A Report on the First Wave Survey

2017

The Faculty of
Intensive Care Medicine

CRITICAL FUTURES

ATTRIBUTES

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Photographs: City Hospital Sunderland NHSFT ICU.

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Foreword

Critical care systems reflect the medical and surgical services that they support; this landscape is being significantly modified by developments in these services and the expectations of our colleagues, our patients and importantly their families and carers. Looking to the future of healthcare provision, the work streams initiated as part of the Critical Futures project will need to anticipate what medical practice will look like in the coming decades, especially in the areas of practice that are changing most dynamically.

Currently the treatment for malignant disease of many types is undergoing a significant and continuing revolution. Patients who would have received an essentially terminal diagnosis relatively few years ago are now managed with a continuing program of both surgical and oncological intervention that has, for many, converted a terminal condition into something of a chronic disease. Old certainties around being able to predict prognosis and therefore identify individuals whose life expectancy is so short that there will be little conceivable benefit from intensive care admission and treatment now stand somewhat inadequate.

Critical Futures will acknowledge that we will be providing care for many patients with a chronic disease of "cancer under active management" and this may have a bearing on how we engage with people and determine who might benefit from critical care admission. In the UK we are moving towards developing a research programme to inform us on this issue.

Surgical and perioperative practice is changing; minimally invasive surgery with enhanced assessment and recovery programmes have developed/are developing rapidly and the Royal College of Anaesthetists (RCoA) is developing the perioperative medicine agenda all of which may have an impact on critical care. Developments in interventional cardiology are likely to continue with fewer patients requiring conventional operative coronary artery bypass grafting (perhaps those that do will be sicker), and increasing numbers having percutaneous intervention for valve disease.

In addition, over the last few years we have seen the regionalisation of specialist services for conditions such as trauma, heart attack, and acute stroke. These services have had an appreciable impact on mortality and other outcomes for patients requiring the services. This presents real challenges for colleagues in parts of the country that are geographically isolated from these regionalised specialist pathways. Although it may be possible to facilitate rapid transfer, this may not always be achievable. Recently we have seen continuing difficulties with the care of acutely unwell children in the era after the regionalisation of paediatric intensive care services. Whilst the provision of helicopter transfer has undoubtedly facilitated the rapid movement of patients to centralised specialist care, the fact that helicopters are vulnerable to weather may simply mean patients cannot be transferred and providing best reasonable care in geographically isolated areas is likely to present a continuing challenge. It is reassuring that to date there is no evidence that regionalisation of general ICM makes a difference to outcome, and work on models to provide sustainable safe care to patients in all acute hospitals is ongoing. This is likely to necessitate different models of care, involving network support and common QA processes. We are looking forward over the next year to assessing an impact on our specialty following the appointment of one of our intensivists as our Getting it Right First Time (GIRFT) representative. They have the task of visiting our intensive care units identifying and sharing best practice.

The demographic background to Critical Futures is one of a population containing a greater number of elderly patients with considerable frailty and co-morbidity. The prevalence of obesity is increasing along with type 2 diabetes presenting at earlier ages than previously; the corollary of this is a progressive burden of renal, hepatic and cardiovascular disease. In addition, dementia and other neurodegenerative states are increasingly common.

It is worth reiterating the top priority from the recent James Lind Alliance "critical care research prioritisation exercise": How can patients who may benefit from intensive care be identified early and admitted to the ICU at the right time? Perhaps the key element of this phrase in the coming years will be “patients who may benefit”. To follow this to its next logical step- this will mean identifying those who cannot benefit and working with our colleagues and the communities from which we all come to identify alternative kind and caring pathways for those who cannot benefit.

ICUSTEPS COMMENTARY

As a patient organisation, ICUsteps welcomes the production of Critical Futures and wholeheartedly endorses the report’s recommendations. While the issues around workforce, standards, commissioning and demand are not something we can comment on specifically, we recognise and respect the authority and expertise of the FICM. As patients, we rely on healthcare professionals to work within the many constraints and competing priorities they face to continue to provide the life-saving interventions, monitoring and treatment to those sickest patients the NHS has to care for. However, we are able to add our expertise on the final area of quality of life, as those who have experienced critical illness.

The point at which a patient is no longer classified as being critically ill is not the end of a patient journey, but is a waypoint on a much longer journey toward recovering from critical illness. Bridging the gap between these two points requires support and rehabilitation, but as recommended by NICE CG83, the work to achieve this should begin from ICU admission. Critical care may save our lives, but we need rehabilitation and support to help give those lives back to us. Despite recommendations in Comprehensive Critical Care in 2000 and CG83 in 2009, the report highlights that rehabilitation is the area in which the least progress has been achieved.

We recognise that healthcare providers face difficult challenges to balance the competing requirements and constraints in delivering comprehensive critical care services but urge that support and rehabilitation be included as a fundamental part of the patient journey rather than regarded as a bonus or an unnecessary expense. In addition to returning the patient’s quality of life, rehabilitation is a cost-effective means by which to protect the huge financial investment already made in treating critical care patients to the point they’re well enough to leave the ICU. Consequential savings through reducing hospital length of stay, ICU readmission, use of primary care services, and factors outside the healthcare budget such as reduced reliance on state benefits and an earlier return to work could potentially cover or exceed the cost of rehabilitation. Continuity of care through the entire patient journey and comprehensive provision of support and rehabilitation are essential to delivering a seamless patient pathway and return patients to the best possible quality of life.

CRITICAL FUTURES:
A REPORT ON THE FIRST WAVE SURVEY

What is *Intensive (aka Critical) Care Medicine*?

Intensive Care Medicine (ICM) also referred to as *critical care medicine*, is a body of specialist knowledge and practice concerned with the treatment of patients with, at risk of, or recovering from potentially life-threatening failure of one or more of the body's organ systems. It includes the provision of organ system support, the investigation, diagnosis, and treatment of acute illness, systems management and patient safety, ethics, end-of-life care, and the support of families.

In this report ICM is used to refer to the training programme and *critical care* for the wider services.

What is *Critical Futures*?

Critical Futures is a long term project commissioned through the Faculty of Intensive Care Medicine. Its aim is to take forward a suite of work streams that analyse and respond to anticipated changes and pressures on critical care and related services. This first report analyses the findings of a first wave survey among the critical care community and details a number of recommendations for projects that will begin to address the issues raised in the survey and consider potential solutions.

Why was a survey and report commissioned?

Intensive Care Medicine is a specialty in evolution. Before the 1990s, hospitals had 4 to 8 bedded areas where the very sickest patients were managed; systems and treatment pathways were very variable. The introduction of ICM training and national standards, consultants in ICM, and greater involvement of ICM outside the unit with outreach services have changed the service dramatically over the last 30 years. Combined with the recognition and acceptance by referring clinicians that early response to deterioration (made easy to recognise by early warning scores and track and trigger systems) results in improved patient outcomes, these cultural shifts have led to an explosion of indications for and referrals to critical care. ICM has become an integral part of the pathway for an increasing number of patients.

In the late 1990s ICM hit crisis point. Patients were being transferred between hospitals for reasons unrelated to need, rather due to the lack of beds to meet demand. This was the trigger point for a step change in critical care services. Following the Audit Commission's report into critical care services 1999, Comprehensive Critical Care (CCC), published by the Department of Health in 2000, introduced the concept of 'critical care without walls,' a service responding to the needs of critically ill patients throughout the hospital. It recommended more critical care (CC) beds, opening more High Dependency Units (HDU), the development of CC outreach teams and hospital wide critical care delivery groups. Aided by the accompanying £140M, we have seen a dramatic positive change in care for the sickest patients in our hospitals.

But where are we going next, and what is the future for ICM? Research was undertaken via a survey designed by a multidisciplinary group. Rather than offering specimen answers responders had a blank space to give their unprompted thoughts. Over 500 members of the ICM community did just that and we are grateful to them for taking the time and caring enough about our specialty to want to influence its future.

This is a distillation of those thoughts. There were a number of strong messages about the place we feel critical care occupies in our hospitals and the challenges we face in delivering the service. ICM is seen as a very rewarding career by many who strive to produce good patient outcomes. Critical care teams are seen as one of the most supportive environments in hospitals and it is vital that we look after our workforce.

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1 EXECUTIVE SUMMARY

"Critical care is the bastion of patient safety and is essential for the safe management of all sick patients within the hospital. The ICU consultant is the de facto senior opinion for all issues on sick patients in many hospitals."

1.1 Report commentary

Quality Improvement programmes such as the National Emergency Laparotomy Audit (NELA) have demonstrated starkly that we are used to managing with what we have in the NHS. Whilst acknowledging that international comparisons are difficult because the way CC services are delivered and defined differs between countries, it is recognised that the proportion of hospital beds devoted to critical care in other countries is significantly greater than in the UK. Thus it was accepted that when most emergency laparotomy patients are returned directly to ward based care, 30 day mortality rates exceed 15%. However, the NELA, which includes critical care admission for these vulnerable patients, has reduced this mortality to 11%. Similarly many acutely ill medical patients not admitted to CC have a higher mortality than those who are admitted[2].

Are we commissioning the right services?

A critical care bed is expensive and there has been limited expansion in the face of growing need. Lack of beds, consultants, resident medical staff, nurses and AHPs, has led to intensivists reluctantly acting as gate keepers to the service. Major elective surgery is cancelled to make way for emergency cases when all patients are equally deserving. This lack of capacity was vividly portrayed in the BBC's documentary series "Hospital", first aired on 11th January 2017. It was also covered in a report by The Guardian newspaper at the beginning of February 2017. We need a new model of delivery for critical care that ensures all patients who need a higher level of monitoring, nursing, and more frequent medical review than is available on a ward are able to access that care.

