

Yorkshire and Humber SHA

ADMISSION OF PATIENTS TO CRITICAL CARE IN PANDEMIC FLU

A guide for clinicians working in adult general intensive care units

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1. Introduction

Current modelling for pandemic flu H1N1 suggests that the demand for critical care beds may exceed availability at peak of a surge. Escalation plans across the 3 Yorkshire networks include proposals for increase of critical care beds by up to and above 100% normal capacity. As capacity expands to meet need patients will be treated on the basis of individual best interest. All attempts will be made to accommodate patients who have a realistic chance of survival utilising the resources available either locally, regionally or, in extreme circumstances, nationally.

As a surge progresses the numbers of patients presenting to critical care could be higher than the beds available. In view of this some form of decision making process (triage) may be applied using the utilitarian principles of doing the most we can for the most patients. As we will not be able to provide comprehensive critical care to all patients the aim will be to treat patients with the best chance of survival. This necessarily means that some patients will not receive the care they would have received under normal circumstances.

2. Current Legal Advice

The East Anglian Critical Care Network has received legal advice on the difficult decisions that may have to be made in a flu pandemic. We are very grateful to this network for sharing this. The advice, from David Lock, is very helpful and is available on the Critical Care Network websites – www.ntccn.org.uk and www.wyccn.nhs.uk However it is only one legal opinion and may be open to challenge. Other, contradictory legal advice has been given.

Even in extreme situations the principle of reverse triage is controversial and a meeting of the national adult critical care network medical leads in November 2009 indicated that it should only be considered when national bodies have endorsed it.

We would urge all who may be involved in difficult decisions to read the full David Lock document and bear in mind that any decisions they make could be open to legal challenge and should be fully documented.

3. Principles to be applied in the Yorkshire and Humber Region.

- a. It is expected that all units within the Yorkshire and Humber region will not triage patients until services are overwhelmed. This will be when critical care capacity has expanded to maximum and transfers may not be feasible. A decision to triage will be taken by Gold Command following advice from the networks.
- b. Scoring systems may be used to guide clinical decisions on admission or withdrawing treatment from adult patients who are deteriorating and thus having a high mortality. However these are just a guide and give information on populations and not individuals.
- c. There are no validated scoring systems for paediatric use and, in view of the high survival rates of children presenting to critical care under normal conditions, there are not likely to be.
- d. Wherever possible decisions should be made using the '3 wise men' approach.
- e. Reverse triage (triaging a patient out of intensive care to make way for a patient with a higher chance of survival) is controversial. It should only be considered when specific advice is received from the Strategic Health Authority. These cases may well be open to legal challenge or a judicial review.
- f. All decisions should be fully documented.

In this document decision making systems are separated into Adult and Paediatric and include the following components:

Adults & Paediatric

1. Inclusion criteria.
2. Exclusion criteria.
3. Documentation sheet. This is intended for use in admission decisions and treatment withdrawal decisions for adult general intensive care units admitting both adult and paediatric patients during a flu pandemic.

Adults only.

4. Prioritisation according to severity of illness (using SOFA score).

4. Admission process for patients at the height of a surge.

- Systems to be in place to keep Paediatric, A&E and admissions units up to date with current level 3 bed availability.
- Patient requiring level 3 care identified by A&E or admitting medical, surgical or paediatric team.

Adults Patients

Admission sheet started.

- Patients meeting exclusion criteria.
 - Discuss with medical/surgical/A&E consultant on call. If exclusion criteria met or, for other reasons, the patient is deemed inappropriate for level 3 care then level 1 care or palliation will be instituted.
 - It is not envisaged it would be necessary to refer every patient to an intensivist for advice.
 - Decisions documented on triage sheet.
- Patients meeting inclusion criteria.
 - Adults
 - SOFA score calculated (this is only a guide).
 - Discuss with medical/surgical/A&E consultant on call.
 - Taking into account the relevant clinical information consider referral to level 3 care and discussion with intensivist.
 - Decision documented on triage sheet

Paediatric Patients.

Admission sheet started.

Children meeting exclusion criteria.

- Paediatric resident to discuss with the paediatric consultant on call who will review the patient.
- Paediatric consultant will discuss the case, if appropriate, with the regional paediatric intensivist. If the patient is deemed inappropriate for level 3 care then level 1 care or palliation will be instituted.
- Decision documented on triage sheet

Children meeting inclusion criteria.

At the height of a surge, when all local critical care beds are full, difficult decisions will have to be made regarding the admission and continued treatment of children, particularly those with severe acute or chronic illness. In this situation the following is a guide to the process that should be considered:

- **If two or more children present simultaneously for level 3 care and there is only one bed available:**
 - All reasonable attempts to find a bed locally, regionally or nationally should be made.
 - If there is no bed or no possibility of transfer, the decision as to who to admit must be based on clinical experience as to which of the children, at that moment, would benefit most from intensive care. The local paediatrician is the clinician who is most likely to be able to make this judgement in discussion with the local intensivist.
 - If there is any doubt the local paediatrician should liaise with the local paediatric intensivist and local intensivist for advice.
 - Ultimately the decision is a local one.
 - All decisions should be thoroughly documented.

