North of England

NHS England (Y&H Region)

Major Contingencies - Guidance for Critical Care Escalation

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Prepared by the West Yorkshire, North Yorkshire & Humber and North Trent Adult Critical Care Operational Delivery Networks on behalf of NHS North of England (Y&H region)

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Contents

This document supersedes the Yorkshire and the Humber Adult Critical Care Escalation Framework (2013)

Escalation Framework for Adults and Children in Adult Critical Care Units

1.0 Summary

The principles of a Yorkshire & Humber (Y&H) Critical Care escalation approach are based on NHS England management of surge and escalation in Critical Care Services: Standard Operating Procedure for Adult Critical Care (2013)[1]. These include:

- An Integrated model
- Management of Yorkshire & Humber critical care capacity as a single entity
- Aim to deliver equity of access across the region whilst recognising discrete conurbations and specialist centres and trying to keep the population as close to their home as possible
- Stepped increase in critical care capacity in response to demand, with an expectation of 100% increase in level 3 capacity at maximum demand[2]
- Preservation of emergency, general and specialist services for as long as possible
- Preservation of 'standard' clinical pathways for critically ill patients for as long as possible, with children continuing to be admitted to PICUs for as long as possible utilising available regional and national PCC beds
- At times of escalation there will be a requirement for an increase in the number of patients requiring inter-hospital transfer to access critical care and the distance travelled. This may occur early depending upon the nature of the escalation scenario as Yorkshire & Humber strives to maintain the standard of normal clinical pathways, and may require mutual aid from ambulance and other transportation services outside of the Yorkshire & Humber region; this is particularly relevant for paediatric patients
- Stepped decrease in capacity and return to normal activity as soon as possible in response to demand

These principles are based on the experiences from the Influenza outbreaks of 2009-10 and 2010-11, but can be applied to other scenarios that require critical care to escalate capacity. The relationship between responsiveness of a system and the capacity is linked to the case-mix (% elective/unplanned cases), length of stay and any unfilled capacity. Adult general level 3 critical care units typically have approximately 85% occupancy with a 10% elective

[1] NHSE (2013) Management of surge and escalation in critical care services: standard operating procedure for adult critical care
[2] NHSE (2017) Concept of Operations for managing Mass Casualties

throughput, and a length of stay of approximately 4 days. The paediatric ICUs have a higher elective throughput in the summer months, but both adult and paediatric critical care services will be influenced by seasonal pressures.

In mass casualty / surge situations it is likely that both the absolute numbers and median length of stay of critically ill patients will be increased. It is imperative therefore that the triggers to activate additional capacity are sensitive enough to give sufficient time for beds to be made available before the system becomes grid locked. The Yorkshire & Humber Critical Care Operational Delivery Networks will work with relevant teams and within the remit of Concepts of Operations[3] to optimise expansion of critical care capacity as required. It is recognised that paediatric ICUs may experience severe operational difficulties ahead of the adult units, given existing capacity pressures.

In the event that Paediatric Intensive Care (PIC) services across the Yorkshire & Humber are operating at maximum capacity AND are unable to accept new referrals within 6 hours, consideration will be given to use of adult critical care beds for age and clinically appropriate young people [4].

Mass casualty event is a dynamic situation. Adult and paediatric critical care will be expected to double Level 3 capacity. Casualty dispersal from the scene will send children who look over 12 to trauma units who have adult critical care service.

In surge, it is expected that PICU in both Leeds and Sheffield will expand their funded Level 3 bed capacity and be operating at 100% occupancy. Once all beds in Leeds and Sheffield are full the process would be children would be accommodated in PIC beds across the North of England. Once all the beds in the North of England are full, children will be transferred to PICUs across England before approaches are made to accommodate in adult critical care units. The exception to this may be an older child may be referred to ACC to prevent a long distance transfer.

Utilisation of adult critical care will be considered for any age/clinically appropriate patient on a case by case basis, following discussion between the adult and paediatric critical care teams. Acute hospitals without inpatient paediatric services on site should not receive such cases.

[3] NHSE (2017) Concept of Operations for Managing Mass Casualties
[4] Yorkshire & Humber Paediatric Critical Care Operational Delivery Network (2018) Management of Surge and Escalation in Paediatric Critical Care Services: Standard Operating Procedure

2.0 Introduction

This document provides a framework for the development and implementation of the critical care response to contingencies, including rising tide (e.g. influenza) or sudden rapid response (e.g. mass casualty) events, within the Yorkshire & Humber.

This document is intended to be used by all acute provider trusts with adult critical care facilities on site to assist with planning for, and responding to issues that will arise in the management of adults and children requiring critical care. It is intended that this guidance should be incorporated within local Trust escalation plans and should be viewed as part of the overall system response.