Guidelines for the Provision of Intensive Care Services (GPICS) clearly defines what is required to deliver a safe and high quality critical care service. Many use this document to justify investing in CC to managers and commissioners however, at a time of public sector austerity, it is seen as unachievable by others and a threat to their unit. It is however clear that standards documents like GPICS must be aware of and responsive to the requirements for all types of critical care units and their unique successes and struggles. **Recommendation 2** recognises this need. GPICS has been instrumental in taking the specialty forward, primarily by providing a clear template which allows clinicians, managers and commissioners to understand where investment is needed when considering reconfiguration of acute hospitals. Our workforce engagement programme clearly indicates that where service reconfiguration included consultation with CC the right patient service has been developed. This engagement is vital and is taken into account in **Recommendation 1.**

Do we have the workforce for future demands?

Most recognise that this is a current issue and is likely to continue. Too few specialty trainees mean consultant recruitment and rota management are difficult and an alternative workforce, either EU and international recruitment for doctors, nurses and Allied Health Professionals (AHPs), or training and employment of Advanced Critical Care Practitioners (ACCPs), has been embraced with many units having links to specific countries; following Brexit and the potential for general reduced immigration, staffing units may become even harder. ACCPs are seen as a way to bolster resident staffing of units but as yet too few are trained. Improving and supporting this new workforce is covered under **Recommendation 8**.

Some anger is directed at the Faculty ("why split ICM training from anaesthesia", "single specialty ICM work is not feasible"), but these comments are outweighed by many more who want to see a broader range of clinicians

attracted into ICM and welcome single specialty training. In the past Anaesthesia had the monopoly on providing intensivists but the increasing presence of both single specialty and consultants with Acute Medicine and Emergency Medicine backgrounds has changed the workforce for the better.

As **Recommendation 6** conveys, we urgently need more specialty training numbers and increased flexibility in training so consultant expansion can occur. Trained doctors produce better results for patients. Specialist training for ICM will continue to make a significant difference, but there are benefits being felt in providing basic training for undergraduates and all doctors in the core programmes of related acute specialties. An increased understanding of critical care can lead to more efficient and considerate patient pathways, the ability to recognise and treat the patient at risk of critical illness thereby avoiding Critical Care admission and a better understanding of what critical care can and cannot do. **Recommendation 5** covers this need for embedding a wider appreciation of critical care beyond the walls of the HDU or ICU. For the benefit of both patients and critical care clinicians there needs to be an exploration of how the care of patients is escalated and what is appropriate. Demand for critical care will continue to escalate if referring clinicians or their often frail and elderly patients have unrealistic expectations or do not feel empowered to propose alternative care options. **Recommendation 10** sets out a view for a cross-specialty approach to realistic medicine and related issues.

Are there enough beds and support services to manage future demand?

We know from Intensive Care National Audit & Research Centre (ICNARC) data that Level 3/ICU bed days are decreasing despite a growing and aging population with higher expectations. This is likely to be associated with a move to earlier intervention as there has been growth in Level 2/HDU beds and admission. A review of current critical care bed numbers is required, with the emphasis on early intervention – see **Recommendation 3**.

Level 2/HDU care was initially seen as plugging the gap between Level 3/ICU and Level 1/ward. A new gap has appeared between Level 2 and Level 1. Many post-operative patients fall into this gap. The large number of local responses to this need (Post-operative Care Units, Level '1+' areas, Enhanced Recovery Areas, step down units etc.) evidence how important it is that a solution to this gap is found. **Recommendation 4** proposes urgent work in this area. As a result, and as detailed in **Recommendation 9**, we urgently need validated and accepted tools to apportion nursing time to these new high care areas. Cross specialty discussions on how these patients are managed medically would strengthen the case for an integrated and safe pathway for acutely ill patients.

How do we measure quality of life following critical care?

A glaring deficiency in the adoption of Comprehensive Critical Care (CCC) is rehabilitation and post-critical care follow up. We have collected mortality data and congratulated ourselves on improved patient survival but we still know too little about the quality of that survivorship or how we can improve it. In 1989 The Kings Fund[4] reported 'there is more to life than measuring death'. There is now a wealth of evidence that a stay in a critical care unit may be followed by severe physical, psychological and cognitive problems and this urgently needs addressing by establishing post intensive care follow up and rehabilitation programmes similar to those available after cardiac and neurological admissions. NICE produced a guideline for this in 2009 (NICE 083) but implementation of this guideline was very variable so in 2017 NICE have now published its Quality Standard for rehabilitation after intensive care.

Is the current situation sustainable?

What about the human cost to those working in the service? Burnout, stress and thoughts of leaving were mentioned by 1 in 5 respondents and this is supported by the FICM 2017 Workforce Census. Nurses too are at risk of leaving an emotionally draining job with a lot of unsocial hours. There remains a lack of recognition of the

additional skills of an experienced ICU nurse. We need to consider how to continue to make ICU nursing an equitable and attractive career, and the NHS need to consider how to enhance the pay of experienced nurses who remain in frontline clinical practice. Increasing public expectations and a reluctance to accept the inevitability of death, the threat of litigation, and a culture looking to apportion blame in a high stakes specialty, is making some question whether ICM can ever be a lifelong career[5]. We need to consider how to ensure it remains a sustainable specialty (see **Recommendation 7**).

We have come a long way. We are a recognised specialty in our own right, with representation at the Academy of Medical Royal Colleges (AoMRC), and a clear vision of our future. It is up to the Faculty, its sister professional organisations, networks, government agencies and, equally importantly, the critical care community itself, to work to deliver that future.

1.2 Report Outcomes

The survey summary above presents us with a number of interlinking concerns, which are presented in the diagram in Appendix 4. The Faculty has put forward a series of recommendations to take forward, some under the continuing banner of *Critical Futures*. These are presented in Section 2 below.

- Resolving the **workforce** issues will lead to a workforce that is big enough to manage future demand and sustainable enough to continue long-term.

- Resolving the **standards** issues will lead to a specialty that has the appropriate educational standards to both ensure patient safety within critical care and produce better understanding of patient needs and service demands beyond critical care. It will ensure national standards remain responsive to the varying requirements of different types of units.

- Resolving the **commissioning** issues will ensure that critical care and the sickest patients in the hospital are at the centre of reconfiguration discussions. Providing an appropriate number and type of critical care beds, along with improved recognition and management of the patient at risk of critical illness, will deliver a high quality, cost efficient service.

- Resolving the **demand** issues will ensure that the increasing pressures on critical care services can be appropriately managed, with more effective use of these services.

- Resolving the **quality of life** issues will mean both patients and their clinicians are able to get the best they can from critical care.

2 RECOMMENDATIONS

This section covers the key principles that have arisen from this piece of research as assembled by our writing group. Accompanying each principle (or set of principles) is a clear recommendation of a course (or series) of action needed to address the issues raised.

1

RECONFIGURATION AND COMMISSIONING OF SERVICES

Trusts, Health Boards and Sustainability and Transformation Partnerships (STPs) must include, at the earliest stages, critical care whenever there are discussions about acute hospital reconfiguration.

GPICS should be used as the blueprint when designing new or reconfiguring existing critical care services.

Further work should be taken forward by the critical care community to consider the implications of centralisation of tertiary services and reconfiguration in related specialty areas and their consequent impact on critical care provision.

KEY PRINCIPLES FROM THE DATA

- Intensivists are necessary and key to acute services in hospitals. Any hospital with acute admissions and/or elective surgery for patients with >5% risk of death must have appropriate critical care facilities to support these services.
- Consequently, hospital and service reconfiguration beyond ICM will result in changes to ICM services.
- Regionalisation for specialist ICM care (i.e. neuro, ECMO) optimises patient outcomes. As this regionalisation becomes more common for other clinical areas (i.e. vascular surgery and stroke medicine), the requirements for critical care will need to be considered in conjunction with specialist input from critical care at all stages.
- Guidelines for the Provision of Intensive Care Services (GPICS) are an essential foundation for the design and development of these services. They also underpin the Service Specification and Care Quality Commissioning visiting standards in England.

Dr Jane Eddleston
Chair of the Clinical Reference Group for NHS England

Adult Critical Care underpins all secondary and specialist adult services. Minimum standards for Adult Critical Care are consistent across all services irrespective of case mix. Case mix will determine the nature of core supporting services for individual Adult Critical Care services but there is a minimum set of interdependencies which are detailed in NHS England's Service Specification for Adult Critical Care (D05).

Since 1st April 2013 Adult Critical Care services across NHS England have been required to be delivered through Operational Delivery Network's (ODNs) with services delivered across providers in a pre-determined geographical area. These ODNs support providers with knowledge, expertise and practical support to redesign their services, enhance patient safety, patient experience and partnership working. In addition the ODNs support commissioners in delivery of their commissioning functions, provide peer review functionality and assist in service redesign/quality improvement initiatives which will be pivotal in delivery of Sustainability and Transformation projects.

2

DESIGNING SERVICES FOR ALL TYPES OF CRITICAL CARE UNITS

When standards for service delivery are being written, the needs of all types of units (remote and rural, smaller urban, large tertiary, specialist etc.) need to be considered.

All standards should enshrine best practice and consideration should be given to the various ways best practice can be achieved.

