

Guidance for when paediatric critical care resources are constrained: a framework for regional decision making

Introduction

Every year there is seasonal pressure on national Paediatric Critical Care (PCC) bed capacity due to a winter surge in admissions of infants with RSV bronchiolitis and other viral lower respiratory tract infections. PCC teams commonly must make decisions to ensure the most appropriate critical care bed is found to meet the specific needs of the patient in question; this may include unusual pathways including neonatal or adult intensive care settings.

Presently, we are working in exceptional times. Given the unseasonal surge in winter respiratory viruses as well as a further wave of COVID-19 admissions to adult units, it is possible that there will be circumstances when PCC capacity across level 1, 2 and 3 units will come under very significant pressure, necessitating difficult decisions to be made when several children may simultaneously require an admission to a critical care bed.

This guidance sets out to provide colleagues with a framework to support them in their decision making in such circumstances. The principles within this framework have been informed by BMA guidance, the Royal College of Paediatrics and Child Health COVID-19 pandemic ethical framework, as well as the Intensive Care Society Law and Ethics group. Where clinicians can document that they have considered and applied national professional guidance, including the present document, this will provide strong evidence that they have acted lawfully and according to their professional obligations.

The legal liabilities of clinicians

The actions of health care professionals are governed by their regulatory bodies. Doctors must undertake their work in accordance with the standards required by the GMC as set out in [Good Medical Practice](#) . The GMC has recognised that clinicians may need to depart from established procedures to care for patients during the Coronavirus pandemic [here](#). Doctors should behave responsibly, reasonably and be able to explain their decisions and actions if they are called on to do so. GMC guidance states that when deciding the safest and best course of action in the circumstances, doctors should consider the following factors:

- what is within their knowledge and skills
- what support other members of the healthcare team could offer
- what will be best for the individual patient given available options

- the protection and needs of all patients they have a responsibility towards
- minimising the risk of transmission and protecting their own health

If a doctor acts irresponsibly or unreasonably they may be required to explain their actions to the GMC. However, in exceptional times of constrained resources the GMC will take into account the extraordinary circumstances in which doctors are working. **Good record keeping** is vitally important to demonstrate the reasoning for particular decisions and actions, and will be key evidence in justifying what has or has not been done.

Doctors must act within the law. That said, an individual doctor cannot be held criminally responsible if they recommend a treatment that, due to a lack of resources, is not able to be provided.

Ethical principles underpinning decision making

Doctors have a duty to act in the best interests of their patients. That duty must be carried out to the standards of a responsible body of clinicians acting reasonably and working in the same specialty (*the Bolam test*). There may be different reasonable ways of managing a patient but, if a responsible body of clinicians (even a minority body) would judge that act or omission as reasonable, the duty of care to the patient has not been breached. The Bolam test takes into account the specific circumstances in which the clinician is working. Therefore, if the doctor's ability to provide certain treatment is hampered by limited resources, they will not be at fault for acting reasonably within the confines of those resources (*re. Bolitho*).

Indemnification

Doctors should explain all available treatment options to the patient (if they have capacity) and their family, as well as the risks and benefits of each. A doctor cannot be found at fault for not providing treatment that is not available. In such circumstances the hospital Trust or wider NHS may be criticised for failing to ensure the necessary resources were available.

If a child's family decide to make a legal claim because of an act or omission in treatment, they will be claiming the duty of care owed to their child was breached. If the clinician(s) involved in that child's treatment were employed by an NHS Trust at the time of the alleged negligence, the Defendant (the body being sued) will be the NHS Trust and not the individual clinician(s). The management of and ultimately cost of that claim will be dealt with and paid for by NHS Resolution which manages CNST ('Clinical Negligence Scheme for Trusts).

NHS England Standard Operating procedure for managing escalating demand for paediatric critical care beds (see appendix B)

This [SOP](#), in conjunction with regional/ODN surge plans, supports the management of escalating demand for PCC beds linked to the onset of the respiratory virus season. NHS England has adopted classification systems (see Appendix 1 and 2) that set out the actions that should be followed when different capacity levels are breached. Both classifications assume that usual pre-existing ethical and clinical decision-making models will continue to be applied unless extreme circumstances (OPEL 4; CRITCON-PANDEMIC 4) dictate that demand exceeds supply requiring urgent prioritisation and triage decisions. Hospital administrators and ODNs should take all possible actions though increasing local capacity and availability of treatments to avoid an OPEL 4/ Critcon 4 situation being declared.