The planning assumes certain principles:

- The delivery of adult critical care is a shared responsibility of NHS organisations (excluding mental health trusts) in Yorkshire & Humber
- Acute Trusts will provide mutual aid to one another, thereby ensuring optimal use of the Critical Care Capacity
- Increases in capacity will be stepped according to demand
- Critical Care Units must have plans in place to double their Level 3 equivalent bed capacity and maintain this for a minimum period of 96 hours (Adults & Paediatrics)
- The escalation in capacity may need to be sustained for significant periods depending upon the nature of the event e.g. days for mass casualty response, months for surge/rising tide events (e.g. influenza). Non-critical care trained nursing staff will be required to care for patients within critical care using a 'buddy' system and should where possible be trained in this role in advance of a contingency occurring
- De-escalation of additional capacity will occur at the earliest opportunity, with due regard to mutual aid
- All NHS Acute Trusts will be guided by the NHS England Yorkshire & Humber Command and Control Structures, thereby ensuring equity of access and treatment across Yorkshire & Humber
- Difficult clinical decision-making and implementation of policies in relation to triage and futility of patient interventions should follow established principles. Changes to normal practice should only be made if directed by NHSE (Y&H) and / or after consultation with the wider critical care community.
- Within NHS Yorkshire & Humber, local data is collected on the national electronic bed register held by NHS Pathways Directory of Services (DoS)

https://nww.pathwaysdos.nhs.uk

This will be complemented by a daily SITREP which may include capacity management data submissions from acute Trust sites and feedback from within NHS England. This data is used to inform discussion and decision-making in NHS Strategic (Gold) Command about escalation of critical care capacity at both a local, network and regional level.

3.0 Background and Planning

3.1 Rapid Response (requiring sudden escalation of critical care capacity)

Such a response would be required in the event of a mass casualty incident defined by NHS England as;

> *"An incident or series of incidents causing casualties on a scale that is beyond the normal resources of the emergency and healthcare services' ability to manage."*
>
> (NHSE, 2017)[3]

By definition, such events have the potential to overwhelm or threaten to exceed the local capacity ability to respond, even with the implementation of major incident plans.

In the event of a major incident the response required will be determined by:

- The number of casualties
- The severity of injuries
- The complexity of injuries

The table below provides planning assumptions that can be used to calculate the potential number of patients in each category related to patient condition:

Category	Patient Condition	% of Total Patients
P1	Casualties needing immediate life-saving intervention and/or surgery	25%
P2	Stabilised casualties needing early surgery but delay is acceptable	25%
P3	Casualties requiring treatment, longer delays are acceptable	50%

It is clear that during any type of incident that produces mass casualties who require critical care, managing capacity will be a significant challenge.

In the event of a mass casualty incident where patient numbers will be in the hundreds, a significant number will require critical care support. For this to occur there is recognition that mutual aid across regions and even nationally will be required to accommodate demand once the initial incident receiving sites are overwhelmed.

Whilst casualties may need to be dispersed widely, one approach to reducing the number of long distance transfers and spreading demand across the region is termed the 'ripple effect'. This allows for the movement of stable patients away from centres closer to the incident to create capacity for casualties in those centres. Trusts not in close proximity to the incident may therefore be asked to enact their escalation plans to receive patients not directly from the incident.

NHS England Yorkshire & Humber Region will identify the process for implementation as part of its mass casualty framework.

Dependent on the nature of the incident, an increased demand on theatre services may occur. Consideration to alternative escalation areas may be required if local plans have previously identified critical care escalation to be accommodated in theatre/recovery areas.

3.2 Rising Tide Response – (based on the experience with viral pneumonitis)

Depending upon the presenting clinical condition the assumption is that the majority of patients will have a single organ failure and the clinical interventions required would span from simple oxygen therapy to conventional or advanced mechanical ventilation strategies.
In the presence of particular diseases e.g. influenza, certain patient groups would appear to be more vulnerable e.g. paediatrics, pregnant women, obese patients and patients with pre-existing co-morbidities (particularly respiratory disease and immunosuppression).

In the group of patients with refractory hypoxia, specialist ventilatory strategies such as extracorporeal membrane oxygenation (ECMO) have been found to be of value. Such ventilatory strategies are available on limited sites throughout the North West. The ECMO service is delivered by Wythenshawe Hospital in Manchester for adults. The ECMO service facilitates transfer and retrieval services. An online referral from can be accessed through the site below (available to staff on the NHS N3 network. Please copy and paste link into your browser or click on link): https://portal.uhsm.nhs.uk/ecmo-referral/

All neonatal and paediatric patients potentially requiring ECMO should be referred via Embrace (Tel: 0114 268 8180). The call will be connected to the ECMO Coordinator at Glenfield Hospital, Leicester.

Organisations should be prepared for a significant number of patients with refractory hypoxia and a significant number of associated incidences of acute renal failure; therefore organisations should be aware of the need to escalate appropriate supportive therapies as per local/regional business

4.0 Current Critical Care Capacity

There are currently 12 NHS Provider Trusts in the Yorkshire & Humber region that have adult critical care services across multiple sites (appendix 1). Trusts are organised into one of the three Operational Delivery Networks: West Yorkshire, North Yorkshire & Humber North Trent as indicated in appendix 1. Trusts with a larger number of level 3 beds will generally have more flexibility and a greater resilience to cope with increasing numbers of patients. Data sources identify the annual average occupancy of general Level 3 beds is approximately 88%. The elective workload in these units is low (10%) and length of stay approximates to 4 days. The Level 2 beds have similar occupancy figures but a greater proportion of elective surgical work which is in the region of 25% (if calculated in bed days).
Level 3 Paediatric Critical Care is currently provided by two Trusts in Yorkshire and Humber, Leeds Children's Hospital and Sheffield Children's Hospital.

5.0 Expanded Critical Care Capacity

In keeping with national requirements, Trusts within Yorkshire & Humber have identified additional Level 3 capacity (appendix 1). This escalation in capacity will be triggered by a variety of indicators, in a tiered approach as identified by the Operational Framework for Critical Care Escalation (appendix 2). Up until this policy is triggered local critical care bed pressures will be managed through existing and well-established arrangements already in place. If this additional capacity is to be utilised efficiently to meet expectations and clinical need across the NHS it is imperative that real-time local data collection systems are in place. Local escalation policies to respond to unexpected demands are:

- Eradication of delayed discharges from critical care beds (Providers)
- Review elective surgical activity (Providers and Commissioners)

- Management of the entire Critical Care capacity across the Yorkshire & Humber (NHS Gold Command)

Critical care action cards should be developed within each Trust to ensure timeliness of actions in response to escalation events.