KEY PRINCIPLES FROM THE DATA

- Some remote, rural, smaller and specialist units feel they will continue to struggle to meet a number of the current GPICS standards and its recommendations.
- Although the evidence for centralisation of specialist services is convincing it is not so for general CC.

Dr Chris Thorpe
Chair of FICM Smaller & Specialist Units Advisory Group

Through our group, the FICM is urgently looking at how such units can develop and sustain models of service delivery that deliver safe, good quality care. The group will advise the FICM during the preparation for the first full review of GPICS in 2018 and on the implications any standards will have on smaller, remote and specialist sites.

3

PROVISION OF LEVEL 2 (HIGH DEPENDENCY) SERVICES

There is an urgent need to increase the number of Level 2 beds in order to facilitate early intervention in acutely ill patients and emergency post-operative patients.

KEY PRINCIPLES FROM THE DATA

- Early intervention and admission to HDU/Level 2 is widely recognised in the critical care community as leading to a reduction in Level 3 admissions.
- As Level 3 beds are notably more expensive to maintain, there is a significant cost efficiency here to be explored. However, there are not currently enough Level 2 beds in most units to take full advantage of this.

Dr Anna Batchelor
Getting it Right First Time Lead

GIRFT in ICM is about the right patients getting the right care at the right time and in the right place with a minimum of avoidable complications or unnecessary variation in practice. Not rocket science just the safe, high quality care we would all want for ourselves or our family members.

4

PROVISION OF ENHANCED RECOVERY SERVICES

FICM will commission a work stream with our partners in Perioperative Medicine and Surgery to explore a set of provision standards for Level 1+ services in the postoperative setting, including medical workforce requirements.

KEY PRINCIPLES FROM THE DATA

- Early intervention and admission to Level 2 is widely recognised in the critical care community as leading to a reduction in Level 3 admissions[6] and bridges the gap between Level 3 and Level 1, ward based care.
- A new gap is appearing between Levels 1 and 2 resulting in patients having an extended stay in HDU.
- Cost efficiency is an issue as Level 2 beds are more expensive to maintain than Level 1+.

Prof Monty Mythen
RCoA Perioperative Medicine Lead

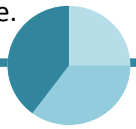
Providing appropriate critical care for surgical patients to enable rapid recovery is still an un-met need. The RCoA perioperative medicine leadership group fully supports this proposal.

5

WIDER TRAINING AND EDUCATION FOR DOCTORS

Support for broad based training should be at the heart of the design of new training programmes. Acute Care Common Stem (ACCS), and other core programmes, need to ensure appropriate training in critical care, which should be a minimum of 3 months in length to ensure a productive training placement.

This extends to undergraduate education, where there is a benefit for all medical students to understand the needs of the patients who require critical care.



KEY PRINCIPLES FROM THE DATA

- There is widespread support for broad based core training schemes such as ACCS, which enable future consultants to better recognise and manage patients at risk of becoming critically ill. It will also ensure that they understand what is achievable in critical care and facilitate better communication with patients and more efficient use of critical care facilities.

Dr Jonathan Goodall
ACCS Steering Group Chair

FICM has always recognised the benefits of broad based training: all ICM training is based around multi-specialty experience. FICM has developed clear training pathways for trainees not only intending a career in ICM, but also for those intending to work in other acute specialties.

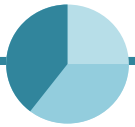
Working closely with groups such as the Intercollegiate Committee for ACCS Training (ICACCST), the FICM will continue to promote ‘multi-specialty’ training. To prepare and plan for the workforce of the 21st century, FICM recognises that such training will need to be incorporated into new curricula for both undergraduates and postgraduates.

6

TRAINEE DOCTORS: RECRUITMENT AND RETENTION

There must be an urgent review of the funding of trainee doctor numbers across the UK in order to secure the future consultant workforce. FICM has data and history to advise Health Education England (HEE) and Home Nation Groups on the areas that need most attention.

In tandem, discussions surrounding work-life balance, on-call, unsociable working and its impact on ICM trainees needs to take place. Consideration of the content of the "Better Working Lives" document, such as travelling times during rotations would also be of benefit.



KEY PRINCIPLES FROM THE DATA

- Current training numbers are not sufficient to provide the future consultant workforce. Most units need to recruit more consultants. Smaller units are likely to feel this pressure greatest.
- Trainee staffing is a serious issue for many units. An over reliance on trainee anaesthetists to staff units has had a big impact on service provision.

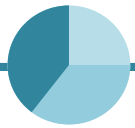
Dr Tom Gallacher
FICM Training, Assessment and Quality Chair

FICM has facilitated regional awareness days where key stakeholders have attended and been appraised of the current and future position of ICM manpower and its likely impact on patient care. We continue to encourage the expansion of ICM training numbers by engaging with HEE, CoPMED and NHS England, as well as via our Regional Advisors and Training Programme Directors at Deanery level. We also fully support HEE's initiatives to improve working lives of doctors. We will improve flexibility in training via the GMC's Accreditation of Transferrable Competencies and by aligning our new curriculum with the GMC's standards for postgraduate curricula. We will reduce the burden of assessment required for trainees

7

CREATING SUSTAINABLE CAREERS

The ICM community, the Home Nations and NHS England must consider how working in acute specialties can be supported as long-term sustainable careers.



KEY PRINCIPLES FROM THE DATA

- An increasing retirement age leaves many wondering how they can continue in ICM with disturbed nights or even shifts until their late 60s.
- Consultant respondents expressed a wish to retire early or drop ICM and revert to their 'second' specialty (usually anaesthesia) for a less stressful life and less out of hours work.
- Exhausted consultants deterring trainees from applying for ICM training was a common comment.

Dr Danny Bryden
FICM Careers, Recruitment and Workforce Chair

From recruitment to retirement the Faculty is working to showcase and support ways to a healthy, fulfilling and lifelong career in ICM. It's doing this by sharing information through the careers section of the website e.g. consultant work patterns for covering critical care, engaging collaboratively with other groups to publicise and support healthy approaches to work e.g. reducing burnout and fatigue, and exploring mentoring and coaching to help personal development at transitional points in a career.

8

ADVANCED CRITICAL CARE PRACTITIONERS

It is essential to recognise the importance of Advanced Critical Care Practitioners (ACCPs) nationally and centrally. The FICM has taken forward a curriculum for ACCPs and a portfolio assessment process. It also provides a home for their professional matters. The profession now needs formal regulation, ideally by the General Medical Council.

Funding for ACCPs must be reviewed. Ideally, funding should come from the same central budget that funds the rest of the medical workforce, to enable ACCP training to be expanded without risk to individual Trust / Health Board finances. Central support should be given for the development of regional training programmes, which would allow consortia of Trusts / Health Boards to share the burden of training programmes and to allow smaller units to benefit from this workforce solution.

KEY PRINCIPLES FROM THE DATA

- There is widespread support for Advanced Critical Care Practitioners (ACCPs) and a desire to train more but many are unsure how to facilitate this.
- Many units do not have the capacity to train ACCPs in-house.
- Funding is currently agreed on an ad-hoc basis and, as the funding is provided by the Trust / Health Board, is provided at risk, as trained ACCPs may move to work in a different Trust from the one that originally funded them.

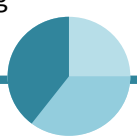
Ms Carole Boulanger
Chair of the National Association of ACCPs

FICM has ensured a clear robust curriculum ensuring a standard level of training, knowledge, skills and competency with the PGDIp ACCP FICM curriculum which also provides clear guidance on supervision and the type of units eligible to train ACCPS. Successful completion of this leads to FICM Associate status for ACCPs a surrogate for regulation for ACCPs. This assures units and Trusts/Health Boards of a clear quality standard. This is reinforced with formal FICM CPD requirements for trained ACCPs. The FICM "will continue to engage with Health Education England on their work on Medial Associate Professionals. It is essential this recognises the higher level that ACCPs work at compared to other similar associate professions and the necessity of this to fill the current workforce gap." This also ensures a clear definition between ACCPs and other advanced roles which have different knowledge, competency and training requirements and would not be a substitute for the ACCP role.

9

NURSE TO PATIENT STAFFING

There is an urgent need for a validated patient activity/acuity tool to determine nurse patient ratios. Consideration needs to be given to the sustainability of the professional role of nurses, the impact immigration controls will have on the ability of hospitals to maintain their nursing establishment, alternative models of nurse staffing (i.e. a nursing assistant) and nursing educational needs (such as Post Registration Critical Care courses). These should be taken forward by the nursing organisations.



KEY PRINCIPLES FROM THE DATA

- Some areas of the country have issues with nurse recruitment. The use of agency nurses leads to lack of continuity, bed closures and potentially less safe care.
- There is no validated method to safely decide nurse to patient ratios.
- Overseas recruitment both EU and non EU supports medical and nurse staffing, immigration barriers could seriously compromise unit staffing.

Ms Angela Himsworth
Chair of the UK Critical Care Nursing Alliance

The UKCCNA are well underway with a piece of work to develop a critical care nursing activity / acuity tool. The UCCCNA in partnership with senior academics are seeking a research development grant from the NIHR to support this research.

10

MANAGING TREATMENT OPTIONS AND END OF LIFE CARE

There is an urgent need to take forward a series of initiatives on End of Life care and escalation of treatment, in conjunction with our clinical colleagues who are also active in these areas.

