorate, has been a challenge for a number of years. Consequently in some sites this challenge has resulted in the commissioning of additional HDU beds with no resolution to the increasing gap between ward care and Critical Care.

In 2015, The Faculty of Intensive Care Medicine (FICM) commissioned a survey of doctors, nurses and allied health professionals involved in Intensive Care Medicine and patient groups to: -

1. Establish how Critical Care has evolved since the publication of Comprehensive Critical Care[2]
2. Gain insight into areas the Faculty could usefully help develop

A report on this first wave survey was published in 2017[7], signalling the launch of FICM's 'Critical Futures' initiative. The report summarises the findings and includes 12 recommendations based on feedback, one of

which was the development of Enhanced Care, based upon the observation that an increased demand for Critical Care services from lower acuity patients was adding to the burden of inadequate capacity.

The Sprint National Anaesthesia Project's SNAP-2 study[8], the Royal College of Physicians[1] and other sources similarly identified a lack of appropriate clinical facilities for patients requiring an enhanced level of care. Local solutions have resulted in the development of services with a variety of names such as Perioperative Care Unit/24hr Recovery, High Observation Units, with objectives specific to the organisation; they may have been established to protect higher-risk elective surgery throughput or to provide care for an emergency medical population with well-defined clinical needs.[9] Creating such services external to Critical Care, designed for patients requiring 'Enhanced Care', offers a bridge in clinical care between the ward and Critical Care, potentially reducing demand for, and releasing capacity of, Critical Care to facilitate timely access for critically ill patients to a Critical Care bed. Some of this development has occurred in a piecemeal fashion in order to mitigate against a pressing service need without a framework to guide implementation. Having an overarching governance framework to reduce unnecessary variation and improve quality of care would fulfil the aims of NHS England's and NHS Improvement's 'Getting It Right First Time'[10] programme and Scotland's 'Realistic Medicine'.[11]

Because of this heterogeneity, and the fact that the current definitions of the levels of care do not accurately describe the service being delivered, we have purposely avoided referral to any particular specialty or using the levels of care in the name and use the term 'Enhanced Care'. Patients requiring this level of care are already in a hospital bed but not necessarily in the best location. The patient remaining the central focus, their physiology and clinical pathway (emergency or elective), will determine the best place to provide monitoring and interventions safely. It is important to emphasise that such a service will provide access to enhanced critical care advice and support but will not normally be delivered by them; it is not a substitute for High Dependency Care. It is vital that this concept is embraced so that we do not find ourselves in a position where Critical Care is being delivered in multiple sites within organisations. This is not safe for patients. We hope this framework will be supportive rather than restrictive and therefore 'Enhanced Care' seems to meet our objectives. Although primarily aimed at adult patients, the themes may also be of interest to paediatric specialties.

SERVICE DESCRIPTION:

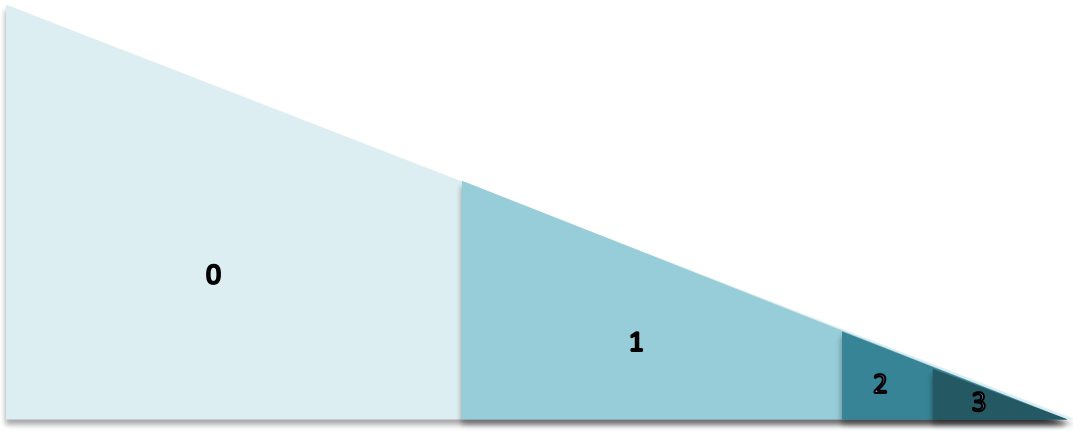
WHAT IS ENHANCED CARE?

- Levels of care are based on the monitoring and support patients require, rather than the location they are in.
- The boundaries between the levels of care have become blurred.
- Enhanced Care, previously described as Level 1+ or 1½, is an intermediate level of care where a higher level of observation, monitoring and interventions can be provided than on a general ward but not requiring high dependency care/organ support.
- Enhanced Care needs to become part of the continuum of care from the ward to Intensive Care.
- There is not a single model of Enhanced Care that should be adopted and the boundaries between Level 1, Enhanced Care and Level 2 may be blurred depending on casemix and staff skill mix.

Service Description

What is Enhanced Care?

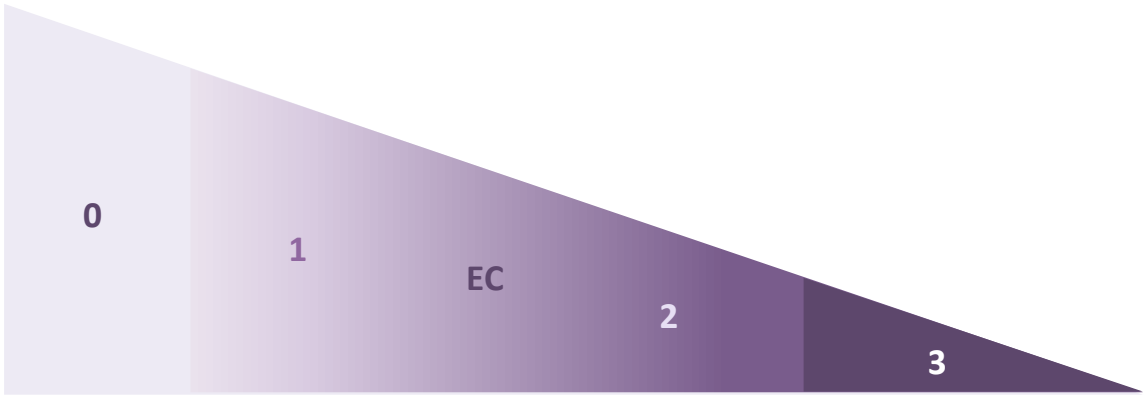
Levels of care that are based on the monitoring and support patients require, rather than the location they are in, were first described in Comprehensive Critical Care[2] and subsequently developed and updated by the Intensive Care Society into Levels of Critical Care for Adult Patients.[12]



Level 0	Patients whose needs can be met through normal ward care in an acute hospital.
Level 1	Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care whose needs can be met on an acute ward with additional advice and support from the Critical Care team
Level 2	Patients requiring more detailed observation or intervention including support for a failing organ system or postoperative care, and those stepping down from higher levels of care.
Level 3	Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least 2 organs systems. This level includes all complex patients requiring support for multi organ failure.

Since then, the boundaries between these levels have blurred. The population is ageing; over the next 50 years over one quarter of UK residents will be over 65.[13] Patients are more likely to have multiple comorbidities and undergo complex procedures due to scientific advances. Although the care required in these situations does not fit the criteria for admission to ICU or HDU, patients cannot safely be managed in a general ward environment due to the frequency of observations or specialist monitoring required. They would be categorised as requiring Level 1+ or Level 1½ care. To ensure patient safety and provide a high-quality service, admission to HDU is often required. Consequently, there is disruption in patient flow; patients in ICU ready to step down cannot be moved if there are insufficient beds, the admission of patients from the Emergency Department or wards may be delayed resulting in capacity issues and care provision in a less than satisfactory environment and patients requiring Critical Care admission as part of their perioperative pathway may have their procedure cancelled.

Enhanced Care needs to become part of the continuum of care from the ward to Intensive Care. There is not a single model of Enhanced Care that should be adopted and the boundaries between Level 1, Enhanced Care and Level 2 may be blurred depending on casemix and staff skill mix. Updating the definitions of the levels of care or incorporating Enhanced Care as a new level will be required but for now, the diagram below explains the current situation.



Level 0	Patients whose needs can be met through normal ward care in an acute hospital.
Level 1	Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care whose needs can be met on an acute ward with additional advice and support from the Critical Care team.
Enhanced Care	An intermediate level of care where a higher level of observation, monitoring and interventions can be provided than on a general ward but not requiring high dependency care/organ support.* **Enhanced** advice and support from the Critical Care team can be accessed.
Level 2	**Patients requiring more detailed observation or intervention including support for a failing organ system or postoperative care, and those stepping down from higher levels of care.**
Level 3	**Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least 2 organs systems. This level includes all complex patients requiring support for multi organ failure.**

'Enhanced Care is a service provided to adults in an area identified as capable of providing a higher level of observation, monitoring and interventions than a general ward but not requiring organ support. It describes an intermediate level of care between that provided within HDU and the ward, where enhanced advice and support from the Critical Care team can be accessed. Under normal circumstances Enhanced Care would not be delivered by the Critical Care team.'

Many organisations have already developed a service to improve patient flow with a variety of names, but they all have in common the Enhanced Care that can be provided. Such care does not extend to

* The level of support should be decided locally and will be dependent on the degree of critical care input but, for example, a patient requiring vasopressor support whilst receiving an epidural for postoperative pain relief is different to an acutely unwell patient requiring vasopressor support due to sepsis.

interventions such as an acute requirement for new invasive ventilation but has a broad set of principles underpinning the care provided within. This guidance document recommends a number of principles that will be useful for those regularly caring for ward patients at risk of deterioration, those who are thinking of developing an Enhanced Care service as well as those who have already established such services and wish to align them to current best practice. It is important to support those services already established whilst, at the same time, ensuring that it is safe, timely, of the highest quality and meets patient needs. The list below is not exhaustive but demonstrates the broad range of hospital areas that this document **may** be relevant for:

- Acute Medical Units
- Surgical Care Units e.g. perioperative care (acute/elective)
- Acute Assessment Units (any specialty)
- Specialist Units
    - Hyper Acute Stroke units
    - Neurosurgical observation beds
    - Cardiac High Observation (HOBS) beds
    - Acute Medicine HOBS beds
    - Obstetric HDU
    - Acute Respiratory units

The service may function within a single specialty or combination of specialties and although the responsible consultant will direct the medical care, it may be advantageous for Enhanced Care to be managed within the Critical Care governance structure, thereby facilitating seamless transition to Critical Care should escalation be required. The final configuration should be determined at a local level to suit the needs of the patients and to align with service delivery, however the intention is for this service to be owned, driven and delivered by admitting teams with guidance from Critical Care.

There are some things that an Enhanced Care service should not provide:

- Invasive ventilation beyond resuscitation interventions
- End of life care where this is the sole reason for admission*
- Solely care that would normally be safely delivered in a ward environment
- Perioperative management of Non-Invasive Ventilation, including Continuous Positive Airway Pressure (CPAP), in a patient already established on home ventilation and able to manage their own machine on a ward or where no change to usual respiratory support, or increased monitoring, is required
- Patient requiring Critical Care e.g. needing, or highly likely to need, advanced respiratory or multi organ support or any intervention not currently delivered by the Enhanced Care service.

There will be immense diversity in the drivers for developing Enhanced Care at a local level and hence the service objectives will vary. Our survey, established some of these and we have made suggestions for other patient groups that may benefit.