Trusts should identify step-down facilities between critical care and the wards where high flows of oxygen and sufficient monitoring can be provided. General wards will frequently have a limitation of the flow rate of oxygen, which precludes certain clinical therapies being used in these areas. Theatre Recovery will not have these restrictions and will often be the only practical option available; however the use of these areas may be inhibited to some extent by the need to maintain emergency theatre services.

During escalation flexible working patterns including removal of any staff overtime bans should be implemented.

Consideration should be given to increasing both Consultant and trainee medical staffing of critical care rotas in proportion to escalation. Available anaesthetic staff as a result of surgery cancellation (including day surgery) during escalation should be utilised to enhance the critical care service, with priority given to releasing those with sessional commitment to critical care or with recent experience in critical care.

Local Trust planning assumptions need to take account of the anticipated increased level of staff sickness during particular instances of clinical events, as experienced during the influenza outbreaks, and nurse/patient ratios employed for critically ill patients will therefore need to be flexible. The flexibility will be achieved through utilising nursing staff without recognised critical care competencies and/or experiences working under the supervision of colleagues who possess critical care knowledge and skills. The point above is particularly pertinent where critical care nursing staff are under high pressure.

Identification in advance of appropriately skilled staff who are able to be redeployed to critical care areas and step-down facilities if required.

Adequate equipment and consumables must be in place to support the use of Level 2 beds to enable Level 3 functionality.

Adequate equipment and consumables must be in place to support the use of ward areas/recovery to provide step-down facilities.

Identification of additional equipment requires effective planning and if necessary procurement in advance of any anticipated escalation process. If additional equipment is required to optimise Level 3 critical care capacities across the Yorkshire & Humber, the following principles should be used to guide the commissioning process:

- Priority should be given to equipping and staffing un-commissioned bed spaces in existing Trusts/Critical Care Units
- Staff should be trained in the use of equipment, this should not prevent beds being staffed
- Additional consumables should be made available on a 24/7 basis during escalation
- The proposed use of such equipment should be appropriate and complement existing Acute Trust and wider Yorkshire & Humber plans
- Trusts should give consideration to equipment needed to support paediatric critical care delivery outside of tertiary centres

6.0 Clinical Judgement & Decision Making

It is imperative that the standard clinical pathway for critically ill patients including the use of decision making tools is maintained for as long as possible, even when trained critical care nurses are supported by trained nurses from other clinical areas. In the event the system is overwhelmed difficult decisions around triage and end of life may have to be made, which may lie outside the scope of normal practice. In this scenario it is recommended that decision logs are maintained for both major organisational decisions and also for individual patients. A suggested format for a critical care log is included in appendix 3.

Any concerns around a unit's capacity to receive patients should be escalated by the hospitals Incident Control Cell to NHS England Yorkshire & Humber Region.

Organisational decisions will be made with a high degree of collective responsibility. It is recommended that clinicians use similar collective responsibility and shared decision making (more than one consultant) for referral, admission, discharge and treatment withdrawal decisions. The clinical and logistical context at the time the decision is made should be clearly documented. Thresholds for decision making may change significantly from hour to hour or day to day due to staff and resource availability.

Whilst Critical Care clinicians are experienced in determining withdrawal of treatment that is ineffective in sustaining life it is likely that active withdrawal of treatment will be more prevalent when the system is overwhelmed. Reverse triage should not be implemented unless authorised by NHS England. This will only be implemented after all available critical care capacity is saturated.

Standard triage prioritises and treats the sickest patient first. Reverse triage is a process which effectively prioritises the least sick (most likely to survive) and provides only comfort care to the sickest patients. Whist treatment limitation decisions are acceptable based on individual circumstance and patient wishes, reverse triage should not be implemented as a matter of policy without NHSE sanction.

The Emergency Planning Leads in trusts should be of sufficient seniority to engage at executive level to ensure that there is full appreciation of the seriousness of the situation and an understanding of its significance.

7.0 Data Sources

The online DoS website provides data on the number of available critical care beds. Trusts are required to update this information every 6 hours as a minimum.

DoS has the capability to identify the number of escalated beds per trust that are in use, it will require staff to complete this in the comments field.

In escalation, Trusts will be responsible for collecting the additional data required by NHS England which will be collected daily through SITREP

Critical Care patient information systems, such as Ward Watcher and Med ICUs, can assist in the profiling of patients admitted to critical care units. It is important such critical care data systems are kept up to date to provide timely information and accurate records.

A national Paediatric Bed register utilising the NHS Pathways DoS has been developed and was available from 2017. Paediatric capacity will be monitored as adult critical care.

In specific contingencies, Public Health England will require a full dataset from each patient; trusts should be prepared to submit similar information during escalation.

8.0 Escalation Stages

As soon as this escalation policy is activated, the Emergency Planning Leads in Acute Trusts should engage with critical care clinicians, trust management executives and NHS England Area Team 'Commanders' to ensure that there is full appreciation of the seriousness of capacity pressures and an understanding of its significance. Escalation decisions will be made by relevant NHS Strategic (Gold) commanders. Escalation will move through the described stages below in a phased manner in response to demand to ensure organisational business continuity as far as possible.