KEY PRINCIPLES FROM THE DATA

- Personal escalation plans and End of Life care planning are important but infrequently done. National initiatives like Shared Decision Making, Getting It Right First Time and Choosing Wisely should help guide these conversations and may reduce the risk of stress and burnout in clinicians.
- Recognition of frailty and appropriate level of treatment remain difficult, but failing to address these areas will cause needless suffering to patients.

Dr Joe Cosgrove
FICM End of Life Working Party Chair

A proportion of intensive care deaths continue to be associated with severe acute illness in patients with chronic, debilitating co-morbidities; often on the background of prolonged hospital admission. Intensive care involvement is often too late and occurs at a time when patients have lost capacity with time limitations preventing any thorough care planning. Our intention therefore is to lead inclusive, multi-disciplinary discussions on such matters in the next 2-4 years in order to enhance advance care planning.

11

COMPREHENSIVE CRITICAL CARE: THE GAPS

A full review by NHS England of Comprehensive Critical Care (CCC) should be undertaken to monitor where recommendations from this work have not been introduced. Although this work was commissioned through the Department of Health in England, this work should remain of key interest to all four home nations of the UK.

KEY PRINCIPLES FROM THE DATA

- The recommendations from Comprehensive Critical Care are not yet fully implemented.
- Important omissions are 24/7 outreach, adequate follow up, post critical care rehabilitation services and Trust Critical Care delivery groups.
- The without walls concept is now embedded.

Dr Mike Carraretto
Chair of the National Critical Care Networks' Medical Leads Group

The National Critical Care Networks' Medical Leads welcome this report and will use its recommendations to guide further analysis and improvement of the provision of critical care services through our continued work with individual Trusts/Health Boards, local commissioners and NHS England.

12

LIFE AFTER CRITICAL CARE

A key missing element from the CCC recommendations are those related to rehabilitation and follow-up. It is too easy to underestimate the immense benefits to the continuing quality of life for patients that systematic and effective follow up can have. This should be a priority area of research and standard-setting for the critical care community. The community would benefit from engagement from the Department of Health and commissioning groups.

KEY PRINCIPLES FROM THE DATA

- Adequate follow up and rehabilitation remain two of the areas that a number of hospitals are still unable to reliably deliver.

Mr David McWilliams
Consultant CC Physiotherapist, Queen Elizabeth Hospital, Birmingham

Mortality from critical illness is improving, but survivors suffer from prolonged weakness, psychological and/or cognitive impairments, and a reduced quality of life. Recovery may take many months and is often incomplete, with limited access to ongoing therapy or rehabilitation available. Ongoing programmes of rehabilitation following hospital discharge have the potential to provide significant benefit to support both physical and non-physical recovery, reducing the need for secondary care and supporting survivors to return to work. Unfortunately though, services such as these are extremely rare and only available in a handful of centres nationally.

3 METHODOLOGY AND RESPONSES

3.1 Survey

A survey was circulated during 2015 to doctors, nurses and allied health professionals involved in intensive care along with patient groups to find out whether the changes recommended in *Comprehensive Critical Care* had been implemented and to gather views on the future for critical care services as seen by those delivering and receiving it. To avoid guiding respondents to specific answers all questions (except those with a Y/N response) had just a free text area. The questions are detailed in Appendix 1.

3.2 Responses

A total of 511 responses were received, though not all answered every question. See Appendix 2 for graphs on responses.

- The majority of responses came from doctors (mainly consultants)
- The majority were between 35 and 55 years of age
- Some respondents were still working over 65 years
- 57 had an educational role
- 121 a managerial role
- 70 nurses, AHPs or ACCPs responded
- Patients responded and 17 people who had cared for someone who had been in intensive care
- 24 who knew someone who had been a critical care patient

There was a good spread of responses from all areas of the country including the devolved nations. Most worked in general units. The majority of responses were from large units admitting at least one Level 3 patient per day but 42 responses were from units with less than 120 Level 3 admissions per year.

4 FULL COMMENTARY BY TOPIC

This section pulls a series of commonly made points and quotations from the data.

4.1 Configuration of Services, Reconfiguration and Levels of Care

Demand for critical care

Service demand increases year on year, frequently cited causes included:

- Increasing patient numbers
- Increased expectations of patients, relatives and referring clinicians e.g. increased referrals of morbidly obese patients who previously may not have been considered for admission
- Ageing population
- Increased multi-morbidity
- Earlier referral driven by NEWS scoring
- Emergency surgical demand driven (rightly) by NELA
- Elective surgical demand driven by enhanced recovery pathways

This increase in demand is thought to be inevitable; most respondents felt efforts to reduce demand are neither appropriate nor possible.

"There will be a growing need for critical care services, as there is increasing morbidity, increasingly complex surgery and decreased willingness to turn down patients for procedures even at advanced age or with multi-comorbidity. The biggest demand is likely to be in 'level 2' beds, and extension of 'fast-track' intensive recovery, these should be primarily covered by intensivists rather than ad hoc by parent teams."

How services are/should be arranged

Opinions are coloured by current service and resource limitations.

- *"Greater demand on service, but patients admitted at an earlier stage – i.e. before seriously ill (more level 2 patients then level 3)"*
- *"Greater emphasis on level 2 care and prevention of MOF"*
- Many strategies to manage this are either in place or considered, including higher level beds on wards, PACUs, and step down units but few feel there is sufficient capacity to meet this need.
- There was no agreement on who should manage patients needing less than Level 3 care, any reluctance by intensivists is more usually related to resource and capacity rather than unwillingness to manage less ill patients.
- *Some of my older colleagues hide behind "if they don't need intubating nothing to do with me"*
- 83% of respondents felt critical care had a role in post op care- the remainder were evenly split between don't know and no. The rise of perioperative medicine and anaesthetists managing post-op patients is supported, however in general it was felt that wards had become de-skilled at higher level care and whilst education programmes were suggested most felt pooling high risk post-op patients in 'level 1+-2' areas was the future.
- Similarly for medical care there were differing views over medical specialties managing higher level care patients. Intensivists may not always have a realistic view of general ward staffing especially out of hours, which severely limits medical wards ability to manage patients requiring increased medical and nursing input, but there was support for cross specialty working:
    - If onwards, then with uprated nurse staffing numbers 1:3 or 1:4 quoted
    - Home teams to take primary responsibility
    - Home team with formal critical care input

    - Use of acute physicians/perioperative medicine people
    - For post op care peri-operative medicine focused anaesthetists
    - Some suggested geographically close to the CCU
- The view especially from larger units is that care for Level 1+ and above will fall on critical care, smaller units worry they do not have sufficient staff to take this on.

Levels of care

Levels 1-3 are well established in critical care but many felt that they don't really meet today's needs. They have some utility with respect to nurse staffing but don't accurately reflect workload. The recognition of the benefit of higher levels of medical nursing input in high-risk post-operative care and acutely ill medical patients now demands a more nuanced approach. Several suggestions were made including:

- EoL patient category
- Level 4 requiring specialist care in specialist environment with 24/7 senior medical input
- Level 3 requiring 24/7 senior medical input
- Level 2 requiring twice daily medical review
- Level 1 requiring daily medical review with possibility of 1* for enhanced nursing needs

Optimal numbers of beds in a unit.

- The *"number I currently have and can cope with"* was the most common response.
- There was also support for pods in larger units to have a team caring for 8-12 patients
- mixed HDU/ICU up to about 20 beds, not less than 10
- 7 per 100,000 population
- Units with less than say 10 beds may be difficult to sustain in the long term
- The number of beds should be tailored to the size of the clinical team. Ideally, a clinical team (nursing, medical, allied health professions) would look after a block of around 8 to 10 beds, with a mixture of Level 2 and Level 3 patients.
- Feels like big is better - i.e. 20+ gets you into economy of scale territory
- Depends on where it is and what the local requirements are. There are geographical/transport issues which vary from the conurbations to the remote setting.
- Depends on the service being offered but probably a minimum number of beds is necessary to maintain skills
- Flexibility is the key

Reconfiguration and centralisation

Is the apparent move to more specialist services in fewer hospitals the way to develop critical care services?

Of the respondents, 71% answered the question: 45.1% answered yes, 31% no and 23.9% don't know.

With no consistent common position on this, a wide range of views were expressed including:

- Centralisation for specific diseases if volume: outcome suggests beneficial
- In absence of transfer system centralisation not possible
- Closure of small units
- Lack of finance thought to be driving unpopular reconfiguration
- Local clinical, patient and political pressure to keep services local against the financial/clinical advantages of centralisation
- Dependency of other services on critical care availability
- Domino effect of reconfiguration of other services e.g. if renal services move then ICM has to fill the gap
- ICM not always considered as other services reconfigured

- Clinicians not involved in discussions leading to anxiety
- GPICS standards unachievable in some units
- Larger regional units favoured by a few
- Larger units with hub and spoke networking

Views on reconfiguration varied widely and are often coloured by unit size, bigger units are more likely to support centralisation and smaller units to defend their good outcomes despite the challenges. Difficulty of recruitment of medical and nursing staff can mean it is difficult to meet GPICS standards, several units concerned this will be used as an excuse to shut them down. A "them and us" attitude was clear from some.

"Teaching hospital consultants need to actually go to DGHs to see how the other half live. This will lead to more equity of resources."

A few suggested standardisation of care through regionalisation and closer networking would lead to more efficient high quality care.

"Increasing centralisation for specialist care such as vascular, hyper-acute stroke and heart attacks requiring improved coordination between critical care services within clinical networks."