New patients presenting to A&E when local and regional (including adjacent networks) critical care level 3 beds are understood to be at full capacity:

- **Paediatric patients presenting to Emergency Departments during a surge who have a chronic debilitating illness with limited life expectancy or terminal illness who in normal circumstances would be offered a paediatric intensive care.**
 - The local paediatrician will:
 - liaise with the paediatric intensivist regarding the availability of paediatric intensive care beds nationally.
 - discuss the situation with parents, enquiring about pre-existing emergency care plans and seeking parental views on the appropriateness of ICU admission.
 - Decisions to continue active therapy will be taken on the basis of the potential benefit of intensive care to the individual. The nature of the patients' illness, life expectancy and quality of life should be taken into account.
 - Once these discussions have taken place the local paediatrician will liaise with the local intensivist and hospital management team. The local intensivist may wish to have a further conversation with the paediatric intensivist.
 - The new patients will be either be:
 - Transferred to another unit (if possible).
 - Admitted to the local unit once a bed becomes available
 - Moved from an active to a palliative phase in their management (this may include withdrawal of advanced airway support).
 - All decisions must be thoroughly documented.

- **Paediatric patients in extremis:**
 - It is expected that both the anaesthetic and paediatric teams will be involved and will immediately consult with the relevant consultants on call. Basic life (and possibly advanced) support will be commenced.
 - The consultant paediatrician will liaise with the regional paediatric intensivist and local intensivist regarding:
 - Availability of level 3 paediatric beds nationally.
 - The appropriateness of ongoing resuscitation in the light of the patient's condition and co-morbidities taking into account the regional/national resources available.
 - Depending on the outcome of the discussions a decision will be taken by the local paediatrician, in conjunction with the local intensivist and the relevant hospital management team, regarding transfer of the new patient or an existing patient on the unit.
 - The new patients will be either be:
 - Transferred to another unit (if possible).
 - Admitted to the local unit once a bed becomes available
 - Moved from an active to a palliative phase in their management (this may include withdrawal of advanced airway support).
 - All decisions must be thoroughly documented.

- **It two or more patients present simultaneously for level 3 care and there is only one bed available when one of the patients is a child and the other an adult:**
 - All reasonable attempts to find a bed locally, regionally or nationally for the child and adult should be made.
 - If there is no bed or no possibility of transfer, the decision as to who to admit must be based on clinical experience as to which of the patients, at that moment, would benefit most from intensive care. This decision will need to be made by the local intensivist although the opinions of both the local paediatrician and a paediatric intensivist may be sought in order to ascertain the likely benefit for the child of intensive care.
 - Ultimately the decision is a local one.
 - All decisions should be thoroughly documented.

5. PROPOSED INCLUSION AND EXCLUSION CRITERIA

FOR CRITICAL CARE PATIENT TRIAGE IN PANDEMIC FLU

Paediatric Inclusion Criteria

1. The child is failing to maintain a SaO₂ of >92% in FiO₂ of >60%
2. There is severe respiratory distress
 - a. Raised PaCO₂ (> 6.5 Kpa)
 - b. There is a rising respiratory rate and pulse rate with clinical evidence of severe respiratory distress with or without a raised PaCO₂
 - c. There is recurrent apnoea or slow irregular breathing
3. The child is shocked and does not respond to a fluid resuscitation (equal to or greater than a total of 40 ml/kg⁻¹ of 0.9% Saline or Hartmann's).
4. There is evidence of encephalopathy with coma (GCS < 9) or seizures requiring intubation for airway control.

Paediatric Exclusion Criteria

There is no valid adjunct, such as SOFA scoring, to clinical decision making in triage for children. The principle of acting in the best interest of the individual must apply. However if intensive care is not in their best interest then admission to intensive care is inappropriate. These situations have been laid out by the Royal College of Paediatrics and Child Health and are outlined below:

- The "Brain Dead" Child
- The "Permanent Vegetative" State
- The "No Chance" Situation
- The "No purpose" Situation
- The "Unbearable" Situation

Examples of paediatric patients who may not be offered level 3 care during the height of a flu pandemic when resources are limited:

1. Out of hospital cardiac arrest where circulation has not returned within 20 minutes of hospital admission.
2. Children who have life limiting conditions and whose parents agree that ICU care is not in their best interests (increasing numbers of such children have emergency care plans drawn up)
3. Any child who has entered a palliative care pathway

If there is no bed it is recommended that a decision as to which patient to admit in this situation should be taken by a paediatrician & the clinician managing the critical care facility in conjunction with a member of the hospital management team. Liaison with the on call paediatric intensivist in the tertiary centre for advice should form part of the decision making process. However it is recognised that putting in place all the elements outlined at the peak of a surge may not be possible. Full documentation of any decisions is vital. The form in this document may assist in that regard.