8.1 Escalation Stages for Critical Care 'Rapid' Response

Rapid response refers to mass casualty situations, which is distinct and separate from 'rising tide' surge situations (e.g. Influenza outbreaks)

'Ripple' principle

NHS England NHS England Yorkshire & Humber Region will identify the process for implementation as part of its mass casualty plans. Escalation decisions will be made by relevant NHS Strategic (Gold) Commanders, and will move through the stages as described below in a staged manner in response to critical care demand to minimise disruption of elective activity. CEOs of organisations are accountable for the implementation of escalation processes within their own organisations.

The Networks recognise there may be unavoidable impacts on organisational staffing ratios during times of escalation.

Trusts designated to receive casualties directly from the scene will activate their own Major Incident plan. The critical care component of this plan must be explicit and the scenario rehearsed. Action cards for the designated critical care roles must be readily available.

Stage 0 - Surveillance

In Stage 0 it is expected there will be normal daily activity and organisational pressures.

The trigger to move to Stage 1 will occur when there is indication of a significant event associated with mass casualties within Yorkshire & Humber OR intelligence indicates that an

incident inside or outside Yorkshire & Humber is highly likely. Preparation should be made for the initiation of Stage 1.

Stage 1- Standby

Trusts should be prepared to activate Adult Critical Care Surge and Escalation Plans which will include the actions described in the Yorkshire & Humber Operational Framework for Critical Care (appendix 2a).

Stage 2 - Mass Casualty Incident Declared

The trigger to move to Stage 2 will be activated by NHS England Yorkshire & Humber Region and will be commenced when mass casualty patients are expected to be received anywhere within the Yorkshire & Humber footprint.

The actions should be initiated described in appendix 5 should be initiated with immediate effect

Stage 3 - System Overwhelmed

In the event of overwhelming patient numbers exceeding the capacity expansion detailed in appendix 1, difficult clinical and ethical decisions will be required to triage critically ill patients. Such decisions should where possible be made collectively by more than one senior clinician. External advice could be sought from the respective Network Medical Lead, or National Critical Care leads

External communication may be hampered during mass casualty scenarios as mobile phone networks may not be functional. Each Trust should be prepared for this within their action plans.

- Throughout the tiered phase of escalation of critical care capacity all staff should work within their professional code of conduct as documented by their regulatory authorities (NMC[5] GMC[6]).
- It may be necessary to implement early identification of patients whose care will not be escalated in the event of further deterioration, to limit the availability of complex life support measures and the number of drugs that may be delivered by infusion.

[5] NMC (2015) The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates https://www.nmc.org.uk/standards/code/
[6] GMC https://www.gmc-uk.org/about/how-we-work/governance/council/code-of-conduct

- Communicating such decisions will be via the NHS England Yorkshire & Humber Region processes. The usual telephone communication links may well be compromised during mass casualty scenarios, and all should be aware of the alternative communication methods identified within local trust plans.

De-Escalation

There is recognition of the need for organisations to return to normal function as soon as possible to enable everyday Trust activity; this should not impact negatively on the ability to provide mutual aid across the Yorkshire &Humber in the event there are continuing localised pressures. It is important that local identification and discussions on the ability to de-escalate is directed by NHS England Yorkshire & Humber Region (Strategic Gold Command). If any organisation or individual requires clarification about implementation at any stage this should be sought from the NHS England Yorkshire & Humber Region EPRR Lead at the earliest opportunity to assure effective, equitable use of limited resources across the health economy.

8.2 Escalation Stages for Critical Care 'Rising Tide' Surge Response

Rising Tide refers to situations such as Pandemic Influenza, which is distinct and separate from 'Mass casualty scenarios.

Initial stages are agreed and implemented by local Provider Chief Operating Officers (COOs)/ Director of Operations (DOPs) and supported by AT EPPR Leads

Stage 0 (OPEL 1)

Surveillance will be commenced when there is an indication of a significant local clinical event e.g. influenza outbreak. In addition to SITREP, data collection DOS will be instructed to collect relevant clinical, capacity and activity data from all critical care units throughout West Yorkshire (appendix 2b)

Stage 1 (OPEL 2)

Activation of local individual Trusts escalation and capacity management policies, which would include cancellation of all elective non-life threatening adult non-oncology surgery, which normally requires critical care support in the immediate post-operative period. This will free up some Level 2 capacity which will improve patient flow, reduce delayed discharges from Level 3 beds and will reflect local continuity management plans.

Stage 2A (OPEL 3)

Suspension of all elective major oncology surgery, where it is established patients would normally require a critical care bed post-operatively; initially activated by Provider COOs/ DOPs.

Stage 2B

Suspension of all elective surgery with the possible exception of minor day case surgery and surgery performed on cold sites, provided this continuation of surgery does not impact on critical care bed escalation at Trust level. The decision to continue must only be made following discussions and agreements between the Clinical Director for Critical Care and the Trusts Medical Director; this must be communicated to NHS England Yorkshire & Humber Region EPPR Lead and/or Strategic (Gold) Commanders.

Stage 2C

The suspension of all elective surgery including oncology and cardiac surgery. Except that necessary for life-threatening conditions where clear, explicit assurance on an individual patient level can be given at executive level to NHS England Yorkshire & Humber Region that this will not compromise critical care escalation across conurbations.

Identification of suitable beds to replace lost Level 2 capacity will also be necessary to ensure patient flow. Some clinical areas have logistical barriers relating to the presence of piped gases and limitations on total oxygen supply to a clinical area. This is particularly relevant to general ward areas and by default theatre recovery will often be the only area suitable to establish a temporary Level 2 area.