Paediatric critical care centralisation is now resulting in a move back to a more distributed service, several commented it is important we learn from this and not repeat that mistake in adult ICM.

Small or remote units
Smaller, more isolated acute hospitals may need additional ICM support: acute medical admissions or higher risk surgery mandate critical care support.
A number of potential solutions were highlighted including:

- Satellite units
- Consultants split across a big and small unit
- Telemedicine
- Transport services

"Patients deserve high standards of care wherever they are, it will be a challenge for purchasers, providers and specialist societies to establish how this can be done."
There is unlikely to be a single solution but collaboration could lead to shared solutions. Responders thought that the problems were often placed in the too difficult box and clinicians were just left to cope or criticised for failing.

Telemedicine
Telemedicine brought out very strong opinions: about half were opposed, about 30% thought it could have a place and the rest didn't know.

- *"Nothing beats bedside presence of a competent clinician"*
- *"Support of smaller more remote units by larger central units"*
- *"Facilitates consultant cover of multiple sites"*
- The deficiencies in NHS IT and the cost of implementation were key concerns along with concerns about the loss of the personal touch for patient and families
- If the practicalities could be overcome, its use for remote, difficult to staff units along with the provision of specialist advice in a hub and spoke arrangement had the most support

4.2 Medical workforce

Almost all (450/511) reported that workforce was a limiting factor in meeting increasing demand for critical care: rota gaps, weekend and night cover with a small pool of consultants, constant demands to balance emergency and elective workload leading to a high degree of frustration and the sense of a service struggling along in an under-resourced environment were all highlighted as issues.

Consultants

- Most units would recruit more consultants if there were suitable candidates and funds available
- As service demand increases consultant supply is lagging behind
- Consultants approaching retirement or wanting to stop overnight working and no available trainees to recruit
- Concerns that ageing consultants will drop ICM and revert to their "other" specialty
- Burnout and leaving specialty early
- Whilst others felt there were too few opportunities for non anaesthesia/ICM consultants
- *"Over reliance on trainees from an anaesthesia background; lack of opportunities for consultant appointments to hybrid ICM/other specialty that does NOT involve anaesthesia"*
- Offered the option of a 24/7 consultant delivered service without trainees. Only 5% of responders were in favour and 67% opposed
- Some were prepared to work with ACCPs and without trainees if that became necessary

Trainees

Unsurprisingly no responders had too many trainees. All felt an increase in training numbers was urgent to staff rotas now and supply consultants for the future.

- Support for broad based training and generalism and the benefit of working in critical care for all trainees
- Many suggested that referring specialties (medicine, surgery, even orthopaedics) should supply trainees to staff rotas without recognition that other specialties are in similar if not worse difficulties
- Changes in ICM training seen by some as lengthening training and reducing trainee enthusiasm for specialty leading to reduced supply of CCT holders, (this is contrast to the healthy number of applicants for ICM ST3 and the almost zero dropout rate of specialist trainees
- A few, predominantly from smaller units (120 admissions/year) would like to make ICM training easier or to *reunite anaesthesia and ICM* to ease consultant staffing
- *"We need all doctors in training to undertake a period working in critical care. This fits in with the Shape of Training Review. We are treating generic problems and can provide the right trainer: learner ratios. Once trainees have undertaken a 6-month period in critical care, they are better equipped to work in the rest of the hospital managing acutely unwell patients. It also means that those moving to work in GP afterwards understand what CC can and can't do. This will help with links to the community and GPs facilitating discussions about end of life and ceilings of care."*
- *"Changes to medical staff training to facilitate a culture of 24/7 working, less specialisation at early stage to provide wider range of medical staff capable of looking after acutely ill patients without having to refer to numerous (sub) specialties."*

ACCPs

Within the responses, 389 referred to ACCPs, PAs or nurse practitioners, and most were positive. In general respondents see the use of ACCPs as the next step in supporting gaps in medical rotas and deficits in the number of doctors in training. There is however a clear caveat that the use of ACCPs is only an option with robust training, supervision and governance

- *"Develop the role of Advanced Practitioners - these are invaluable in Paediatric Practise"*
- *"Development of a practitioner programme and massive investment in this (still novel) role"*
- *"More support from advanced nurse practitioners - 7-day support."*
- There is however an opposing view offered by a small number, stating that advanced roles are not working and should not be seen as the answer to the gaps in medical staffing
- It's also acknowledged by some that by taking nurses to fill gaps in medical staffing, this creates problems for nurse staffing and the ACCP role is not necessarily seen by nurses as attractive option in terms of career pathway

Nurses
There were 420 responses which referred to nurses, and 73% thought there was a need for change; most of these responses were from doctors.

- ***Nurse patient ratios***
- Some respondents see fixed ratios of nurses to patients as too rigid and would like to see greater flexibility
- Others believe the fixed ratios protect nursing establishments and prevent nursing posts being used as cost improvement savings, which will lead to unsafe staffing
- Concern that the existing nurse staffing model is unsustainable in the current financial climate
- Recognition the increasing complexity of patients has a direct impact on nursing resources and it's not uncommon for patients to need greater than 1:1 nursing input
- Recognition that the shift towards large critical care units with multiple single rooms has created challenges for safe and flexible nurse staffing
- Greater use of **support roles** such as Healthcare Assistants; Ward Clerks; Technicians was seen by some as the next step in developing the MDT releasing skilled nursing staff to focus on care delivery. This will require robust training, competence assessment and governance arrangements
- The introduction of a **robust national dependency scoring tool** to predict staffing required which also identifies skills required rather than just a head count could assist with more accurate workforce planning

4.3 Communication with Patients and Other Services

Although there were no specific questions relating to communication with patients, this subject naturally came out from the responses to other questions. From the participants in the survey, there were five respondents who had been a patient in Critical Care, four of these were also either nurses or doctors the fifth did not answer anything else.

- Experience on the other side of the bed changes one's views
- Closer monitoring on wards, earlier recognition and intervention becomes important when you have insight to your condition
- The value of skilled bedside nursing was highly rated
- Two commented on ensuring the care provided was appropriate, recognised dying and managing it in the right place
- *"We need specific areas for limited care with an emphasis on palliative care and experienced trained staff to provide this care in a Holistic environment. Also more resources to provide this at home. Compulsory planning for all patients as to what treatments and interventions are appropriate*."

End of Life Care
This came out really strongly in the responses.
FICM is convening a small group specifically to look at how critical care tackles the issue of EoL care.

Public education
There was general support for a concerted publicity campaign to better inform the public about the limits of treatment, how some patients will not benefit from critical care and to reframe the discussion about death and dying.

"….Greater education of the general public. Currently there is misinterpretation by some (inside and outside of the profession) that a DNAR form implies cessation of treatment. There needs to be TV ads / programmes explaining how CPR and escalation to ventilation in Critical Care is not only inappropriate in certain cases but also cruel."

Healthcare professional education
Non-critical care teams may benefit from improved understanding of the limitations of critical care. This should start in medical school and continue throughout postgraduate training and into consultant life.

Communication with primary care
Advanced planning in the community with improved communication between primary and secondary care was thought to be an important aspiration.

"….need more decisions in the community to stop patients with DNARs receiving inappropriate treatments in hospital through lack of communication between professionals or a failure to involve the patient…."

Expansion of services
There was general support for expansion of palliative care services: this could include inpatient and outpatient services and consideration should be given to "critical care at home" as a means of facilitating discharge to die in the community.

End of life care areas in hospitals
There was some support for end of life wards / ward areas although there was an acknowledgment of the need to understand the health economic case and the hospital flow etc. to be able to operationalise this: how big should the ward be; what happens with empty beds; how can this be practically operationalised)

"…we need to make sure we can look after patients such as this in a lower tech environment but still for many in a CC area (e.g.) trachey etc. .... "

Decision-making
A large number of respondents expressed the need for active decision-making about DNACPR on hospital admission for all admissions. The importance of having critical care teams provide input into ward-level decisions about futility / end of life decision-making (as a separate responsibility to palliative care teams) was also highlighted.

Research opportunities
A number of respondents called for improved risk prediction tools, especially the need to be able to predict morbidity after CC and longer-term outcome as well as the currently used usual measures of inpatient or CC mortality/ length of stay.

" Realistic chance of surviving' is a very subjective assessment, especially at the time of first assessment by critical care….."

"I think we need to have a system where we look at predictive models - long and short term patients - where we integrate psychosocial support early"

"Development of consistent criteria/ processes for admission and futility would help both in determining the need for admission and the decision to withdraw treatment"

Words of caution
Some caution was expressed about this general area, particularly that intensivists may have a narrow view of the bigger picture and over-estimate the scale of the issue:
"…We need to be careful, the majority of patients do and will continue to die without the involvement of CC. The question implies that we are being overwhelmed by such referrals, the reality is that we are not, a few anecdotes over coffee at morning handover should not dictate policy…."

Concerns were raised that this area of work might be driven by resource constraints rather than patient best interest.

"I would be very worried by any attempt to reduce admission of patients on grounds of 'improved utilisation' "

4.4 Achieving Comprehensive Critical Care

Participants in the Survey were asked to consider the recommendations made in *CCC* and to give a view as to the continuing appropriateness of these recommendations in the current operational and clinical circumstances 15 years after *CCC* was published.