* Unless such care would be more appropriately delivered in an Enhanced Care area

SERVICE OBJECTIVES:

- Current service provision is heterogeneous, mainly due to variation in the target population, making production of generic guidance difficult but the choice between planned and unplanned care seems the most fundamental one.
- It is important that the patient is the focus, recognising how these services are an integral component of the continuum of care between the ward and Critical Care.
- Whatever the driver for development it will be important to consider what the service will deliver and then establish the competencies required to achieve this.
- Planned care is currently the commonest reason for developing Enhanced Care services. The postoperative course can be clearly defined facilitating scheduling and improving patient flow.
- Patients requiring emergency surgery have a less predictable pathway.
- Patients admitted under the Acute Medical team are increasingly higher in number, frailer and more complex
- The acutely unwell patient who cannot be managed on a general ward but does not meet the criteria for requiring HDU poses a difficult problem.

Service Objectives

Current service provision is heterogeneous, mainly due to variations in the target population, making production of generic guidance difficult. The choice between planned and unplanned care seems the most fundamental one. Elective patients, if correctly selected, generally display a predictable postoperative course that can be managed safely with protocolised care. In contrast, emergency patients, whether postoperative or a step-up from the ward or Emergency Department, usually have a discrete pathological process driving their physiological response and so present an altogether different challenge. Whatever the driver for development it will be important to consider what the service will deliver and then establish the competencies required to achieve this. Surgical patients still need to recover from their anaesthesia, which requires 1:1 or 1:2 nurse:patient staffing for a period of time, therefore it is important that their clinical pathway continues to include the postoperative care unit. Strong leadership is key, and the model will be locally dependent on leadership and patient-focused care as opposed to specialty or individual decisions regarding resource utilisation.

1. Planned care

This is currently the commonest reason for developing Enhanced Care services. There is usually a clearly defined target patient population in terms of specialty or even specific procedure. The postoperative course can be clearly defined facilitating scheduling and improving patient flow. Consideration should be given to the geographical location of the service, admission and discharge criteria and a clear escalation policy to optimise flow through the elective pathway. This will enable predictability of access, improve the patient experience and facilitate timely interventions. It may be necessary to 'ring fence' beds to ensure patient flow.

ELECTIVE TOTAL HIP AND TOTAL KNEE REPLACEMENT – TORBAY HOSPITAL

Driver for change: - *"In 2014 we decided to admit all our elective surgical patients having major surgery with a predicted 30-day mortality of >1% to a Level 2 or 3 Critical Care bed. The predicted 30-day mortality was determined by a prediction model that used age, type of surgery, comorbidities, and aerobic fitness. Cancellations on the day of surgery because there was no Critical Care bed were 17 days per month"*

Intervention: - *"In June 2015 we converted a two-bed bay on an elective orthopaedic ward to provide Level 1.5 care. Level 1.5 care was from orthopaedic ward nurses who were given additional training in the use of arterial lines, interpretation of arterial blood gases and the use of metaraminol, amiodarone and magnesium sulphate. Medical cover was provided by the ICU medical team"*

Outcome: - *"4 years later 1000 patients treated. No cardiac arrest calls or deaths in the Level 1.5 care unit. 40% received a vasopressor (metaraminol). 5% received amiodarone or magnesium sulphate to treat atrial fibrillation (AF). Length of stay 1-2 days. Cancellations on the day of surgery 1-2 per month"*

Dr Mike Swart, Consultant in Anaesthesia and Critical Care Medicine, Torbay and South Devon NHS Foundation Trust

ELECTIVE ORTHOPAEDICS – WANSBECK GENERAL HOSPITAL, NORTHUMBRIA

Driver for change: - *"In 2015 our Trust reconfigured into a hub and spoke model with a new central emergency care hospital at its core and 4 surrounding elective surgical/medical step down hospitals. Acute services from the 4 'base sites' were amalgamated at the new hospital including the Emergency Department, Critical Care and transfusion services. The majority of 'high risk' planned orthopaedic patients do not require Critical Care and therefore, in our context, operations at the central emergency hospital. These patients are better served in a unit that provides high-quality specific care packages with protocolised aspects of Enhanced Care."*

Intervention: - *"A 4 bedded Surgical Enhanced Recovery Unit (SERU) was established at 1 of the 4 base site hospitals to allow higher risk orthopaedic and spinal patients to undergo surgery where specialist experienced teams were located with clear pathways for Enhanced Care interventions. Triggers and processes for swift escalation of care via senior medical review have been a standard of care throughout, with the aim of preventing predictable transfers to the emergency hospital."*

Outcome: - *"In 2016 we found that transfers from Wansbeck theatres/recovery to the acute hospital for postoperative vasopressor had reduced after SERU had opened. In addition to this, within the context of an expanding dedicated elective orthopaedic unit, it has enhanced development of specialist care pathways and accelerated training and education at a multidisciplinary level."*

Dr Alex Beckingsale, Consultant Anaesthetist, Northumbria Healthcare NHS Foundation Trust
Ms Sarah Paice, Nurse Practitioner, Northumbria Healthcare NHS Foundation Trust

2. Unplanned care

2.1. Medical patients

Patients admitted under the Acute Medical team are increasingly higher in number, frailer and more complex.[14] Nationally, there has been a 22% increase in the number of Emergency Department attendances over the last 10 years.[15] Concurrently, the number of patients aged 85 and over being admitted to acute medical beds has grown at a greater rate than any other age group over the past decade. One in three patients admitted now have five or more health conditions compared to one in ten a decade ago. The acutely unwell patient who cannot be managed on a general ward but does not meet the criteria for requiring HDU poses a difficult problem. Currently these patients are referred to HDU as the safest option but in many cases these patients will be managed in an AMU setting causing a significant strain on 'unenhanced' services. If they have an appropriate ceiling of treatment plan in place, this often precludes provision of any higher level of care for the patient. Patient flow in the emergency pathway can be affected by the lack of Enhanced Care facilities, resulting in overcrowding and a stressful, unsafe environment and adverse effects elsewhere in the system.[16] One option to address this unmet need is to increase HDU capacity but this may be a resource-intensive model for patients not actually requiring this level of care.

MEDICAL HIGH DEPENDENCY UNIT – NORTHWICK PARK HOSPITAL

Driver for change: - *"Patients not meeting the criteria for Level 2 care but requiring higher levels of care rarely got access to Critical Care. Furthermore, a lack of Critical Care beds was leading to large numbers of non-clinical transfers; access to Critical Care for medically unwell patients was difficult and NIV was provided in suboptimal conditions on the respiratory ward. A major incident in which the recovery unit was converted to a temporary ICU focused minds. The Acute Medicine Taskforce Report (2007) identified the benefits of locating a high dependency area in the AMU and provided a model that could be adapted to our local needs to improve patient care."*

Intervention: - *"A Medical HDU was established in 2008 as part of the design of our new AMU. An experienced ward manager was recruited to train up a cohort of nurses with Critical Care competencies. Medical staffing came from respiratory and subsequently, acute medicine. Initially the unit opened with just two beds, and over time increased to a four-bedded bay with two side rooms. A close working relationship was established with the ICU team. We now provide respiratory support (high flow nasal oxygen, CPAP, NIV), invasive blood pressure monitoring and vasopressor support, as well as close monitoring for a wide range of medical presentations. Frequently Medical HDU is the appropriate ceiling of care for our patient cohort."*

Outcome: - *"50 to 60 patients/month with an average Length Of Stay (LOS) of 4 days are managed on the unit, with half admitted directly from the ED resuscitation area. 70% require respiratory support, with 10% requiring vasopressor support. Mortality averages around 10 to 13%, with over 80% of patients ultimately being discharged home. The HDU team now leads a Medical Emergency response for deteriorating in-patients. Our hospital is in the lowest decile for Standardised Inpatient Mortality nationwide. The unit continues to evolve; we have recently relocated the unit to an area adjacent to ICU, with a level 1 area occupying the rest of the ward."*

Dr Rachel Tennant, Consultant in Acute and Respiratory Medicine and Clinical Lead for Acute Medicine, Northwick Park Hospital

The Royal College of Physicians' (London) publication on Acute Medical Care[1] recognised the interface with Critical Care teams as essential, noting that the 'AMUs have concentrated expertise in the clinical management of the acutely ill patient.' They recommend that, 'Enhanced Care areas, as distinct from HDUs, should be established as part of AMU's' to provide care. Certain groups of patients need enhanced monitoring during the hyper-acute phase of their illness; metabolic derangements due to diabetic ketoacidosis, severe electrolyte abnormalities, sepsis, complex fluid management requirements and those requiring respiratory support such as NIV, CPAP or High Flow Nasal Oxygen are just a few examples. The NCEPOD *Inspiring Change* report[6] highlights that a vast majority of NIV spells in over 60% of all acute hospitals surveyed were provided outside a Critical Care area.

Furthermore, 1 in 3 hospitals were providing the majority of NIV spells on a general ward without a high care area and just under half of hospitals surveyed had a defined ratio of nurses to NIV patients as recommended. Development of Enhanced Care services, with an improved tiered level of care would increase access to Critical Care, reduce cancellation of elective surgery, enhance patient flow and offer a better patient experience. There are already specialty specific, single organ support services e.g. Coronary Care and Acute Respiratory Care Units, Renal Units etc. whose expertise is widely recognised.

ACUTE MEDICINE ENHANCED CARE UNIT – WEST MIDDLESEX UNIVERSITY HOSPITAL

Driver for change: - *"There was a sub-optimal nurse:patient ratio to cohort sick patients on the Acute Medical Unit. Furthermore, medical patients in the hospital with appropriate ceilings of treatment orders in place did not have escalation strategies in place above ward level care. They were being moved to the Acute Medical Unit as a 'place of safety', having a significant impact on flow. Finally, Non-Invasive Ventilation was being provided on the general AMU and Respiratory wards, non-compliant with current best practice standards."*

Intervention: - *"A 6 bedded Enhanced Care Unit (including two side rooms) was opened in November 2018. It was part of the general medical bed-base, but operated a 'closed' model, under the care of Acute Physicians. Patients requiring care above the level that could be safely provided on a general medical ward, including all patients requiring acute NIV, CPAP or Nasal High Flow Oxygen could be admitted to the unit. Nurses on the unit were provided training to achieve Level 1/1+ Enhanced Care Competencies. A multidisciplinary model was developed with close working relationships established with the respiratory department, Critical Care, microbiology, physiotherapy and pharmacy."*

Outcome: - *"In the first three months, 102 patients were admitted onto the Enhanced Care Unit. 41% of patients received respiratory support through NIV/CPAP or Nasal High Flow therapy, and 21% of patients were admitted for the management of sepsis. 47% of patients were at their ceiling of treatment and therefore were provided a 'new level of care.' Universally positive feedback was received from specialty consultants, medical registrars and staff on the Acute Medical Unit. The next steps for the unit include exploring the use of arterial lines for sampling purposes in the first instance, and to review the need for using low dose vasopressors."*

Dr Sanjay Krishnamoorthy, Consultant in Acute Medicine at Chelsea and Westminster Hospital NHS FT, Clinical Lead for Enhanced Care Unit and MET Teams

Acute Medical Units manage patients whose acuity is higher than a general medical ward, but there remain patients who would benefit from enhanced levels of care; some organisations have developed high observation (HOBS) beds as a way of providing this. It is important that the patient is the focus, recognising how these services are an integral component of the continuum of care between the ward and Critical Care. Involving Critical Care services routinely could facilitate timely escalation or avoid the need for this due to timely intervention. Consolidating expertise by co-locating, for example, acute respiratory wards and HOBS may be an option.

COVID-19 MEDICAL PROVISION – ROYAL LONDON HOSPITAL

Driver for change*: - "London was in the first wave of metropolitan areas to experience a surge in COVID-19 related admissions.*

Intervention*: - "At the Royal London Hospital single access through the Emergency Department was instituted early on. Patients requiring oxygen were assessed by the critical care team. Some were then admitted directly to expanded critical care areas. A larger cohort were admitted to ward areas geographically distant from critical care. The provision of CPAP and HFNO had been rapidly increased along with an increase in the hospital medical bed base. This involved a whole team effort to upskill and reassure ward-based staff. It involved the critical care practice development team and the critical care outreach team predominantly training staff on enhanced level care provision. Once admitted to ward areas these patients were on a review board within critical care. Close liaison was required with the respiratory team for those patients needing formal reassessment and subsequent admission to critical care."*

Outcome*: - "This had the effect of maintaining ward staff confidence in the short term, maintaining effective use of the critical care bed base and providing support to the acute medical team."*

Dr Peter Shirley, Consultant in Intensive Care Medicine at The Royal London.