Consideration should be given to the redeployment of non-critical care trained staff to support critical care colleagues (medical, nursing, ODP) to provide direct care for patients. For the nursing staff a “buddy” system is proposed whereby a trained critical care nurse works alongside a registered nurse who may not be from a critical care area. In the latter stages of the plan (from stage 2 onwards) there will be an adjustment to conventional critical care trained nurse/patient ratio.
https://www.england.nhs.uk/wp-content/uploads/2018/11/pic-surge-standard-operating-procedure-v6.pdf.

Stage 3 (OPEL 4)

In the event of overwhelming patient numbers exceeding the capacity expansion detailed in appendix 1, difficult clinical and ethical decisions will be required to triage critically ill patients. Such decisions should be made collectively by clinicians and if and when necessary possible appropriate external advice could be sought from the respective Network Medical Lead.

Reverse triage must not be implemented unless authorised by NHS England Yorkshire & Humber Region Strategic (Gold) Command who will be advised by the relevant National Medical Directors and will be implemented only after all available critical care capacity is exhausted both locally and at a national level.

It may be necessary to implement early identification of patients whose care will not be escalated in the event of further deterioration, through limiting the availability of complex life support measures and the number or type of drugs that may be delivered by infusion.

Throughout the tiered phase of critical care capacity escalation all staff should work within their professional code of conduct as documented by their regulatory authorities (NMC[4] GMC[5]).

De-Escalation

There is recognition of the need for organisations to return to normal function as soon as possible to enable everyday Trust activity. This should not impact negatively on the ability to provide mutual aid across Yorkshire & Humber in the event there are continuing localised pressures. It is important that local identification and discussions on the ability to de-escalate is directed and agreed in collaboration between NHS England Yorkshire & Humber Region Strategic (Gold) Command.

If any organisation or individual requires clarification about implementation at any stage this should be sought from the NHS England Yorkshire & Humber Region EPRR Lead at the earliest opportunity to assure effective, equitable use of limited resources across the health economy.

9.0 Paediatrics during critical care escalation (‘rising tide’ or ‘rapid response’)

In the event of an escalation, paediatric services are expected to maximise all available capacity by staffing all funded beds and eliminating any delayed discharges.

In a situation where the PICU system is at maximum capacity and under extreme pressure the Paediatric Critical Care Control Group will be activated. This group will ensure all possible options have been exhausted to create capacity.

In addition, when children are being managed in adult critical care units support mechanisms will be provided by local paediatric colleague, regional PICU Team and Embrace.

Information relating to numbers of children being managed in adult critical care units should be fed directly into the NHS England Yorkshire & Humber Region (Gold) Command structure.

The Yorkshire and Humber PCCODN should be informed via email of any children under 16 years of age being cared for on an adult unit. An exception report (available at https://www.networks.nhs.uk/nhs-networks/yorkshire-humber-paediatric-critical-care-odn/guidelines) should be completed and sent to Karen.Perring@nhs.net

It is essential that each organisation risk assesses their readiness to accept paediatric patients. Such risk assessments must encompass Staff, Knowledge, Skills and Equipment.

Clinical Guidance can be obtained via Yorkshire & Humber Paediatric Critical Care ODN website https://www.networks.nhs.uk/nhs-networks/yorkshire-humber-paediatric-critical-care-odn/guidelines

During an outbreak (e.g. influenza) involving large numbers of children, as a general principle adult critical care units with inpatient paediatric services on-site should strive to care for older children with support from their local paediatric colleagues.

Utilisation of adult critical care will be considered for any age/clinically appropriate young patients, this approach should theoretically free up capacity in paediatric critical care units for younger children.

It is impossible to define a strict age division between children who may be treated in adult centres and those treated in the Children's Hospitals as this is likely to change according to clinical need and available capacity. The ability to care for children in a general adult

intensive care unit will vary and will depend on the availability of support from an in-patient paediatric service within the Trust, nursing and Allied Health Professional experience of caring for children and the availability of Consultant Anaesthetists who have experience in paediatric anaesthesia.

In the event of a child requiring paediatric ICU, both clinical advice and bed information availability should be sought from Embrace.

The Yorkshire & Humber Paediatric Critical Care ODN will support/ provide training opportunities on care of the critically ill child in an adult setting for adult critical care staff across the Yorkshire & Humber, in collaboration with paediatric and general adult critical care colleagues.

10.0 Diverting Resources from Elective Work and Performance Targets

The decision to divert resources from routine work as a response to the increasing number of patients presenting with a clinical event impacting on critical care capacity, will require activation of individual organisation's major incident plans. At system level this decision will be taken by NHS England Yorkshire & Humber Region (Gold) Command Structure (appendix 4).

It is expected that providers and commissioners will develop a consistent approach to funding additional costs resulting from escalation and the necessary postponement of elective work.

11.0 Homeland and Overseas Repatriations

The Yorkshire & Humber ODNs support the policy of early repatriation of patients' to their nearest 'home' critical care unit at the earliest opportunity when this is clinically safe and appropriate, whether requests are made from within the UK or from overseas. However it is recognised that the need to manage the immediate demand on critical care beds from either a 'rising-tide' or 'rapid response' situation may require repatriations to be placed 'on-hold' until local/network/regional pressures ease.

The Yorkshire & Humber ODNs and NHS England Area Teams should be made aware of any declined repatriations by NHS Provider organisations and support such decisions.