OPEL 4/ CRITCON 4 should only be declared at a national level and only after maximum regional escalation and mutual aid options have been considered. It is important that while there is capacity and access, usual decision-making should apply equitably. Patients should not suffer either from geographical inequality of access, or from premature and incorrect resort to resource-limited decision-making at individual sites.

A regional decision-making ethical 'support group' for when demand might outstrip usual care pathways

It is expected that during 'usual' surge conditions (out of region transfers, maximum use of local 1 and 2 critical care facilities) normal decision-making processes focusing on the best interests of the child will apply. However, should demand exceed available PCC bed capacity (Opel 4 / Critcon 4) it is possible that regional PIC transport teams as well as PIC Consultants in tertiary units may have to make challenging decisions around, for example, which critically ill child should be retrieved to an available PIC bed versus one that might be managed locally in an adult ITU. In such circumstances the overriding duty of the paediatric critical care community is to provide safe and effective intensive care to everyone who can benefit from it within the resources available. In order to standardise and assist decision making nationally in such situations, it is suggested a standing group of 2-3 senior peers might be established in each region to provide a 'reasonable body of opinion' to discuss the clinical issues and support the decisions made.

This group might contain the following professionals:

- An experienced PCC Consultant from the same and/or neighbouring PCCU
- A PCC transport consultant
- A senior general paediatrician
- Other sub-speciality colleagues as required

- A member of local/ regional ethics committee (or access to)
- Senior hospital management (or access to)

It is suggested that the regional PCC transport team is best placed to logistically convene such a decision-making support group since they have administrative support, generally have expertise in co-ordinating necessary conference calls, and will have an overview of bed availability at a regional and national level.

General principles informing the decisions of such a group include:

1. The primary responsibility of the clinical team treating the patient is to assess which treatment is likely to benefit the patient (and avoid harm). Such considerations should consider the best available evidence relevant to the specific situation relating to the patient being treated.
2. When resources are limited, the responsibility of the clinical team treating the patient is to assess which patient is likely to benefit most from the available treatment. Again, such considerations should consider the best available evidence relevant to the specific situation relating to the patient being treated. Such an approach is both transparent and objective and aims not to create arbitrary clinical thresholds in relation to any individual patient group.
3. During an epidemic the availability of different treatments may evolve with time. When there is a shortage, decision-makers may need to prioritise interventions based upon principles of distributive justice (equality, proportionality, and fairness). It is not the duty of the clinical team to decide whether a particular patient should receive treatment but instead to decide which treatment should be most appropriately offered, that is likely to benefit the patient.
4. Some treatments cannot be guaranteed to bring benefit to a patient. In such situations a 'trial of therapy' has value and its continuation then considered in light of the patient response.
5. Decision-making should be ethically consistent i.e. at a particular moment during an epidemic different decision-makers should reach similar conclusions in relation to an individual patient and/or patients with similar relevant characteristics.
6. Shared discussions with the patient (if they have capacity) and their parents and/or those close to them should inform decisions about treatment. This should also take into account religious/cultural beliefs and any previously recorded wishes around treatment escalation. In such situations the desired or likely outcome of treatment should be discussed at the start.
7. Everyone's life matters equally, and all children should be treated with respect and dignity. An explicitly utilitarian approach (prioritisation of the most good to the most people) does not replace individualised balanced decision making that takes into account each patient's characteristics, preferences, and prognosis.
8. When 2 or more patients require access to only one available PCC bed then the following factors might influence whether a child is managed temporarily in the local adult ITU:
 - 8.1 Age and weight of child (i.e. > 50 kgs, > 12 years of age)

- 8.2 Pathology of presenting illness (i.e. whether one familiar to adult intensivists)
 - 8.3 Complex paediatric disease more appropriately managed in tertiary children's services (e.g. congenital heart disease)
 - 8.4 Confidence / ability of admitting hospital to manage critically ill child (e.g. availability of paediatrically trained anaesthetists)
 - 8.5 Anticipated length of ITU stay
 - 8.6 Local pressure on adult ITU services
 - 8.7 Location of family home
 - 8.8 Other ODN considerations
9. When 2 or more patients require access to one available PCC bed then the following factors might influence whether a child is managed temporarily in the local/ regional neonatal ICU:
- 9.1 Age and weight of child (i.e. < 5 kgs, < 4 weeks age)
 - 9.2 Existing 'resident' of a neonatal ICU (eg 6 month old ex 23 week gestation infant with CLD 'transitioning' to PICU for ongoing respiratory support)
 - 9.3 Pathology of presenting illness (eg whether one familiar to neonatologists eg. Congenital heart disease)
 - 9.4 Risk of cross-infection
 - 9.5 Anticipated length of NICU stay
 - 9.6 Local pressures on neonatal services
 - 9.7 Other ODN considerations
10. Individual clinical staff should not be required to take decisions on potentially life sustaining treatments alone under conditions of resource limitation. This is an unfair burden to ask any individual to bear. Within local/ regional surge policies employers have a duty to support decision-making in surge situations, through recognising clinician-led decision-making support groups, promoting regional clinical ethics committees, and providing psychological support.
11. Whilst parents may request specific treatments, if the clinical team believe these are inappropriate, or unavailable in times of constrained resources, the team are not obliged to provide them. In such circumstances hospitals should have a clear process in place for escalating patient/family concerns to senior management within the hospital.
12. Any consultation process and the rationale for all decisions should be clearly documented.