COVID-19 MEDICAL PROVISION – ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE

Driver for change*: - "Newcastle, in similarity to many regions, experienced a surge in COVID-19 related admissions."*

Intervention*: - "At the Royal Victoria Infirmary patients with COVID-19 were admitted through the Medical Assessment Unit. Of patients with significant Oxygen requirements, some were admitted directly to critical care areas but significantly larger numbers were admitted to two expanded respiratory ward areas, where there was expertise in the provision of CPAP and NIV. These wards were staffed by existing respiratory ward nurses and supplemented by nurses from non-respiratory areas who were supported and upskilled, with training in advance of both junior medical and nursing staff by the respiratory physiotherapy team. The wards were medically led by a team of ten respiratory physicians supplemented by one volunteer anaesthetist. The CPAP provision, including protocols and circuit set up, was led by the physiotherapy service supported by the respiratory and critical care teams. Early, proactive decision-making to initiate CPAP was undertaken in patients for whom critical care was felt not to be beneficial."*

Outcome*: - "This had the effect of maintaining critical care capacity at the RVI, increasing the confidence of non-respiratory and non-critical care staff in the provision of CPAP and NIV and ensuring effective treatment with CPAP and effective proactive decision-making. All patients in whom critical care was felt not to be beneficial had a treatment escalation plan and a DNACPR. Hospital mortality in this group, who went onto receive CPAP, was 50% which compares favourably with national and international figures."*

Kathy George, Advanced Respiratory Physiotherapist, Royal Victoria Infirmary, Newcastle.
Hilary Tedd, Consultant in Respiratory Medicine and Home Ventilation, Royal Victoria Infirmary, Newcastle.
Ben Messer, Consultant in Critical Care Medicine and Home Ventilation, Royal Victoria Infirmary, Newcastle.

ACUTE MEDICINE HOBS BEDS – LEEDS TEACHING HOSPITALS NHS TRUST
Driver for change: - *"There was a desire to create one bay of Level 1b High Observation Beds (HOBS) for the most unwell patients in Acute Medicine that were scattered across the acute assessment wards. By cohorting the sickest patients, we hoped to deliver patient-centred, timely medical care through monitoring, rapid recognition and treatment."* **Intervention: -** *"Ward J27 is a short stay acute medical assessment area. The old admissions area, designed as a non-bedded area, was redeveloped in order to make it an inpatient area as part of Ward J27. The HOBS area provides three high observation beds for the most acutely unwell adults who require a higher level of monitoring including fixed cardiac and arterial monitoring, more frequent clinical observations with a higher staff to patient ratio. The area increased to six beds in May 2019 and administration of High flow 0_2 therapy became available.* **Outcome: -** *"The aim of the medical HOBS area is to enhance safe, timely care for patients requiring admission from the ED department, supporting the Emergency Care Standard (ECS) and department safety. It will facilitate timely step down from ICU/ HDU and also avoid admissions to Critical Care for 'monitoring' who require more intense nursing but not a Critical Care bed."* **Ms Charlotte Timme**, Senior Sister, Critical Care Outreach, Leeds Teaching Hospitals NHS Trust

2.2. Surgical patients

Patients requiring emergency surgery have a less predictable pathway. Inadequate service provision impacts on effective triage of patients and means that admission to Critical Care may be delayed until there is organ failure, as those at risk are managed in a ward environment. Where Enhanced Care services are developed as part of the model of care, multidisciplinary collaboration and discussion at consultant level is vital to decide where the patient should be located to receive appropriate care. This should ultimately improve patient care and flow within Critical Care. The use of stratification tools will help in the decision making. The model adopted will be different to that for elective surgical patients. The emergency patient may need to seamlessly transition between the ward, Enhanced Care and Critical Care whereas elective patients who do not follow the predicated postoperative course will need to be reviewed to determine if they are located in the correct area. Formal links with Critical Care Outreach Services will be beneficial.

It is well established that, following emergency gastrointestinal surgery, failure to admit patients to Critical Care immediately after surgery contributes to a poor outcome.[17] The National Emergency Laparotomy Audit (NELA) Best Practice Tariff (BPT) was introduced in April 2019.[18] To qualify for this tariff a formally agreed patient care pathway must be in place. The majority of severe complications requiring escalation occur in the first 2-3 postoperative days[17,19] therefore 80% of all high risk patients (predicted 30-day mortality >5% using a validated scoring tool) must be admitted to Critical Care postoperatively. The patient must also receive both consultant surgeon and consultant anaesthetist delivered intraoperative care. At the time of writing, the level of support and monitoring such patients receive is unknown[20], however Enhanced Care services could provide care for patients in an appropriate environment, promoting quality and, although not supported by a strong evidence base, improved outcomes based upon local data and clinical consensus. Once the NELA Project Team have

interrogated the data, there may be an opportunity for inclusion of such patients in an enhanced monitoring location, rather than HDU, should this be appropriate for individual patients.

PACU WORKSTREAM: WELSH CRITICAL CARE CAPACITY TASK AND FINISH GROUP

Driver for change: - *"In the first 6 months of 2018, 287 elective surgical procedures were cancelled due to lack of Critical Care capacity. Exploring Critical Care capacity in Wales, and the impact of the Post Anaesthetic Care Unit (PACU) in Cardiff, Newport and Wrexham, the delivery of Enhanced Care in a PACU environment was an opportunity to provide care to high-risk surgical patients that do not require the high level of care provided in a Critical Care setting but could not be safely delivered on a ward in the first 24 - 48hrs postoperatively."*

Intervention: - *"PACU should not be seen as an opportunity to provide postoperative care for patients who need Critical Care. Nor should it provide care for low risk patients who can safely be managed in a ward environment. By preventing suboptimal care on overstretched surgical wards, a PACU is very likely to lead to a reduction in length of hospital stay, patient rescue with admission to Critical Care and patient morbidity and mortality. PACUs will also address cancellations and delayed starting times due to lack of Critical Care capacity, with loss of theatre resource and harm to patients. Virtual PACU beds were felt to be the way forward to ensure timely discharge. In this model there are no beds in PACU, only spaces to accommodate patients on the beds allocated to them on the ward. As a consequence, there are no physical beds in the ward that can be occupied and delay patient discharge from PACU. As this would be a relatively new endeavour in Wales, it was recommended that priority should be given to comparable PACU data collection across Wales via ICNARC, as clear governance of the proposed changes is essential and will influence further evolution. With careful consideration and monitoring it was felt that the nurse to patient ratio should be 1:3. It was also felt that with clear SOPs and agreement this group of patients could be under the care of the perioperative team with intensivists only contacted when their expertise is required, freeing intensivists up to care for critically ill patients."*

Outcome: - *This is a recent development and therefore too early to have any impact data.*

Dr Abrie Theron, Deputy Clinical Director Perioperative Care, Cardiff & Vale University Health Board

3. Maternal care

Caring for the critically ill childbearing woman can be complex and challenging. Women are having babies at an older age and a larger number have significant comorbidities. As a result, an increasing proportion of women require more than routine antenatal and peripartum care. In 2011, the first UK intercollegiate maternal Critical Care guidelines were published[21]. These established how Level 2 care could be delivered to women in the peripartum period based on need for the level of care rather than location.

In 2014, a national Intensive Care Society/Obstetric Anaesthetists' Association audit[22] reported variation between units in the ability to ensure that any unwell pregnant woman in the acute hospital should receive the same standard of care as non-pregnant critically ill patients. A majority of respondents voiced concerns about the availability of staff with Critical Care competency training. The need for Critical Care also varied widely and one of the conclusions drawn was that a single model was unlikely to be appropriate across maternity units.

In 2018, guidelines for the provision of 'Enhanced Maternal Care' were published.[23] These guidelines embrace a different cohort of women – those with medical, surgical or obstetric problems during pregnancy, peri and postpartum, but without the severity of illness that requires Level 2 or 3 care. The distinction between these two cohorts of women is important: Enhanced Care is not a substitute for Level 2 care. There are advantages to keeping women in the maternity unit if the level of care they require can be provided. They will be looked after by staff trained and experienced in the management of the physiology and pathology of pregnancy and childbirth and it allows postnatal women to remain with their new-born: essential for initiating breastfeeding and bonding. In smaller units with fewer deliveries and lower-risk populations it will not be practical or cost-efficient to provide Level 2 care. Given the changing demographic of the obstetric population, all consultant led obstetric units should be able to provide Enhanced Care.

ENHANCED MATERNAL CARE – JAMES COOK UNIVERSITY HOSPITAL, MIDDLESBROUGH

Driver for change: - *"There was an increase in deliveries owing to a Trust reconfiguration and amalgamation of two units. A team of senior midwives (many with Critical Care backgrounds) were managing the sicker women during labour and delivery. Many of these midwives were retiring and the newer midwives had come from a 'direct entry' background, training exclusively in maternity environments with a focus on 'normalisation'. There was a need for new training courses for the Enhanced Maternal Care (EMC) midwives, improved audit and risk management of the sick women, and better collaboration with Critical Care teams".*

Intervention: - *"At least one senior EMC midwife is available on each shift to manage any sick woman in the designated area on delivery suite. These midwives undergo induction training: a three-day EMC course (or equivalent blended learning online), a six-week rotation to Critical Care, recovery, A&E areas with EMC competency sign off by Critical Care education leads, and attendance at monthly EMC meetings that include a teaching session. Experienced midwives receive annual updates in Critical Care. Some Critical Care outreach nurses also attend maternity for updates and training with senior midwives in common obstetric emergencies e.g. preeclampsia and massive obstetric haemorrhage. A yearly EMC audit records information on patient management and transfers to Critical Care. There is a multi-professional risk management group who examine the care of women admitted to Critical Care with any action points agreed by the whole team and multi-professional guidelines e.g. obstetric sepsis and EMC admission criteria. The obstetrician and midwife EMC lead attend the Trust Sepsis group and Acutely Ill patient groups".*

Outcome: - *"Over the past four years more than 500 women have been audited and managed by the EMC team. 12 patients were transferred to designated Critical Care in 2017 and only 6 in 2018. There is a greater confidence within the maternity group in managing the sick women and better collaboration e.g. Critical Care Outreach Team (CCOT) nurse in attendance when using high-flow oxygen in a patient with severe pulmonary oedema and preeclampsia before delivery. The unit has a team of motivated senior midwives who support each other and the more junior staff on delivery suite and the wards. New staff are being incorporated to increase the numbers in the pool of EMC midwives and this is proving popular".*

Dr Audrey Quinn, Consultant Obstetric and Neuro-anaesthetist at James Cook Hospital, Middlesbrough.

There are also examples of where Enhanced Care has been developed in Obstetrics to meet the requirements of *Equity in Maternal Critical Care*[22]. This latter scenario will be more readily achieved for tertiary obstetric services where the volume of high-risk patients is larger and hence the workload more predictable.