12.0 Staff Indemnity

As the contingency unfolds and escalation plans are initiated, it is recognised that all groups of clinical staff (medical, nursing and allied health professionals) will be expected to work outside of their usual working practices if escalation is to be successful.

Examples include:

- Caring for greater numbers of patients than is recognised to be acceptable and safe by medical and nursing professional bodies
- Non-critical care trained staff working alongside critical care trained colleagues, caring for critically ill patients
- Working for longer hours than is stipulated by the European Working Time Directive
- Adult critical care staff caring for critically ill children with either limited or no specialist paediatric training. Checklists should be prepared by Trusts to mitigate risk and aid patient safety
- Staff providing a limited standard of critical care than is normally considered acceptable
- Medical staff having to adjust their decision-making process for admission and treatment withdrawal, in times of extreme capacity limitations

Appendix

Appendix 1 Yorkshire & Humber Adult Critical Care Capacity Data

Site	Current Available General Critical Care L3 Beds	Potential Additional L3 Beds	Potential Total number Critical Care L3 beds	Percentage possible increase %
West Yorkshire Critical Care Network				
Airedale General Hospital	3	3	6	100%
Bradford Teaching Hospitals NHS Trust	8	8	16	100%
Calderdale & Huddersfield NHS Foundation Trust	6	6	12	100%
Harrogate & District NHS Trust	4	4	8	100%
Leeds Teaching Hospitals NHS Trust	37	37	74	100%
Mid Yorkshire NHS Foundation Trust	12	12	24	100%
North Yorkshire & Humber Critical Care Network				
Hull and East Yorkshire Hospitals NHS Trust	31	31	62	100%
Northern Lincolnshire & Goole Hospitals NHS Foundation Trust	13	13	26	100%
York Teaching Hospital NHS Foundation Trust	18	18	36	100%
North Trent Critical Care Network				
Barnsley Hospitals NHS Foundation Trust				
Doncaster and Bassetlaw Hospitals NHS Foundation				
Rotherham NHS Foundation Trust				
Chesterfield Royal Hospitals NHS Trust				
Sheffield Teaching Hospitals NHS Foundation Trust				
TOTAL Y&H General Critical Care Beds				

Appendix 2a Critical Care "Rapid Response" Escalation Framework

Yorkshire & Humber Operational Frameworks for Critical Care Rapid Response to a Mass Casualty Involving a Significant Number of Patients Requiring Adult Critical Care – Action Card		
Response Level	**Action Required**	**Action Outcome**
Critical Care Stage 0 - Normal NHS Activity Surveillance	**Acute Trusts – Adult Critical Care Services** 1. Update DOS Bed Capacity Management System (CMS) 6 hourly. 2. Ensure systems are in place to enable Adult Critical Care Units to access paediatric equipment if required 3. Adult Critical Care Networks in Y&H 4. Monitor daily critical care bed activity using the DOS Bed Capacity Management System (CMS). 5. Monitor Inter-Network critical care transfers.	Provides up-to-date position of bed capacity in each critical care service in the Adult Critical Care Networks across Y&H.
Trigger to move to Stage 1: Indication of a significant event associated with Mass Casualties within Yorkshire & Humber OR Intelligence indicates that an incident inside or outside Yorkshire & Humber is highly likely. The trigger to move to Stage 1 would come directly from the scene of the incident is likely to be given by YAS. Actions to be initiated with immediate effect		
Critical Care **Stage 1 - Standby**	**Acute Trusts – Adult Critical Care Services** 1. Prepare to activate Adult Critical Care Service Surge and Escalation Plan which will include the following actions: 2. Consider arrangements to increase Level 3 capacity by 100% for the next 96 hours in the event an incident is declared 3. Undertake immediate review of all current critical care patients and where possible discharge to a lower level of care *and identify those that could be stepped down to a lower level of care or who would not ultimately benefit from escalation of care should their clinical condition deteriorate* 4. Identify patients who still require critical care but could be transferred to another clinical area to continue critical care management or another critical care unit	Be prepared to increase overall Level 3 Adult Critical Care Capacity in Yorkshire & Humber by 100% Critical care capacity maximised including Level 2 beds converted to Level 3, and Level 3 capacity in other areas of the hospital, as identified in Trust plans, converted. Level 2 capacity will be reduced due to conversion to level 3 capacity Theatre availability maximised. Therefore critical care escalation into these areas may not be possible.

	5. Liaise with Trust Incident Command Centre (ICC) to identify the theatre position and/or any other potential critical care admissions 6. Prepare to Suspend all elective cardiac and neurosurgical programmes requiring critical care on instruction from NHSE 7. Identify additional resources that may be required including requirements to manage children on adult units. **Critical Care Networks in Y&H** Critical Care Network teams will provide support as and when required by NHSE (during normal office hours).	
Trigger to move to Stage 2 as activated by NHSE Gold command: Commenced when mass casualty patients are expected to be received anywhere within the Yorkshire & Humber footprint and may require admission to critical care. Actions must be initiated with immediate effect		
Critical Care **Stage 2 - Mass Casualty Incident Declared**	**Acute Trusts – Adult Critical Care Services** 1. Activate your Mass Casualty/Major Incidents Plan 2. Prepare to receive mass casualty patients requiring critical care and/or critical care patients either direct from scene or from another facility as part of the 'ripple' effect. 3. Secure critical care facility as part of the Trust's lock-down and consider asking visitors to leave if safe to do so. 4. Enact your plan to double your level 3 capacity for the next 96 hours with the associated requests for staffing, consumables and equipment escalated to the Trust Incident Command Centre (ICC) where the department cannot source in house 5. Adult Critical Care Services accepting children 12 years and over to obtain support from general paediatric colleagues and regional paediatric intensive care services. 6. Plan transfer of patients who need to be moved to alternative Adult Critical Care Units, which may be beyond the Yorkshire and Humber geographical boundaries as part of mutual aid arrangements. 7. Ensure that any concerns around capacity to receive are escalated early to your organisations Incident Control Centre (ICC) in order that they can liaise with NHS England and YAS around any further receipt of casualties/patients.	Other Y&H Network Hospital including Independent Sector Hospital sites to review critical care capacity and consider conversion of L2 beds to L3 stock to create capacity in event of mutual aid being requested Trusts designated to receive mass casualties directly from the scene will have reduced critical care staffing ratios, therefore 'buddy' arrangements to be in place.
Trigger to move to Stage 3: Evidence of overwhelming patient numbers incident across Yorkshire & Humber Overwhelming patient numbers beyond all identified critical care expansion capacity across Yorkshire & Humber and mutual aid from beyond Yorkshire & Humber has been exhausted		