Adult Inclusion Criteria

The patient must have 1 of the following:

A. Requirement for invasive ventilatory support

- Refractory hypoxemia (SpO₂ < 90% on non-rebreather mask or FIO₂ > 0.85)
- Respiratory acidosis (pH < 7.2)
- Clinical evidence of impending respiratory failure
- Inability to protect or maintain airway

B. Hypotension (systolic blood pressure < 90 mm Hg or relative hypotension) with clinical evidence of shock (altered level of consciousness, decreased urine output or other evidence of end-organ failure) refractory to volume resuscitation requiring vasopressor or inotrope support that cannot be managed in ward setting.

Adult Exclusion Criteria

- a. Patients with a poor prognosis despite Critical Care.
- b. Patients who require resources that cannot be provided during a pandemic these patients may benefit from critical care, but their intense use of resources and prolonged care cannot be justified during a pandemic when the aim is to do the most good for the most people with limited resources).
- c. Patients with advanced medical illness (who are likely to suffer severe complications from flu)

Examples of patients who may be excluded from admission or transfer to critical care:

A. Severe polytrauma

B. Severe burns of patient with any 2 of the following:

- Discrimination should not be made on the basis of age but it is recognized that increasing age (for example patients greater than 60 years) is a marker for poor outcome in severe burns.
- > 40% of total body surface area affected
- Inhalation injury

C. Cardiac arrest

- Unwitnessed cardiac arrest
- Witnessed cardiac arrest, not responsive to electrical therapy (defibrillation or pacing)
- Recurrent cardiac arrest

D. Neuromuscular disease with poor prognosis or severe and irreversible neurologic event.

E. Metastatic malignant disease with poor prognosis or elective palliative surgery

F. Advanced and irreversible immunocompromise

G. End-stage organ failure meeting the following criteria:

Heart

- NYHA class III or IV heart failure

Lungs

- COPD with FEV1 < 25% predicted, baseline

Liver

- Child–Pugh score > 7

Kidney

- Dialysis dependent

H. Age

Discrimination should not be made on the basis of age but it is recognised that increasing age (for example patients greater than 85 years) is an adverse prognosticator for positive outcome in critical care.

6. CRITICAL CARE DECISION PATHWAY IN PANDEMIC FLU

Name:

Hosp number:
details

Patient

Date	Time	Consultant	Ward
Date of admission		Days on ventilator N/A	
Primary diagnosis		Secondary diagnosis	
Pre-existing co-morbidities		ICU beds available Local Yes/No Regional Yes/No National Yes/No	
Adult Inclusion criteria met Yes /No		Paediatric Inclusion criteria met. Yes /No	
Adult Exclusion criteria met Yes / No		Paediatric Exclusion criteria met. Yes /No	
SOFA score (0-24)		Situation	
Respiratory (0-4):		Brain Dead	Yes /No
Cardiovascular (0-4):		PVS	Yes /No
Coagulation (0-4):		No Chance	Yes /No
Neurological (0-4):		No Purpose	Yes /No
Renal (0-4):		Unbearable	Yes /No
Hepatic (0-4):		Other (state reason)	
Total:			
Priority (<i>see below</i>)		Discussion with paediatric intensivist	Yes /No Name:
Blue /Red /Green/Yellow			
Action		Ward care / Palliation / Critical Care referral	
Time of Critical Care referral		Name of Critical Care Doctor contacted	
Critical Care decision		Admit / Refuse / Re-assess / Withdrawal of treatment	
Reason for Critical Care refusal		Clinical / Resources	
Palliative care indicated	Yes / No	Palliative care protocol initiated Yes / No	
Family informed		Yes / No	
Consultant / executives signatures/names (up to 3)		Designation	
1			
2			
3			

Sequential Organ Failure Assessment (SOFA) Scale (for use in adults only)					
Variable	0	1	2	3	4
Respiratory PaO ₂ /FiO ₂ (KPa)	>53	<53	<40	<27	<13
Coagulation Platelets	>150	<150	<100	<50	<20
Hepatic Billirubin	<20	20-32	33-100	101-203	>203
Cardiovascular Hypotension	None	MAP<70	Dob <5	Dob >5 Epi, <0.1 Norepi <0.1	Dob >15 Epi >0.1 Norepi>0.1
Neurological Glasgow Coma Score	15	13-14	10-12	6-9	<6
Renal Creatinine	<106	106-168	169-300	301-433	>434
Dob = Dobutamine, Epi = Epinephrine, Norepi = Norepinephrine Doses in mcg/kg/min					

3. Adult Prioritisation

Triage code	Criteria	Action or priority
Blue	Exclusion criteria met or SOFA score > 11*	<ul style="list-style-type: none"> • Manage medically • Provide palliative care as needed • Discharge from critical care
Red	SOFA score ≤ 7 or single-organ failure	Highest priority
Yellow	SOFA score 8-11	Intermediate priority
Green	No significant organ failure	<ul style="list-style-type: none"> • Defer or discharge • Reassess as needed

Note: SOFA = Sequential Organ-Failure Assessment.

*If an exclusion criterion is met or the SOFA score is > 11 anytime from the initial assessment to 48 hours afterward, change the triage code to Blue and proceed as indicated.