ENHANCED MATERNAL CARE – ST MARY'S HOSPITAL, MANCHESTER

Driver for change: - *"St Mary's Hospital is a tertiary obstetric hospital with a delivery rate in excess of 9500 births per year. A significant number of women either present with or develop conditions that require Critical Care in the peripartum period. We have had to address the challenge of maternal Critical Care provision in a manner different from most delivery units."*

Intervention: - *"Since 2012, due to the complexity of cases and the vision to provide the same standard of care as delivered in the adult general Critical Care units, Critical Care nurses have been integrated into the care of the critically ill parturient. 4 rooms were configured as High Dependency rooms (Obstetric HDU) and women with critical illness are cared for by a Critical Care nurse, a midwife, obstetricians and anaesthetists. Women are reviewed by the obstetric MDT several times a day with joint decisions made regarding further management, discharge from Critical Care or escalation for further treatment. An escalation policy exists in the event of further escalation for the adult Critical Care facilities for enhanced levels of care that cannot be extended on the delivery unit. The Critical Care Minimum Data Set (CCMDS) is collected for patients in Maternal Critical Care. The critical nurses are all Band 6+ and rotate through the delivery unit on a 6-monthly basis. There is one Critical Care nurse per shift on the delivery unit. During the rotation, the new Critical Care nurses have a comprehensive 3-day induction programme relating to illnesses relating to obstetrics delivered by obstetricians and anaesthetists."*

Outcome: - *"The admission rate for the obstetric HDU is consistently between 6.8 to 8.1% of patients booked for deliveries. Due to the reconfiguration of maternal services in Manchester the overall numbers rose from 582 in 2012 to 760 in 2017. The transfer rate decreased from 1.6% to 0.9% and the main reason for escalation is cardiac rather than obstetric. There is midwife input for matters relating to fetal loss and fetal bereavement as the nurses have never come across these issues and many found it difficult to deal with. Additionally, there is a pool of nurses on the general Critical Care unit who have rotated through obstetrics and are comfortable having obstetric patients on a general Critical Care unit."*

Dr Pavan Kochhar, Consultant Anaesthetist at Manchester University Hospitals NHS Foundation Trust.

Models of funding

Improving service delivery, patient flow and the patient experience as well as promoting safety and quality should be the focus of any improvement programme. In 1998 the National Audit Office announced its Invest to Save Budget (ISB) programme[24] in order to support collaboration within and between organisations wishing to improve service delivery and efficiency. It recognises that innovation has the potential to offer significant benefits in many public sectors including the health service. The programme promoted:

- Improved services
- Efficiency gains
- Partnership working
- Innovation
- Sustainability

Despite this being more than 20 years ago the principles of this programme translate well into the development of Enhanced Care services in acute care. Rather than increasing Level 2 capacity investment in an innovative service has not only the potential to improve a number of patient care pathways in acute care but also be a much more efficient use of resources and benefit more patients than could be accommodated into an expanded Level 2 service for a similar cost. Working in partnership across specialties is likely to improve the success of Enhanced Care and promoting education will influence sustainability and resilience.

In England, Adult Critical Care is commissioned using the seven Health Related Groups (HRGs) derived from the Critical Care Minimum Data Set (CCMDS), which characterise each critical care episode by the total number of organs supported. Payment follows according to the HRGs' 'daily payment' multiplied by number of days spent in Critical Care. More recently, further complexities in the contract have been introduced for some providers by the implementation of block contracts, either in entirety or partially, based on a Clinical Commissioning Group: Specialist Commissioned split.

The model used for commissioning Enhanced Care will depend on the patient population, required skill mix of the clinical team, the type of interventions being undertaken and the drivers for implementation. Funding is different in the devolved nations so this will need to be taken into account also. It is important to consider the whole team, including Allied Health Professions (AHPs), and the requirement for initial and ongoing education and training when determining safe staffing levels, to ensure appropriate funding is identified for the service. When Enhanced Care is developed to support patient flow in elective surgery, the financial investment can frequently be realised from the cost savings consequent upon improved efficiency and reduction in cancelled operations. Redirection of funds could also follow the patient if they would normally be managed in a general ward or admissions unit. When the driver is more complex and/or involves non-elective patients such as emergency medical/surgical patients, additional funding may be required. A nationally agreed tariff for Enhanced Care would be beneficial.

FUNDING MODELS
"Funding for the project initially came from a £75,000 Health Foundation Innovation for Improvement Grant in July 2015. The results of the first year of activity of the Perioperative Medicine (POM) Service allowed us to successfully bid for ongoing funding from our Trust to embed and expand the service. A second business case is in place to expand the existing service and open a second Enhanced Care area for patients undergoing major vascular surgery" **York Teaching Hospitals NHS Foundation Trust**

In both scenarios, due consideration needs to be given to optimisation of the clinical model. What constitutes safe team staffing and the requirement to adhere to single sex accommodation for non-Critical Care areas? It is unlikely that services with less than four beds will be financially or clinically viable. The drivers for implementation are likely to govern the funding model adopted. Where Enhanced Care develops to support patient flow in elective surgery, the financial investment could be realised from the cost savings consequent upon improved efficiency and reduction in cancelled operations. It is likely that NHS England's commissioning of Adult Critical Care will move to a co-commissioned model from the current arrangement where specialised commissioning and Clinical Commissioning Groups (CCGs) commission their individual elements separately from Trusts. The creation of a co-commissioned model will involve the selection of a Lead Commissioner by NHS England for each provider and development of a commissioning forum, which will facilitate a quality improvement programme at provider and Operational Delivery Network (ODN) level. This could include commissioning recognition of an Enhanced Care service by redirecting current expenditure on delayed discharges and patients who only ever received zero organ support in Critical Care and avoid commissioning of additional Critical Care capacity. Where an organisation feels that Enhanced Care would form part of the care pathway for multiple patient groups, this could either be commissioned by the CCG or a proportion of the budget could be 'top sliced' for the purpose of funding the service. Likewise, it could form part of specialist commissioning.

IMPACT OF INTRODUCING ENHANCED CARE – YORK HOSPITAL

Driver for change: -

- *"Limited HDU access/high Critical Care occupancy rates/on day cancellations*
- *Delayed discharges and long length of stay*
- *Potential harm to patients with excessive fluid therapy in the perioperative period*
- *Junior staff managing patients at their most vulnerable point in the surgical journey and subsequent variation in postoperative management*
- *Failure to rescue deteriorating patients*
- *Postoperative functional decline/increased dependency"*

Intervention: - "The *Perioperative Medicine Service (POMS) established in 2015, introduced pathways and treatment algorithms for the immediate postoperative management of patients undergoing major, elective colorectal surgery on a pre-existing Enhanced Care Unit- the 'Nurse Enhanced Unit'. Our management plans and pathways were designed to move patients out of Critical Care and onto the 1:4 nursed Enhanced Care Unit whilst still providing them with optimal postoperative care with regards haemodynamic and medical management."*

Outcome: - *Data from 106 patients managed by POMS was compared with data from 202 control patients undergoing similar surgery prior to introduction of the service. There has been a steady reduction in hospital length of stay, Critical Care utilisation and complication rates.*

- *Length of hospital stay (mean) - Control 12.2 days vs POMS 7.3 days*
- *Length of hospital stay (median) - Control 8 days (6-12) vs POMS 5 (5-9)*
- *Reduced variation in length of stay. Interquartile ranges for length of stay were: -*
  - *control group 6 -12 days*
  - *Year 1 5 - 8 days*
  - *Year 2 5 - 8.5 days*
  - *Year 3 4 - 8 days*
- *Major Complications - Control 22% vs POMS 16.2%*

Dr David Yates, Consultant in Anaesthesia and Critical Care Medicine at York Teaching Hospital NHS Foundation Trust

Best Practice Tariffs (BPTs) were introduced in 2010, following Lord Darzi's review[25], to remove unnecessary variation in quality and drive forward best practice. A BPT for patients undergoing emergency laparotomy was introduced in April 2019; to qualify for this tariff, a formally agreed patient care pathway must be in place, and 80% of all high-risk patients must be admitted to Critical Care and receive both consultant surgeon and anaesthetist delivered intraoperative care. At the time of writing, the level of support and monitoring such patients receive is unknown, however Enhanced Care services could provide care for patients in an appropriate environment, promoting quality and, although not supported by a strong evidence base, improved outcomes based upon local data and clinical consensus. Once the NELA Project Team have interrogated the data, there may be an opportunity for inclusion of such patients in an enhanced monitoring location, rather than HDU, should this be appropriate for individual patients.

FUNDING ENHANCED CARE – ST HELENS & KNOWSLEY TEACHING HOSPITALS NHS TRUST

"Rome wasn't built in a day, but they were laying bricks every hour. Similarly, our foray into funding an Enhanced Care Area within our AMU and its funding followed Sir David Brailsford's doctrine of marginal gains. Broadly speaking, costs are either capital in terms of the bricks and mortar, as well as the equipment required and revenue in terms of consumables, and the cost for an appropriately resourced and competent workforce."

"There were a variety of means by which we acquired equipment, including capital bids for monitoring and the necessary software, as well as charitable funding and negotiating with companies to provide a lease, or even a free trial, of equipment to enable us to develop a service. We were supported by our executive team to recruit nurses to support the area and to gradually build a case for the workforce to include doctors in training, Advanced Nurse Practitioners and consultants."

"Having created our initial service using the above methods we are now in a position to develop a more comprehensive business case using metrics and process measures including patient numbers, time of admission, length of stay in the Emergency Department (ED), ED breach performance, timeliness of review and of interventions. We are also utilising outcome measures such as length of stay, mortality, non-elective Critical Care admissions, individual disease specific metrics, HRG financial analysis and complaints. This methodology facilitates appropriate data generation for a sustainable financial case with safety at its heart."

Dr Ragit Varia, Consultant in Acute Medicine, St Helens & Knowsley Teaching Hospitals NHS Trust

KEY PRINCIPLES:

1. PERSONALISED CARE

Irrespective of the reason for development, some generic considerations will facilitate a service that is safe, equitable and which becomes part of the continuum between Critical Care and the ward. We recommend that the following principles be used to guide local development of Enhanced Care:

- The Enhanced Care environment should be welcoming for the patient and their family/friends. Patients benefit from an environment that is quiet and calm, with adjustable lighting to allow rest and sleep.

- Consideration must be given to providing adequate capacity for single sex accommodation. This requirement is likely to dictate the minimum number of beds to make the service viable.

1. Personalised Care

Documents that set standards for the delivery of healthcare tend to focus on infrastructure, equipment and staffing levels from the perspective of healthcare professionals. It is important to also consider these from the patients' and their families' perspective. Many postoperative patients receive Enhanced Care in a Critical Care or Post Anaesthetic Care Unit, facilities designed and built to standards set out in two Hospital Building Notes.[26,27] The focus is on the delivery of care for patients who need to recover from anaesthesia or receive Level 2 and 3 Critical Care rather than the experience of the patients, their family and friends and there are no recommendations on the provision of access to toilets, washing facilities or food.