Critical Care **Stage 3 - System overwhelmed**	In the event of overwhelming numbers of patients requiring critical care, difficult clinical and ethical decisions will be necessary. This should be undertaken collaboratively between a number of senior decision makers. It may be necessary to implement early identification of patients who will not ultimately benefit from escalation of care should their clinical condition deteriorate further The principle of "Reverse triage" may be required. This must not be implemented unless authorised by NHS England Medical Directors Clinical Cell and will only be implemented once ALL available critical care capacity is exhausted	Situational review processes should be in place to address difficult decision making, including immediate and after event debriefs. Critical care staff should have access to counselling and peer support groups.
De-escalation trigger: De-escalation of critical care will be agreed by NHS North in consultation with Critical Care Networks within the Command and Control Model		
De-escalation	Trusts will de-escalate additional critical care beds once there is evidence that this action will not impact negatively on the ability to provide mutual aid across Yorkshire & Humber	Return to normal working practices

Appendix 2b Critical Care "Rising Tide" Escalation Framework

Level	Summary	Trigger	Action	Communication	SOP Phase
OPEL 1	**Normal**	Business as usual - more than 4 beds available in each network	1. Standard operational procedures 2. DoS maintained 6 hourly (minimum) 3. Prior to anticipated seasonal pressure, review triggers and actions and reissue escalation framework and review	1. *In hours:* ODN – daily monitoring of DoS 2. Area team – ad hoc monitoring of DoS *3. Winter – ODN update to weekly, area team, teleconferences*	Normal Business / Pre-Surge
OPEL 2	**Concern**	Low bed alert (LBA) activated - less than 4 beds available for 24 hours across one or more network	1. DoS maintained 6 hourly (minimum) 2. Yorkshire Intensive Care Bed Bureau (YICBB) distribute low bed alert notification 3. Units to review level 1 delayed transfers 4. Units to ensure sufficient staffing for forthcoming shifts (to enable all funded capacity to be opened) *5. In hours: ODN proactive support to units*	1. YICBB - Low bed alert notification to partners across affected network 2. IC units – internal messages to advise of position and actions required	Local Surge and Escalation
OPEL 3	**Moderate Pressure**	All beds open in but none available for 48 hours and all level 1 delayed transfers discharged out of units	1. Previous level actions continue 2. DoS updated as and when changes occur 3. Consider actions to generate capacity including: a. Units to increase beds and staffing b. Ventilation of patients outside of unit 4. All Y&H network beds to be opened in support of affected area 5. Activation of Trust BC plans to release staff to support intensive care 6. Units – ensure sufficient access to supplies 7. Consider inter-Trust partners' teleconference (e.g. Medical Directors) 8. Out of network transfers	1. YICBB – maintain 6 hourly LBA notifications 2. YICBB – LBA notification to EMAS, YAS and NEAS (out of network transfers may be required / increase) 3. IC units – internal messages (as per local plan) to advise of position and actions required 4. Area team – notification to other Y&H area teams, on call team, lead commissioning CCGs and North region 5. If out of network transfer, unit - notification to ODN 6. *In hours: 3xODN discussions to ensure actions are completed and identification of further actions*	