Appendix A

Case example 1

At 02.00 a Paediatric Intensivist at the regional PCC Transport Service is faced with a scenario where 2 critically ill children (aged 7 and 14 years) with similar clinical presentations and co-morbidities requiring mechanical ventilation are referred simultaneously by 2 DGHs. Only 1 PCC bed is available in the region and mutual support from other UK PICUs is unavailable. One child can be retrieved and cared for in PCC, whilst the other child will need to be cared for in an Anaesthetic room of the referring DGH until such time as another PCC bed becomes available.

The Transport Consultant asks administration staff to arrange a teleconference with the regional ethical decision-making support group. The teleconference is joined by 2 senior Paediatric Intensivists on-call at the 2 regional PCCUs, and a regional senior General Paediatrician with a specific interest in ethics, and the local adult intensive care Consultant. The Transport Consultant presents the clinical details of the 2 clinical cases. The group discuss the practicalities of supporting the local hospital managing the 14-year-old child on a temporary basis in their adult ITU. This plan is agreed as being the most appropriate course of action by the ethical decision-making support group but aim to review it on a daily basis depending on the availability of PCC beds. The teleconference is recorded by the Transport Service administration staff and the outcome documented in the patients' medical records.

Case example 2

It is the weekend at a tertiary children's hospital and the duty PCC Consultant is asked to review a 16-year-old boy on the High Dependency Unit for consideration of admission to PICU. The young person is well known to the team, having required several prolonged periods of mechanical ventilation, and has very significant health needs including long term home oxygen therapy, significant learning difficulties, a complex seizure disorder and nutritional support via a gastrostomy. He is currently receiving maximal non-invasive ventilation but has deteriorating gas exchange to a point that would usually prompt intubation and mechanical ventilation. There have previously been extensive escalation discussions amongst his health care team, but no ceilings of care have been agreed with his family, who want their son to receive all possible treatment options.

The PCC Consultant is concerned that although invasive ventilation is possible, it may not be in the patient's best interests. There are no available PCC or ACC beds locally or at any units in adjacent regions. The Consultant arranges an urgent ethics teleconference including a senior PCC consultant colleague and a Consultant from the other regional PICU. They are joined by the patients' lead General Paediatric Consultant and an independent senior Paediatrician. The case is discussed, and the consensus is that the Trust's Medical Director

should be involved in the process. The teleconference is reconvened, and it is decided that maximal non-invasive ventilation will continue to be provided on the HDU with outreach support from the PIC team. Parallel planning will continue with the local hospice team and child's community paediatrician and all decisions will be reviewed on a daily basis depending on the availability of PCC beds.

Case example 3

A critically ill 5-year-old child presents with apparent meningococcal sepsis to a local DGH. There are no available PCC or ACC beds in the region and nationally PCC bed capacity is under enormous pressure. The PCC consultant has identified a patient on their HDU who could be discharged to a DGH HDU bed. This would allow a PIC patient to be stepped down to the tertiary centre HDU care thus creating a PIC bed for the child in the DGH with meningococcal sepsis. However, the nearest available appropriate DGH HDU bed for the patient on the tertiary HDU is further away from the patient's home than the tertiary centre. The Consultant discusses the situation with the sister on HDU who informs him that the child's family have already made several complaints. He speaks with the child's parents directly who react very negatively to the proposal to transfer their daughter to a local DGH HDU distant to their home, and they argue that they do not feel that their child's care is being appropriately prioritised.