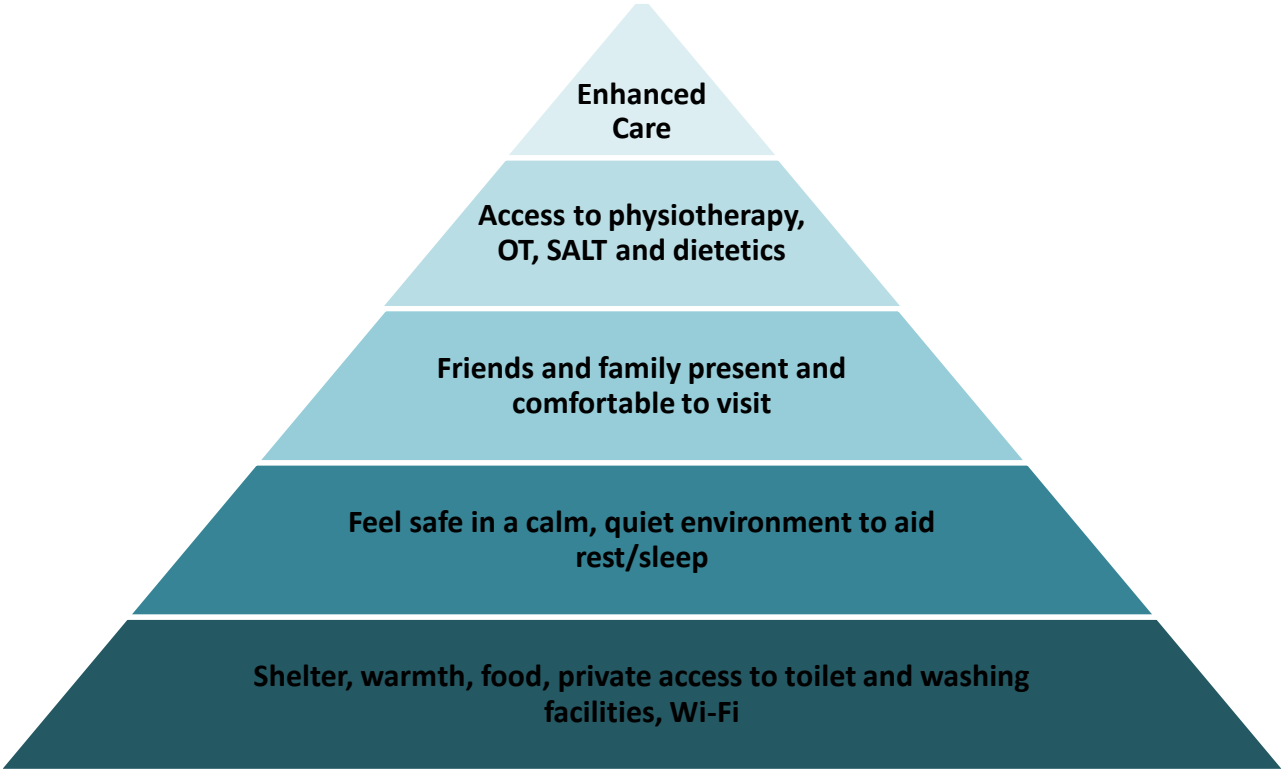
The Enhanced Care environment should be welcoming for the patient and their family/friends, who will need an area where they can wait before visiting, and safeguarding should be considered. Patients benefit from an environment that is quiet and calm, with adjustable lighting to allow rest and sleep. Ideally, there should be natural daylight and an appropriate level of darkness during the night. Attention to these will help mitigate the risk of delirium exacerbated by sleep deprivation and disorientation in time and place. Signage to re-orientate may be useful. There needs to be a private room for consultations with friends and family, who will also need access to food and drink. Toilets and washing facilities should be available which for patients, should be single sex. There should be access to open Wi-Fi.

We recommend open visiting[28] but accept that this will be balanced by clinical care and patient privacy and dignity.[29]

Ideally, patients will be cohorted in Enhanced Care areas on the basis of medical need, which will be the higher priority, however consideration must be given to providing adequate capacity for single sex accommodation. This requirement is likely to dictate the minimum number of beds to make the service viable. This may mean that there is co-location of elective and emergency medical and surgical Enhanced Care areas to optimise bed utilisation and compliance with appropriate standards. Depending on the casemix there will be a variable requirement for single room accommodation, and this should be considered during service development.

Using the ‘tip of the iceberg’ analogy the diagram below demonstrates why a comprehensive approach is required to deliver a personalised service. It represents the events that occur within an organisation on a daily basis but often what is only seen is the ‘tip’ which, in this case is the Enhanced Care service.

Everything else is vital but because it isn’t easily seen it can easily be forgotten if not actively considered. From the patient’s perspective, the bottom of the iceberg is likely to be just as important to them as the top.



KEY PRINCIPLES:

2. GOVERNANCE

- Enhanced Care services will typically sit within and be accountable to a home Directorate
- In order to deliver a safe and efficient service the educational needs of staff, on a multi-professional level, should be addressed during the development phase. Consideration should also be given to staff delivering education as this will need to be adequately funded.
- Clear Standard Operating Procedures for admission, daily operation, transfer and discharge should be developed.
- There should be a clear route of clinical escalation when a patient falls outside the unit's inclusion criteria; this includes procedures for escalation to Critical Care in the event of patient deterioration within the Enhanced Care service. The Critical Care Outreach Team (CCOT) will be integral to this.
- National clinical performance indicators should be identified, along with Colleges, Faculties and specialist organisations, for mortality, specific outcomes and patient experience.
- There should be a strict policy on changing operational parameters of the service at times of capacity strain, which needs to be considered when developing the service.

2. Governance

The success of any organisation or service is reliant upon strong leadership and governance, clear treatment protocols/Standard Operating Procedures (SOPs) and explicit inclusion and exclusion criteria with well-understood gatekeeping and escalation policies.

Enhanced Care areas may be closely linked to their host clinical service areas (e.g. theatres, acute wards, or the Emergency Department), but will also share some important characteristics with Level 2 and Level 3 areas. This means finding a workable balance between pragmatic local solutions and maintaining appropriate governance for an area looking after higher-risk patients. An explicit governance structure is essential for the safety of patients and should be considered alongside clinical care.

i. Organisational

Internally, Enhanced Care services will typically sit within and be accountable to a home Directorate (Surgery or Medicine according to the nature of the service) which may be separate to that within which Critical Care sits. Externally, Enhanced Care is not generally within the scope of Critical Care national casemix reporting or Operational Delivery Network (ODN) governance activity and peer review. However, like Critical Care, Enhanced Care services look after a subset of patients with higher acuity than general wards, and may share some common issues of gatekeeping, staffing, skills and quality management. COVID-19 has highlighted the importance of networks and the need to share resources to maintain equity of care across regions. Undoubtedly, funding models, service delivery and sustainability will impact on how these services look in the future. It is difficult to give clear and certain guidance in this regard.

Governance arrangements should enable vertical information flow, accountability and service planning within the relevant host service, while also allowing a degree of horizontal operational collaboration and shared learning with other higher acuity units and services in the Trust/Health Board. The service should sit within a lead Directorate and Division and take a full part in appropriate national data collection, Quality Improvement (QI) activity, patient and carer feedback at this level. In addition, we recommend that, to encourage cooperation, Enhanced Care should engage as fully as possible with Trust/Health Board-wide mechanisms for higher care areas such as a Trust Critical Care Delivery Group. There may be some aspects of these groups such as national casemix reporting or ODN interaction that may not be relevant to an Enhanced Care area, but in general, service delivery and governance will benefit from engagement and shared planning and learning in areas of commonality.

The Enhanced Care service may be co-located and work closely with a particular service, ward or interventional area but, as a higher care area, it should have a distinct identity for operational and governance purposes. Operational and governance data should be clearly identified with and attributable to the service. Each Enhanced Care area should have a designated leadership structure with a named lead clinician and lead nurse with a clear path up the Directorate or Divisional management chain.

In order to deliver a safe and efficient service the educational needs of staff, on a multi-professional level, should be addressed during the development phase. Consideration should also be given to staff delivering education as this will need to be adequately funded. We recommend development of training resources prior to service implementation.

A UNIQUE LEARNING ENVIRONMENT – ROYAL INFIRMARY OF EDINBURGH

"In 2009, we converted a 4-bedded room within our Vascular Surgery ward to an Enhanced Care area. Nurses from the ward establishment support the delivery of care. Some have experience of working in Critical Care, but the majority do not. We developed an educational programme and competency assessments are undertaken on the ward, aiming to equip all ward nurses with the knowledge and skills required to work in the Enhanced Care area. The nurses have found this training and experience invaluable when faced with an unwell or deteriorating patient in other areas of the ward. In addition, educational attachments to HDU have been undertaken by nurses from the ward and have been useful in providing experience of specific monitoring and therapies such as invasive cardiovascular monitoring, vasoactive infusions e.g. phenylephrine, and the diagnosis and management of arrhythmias such as atrial fibrillation. Staffing levels on the ward have made it difficult for these attachments to be as long or frequent as we would like. On reflection including educational time when we calculated the number of extra nursing staff required to open the Enhanced Care area would have been beneficial."

Dr Alistair Nimmo, Consultant Anaesthetist, Royal Infirmary of Edinburgh

ii. Operational

Clear Standard Operating Procedures for admission, daily operation, transfer and discharge should be developed. Examples can be found on the FICM website and the SAM website. This should include agreed inclusion and exclusion criteria and agreed policies for step down including handover arrangements and appropriate hours for safe discharge to a general ward. There must be clear arrangements for gatekeeping decisions and, in particular, the final decision maker should be clearly identified at all times, as well as an escalation route in the event of clinical disagreement or an inability to match capacity to demand. There should be a clear route of clinical escalation when a patient falls outside the unit's inclusion criteria; this includes procedures for escalation to Critical Care in the event of patient deterioration within the Enhanced Care service. The Critical Care Outreach Team (CCOT) will be integral to this and formalising their input when developing the service is to be encouraged. Nurse: patient ratios should be reviewed regularly, especially during the implementation phase.

iii. Quality

National clinical performance indicators should be identified, along with Colleges, Faculties and specialist organisations, for mortality, specific outcomes and patient experience. A minimum data set for the unit covering structure, process and outcomes, and robust systems for prospective collection and review will be beneficial, as will engagement in Health Board/Trust-wide audit and data activity, including delayed admission and discharge, nosocomial infection, pressure sore and falls audits. This could be included within existing processes, if appropriate.

Establishing a common data set, linked to the population being treated, that aims to include longer-term personalised outcomes will be important for service development. In order to develop standards for the delivery of Enhanced Care Services it will be essential to consider what evidence is required. Consideration should be given to the key research questions to be prioritised that will provide information to drive this improvement in care. Once established, it may be appropriate for an independent body to monitor the quality of care provision.

Regular MDT meetings should be held to maintain ongoing reviews of current care, including incidents and significant events, morbidity and mortality. These meetings could also be utilised to review operational aspects of the unit, including appropriate staffing and levels of care. It must consider patient acuity and ongoing compliance with inclusion and exclusion criteria. This is important to ensure that the service does not deliver inappropriate levels of care. There should be a strict policy on changing operational parameters of the service at times of capacity strain, which needs to be considered when developing the service. All specialties including, but not limited to Critical Care, Respiratory Medicine, Microbiology and Physiotherapy, interfacing with the Enhanced Care service should meet on a regular basis. This may happen through Health Board/Trust-wide structures as above, and/or by inclusion in unit meetings.

KEY PRINCIPLES:

3. SERVICE MODEL

- Although we are describing a service, it is recognised that for ease of delivery, specialty specific Enhanced Care areas may be more appropriate.
- The service model needs to be configured to ensure continuity of care and continuous availability of medical staff.
- A policy detailing the agreement between specialist teams, including Critical Care, for providing clinical input to patients receiving Enhanced Care should be established.
- Patients admitted to an Enhanced Care area should have a clearly documented escalation plan of treatment.
- Staffing levels should be organised to meet the needs of patients, the service and the organisation. Once safe staffing has been determined it should not normally be changed unless there has been an alteration in the type of patient admitted or the complexity of monitoring/intervention.
- Staffing for an Enhanced Care service will depend on a number of factors including the specialty being served, location of the service and reason for development. However, a multidisciplinary approach will provide the best care for patients and provide opportunities for training and education.
- The medical scope of practice will vary depending on the type and location of unit. Referring to the relevant curriculum will help

3. Service Model

i. Configuration

Although we are describing a service, it is recognised that for ease of delivery, specialty specific Enhanced Care areas may be more appropriate e.g. high-risk elective surgery or Chronic Obstructive Pulmonary Disease. To optimise patient flow, consideration should be given to location; a service for acutely unwell patients may function better in close geographical proximity to the Emergency Department whereas an elective perioperative service would be better situated close to the Operating Department. The service model needs to be configured to ensure continuity of care and continuous availability of medical staff. A single organisation may have more than one unit and, if this is the case, there should be an overarching governance structure rather than have multiple small areas reporting via their individual specialty framework (Key Principle 2 **Governance**). Consideration should be given to the staff and patients' environment. The location of the service will determine if amenities will be dedicated or shared with another area such as the general ward. Access to natural light, toilets, washing facilities and food are essential.

ii. Risk Management

A policy detailing the agreement between specialist teams, including Critical Care, for providing clinical input to patients receiving Enhanced Care should be established. For the deteriorating patient requiring a higher level of care, a clear process and clearly documented criteria for escalation and transfer will need to be developed. This will also be required for those patients transitioning from Critical Care but needing a higher level of care than can be provided on a general ward. We recommend that all patients admitted to an Enhanced Care area have a clearly documented escalation plan of treatment. We support the involvement of Critical Care Outreach and Hospital at Night services, where they exist, in the escalation plan.