Responders were self-selecting and not necessarily representative of all staff working in critical care. A few never agreed with some of the recommendations made in *CCC* from the beginning. A number were not practicing in critical care at the time *CCC* was published and therefore have little first-hand knowledge or experience of the background situation within intensive and high dependency care that generated the need to produce the work.

Nevertheless, with these caveats, it is clear that many of the recommendations have been widely adopted and in the opinion of many respondents, remain relevant to current intensive care practice and organisation.

Outreach services
Overwhelmingly (245 out of 339 responses) are still relevant and have been implemented in the majority of hospitals.

- Not all are full-time services with lack of resource most likely reason for part time, usually day time only provision.
- Outreach is rare in Scotland.

Transfers for non-clinical reasons
Non clinical transfers are avoided if possible

'Follow-up' clinics
67 out of 335 respondents believed that follow-up clinics are not well implemented, because of doubts about the strength of the evidence base and lack of resources.

Information and support
For patients' relatives and carers, 274 out of 315 respondents thought there was sufficient information and support available. Only two felt that this is no longer relevant and may be only partially achieved.

Rehabilitation services
This appears to be the area in which the least progress has been achieved despite a NICE clinical guideline (CG83) published in 2007 and updated in 2017. Respondents felt this was due to:

- Poor resourcing and staff
- a lack of coordination – especially outside the Unit
- perceived lack of evidence are all seen as problems

Staffing and Training
There is continuing wide support for recommendations made in *CCC* with particular emphasis on:

- Importance of all medical staff working in critical care areas being trained in intensive care medicine
- All consultant medical staff holding competencies recommended by the Faculty of Intensive Care Medicine (FICM)
- Support for greater flexibility in the use and training of staff so long as this is not interpreted as signalling a move away from existing practice regarding staff / bed ratios

Therapy staff
Increased involvement in dedicated critical care training is supported but this has been poorly implemented. One comment, at least, drew attention to the difficulty in integrating therapy staff into critical care training as they do not always work exclusively within critical care.

Support staff
Poor availability of support staff such as dieticians, pharmacists, physios as well as secretarial is highlighted. A lack of resources is cited as the most significant reason.

Organisation and Service Delivery

- The development and use of beds flexibly has been welcomed and appears to have been widely adopted (245 v 74)
- Networks are seen as largely helpful although implementation has been patchy in some areas; networks have not been adopted in Scotland
- Delivery Groups (CCDGs) within individual hospitals are seen as largely a waste of time in many Trusts/Health Boards, they are seen as being little more than talking shops. Overall responses suggest this is one area which appears to have been poorly implemented
- Bed Managers taking greater responsibility for critical care beds is widely criticised and poorly applied in practice
- However the involvement of Bed Managers has been a success in some locations, this is most likely to be successful at sites with a large number of beds (60+) but overall they are regarded as unhelpful and their involvement was described by one respondent as "*frankly terrifying"*
- Integration of the independent sector in critical care delivery seen as having been poorly adopted, although it is not clear how many independent sector providers do have meaningful critical care facilities

APPENDIX 1: REFERENCES AND DEFINITIONS

REFERENCES

1 ICS Levels of Critical Care for Adult Patients, ICS, 2009

2 Intensive Care Med. 2010 Oct;36(10):1772-9. doi: 10.1007/s00134-010-1933-2. Epub 2010 Jun 9

3 2017 NICE have now published its Quality Standard for rehabilitation after intensive care.

4 KingsFund. Intensive care in the United Kingdom; a report from the Kings Fund Panel. Anaesthesia 1989; 44: 428–3

5 Perceived Non-beneficial Treatment of Patients, Burnout, and Intention to Leave the Job Among ICU Nurses and Junior and Senior Physicians
Critical Care Medicine: March 2017 - Volume 45 - Issue 3 - p e265–e273

6 Stenhouse C, Coates S, Tivey M, Allsop P, Parker T. Prospective evaluation of a modified Early Warning Score to aid earlier detection of patients developing critical illness on a surgical ward. British Journal of Anaesthesia 2000; 84: 663p.

DEFINITIONS

GPICS	Guidelines for the Provision of Intensive Care Services: A set of national provision standards produced by the Faculty jointly with the Intensive Care Society and endorsed by 17 other professional organisations.
Level 1 / ward[1]	• Patients recently discharged from a higher level of care • Patients in need of additional monitoring/clinical interventions, clinical input or advice • Patients requiring critical care outreach service support
Level 2 / HDU[1]	High Dependency Unit: • Patients needing pre-operative optimisation • Patients needing extended postoperative care • Patients stepping down to Level 2 care from Level 3 • Patients receiving single organ support • Patients receiving basic respiratory support • Patients receiving basic or advanced cardiovascular support • Patients receiving renal support • Patients receiving neurological support • Patients receiving dermatological support
Level 3 / ICU[1]	Critical Care Unit: • Patients receiving advanced respiratory support alone • Patients receiving a minimum of 2 organs supported
CCC	Comprehensive Critical Care: A 2000 Department of Health review of adult critical care services which made a number of recommendations.

APPENDIX 2: SURVEY QUESTIONS

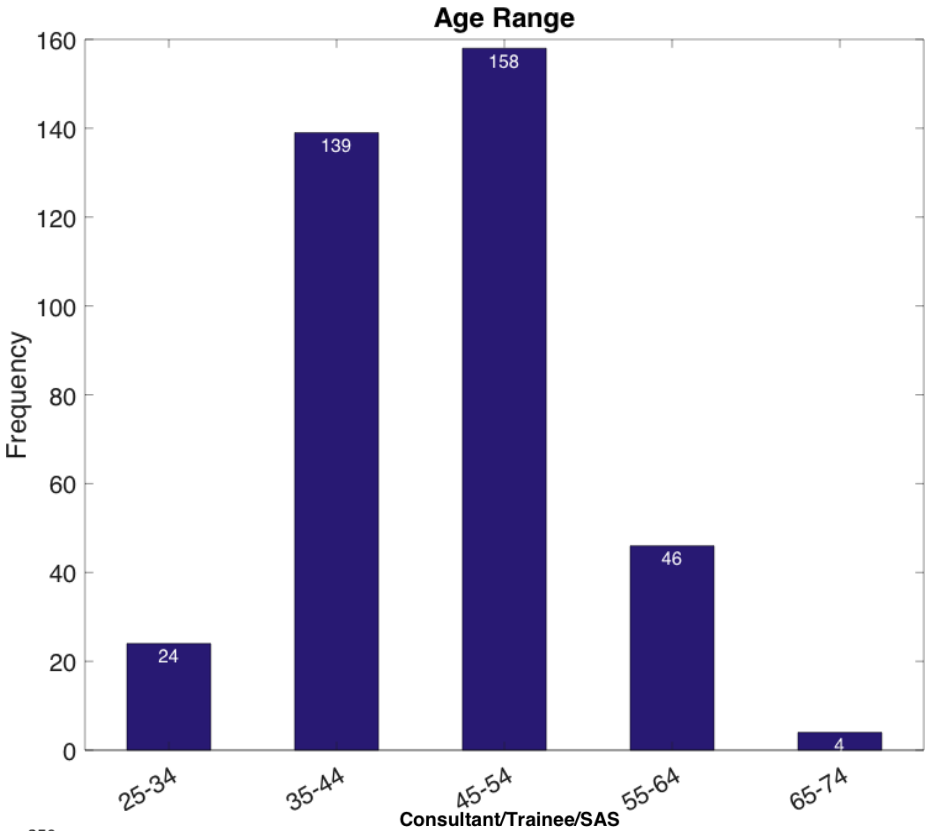
1. What is your vision as to how critical care services will change in the UK over the next 10 years?
2. What do you perceive to be the potential benefits and challenges associated with this future model?
3. What particular pressures for change do you anticipate occurring locally over the medium term (5-10 years)?
4. What local strategies are being developed or considered to meet these anticipated changes?
5. What can be modified to improve the utilisation of critical care such that patients without a realistic chance of surviving are not necessarily cared for in C but the care towards their death is managed optimally in the environment of their choice?
6. There is a risk that changes to the critical care service delivery model will result in a proportion of acute hospitals not having trainee medical staff. What impact do you feel this will have on the critical care workforce and on the delivery of safe and effective care to patients (if any)?
7. What changes do you feel will be required to provide a critical care medical workforce that will be able to meet service needs in your region/hospital?
8. How will you provide a 24/7 service by consultants trained and experienced in ICM?
9. Do you feel the nursing workforce needs to change to meet the needs of future models
10. Are there alternative staffing models for critical care beds that will ensure that demand can be met whilst ensuring effective and safe patient care? Please elucidate.
11. Do you feel that the 'Levels of Care' (CCC, Department of Health 2000) descriptors remain appropriate?
12. What is the optimal configuration of a critical care service?
13. Is there a minimum number of beds to make a viable critical care service in terms of bed numbers /patient acuity and activity?
14. Is the apparent move to more specialist services in fewer hospitals the way to develop critical care services?
15. What is likely to be the role of telemedicine in the future delivery of critical care services?
16. How should "Level 1+" (Enhanced Care) patients be managed? Where and by whom?
17. Is there a role for critical care services in managing surgical patients in the post-operative period?
18. Should intensive care have a wider role in managing seriously ill patients throughout the hospital?