The case self-evidently requires delicate handling. The PCC and the regional transport consultant decide to arrange a teleconference with a group of senior colleagues to help support decision making. A senior consultant colleague, the ODN clinical director, and hospital manager, as well as the local Consultant Paediatrician, are 'patched' into the call which is recorded. The regional transport consultant presents the case. All agree that the critically ill child needs to be retrieved to the nearest tertiary PICU as soon as possible due to the likely requirement for advanced PCC support. The ODN clinical director and hospital manager agree that no other options exist for creating additional PCC capacity in the tertiary centre. The ODN clinical director agrees to discuss the case with the regional commissioner to gain support for the proposed plan. The hospital manager accompanies the PCC consultant to have a further discussion with the parents of the child on HDU. They agree to the transfer if their daughter is then prioritised to be moved to their local hospital HDU by the regional transport team at the earliest opportunity. The regional transport team is dispatched to the child with meningococcal sepsis. The child on HDU is transferred by a second team to a distant regional DGH HDU and then moved again to her local DGH HDU 48 hours later.

Appendix B

Table 1 – Operating Pressure Escalation Levels

OPEL	DESCRIPTION	OPEL LEVEL RESPONSE
1	PIC service able to meet all paediatric care capacity requirements without impact on other services. Working within PIC baseline capacity.	PICU level
2	The service's bed capacity across the region is becoming limited. Unable to admit pending patient's within 6 hours unless surge beds opened withing regional units.	Regional level Managed by Regional/ODN team and regional ICC
3	Actions at OPEL 2 failed to deliver required PIC capacity. Capacity across the region and staff ratios are at maximum capacity. Units are unable to accept new referrals within 6 hours	Regional level Managed by Regional/ODN team and regional ICC
4	Actions at OPEL 3 failed to deliver required capacity. PIC surge capacity across the region and supra-region is at maximum capacity and units are unable to accept new referrals within 6 hours	Supra-regional level Managed by supra-regional/ODN and supra-regional ICC with direct links to national ICC

Table 2 – Capacity management: CRITCON–Pandemic levels

The CRITCON–PANDEMIC matrix allows available resources to be fairly reflected in individualised decision making, and if applied correctly prevents inappropriate recourse to triage whilst resources are available, maintaining existing legal and ethical best practice

CRITCON – 2020	Definition	Organisational responsibility (Trust/ Network/ region)	Clinician responsibility
0 Normal	Able to meet all critical care needs, without impact on other services. Normal winter levels of non-clinical transfer and other ‘overflow’ activity.	Routine sitrep reporting. Match critical care capacity to demand. Consistent implementation of legal and professional best practice.	
1 Preparatory	Significant expansion/multiplication of bed capacity, supported by extensive redeployment of staff and equipment from other areas.	Plan and make physical preparation for large-scale critical care expansion. Prioritisation and reduction of elective work. Identify regional mutual aid systems and patient flows. Ensure good awareness of and engagement with local capacity reporting mechanisms including CRITCON Build resilience in data collection and research capacity	Apply usual ethical and legal principles. Use Decision Support Aid (Appx 2) to assess benefit.
2 Sustained surge	System at full stretch, both in ventilator capacity and/or staffing levels, with staff working outside usual role. but adherence to usual clinical practice goals wherever possible. Other resources may be becoming limited e.g. oxygen, renal replacement therapy	Mutual regional aid in place and active. Escalate and ensure maximum awareness of ‘hot spots’ at regional and national level. CRITCON 2 should be the target state during the high-intensity stage of the pandemic. Units still in CRITCON 1 may need to step up to CRITCON 2 to aid others and minimise the occurrence of CRITCON 3. Ensure good governance and support for clinical staff working flexibly. Ensure rapid data collection and research	Apply existing best practice in implementation, discussion and documentation. Deliver best available care both to infected patients, and non-infected patients indirectly affected by changes to normal services. Lead and participate fully in reporting, shared awareness of the evolving situation, data collection, and research.

		participation.	
3 Super surge	Some resources starting to be overwhelmed. Full use of stretched staffing ratios and cross-skilling. Delivery of best available care but not usual care, for the majority of patients.	Whole hospital response. Active decompression of hot sites. High-volume transfers within and across regional boundaries. Maximum co-ordinated effort to prevent any individual site progressing to CRITCON 4	
4 Code RED triage risk	Services overwhelmed and delivery of critical care is resource limited. This stage should never be reached at any site unless regionally & nationally recognised and declared.	Full engagement between clinical frontline, Trust/Health Board, Region and national/political leadership, under 12 hourly review	Focus on minimising loss of life. Use Decision Support Aid to assess benefit and prioritise