Staffing levels should be organised to meet the needs of patients, the service and the organisation. Once safe staffing has been determined it should not normally be changed unless there has been an alteration in the type of patient admitted or the complexity of monitoring/intervention. Any proposed amendments to established safe staffing levels must be considered through local governance structures.

It will be advantageous to involve Critical Care in establishing a clear policy on the level of monitoring and treatment that it is appropriate to be provided by the Enhanced Care service. This will vary depending on local need, but the use of SOPs will ensure patient safety. Critical Care should also be involved in describing a monitoring and treatment strategy to determine the level of support that can safely be provided where a nurse is looking after more than two patients. This will facilitate clear delineation between Enhanced Care and HDU. Development of local protocols will help to determine appropriate levels of competence for relevant staff and promote safe patient care. Consistency will be vital to success and therefore the use of checklists may be beneficial. Existing policies should be regularly reviewed and updated based on available best practice. Where there is local agreement, we support the introduction of additional interventions provided there is a standard operating procedure and adequate staff training.

As a minimum, there should be a daily safety brief aligned with local requirements. We recommend that there is access to appropriate equipment to support the functions of the Enhanced Care service with essential equipment, such as routine non-invasive monitoring, infusion pumps etc. available on the unit at all times. Local need will dictate what else is deemed essential. It may be worth considering real time remote monitoring for certain patients. Access to arterial blood gas and lactate measuring equipment and other equipment that may only be required intermittently, depending on patient need, should be easily accessible. All point of care testing equipment must be maintained, results quality assured and be compliant with appropriate laboratory standards. There will be a schedule for repair, maintenance and replacement of essential equipment. We support the co-location of emergency care services to facilitate sharing of resources such as equipment, expertise and support services.

iii. Safe Staffing

Staffing for an Enhanced Care service will depend on a number of factors including the specialty being served, location of the service and reason for development. However, a multidisciplinary approach will provide the best care for patients and provide opportunities for training and education. There should also be access to clerical support, ward housekeepers and support staff. By firstly describing the service and then defining the skills required to deliver this, it will be easier to identify the personnel best equipped to safely provide care. Consideration should be given to providing additional training, where required, to allow parent teams to deliver care rather than rely on Critical Care. Funding for this will need to be identified prior to implementation. The team will consist of a variety of medical and non-medical staff based on local factors and will vary both within and between organisations.

The medical scope of practice will vary depending on the type and location of the unit. Referring to the relevant curriculum will help determine the grade of doctor or Advanced Non-Medical Practitioner most appropriate to deliver care. Where guidance already exists, for example from The Royal College of Physicians,[30] it should be followed. A number of acute specialties recognise the importance of Critical Care skills and either include the opportunity to dual train or mandate some exposure within their training programme. Where this is not included in the specialty curriculum consideration should be given to developing this. All staff responsible for patients requiring Enhanced Care must be competent to provide the care required. Ongoing training and education of nurses across all career stages has a positive impact on job satisfaction and implications for patient care, recruitment and retention.[31] The environment where Enhanced Care is delivered presents an ideal educational opportunity. The training dividend from the pandemic and the rotation of staff can hopefully be utilised in the future to enable Enhanced Care delivery to progress more rapidly. Skills gained now may fade if not correctly harnessed, which would be to the detriment of Enhanced Care development. We recommend that there are educational resources available for all staff. Examples can be found on the FICM website and the SAM website. Enhanced Care is an interface between the ward and Critical Care and therefore a combination of staff from both areas will benefit the service and patients. Ward staff may need additional training in order to feel competent and supported in the Enhanced Care environment. We support rotations between the wards, post anaesthetic care and other higher care areas, Enhanced Care and Critical Care to facilitate maintenance of skills, and development of new ones, for all staff groups. It is important that funding for initial and ongoing training is identified prior to implementation rather than relying on the current establishment of Critical Care staff to deliver training and/or care.

Medical

Closed models of care have a positive impact on patient outcome[32] and should be considered during development of Enhanced Care services however, the parent team should be consulted for issues arising while the patient is receiving Enhanced Care. Perioperative models will benefit from a

multidisciplinary approach. The responsible doctor's contact details must be clearly displayed. This is particularly important if the service provided is for patients from multiple specialties. How the model is delivered will vary but one example is that the consultant under whose care the patient was operated will retain responsibility for day to day management. Another example would be where specialists work as a team, on a rotational basis, to manage Enhanced Care patients irrespective of which consultant they are admitted under. Whatever the model, continuity of care is important. There needs to be clarity about this responsibility during the design and implementation phases and a consultant lead should be established for the Enhanced Care service*.

A consultant should lead a daily ward round* of Enhanced Care patients with the nurse in charge and input from other appropriate specialties e.g. Anaesthesia for perioperative patients, Critical Care and Outreach. A senior clinical decision maker must be clearly identified at all times to provide oversight including admission and triage decisions. We support the incorporation of a job planned, sessional commitment to facilitate this. It will be a local decision as to who this should be, but the individual should have competencies relevant to managing this patient cohort. In some situations, routine Critical Care input will be beneficial, and this should be clearly job planned. A senior clinical decision maker should undertake twice daily (24 hour pro rata) ward rounds, one of which will be with a consultant. Where the consultant overseeing the service is not the named consultant, processes for the appropriate handover of care must be established but this should not delay transfer or admission of patients.

A competent clinical decision maker must be identified to undertake an initial patient assessment, request investigations, review and respond to results and be able to prescribe. The default position in many organisations is to contact the intensivist but this model risks the safety of patients within Critical Care. The professional will work within their competence with reference to the corresponding curriculum. The role of the competent clinical decision maker must be clearly defined when managing the acutely deteriorating patient, as well as their responsibility when a patient requires transfer to a higher level of care. This work may be undertaken as part of routine ward cover or by specifically allocating a doctor to cover the Enhanced Care service, as long as there is provision for timely review of patients. This will depend on the local configuration of the Enhanced Care service. We support foundation doctors in this role but there must be appropriate resident, and available, clinical supervision from a senior clinical decision maker who is clearly identified and readily available to provide advice and assistance. Where the casemix is more complex, consideration should be given to identifying a core or specialty trainee e.g. Surgery, Acute Internal Medicine, Intensive Care Medicine or an Advanced Non-Medical Practitioner, as well as or in place of the foundation doctor. Anaesthetists and perioperative physicians should be involved in enhanced perioperative care. The workload will govern how many doctors need to be involved at this level. Clear parameters for escalation should be documented and form part of the handover process. There must be continuous access to someone who is competent in advanced airway management and vascular access. Where this is not immediately available on site, we support the establishment of a policy to ensure patient safety.

* *The service model will govern the time commitment for these activities but we would support consideration of this during the development phase and a regular review as part of the job planning process.*

Advanced Non-Medical Practitioners

The landscape around advanced practice is changing and there are a variety of titles and roles. To provide clarity for the purpose of this document the term 'advanced non-medical practitioner' will be used. The title implies a role commensurate with the relevant key specialty knowledge, skills and clinical competency sets. These roles should be at MSc level and ideally include the capacity to prescribe appropriate medications and manage episodes of patient care. Whilst these roles are autonomous and practice independently within their scope of practice, clear arrangements for appropriate escalation and supervision should exist. Practitioners must maintain appropriate competence when working outside of a Critical Care area.[33]

Nursing

A nurse lead/unit manager will have responsibility for clinical supervision of patients and staff, manage the unit, nursing staff and maintain oversight of the strategic development or maintenance of the service. Staff caring for patients in acute hospital settings are required to have a level of competence commensurate with the level of care being provided.[34] There should be an agreed schedule of minimum competencies appropriate for the casemix and activity of the unit. This should be made explicit during the development of the service. The skill set of nursing staff working in this environment will have common ground to some of the Critical Care nursing competencies as well as clinical competencies aligned to the patient population in the enhanced monitoring environment. The National Competency Framework developed by the National Outreach Forum (NOrF) and Critical Care Networks - National Nurse Leads (CC3N)[35] should be the standard of competence for registered practitioners working in Enhanced Care areas. There should be a gradual introduction of interventions as competencies are acquired. We recommend that at least one nurse on each shift to either hold a postgraduate qualification in this area or have significant experience in Critical Care or acute care.

Ideally, evidence-based tools would be used to determine appropriate nurse staffing levels.[36] As these tools do not currently exist, a pragmatic approach will be necessary until they are developed.[37] The nurse:patient ratio should match patient acuity, skill mix, volume of work and the variety of services offered. Due to the variability of patients and care delivered within an Enhanced Care service, it is not possible to set clear staffing ratios. However, it is unlikely that Enhanced Care can be consistently delivered where the nurse:patient ratio falls below 1:4. Consideration must be given to the dependency of the patient on admission. If, due to the planned casemix, a short period of increased dependency is to be expected, a higher nurse:patient ratio should be factored into the nursing establishment to safely accommodate this flexibility. Where national guidance exists, for example patients receiving NIV or CPAP[41], we recommend it is followed. The ratio will also depend on the geographical layout of the area: 1:4 may be appropriate in a 4-bedded bay with the nurses' station in the centre but not for 4 single rooms. The nurse:patient ratio will also govern service configuration in terms of bed numbers. Where the ratio has been defined but changes due to alterations in patient acuity in either direction, this should prompt a review and consideration of the appropriateness of the patient in this location. This is predictable for some patients; for example, a patient with diabetic ketoacidosis will normally stabilise relatively quickly but will need a higher level of monitoring and interventions immediately following admission. This will need to be factored into the nursing establishment and when organising shifts.

The requirement for additional support e.g. healthcare assistants or a supernumerary nurse in charge will depend on the location of the service and is best determined at a local level. Extra staff above and beyond this recommendation may not be necessary if the service is provided within a normal ward setting but will enhance safety in a separate, dedicated area. We suggest that the highest level of

patient acuity and extent of intervention acceptable in the Enhanced Care service is determined first and then the competencies required to safely deliver this level of care can be identified. Staffing should be managed from within the service rather than allowing movement to other areas during times of high pressure. Patient dependency can change and therefore this flexibility is required to maintain patient safety. Once a safe service has been defined any proposed changes in patient acuity, the support provided or nurse:patient ratio will need to follow the local governance structure. An additional registered nurse should be immediately available and assistance from a support worker would be beneficial. There should be access to a clinical nurse educator on site.

Allied Health Professionals and Allied Specialties

Allied Health Professionals provide an essential service to patients receiving Enhanced Care however, the level of service required will vary depending on the casemix. We recommend that there are clearly defined referral pathways where there is not a routine requirement. The skill mix should be established and additional training provided if the service is to be delivered by ward based, rather than Critical Care, staff although a combination would provide an ideal educational environment. The type of service provided, its location, patient acuity and length of stay will determine to what extent each is required. It will be advantageous to have access to chaplaincy and palliative care services.