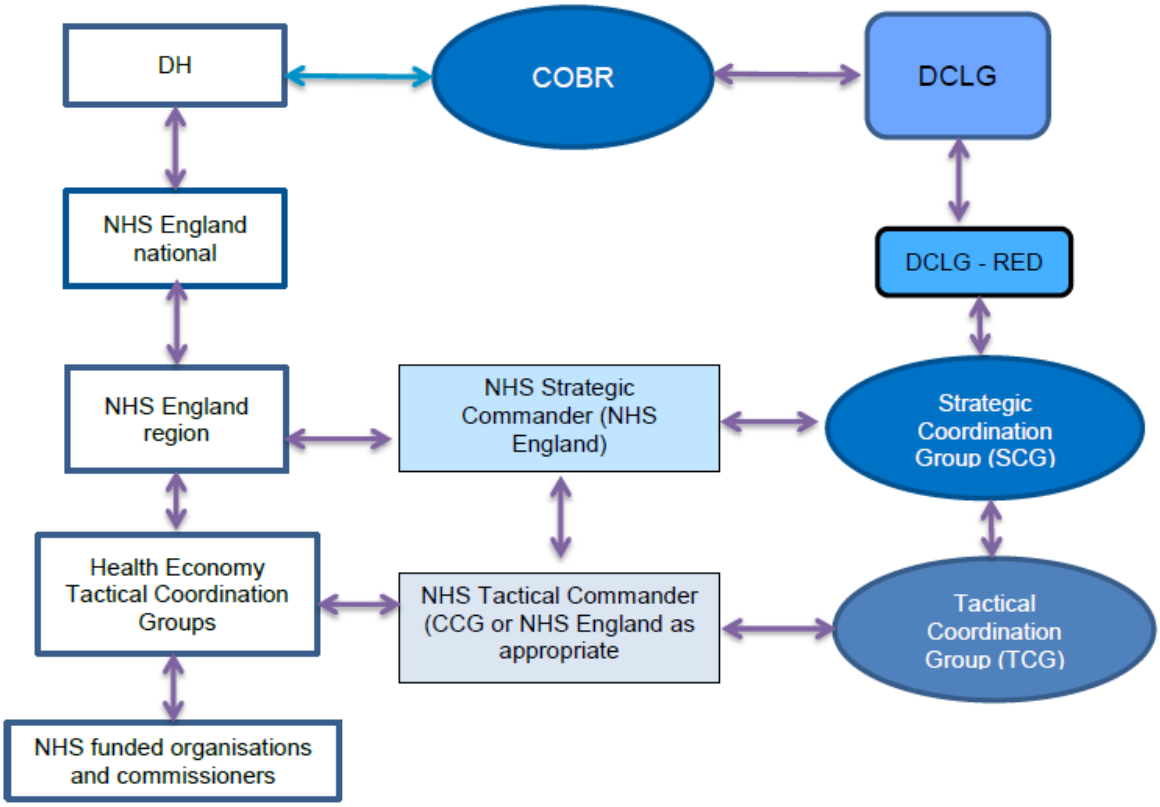
Level	Summary	Trigger	Action	Communication	SOP Phase
OPEL 4	**Severe Pressure**	All beds across 3 Y&H networks open but none available for 24 hours and patients ventilated out of units	1. Previous level actions continue 2. Identify lead ODN (in hours) and lead area team 3. Lead area team to confirm Y&H teleconference with partners 4. Consider actions to generate capacity including: a. Units to increase beds and staffing (to 50% additional capacity) b. Network wide cancellation of non-urgent elective likely to require critical care c. Ventilation of patients outside of unit 5. Intra-region transfers 6. Holding statements for media interest prepared in anticipation 7. Escalation Capacity SITREP completed 8. Command and control arrangements initiated (led by lead area team)	1. Area team – maintain communications with North region 2. Area team – liaison with NME communications 3. Teleconference with partners 4. Escalation Capacity SITREP completed by Trusts 5. Incident response approach to communications initiated	Wider Escalation
	Critical	All beds across 3 Y&H networks open but none available for 48 hours Major incident involving large number of casualties requiring intensive care	1. Previous level actions continue 2. Units supported to move towards 100% additional capacity 3. Incident response plans activated	1. Previous level actions continue	
	Potential Service Failure	100% additional capacity achieved but level 5 triggers remain for 24 hours Regional or national pressure	1. Previous level actions continue 2. Dynamic identification of further actions 3. Regional coordination as part of command and control arrangements	1. Previous level actions continue	

Appendix 3 Decision Log for Critical Care Patient Triage and Decision Making

This document should be used for recording details about patients who have been triaged and the decisions made about those patients.

Date	Patients Name	NHS Number	Decisions made	Critical Care Capacity	Number of patients triaged	Signature/s

Appendix 4 NHS England EPRR Response



Appendix 5 Operational Delivery Network Personal Contacts

Operational Delivery Network Personal Contacts		
ODN personal are contactable Monday - Friday 08.00 - 17.00		
West Yorkshire Critical Care Network	Andrea Berry (Manager/Lead Nurse)	07538200367 Andrea.berry2@nhs.net
	Simon Whiteley (Medical Lead	Simon.whiteley@nhs.net
	Alison Richmond (Quality Improvement Lead Nurse)	alisonrichmond@nhs.net
	Network Office	0113 392 2903
North Yorkshire & Humber Critical Care Network	Daniel Dineen (Network Manager)	Daniel.Dineen@hey.nhs.uk
	Jerry Thomas (Medical Lead)	jerry.thomas@nhs.net
	Network Office	01482 622394
Yorkshire & Humber Paediatric Critical Care Network	Karen Perring (Lead Nurse)	Karen.perring@sch.nhs.uk
	Sian Cooper (Medical Lead)	Sian.cooper2@nhs.net
Embrace	General enquiries Referral Hotline	0845 147 2472 0114 305 3005

Glossary

DoS	Directory of Services - National Critical Care Bed State
ECMO	Extra Corporeal Membrane Oxygenation; ECMO is used when a patient has a critical condition which prevents the lungs or heart from working normally. The ECMO machine is very similar to heart and lung machines used during open-heart surgery. It is a supportive measure that uses an artificial lung (the membrane) to oxygenate the blood outside the body (extracorporeal).
EPRR	The acronym EPRR stands for “Emergency Preparedness Resilience and Response”. EPRR is defined by a series of statutory responsibilities under the Civil Contingencies Act (2004).
Gold Command	Gold is the strategic command level is to take overall responsibility for managing and resolving an event or situation.
PCC	Paediatric Critical Care
PICU	Paediatric Intensive Care Unit
SITREP	The Situation Report serves as a status update for internal and external agencies.

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This document is an update of the Yorkshire and the Humber Adult Critical Care Escalation Framework (2013) and acknowledges the contributions made by the original authors:

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