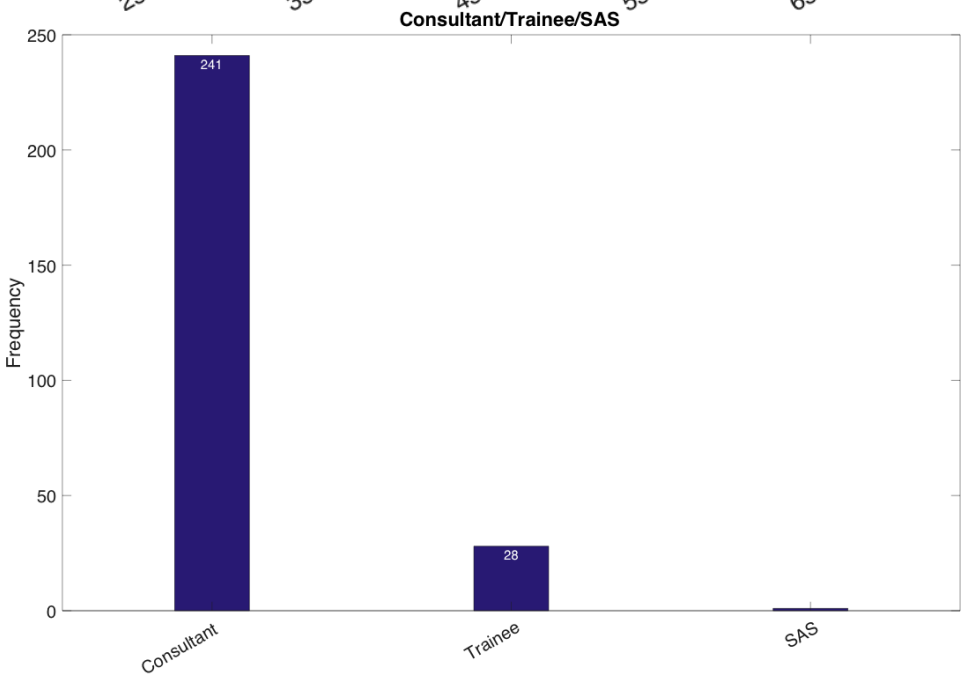
19. How can we reduce the demand for critical care?

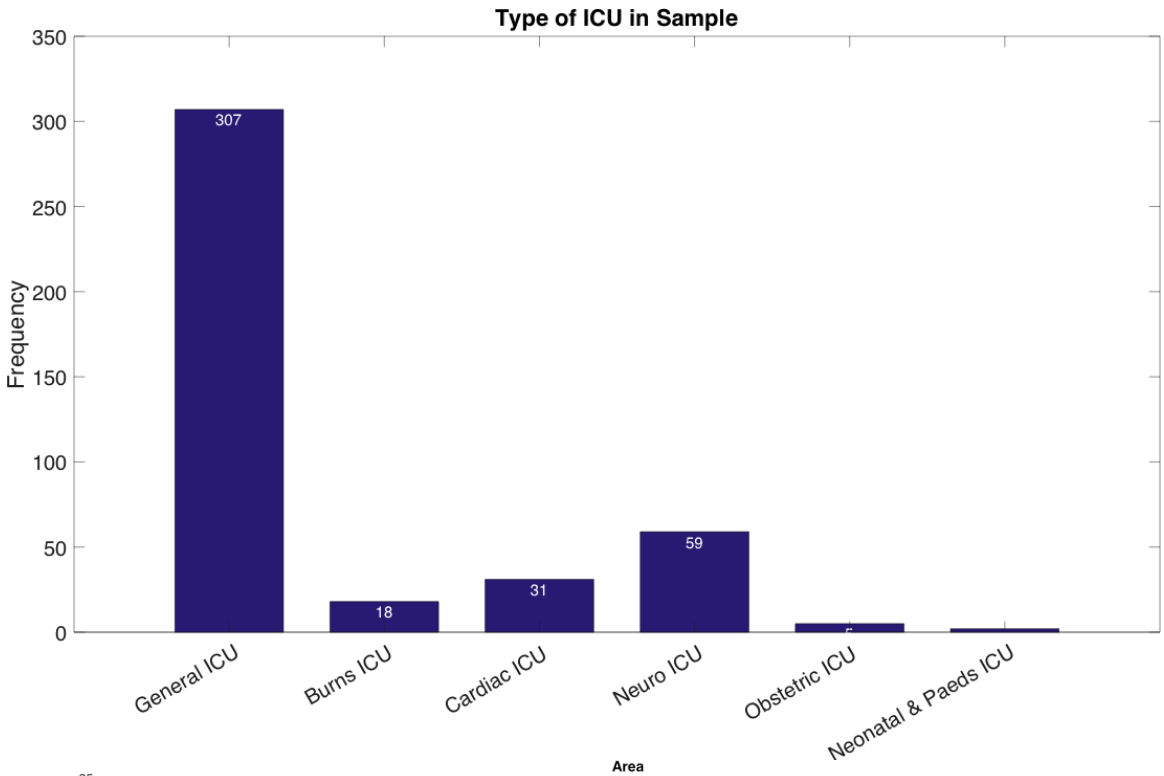
20. In each case respondents were also asked if they felt these Comprehensive Critical Care recommendations were still relevant in critical care.
    A. Do you have an outreach service?
    B. Do you have a follow up service?
    C. Are transfers out for non-clinical reasons within network?
    D. Do you have relative support services?
    E. Do you think a rehabilitation service is essential and why?
    F. Do you have flexible staffing?
    G. Do you have trained intensivists?
    H. Do all consultants have FICM competencies?
    I. Do you have appropriate support staff?
    J. Are therapy staff involved in development of training?
    K. Is the infrastructure of critical care developed and expanded to support a 24/7 service?
    L. Are level 2 & 3 beds used flexibly?
    M. Do you have a Trust Wide Critical Care Delivery Group?
    N. Do you have services for surgical patients requiring more than ward based care?
    O. Is there a bed manager with responsibility for critical care?
    P. Are you part of a critical care network?
    Q. Are there any private providers in your network?

21. Demographic data
    A. Job title
    B. Any additional roles held
    C. Age band
    D. Size and type of unit
    E. Region worked in

APPENDIX 3: RESPONDENT DATA






Type of ICU in Sample
Frequency
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300
250
200
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100
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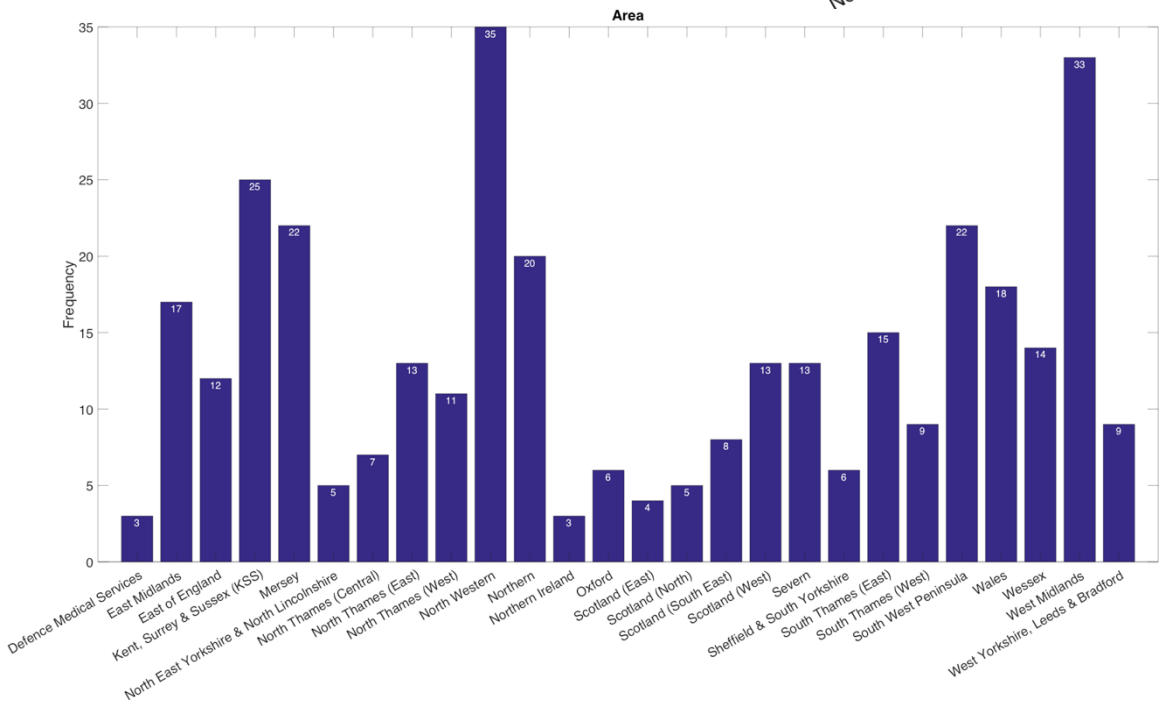
0
307
18
31
59
General ICU
Burns ICU
Cardiac ICU
Neuro ICU
Obstetric ICU
Neonatal & Paeds ICU