- Dietetics

DIETETICS AND THE PREPARE PROGRAMME – IMPERIAL COLLEGE HEALTHCARE NHS TRUST

Driver for change: - ***"****Efforts to improve postoperative outcomes have focused mainly on surgical and anaesthetic techniques. Traditional perioperative management misses the opportunity for a more holistic approach to the whole patient journey. Nutrition is a central component in both the pre and postoperative treatment of Enhanced Recovery After Surgery (ERAS) patients. Dietitians play a fundamental role in enhancing the recovery of patients following major head and neck and gastrointestinal surgery. All patients should be nutritionally screened as part of prehabilitation and high-risk patients referred to the dietitian for personal nutrition plan with appropriate targeted interventions. The main thrust for the PREPARE programme came from patient engagement, wanting clinicians and patients working in partnership. They felt that traditional perioperative management missed the opportunity for a more holistic approach to the whole patient journey."*

Intervention: - "*One specific example is the PREPARE programme at Imperial College Healthcare NHS Trust for oesophago-gastric cancer surgery. The programme combines physical and respiratory fitness, eating well and optimising psychological wellbeing before surgery and an enhanced recovery package. Patients receive a feeding jejunostomy tube during surgery and are seen early following surgery by the specialist dietitian to ensure nutritional care is provided throughout the recovery phase."*

Outcome: - *"Approximately 100 patients have been through the "PREPARE for Surgery" programme to date. Since the programme was introduced, the rate of postoperative pneumonia has fallen from 60% at the start of 2015 to 18% by the middle of 2018, with a fall in the median length of stay from 14 days to 8 days over the same time period."*

Ms Ella Terblanche, Critical Care Dietitian and Trust Nutrition Lead at the Royal Brompton and Harefield NHS Foundation Trust

- Infection control
- Microbiology
- Occupational Therapy (OT): - important role in preoperative orthopaedic clinics assessing patients undergoing hip and knee replacement[38] and thoracic surgery.[39] All frail patients should be screened by an Occupational Therapist to assess for potential functional deficits prior to their admission to facilitate timely discharge. This may involve inpatient person-centred goal led rehabilitation, arranging adaptive equipment or planning packages of care.
- Pain services
- Palliative Care
- Pharmacy
- Phlebotomy
- Physiotherapy

PHYSIOTHERAPY AND SEVEN DAY SERVICES – ROYAL PAPWORTH HOSPITAL NHS FOUNDATION TRUST

"Physiotherapy plays a key role in the provision of respiratory management and promotion of early rehabilitation with input to a wide range of clinical specialties including those with Enhanced Care services. Within specialist Enhanced Care units e.g. hyper-acute stroke units and neurosurgical observation beds, physiotherapy, alongside other allied health professions, are essential to early intervention promoting an early return to function and independence. The increase in 7-day therapy services has been associated with clinically significant reductions in length of stay.[40] Additionally, physiotherapy is recognised within key British Thoracic Society guidelines for the ventilatory management of acute hypercapnic respiratory failure.[41]"

"Physiotherapy is a core component of both pre and post-recovery from surgery and remains integral to the Enhanced Recovery After Surgery (ERAS) ethos. Physiotherapy contributes to reduction of postoperative pulmonary complications, improved patient outcome and reductions in length of stay[42]. The ERAS programme for thoracic surgery at Papworth Hospital includes pre and postoperative physiotherapy input for those determined as high risk. Patients receive a detailed preoperative booklet and an exercise DVD prior to surgery. Following surgery, patients receive two physiotherapy sessions per day over a 7-day working week. This model resulted in patients walking further after surgery than previously, and a reduction in duration of physiotherapy input from 3.85 to 2.02 days."

Mr Paul Twose, Lead Physiotherapist, Adult Intensive Care, University Hospital Wales

- Psychology
- Radiology and other diagnostic services
- Speech and Language Therapy (SALT)

SPEECH AND LANGUAGE THERAPY IN OESOPHAGOGASTRIC CANCER SURGERY GUY'S AND ST THOMAS' NHS FOUNDATION TRUST

"This programme provides patients with physical and nutritional support for optimisation prior to surgery. It includes Speech and Language Therapy assessment of voice and swallow prior to surgery to establish baseline parameters and provides education around potential voice and swallowing changes that patients may experience following surgery."

"All patients undergoing oesophagectomy, with a cervical anastomosis, are seen by SLT on the 2nd postoperative day. We assess changes to voice and swallowing and manage this by providing ongoing treatment and support throughout the recovery phase. Since implementation of the programme in 2014, there has been a reduction in the median length of stay from 14 to 11 days."

Ms Christina Lezzi, Clinical Lead of Speech and Language Therapy in Critical Care at Guy's & St Thomas' NHS Foundation Trust

KEY PRINCIPLES:

4. PATIENT PATHWAY

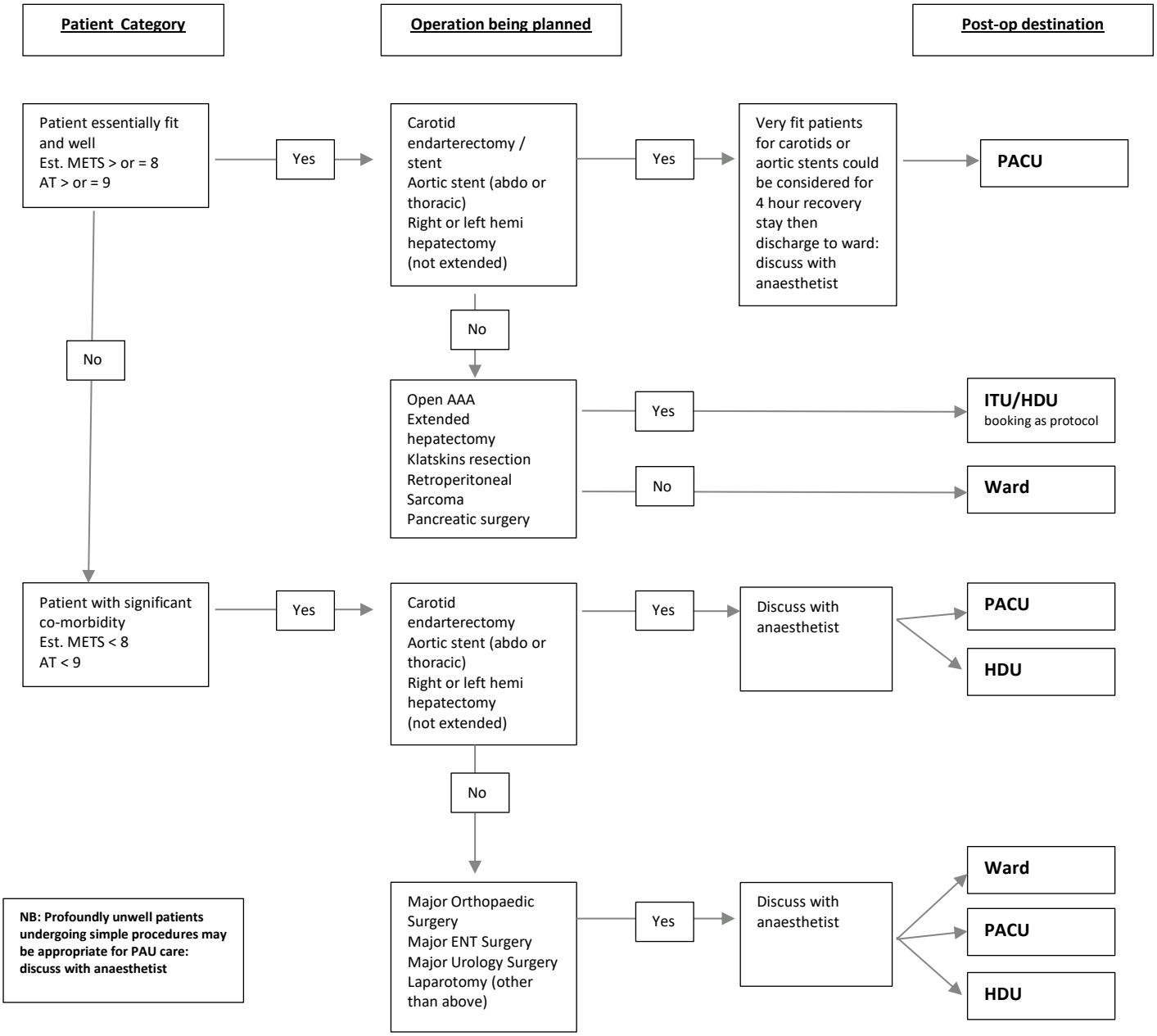
- The local collaborative development of criteria for admission will be heavily dependent on the type and location of service provision.
- The requirement for Enhanced Care could be part of a patient's care pathway or based on a complicated or high-risk intervention in a particular patient.
- It is difficult to determine fixed admission criteria for the more unpredictable admission from the ward or the Emergency Department. The more variation in patient population, the greater the risk to patient safety and the higher the level of competence required by nursing, medical and AHP staff.
- Patient care pathways for common medical conditions should be developed for those situations where, currently, referral to a Critical Care environment occurs due to the frequency of observations or the need for continuous monitoring.
- Where a patient requires intervention for more than a single process, referral to Critical Care should be considered when developing protocols.
- The ward round is an opportunity to review patient progress and update the management plan if necessary. As a minimum, there will be one multidisciplinary ward round a day with an increased frequency decided at a local level.
- Local policy in terms of frequency of observations, NEWS2 scores and deteriorating patient escalation should be followed. Input from Critical Care/Outreach will facilitate timely escalation of patient care, if required. The degree of input will be dependent on the casemix, should be predetermined when the service is being designed and funding identified.
- Length of stay in an Enhanced Care service should depend on clinical need. However, to promote efficient use of the service, it is important that patients are cared for in the correct environment and therefore discharge should be considered during the admission process.

4. Patient Pathway

i. Admission criteria

The local collaborative development of criteria for admission will be heavily dependent on the type and location of service provision. There is much to commend the development of services for patients with similar requirements, both for training of staff and the delivery of safe effective care. For patients undergoing emergency surgery, we support the Royal College of Surgeons of England recommendation that a predicted 30-day mortality of >5%[43] or more, using the NELA risk prediction model, requires postoperative Critical Care. Enhanced Care may be an appropriate location for patients with a predicted 30-day mortality between 2% and 5% but services are not universally available. We will work with the NELA Project Team and the Royal College of Surgeons of England to address this recommendation. A clear booking process should be enacted for patients admitted following elective procedures (operative, endoscopic or interventional radiology delivered). For other surgical patients, adoption of appropriate risk models, either a specialty specific model such as the Nottingham Hip Fracture score, a UK validated generic risk model such as the Surgical Outcome Risk Tool or the use of Cardiopulmonary Exercise Testing (CPET) to determine the requirement for Enhanced Care should be utilised. Patients will normally spend some time recovering from their anaesthetic in the postoperative care unit, or equivalent, prior to transfer to the Enhanced Care area. Perioperative events may alter the decision pathway as to the optimal site for the patient's care.

ELECTIVE SURGICAL ADMISSIONS – FREEMAN HOSPITAL, NEWCASTLE



Dr David Cressey, Consultant in Intensive Care Medicine and Anaesthetics, The Newcastle upon Tyne Hospitals NHS Foundation Trust

Frailty is increasingly being recognised as a significant factor in patient outcome.[44,45] While there remains uncertainty over the best frailty score to use, we recommend using the Clinical Frailty Scale score[46] as a simple, pragmatic measure to identify patients who might benefit from postoperative Enhanced Care. The surgical procedure or clinical condition and the expectation that Enhanced Care will improve patient outcome must also be taken into consideration.[47]

The requirement for Enhanced Care could be part of a patient's care pathway or based on a complicated or high-risk intervention in a particular patient. Special consideration needs to be given, during service development, where Enhanced Care will receive discharges from Critical Care, as additional skills may be required to safely manage such patients. It may also be appropriate to offer patients prehabilitation within an Enhanced Care service.

PROCEDURE BASED ADMISSION CRITERIA – WANSBECK GENERAL HOSPITAL, NORTHUMBRIA

"Admissions to the Surgical Enhanced Recovery Unit (SERU) can be planned or determined intra-operatively for the following reasons:

1. *Surgical – more complex revision arthroplasty cases, peri-acetabular osteotomy work and instrumented spinal surgery.*
2. *Medical – significant comorbidity, elderly/frailty (we tend to find that factors such as diabetes and hypertension (on multiple agents) and higher frailty scores leaves patients needing vasopressor support post procedure).*
3. *Anaesthetic – stable patients with labile blood pressure requiring vasopressor support, stable patients requiring closer monitoring.*

Patients may only go to SERU immediately following their surgery via recovery and for a maximum of 20 hours. Within this timeframe the patient is either ready for stepdown to the main elective orthopaedic ward or it necessitates escalation to a higher level of care (i.e. transfer out to the emergency care hospital). SERU closes at 7am and provides a service Monday afternoon until Friday morning."

Dr Alex Beckingsale, Consultant Anaesthetist, Northumbria Healthcare NHS Foundation Trust
Ms Sarah Paice, Nurse Practitioner, Northumbria Healthcare NHS Foundation Trust

Modified risk prediction models can also be useful[48]

RISK-BASED ADMISSION CRITERIA – TORBAY HOSPITAL

"We categorise the postoperative level of care (0, 1, 1.5, 2, 3) a patient is likely to need before admission for scheduled surgery. We calculate the temporary increase in monthly mortality caused by surgery to determine the level of care after surgery using a calculator developed with national population survival data. Predicted 30-day mortality of >1% is the basis for postoperative HDU care.

This calculation is supplemented with previous unexpected or prolonged Level 1.5 care, specific organ dysfunction, for instance renal impairment with multiple antihypertensive medicines. These patients are likely to benefit from continuous blood pressure monitoring, arterial lactate sampling and vasopressor infusion."

Dr John Carlisle, Consultant in Preoperative Preparation, Anaesthesia & Critical Care, Torbay Hospital

It is difficult to determine fixed admission criteria for the more unpredictable admission from the ward or the Emergency Department. The more variation in patient population, the greater the risk to patient safety and the higher the level of competence required by nursing, medical and AHP staff. Availability of a senior clinical decision maker at all times to help with the triage of these patients will be essential. Use of the National Early Warning Score 2[49] (NEWS2) to help identify patients who may require Enhanced Care will be beneficial. Identifying a trigger, where the clinical response includes a senior clinical decision maker and Critical Care or outreach staff, will be required. This will help identify those patients whose care can be safely delivered in an Enhanced Care area or require transfer directly to Critical Care. It will also utilise the workplace as a valuable learning environment. It is important that the parent team, or representative, is available when patients trigger to help guide decision making.

Patient care pathways for common medical conditions should be developed for those situations where currently, referral to a Critical Care environment occurs due to the frequency of observations or the need for continuous monitoring. Patient complexity should also be considered. Whilst it may be appropriate for a patient to receive treatment for a single, discrete, process in an Enhanced Care area more complex or multiple interventions may be better delivered within Critical Care. Introduction of Enhanced Care services could provide a more appropriate environment for these patients, releasing capacity for the sicker patient within Critical Care. We support collaboration with Critical Care in this endeavour. In line with the British Thoracic Society's Acute Hypercapnic Respiratory Failure (AHRF) guidance, we agree that acute NIV should take place in a clinical environment with enhanced nursing and monitoring facilities that are beyond those of a general medical ward.[41] The patient must remain the focus when considering the benefit of admission to an Enhanced Care area. The ward environment provides an appropriate patient/carer experience at the end of life and staff deliver high quality care. Due to the nature of care required at the end of life, the dying patient may be better managed within an Enhanced Care service though this would not be the norm.

ii. Protocols and procedures

The table below lists examples of the levels of monitoring and types of interventions that are currently provided in Enhanced Care environments; they are not necessarily a reason for the patient to require admission. Enhanced Care models would normally only undertake one or two of these. Where a patient requires intervention for more than a single process referral to Critical Care should be considered when developing protocols. This is not an exhaustive list: information on Standard Operating Procedures and other resources can be found on the FICM website and the SAM website.

Monitoring	Interventions
Continuous monitoring (ECG, NIBP, SpO_2)	High flow oxygen
>Hourly neuro observations	Goal directed fluid therapy
Continuous invasive arterial blood pressure	Acute NIV
Regular Arterial Blood Gas monitoring	Opiate infusion
Continuous central venous pressure	Anticoagulant infusion
	Thrombolytic infusion
	Single vasopressor/inotrope infusion (dose limited)
	Single hypotensive infusion e.g. labetolol, GTN
	Potassium infusion > 60mmol/l over 8 hours
	Ketamine infusion
	Lidocaine infusion
	Naloxone infusion

iii. Ward rounds

As a minimum, there will be one multidisciplinary ward round a day with an increased frequency decided at a local level. This will normally be led by the responsible consultant (e.g. surgeon, obstetrician, physician, intensivist) and include, where rostered, the nurse in charge. We support other senior clinical decision makers in this role where deemed appropriate. Other specialist input e.g. anaesthesia/perioperative physician, Critical Care/Outreach and AHPs could be included where the type of service makes this appropriate. The ward round is an educational opportunity and inclusion of trainees will be of great benefit to their learning. We support a structured approach to the daily patient review, which will also facilitate handover. The ward round is an opportunity to review patient progress and update the management plan if necessary. It will also identify those patients ready to step down to a lower level of care. There must be a formalised handover process when care is transferred either between clinicians on different shifts or ward locations for medical, nursing and AHP teams.

iv. Referrals and escalation

Local policy in terms of frequency of observations, NEWS2 scores and deteriorating patient escalation should be followed. Input from Critical Care/Outreach will facilitate timely escalation of patient care, if required. The degree of input will be dependent on the casemix, should be predetermined when the service is being designed and funding identified. It will also allow teams to work together for the benefit of patients and provide a natural learning environment. Establishing clear referral processes to specialties for input and advice is recommended. If there is not a dedicated allied health professional service for the Enhanced Care patients, there should also be a clear referral pathway. On admission we recommend that an escalation plan of treatment is agreed. This should be reviewed daily as a minimum and documented in the patient record.

v. Discharge criteria

Length of stay in an Enhanced Care service should depend on clinical need. However, to promote efficient use of the service, it is important that patients are cared for in the correct environment and therefore discharge should be considered during the admission process. These discharge decisions are ideally made during a multidisciplinary ward round. We support nurse-led discharge where it is based on prerequisites, such as NEWS2, but this should be a local agreement and will be dependent on diagnosis. Where admission is part of a care pathway e.g. elective surgery, the length of stay is likely to be predetermined and beds may need to be 'ring-fenced'. To maintain patient flow, we suggest that there is a local policy, agreed with Critical Care, for when the patient is not ready to be discharged. This will facilitate operative scheduling and ensure that patients receive the appropriate level of care for as long as is necessary. When a patient is not ready for discharge at the predetermined time, consideration should be given as to the best location to continue the safe delivery of care. Where a patient's stay is much shorter than expected, admission criteria should be considered, and amendments made accordingly as part of routine review processes. It is possible that Enhanced Care areas will compete with Critical Care for ward beds when patients are ready to step down to a ward. We recommend that this is considered when establishing the service to ensure that ward beds are equally available to Enhanced Care and Critical Care. This will be essential to maintain patient flow. The escalation plan of treatment should be reviewed at the time of discharge, including the suitability of readmission for Enhanced Care.

Conclusion

This document is the culmination of two years of work and substantial evidence gathering. It proposes recommendations to clinicians and organisations for providing not just a location for Enhanced Care delivery but also the necessary structures and processes required to do this safely and effectively. It is worth noting the key principles of personalised care, governance, service models and patient pathways and their interrelationship in terms of improving care and flow. With a focus on training and staff development it is hoped the educational opportunities presented will be a template for ongoing development. Examples of current practice are cited, and details of the methodology used to inform the recommendations are provided for reference.

There exists a diversity in the current service provision of Enhanced Care services reflecting variability in local clinical need. The drivers for change and interventions provided will therefore also vary and, in view of this, the guidance is intentionally non-prescriptive but is representative of the current broad multidisciplinary consensus. As new Enhanced Care services develop, local monitoring of the effect on clinical processes and outcomes, as well as resource utilisation, will be integral to assessing the impact of any changes. As services evolve the landscape around service provision will alter and therefore it is important to note that this guidance may be revised frequently. It should be viewed as a starting point, clarifying the position of Enhanced Care bridging the gap between Level 1 and Level 2 care, where there is currently no guidance. The relationship between Level 2 and Level 3 care is clearly defined and well-established however, the boundaries between Level 2 and Level 1 care are blurred. Enhanced Care naturally sits between these two levels but the interfaces with Level 1 and Level 2 care will be less well-defined as patients move seamlessly between these and Enhanced Care. This is reflected in the guidance provided and delivery of this will depend on the context (such as medical versus surgical) and local delivery agreements.

It is fundamental that this guidance reflects care provision for the selected patient groups rather than impact negatively on patients requiring Level 2 care, which is a clearly defined level of Critical Care. Collaboration with Critical Care will be vital, not only during development and implementation, but for ongoing delivery, to ensure this does not happen. It should not be seen as an evolutionary step towards the creation of additional Level 2 capacity in the future. This is not safe for patients and Enhanced Care will be deemed to have failed if it leads to fragmentation of Critical Care services within an institution. The multidisciplinary nature of Enhanced Care creates the expectation that Critical Care teams will actively provide input into, but not run, Enhanced Care services, the degree of which will vary depending on local need.

The broad spectrum of endorsing organisations lends weight to the importance of this guidance document and the far-reaching impact across a wide range of acute care specialties. Local support will be vital to the success of this project but there must be appropriate commissioning, adequate funding and recruitment and retention of staff. We hope this will be addressed to ensure a safe, high quality, equitable service where patients benefit from receiving the right care, in the right place, at the right time and by the right people thereby bridging the gap and enhancing care.

The world has changed due to COVID-19 and we may have some way to go before the pandemic can truly be said to be subsiding. This will undoubtedly influence all aspects of health and social care delivery for the foreseeable future. An appropriate legacy would be for the cooperative working across hospital specialties to be retained. The additional skills obtained by a large number of the medical, nursing and allied health professionals need to be retained and could be usefully employed to provide Enhanced Care in a shorter time frame than would have otherwise been expected. This would be a positive outcome from a national emergency.

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Glossary & Abbreviations

A&E	Accident and Emergency
Advanced non-medical practitioner	A role commensurate with the relevant specialty knowledge, skills and clinical competency sets, at MSc level and be an independent non-medical prescriber and be able to autonomously manage episodes of patient care.
AF	Atrial Fibrillation
AHPs	Allied Health Professions
AMU	Acute Medical Unit
BPT	Best Practice Tariff
CCG	Clinical Commissioning Group
CCMDS	Critical Care Minimum Data Set
CCOT	Critical Care Outreach Team
CFS	Clinical Frailty Scale
Competent clinical decision maker	Clinicians who are capable of making an initial assessment of a patient. This follows a period of specific training in the use of tools for assessment and use/interpretation of investigations. These skills will be assessed by more senior member of the team who have already acquired these competences.
CPAP	Continuous Positive Airway Pressure
Critical Care	Area providing a mixture of levels of care e.g. Levels 2 and 3
ECG	Electrocardiogram
ED	Emergency Department
EMC	Enhanced Maternal Care
Enhanced Care	Care previously described as Level 1+, Level 1½, advanced care etc.
ERAS	Enhanced Recovery After Surgery
GTN	Glyceryl trinitrate
HDU	High Dependency Unit - Area providing Level 2 care
HFNO	High Flow Nasal Oxygen
HOBS	High observation beds that provide Level 1+, Level 1½, high care etc.

HRGs	Health Related Groups
ICU	Intensive Care Unit - Area providing Level 3 care
LOS	Length of Stay
MDT	Multidisciplinary Team
NELA	National Emergency Laparotomy Audit
NIBP	Non-Invasive Blood Pressure
NIV	Non-Invasive Ventilation
ODN	Operational Delivery Network
OT	Occupational Therapy
PACU	Post Anaesthetic Care Unit
POM	Perioperative Medicine
POMS	Perioperative Medicine Service
SALT	Speech and Language Therapy
Senior clinical decision maker	Clinicians who are capable of making a prompt clinical diagnosis and deciding the need for specific investigations and treatment
SERU	Surgical Enhanced Recovery Unit
SOP	Standard Operating Procedure
SpO_2	Blood oxygen saturation levels

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