Area
Frequency
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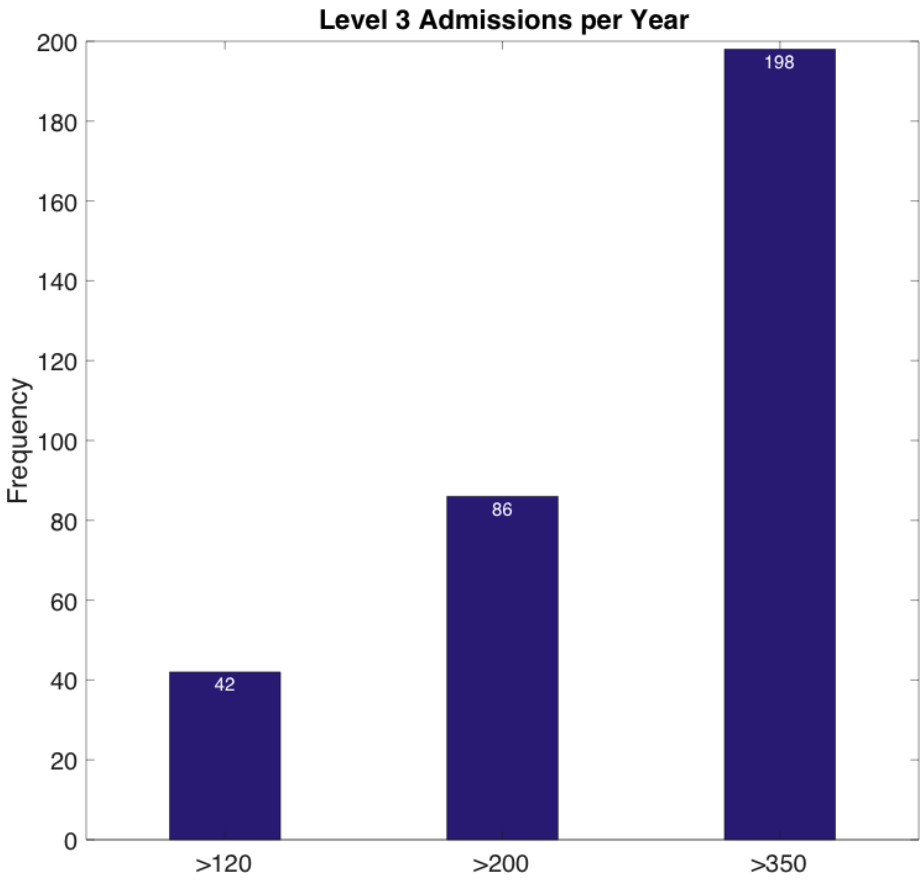
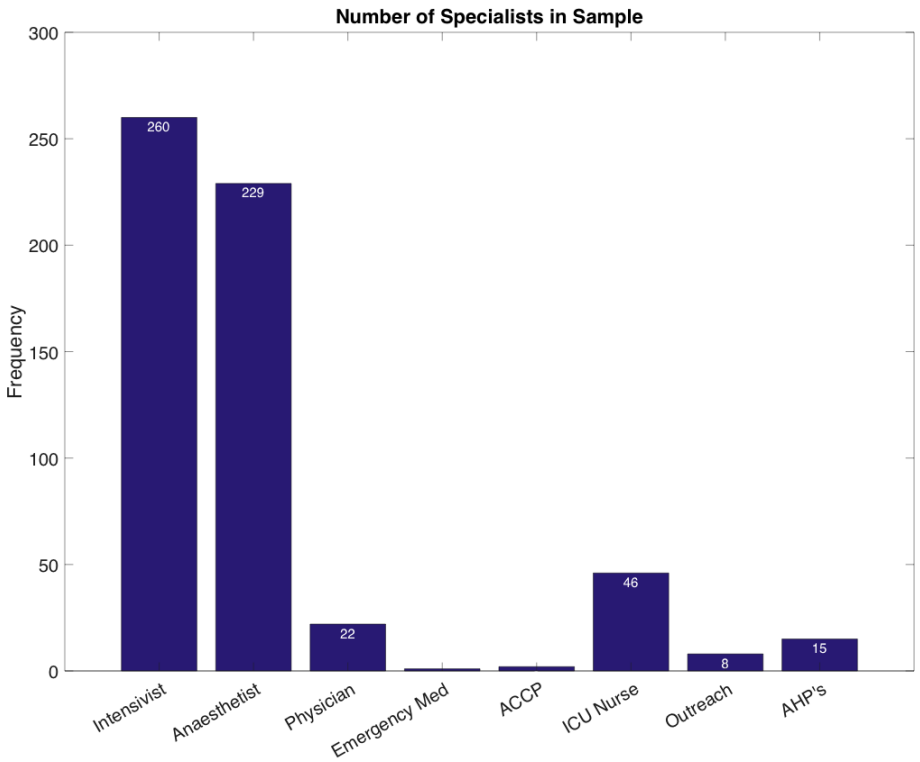
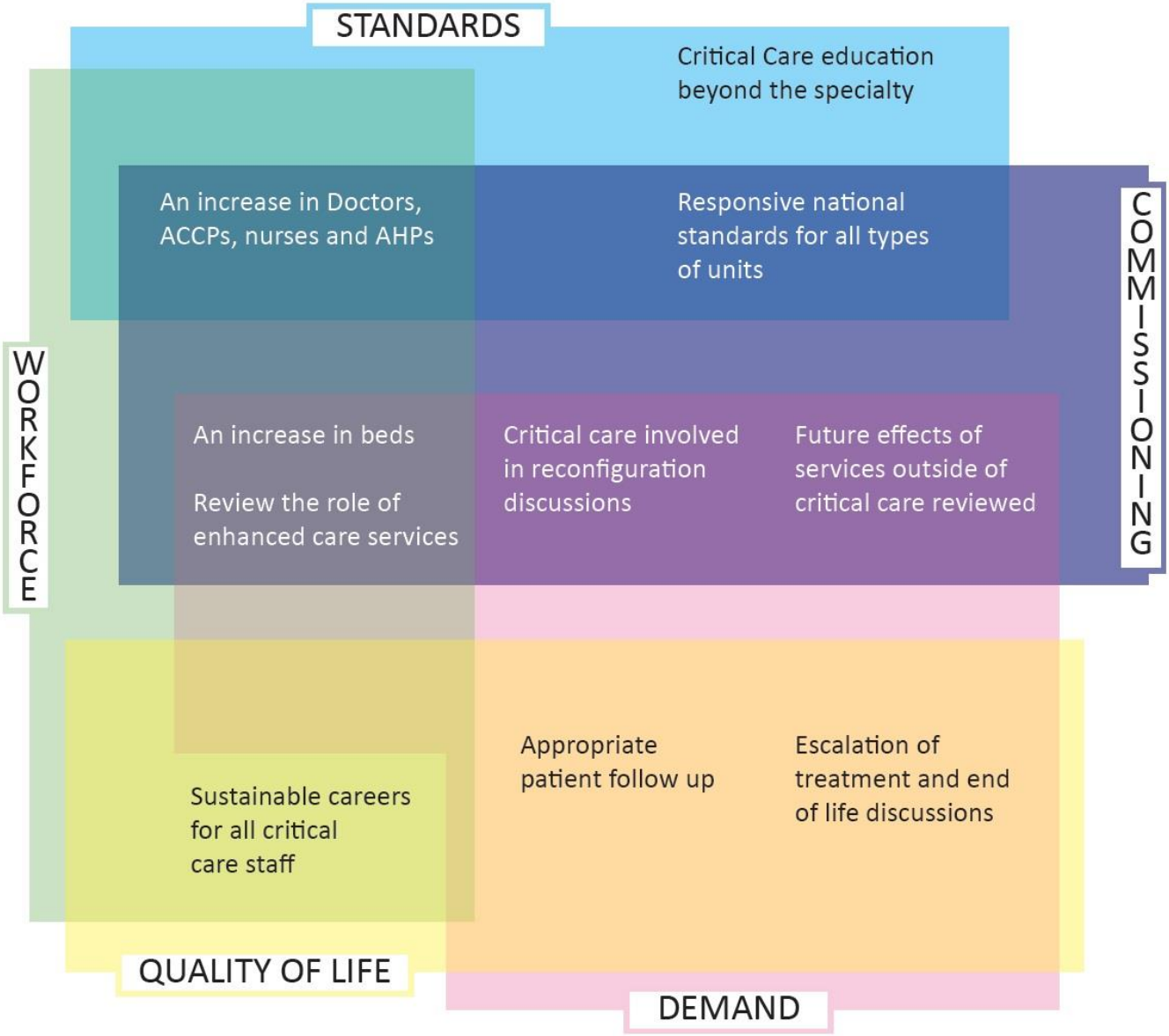
30
25
20
15
10
5
0
3
17
12
25
22
5
7
13
11
35
20
3
6
4
5
8
13
13
6
15
9
22
18
14
33
9
Defence Medical Services
East Midlands
East of England
Kent, Surrey & Sussex (KSS)
Mersey
North East Yorkshire & North Lincolnshire
North Thames (Central)
North Thames (East)
North Thames (West)
North Western
Northern
Northern Ireland
Oxford
Scotland (East)
Scotland (North)
Scotland (South East)
Scotland (West)
Severn
Sheffield & South Yorkshire
South Thames (East)
South Thames (West)
South West Peninsula
Wales
Wessex
West Midlands
West Yorkshire, Leeds & Bradford


Level 3 Admissions per Year
Frequency
200
180
160
140
120
100
80
60
40
20
0
42
86
198
>120
>200
>350


Number of Specialists in Sample
Frequency
300
250
200
150
100
50
0
260
229
22
46
8
15
Intensivist
Anaesthetist
Physician
Emergency Med
ACCP
ICU Nurse
Outreach
AHP's

APPENDIX 4: REPORT OUTCOMES DIAGRAM

This diagram places all the key recommendations into a matrix to depict the interconnectivity of the recommendations and how they are all part of a bigger solution.