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CRITCON-Pandemic levels: A stepwise ethical approach to clinician responsibility

Dan Harvey[1], Dale Gardiner[1], Andrew McGee[2], Thearina DeBeer[1] and David Shaw[3,4]

Abstract

CRITCON-Pandemic levels with an associated operational responsibility matrix were recently published by the Intensive Care Society as a modification to Winter Flu CRITCON levels, to better account for differences between a winter flu surge in critical care activity and the capacity challenges of the COVID-19 pandemic. In this paper, we propose an expansion and explanation of the operational matrix to suggest a stepwise ethical approach to clinician responsibility. We propose and outline the main ethical risks created at each level and discuss how those risks can be mitigated through a balanced application of the predominant ethical principle which in turn provides practical guidance to clinician responsibility. We thus seek to specify the ethical and legal principles that should be used in applying the operational matrix, and what the practical effects could be.

Keywords

COVID 19, critical care, ethics, intensive care, triage

The COVID-19 pandemic[1] is unprecedented, but critical care in the United Kingdom is well used to surges in activity that exceed bed capacity. Winter flu CRITCON levels are a recognised way to describe the resource strain each ICU is under, allowing patient transfers within a critical care network to less strained ICUs in the event of a surge in patients beyond established capacity.[2] CRITCON-Pandemic levels were recently proposed by the Intensive Care Society (ICS) as a modification to Winter flu CRITCON levels so as to better account for differences between a Winter Flu surge in critical care activity and the capacity needs and challenges of the COVID-19 pandemic (Table 1).[1] Like the CRITCON Winter Flu levels, CRITCON-Pandemic approaches the current pandemic in a stepwise pattern.

The CRITCON-Pandemic levels proposed by the ICS provide both a definition and an expectation of organisational responsibility at each level but do not suggest any modification to clinician responsibility until extremis is reached in CRITCON 4. Until that point clinicians should 'apply usual ethical and legal principles'. While these ethical principles do not change, the application and balance of the principles will undoubtedly change as critical care capacity worsens. For example, in CRITCON 1 – Preparatory phase, there is prioritisation and reduction of elective work, leading to inevitable delay for these patients. Likewise, the duration of continuing failed intensive care therapy for the purpose of allowing family acceptance of an impending death is unlikely to be possible at CRITCON 2 or 3 without seriously harming other patients.

In this paper, we propose an expansion and explanation of the ICS CRITCON-Pandemic matrix to provide a more stepwise ethical approach to clinician responsibility (Table 2). We outline the main ethical risks created at each level and how those risks can be mitigated through a balanced application of the predominant ethical principle/s which in turn provide practical guidance in terms of clinician responsibility. We seek in this way to specify what 'apply usual ethical and legal principles' means and what the practical effects are expected to be. While the application here is to a pandemic situation, the ethical analysis could

[1]Nottingham University Hospitals NHS Trust, Nottingham, UK
[2]Faculty of Law, Queensland University of Technology, Brisbane, Australia
[3]Universitat Basel Institut fur Bio-und Medizinethik, Basel, Switzerland
[4]Care and Public Health Research Institute, Maastricht University, Netherlands

Corresponding author:
Dan Harvey, Nottingham University Hospitals NHS Trust, Nottingham NG7 2UH, UK.
Email: danjrharvey@gmail.com

Table 1. CRITCON pandemic levels ICS operational responsibility matrix.[1]

CRITCON-Pandemic ICS operational responsibility matrix			
CRITCON-2020	**Definition**	**Organisational responsibility (Trust/Health Board, 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.	Apply usual ethical and legal principles. Use Decision Support Aid to assess benefit. 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.
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.	
2 – Sustained surge	System at full stretch, both in ventilator capacity and/or staffing levels, with staff working outside usual roles 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 levels. 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 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.	

(continued)

Table 1. Continued.

CRITCON-Pandemic ICS operational responsibility matrix			
CRITCON-2020	**Definition**	**Organisational responsibility (Trust/Health Board, Network/Region)**	**Clinician responsibility**
4 – Code red: Triage risk	Services overwhelmed and admission and delivery of critical care is resource limited. This stage should never be reached at an individual site unless regionally and 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.

ICS: Intensive Care Society.

Table 2. CRITCON pandemic levels with expanded ethical risks, principles and clinician responsibilities.

CRITCON-2020	Main ethical risks	Predominant ethical principles	Expanded clinician responsibility
0 – Normal	Usual practice	Autonomy	Usual practice. Explicit shared decision-making
1 – Preparatory	Drawbridge ethics Moral panic	Justice Autonomy	Try to meet the healthcare needs of the non-infected. Avoid 'Drawbridge ethics' and moral panic. Use a recognised framework for decision-making. www.criticalcarenice.org.uk Shared decision-making should continue but may require explicit explanation about resource availability.
2 – Sustained surge	Magic number ethics Moral blindness Paternalism	Justice Non-maleficence	Use a recognised framework to make individualised care decisions to identify patients who will not survive critical care or benefit from specific critical care treatments (e.g. invasive ventilation) and balance the offer of such treatments carefully. Provide explanation and transparency in patient and family communication. Never compromise compassionate care.
3 – Super surge	Moral confusion	Justice Beneficence	Use a recognised framework to make individualised care decisions focused on identifying who is likely to maximally benefit from critical care. Use best available prognostic tools throughout critical care admission and care. Resource limitation may be part of the dialogue and decision-making but should be in the context of survivability and appropriate transfer to other sites with available capacity. Never compromise compassionate care.
4 – Code red: Triage risk	Moral paralysis Hobbesian ethics	Justice	Focus on minimising loss of life. Maintain senior decision-making leadership. Use queuing /ranking basis to maximise lives saved. Ranking may closely resemble established fire evacuation plans. Never compromise compassionate care.

be applied to other large-scale national critical care emergencies.

The ethical principles we have included in the expanded table are the familiar principles known by all healthcare professionals: respect for autonomy, beneficence, non-maleficence and justice.[3] Deteriorating critical care resources, reflected in worsening CRITCON-Pandemic level, will give different weight to each of the four principles, even as the principles themselves remain the same. By being explicit about the ethical principle most likely to predominate at each CRITCON-Pandemic level, clinicians and the organisation/s that support them can more safely weigh and balance each of the four principles in any medical decision that is being made.[4] Frameworks and toolkits to help support shared decision-making have recently been recommended and published by NICE.[5] We suggest that through adopting this balanced ethical approach clinicians will more likely be able to mitigate against the ethical risks at each level, more closely follow legal and professional obligations, and actually reduce the chance of their unit deteriorating into CRITCON-Pandemic 3 or 4.

The GMC have updated their ethical guidance, which states 'the primary requirement for all doctors is to respond responsibly and reasonably to the circumstances they face',[6] highlighting the importance of avoiding discrimination, assessing effectiveness, applying national guidance and taking account of patient wishes. The British Medical Association (BMA) CoViD-19 Ethics Guidance helpfully acknowledges that decisions about which patients should receive treatment will change over the course of the pandemic if serious depletion of resources arises but still seeks to protect patients and NHS staff.[7] We suggest that adopting a step-wise balanced ethical approach is the best way to operationalise such guidance and this can ensure that patient care decisions remain individualised, transparent and shared, even in the worst of circumstances.

CRITCON-Pandemic 0: Normal

CRITCON-Pandemic 0 represents normal functioning of critical care when there is no public health emergency. Though there may still be times when the ICU is short of beds, there is minimal pressure in terms of resource allocation. This is reflected in the fact that respect for autonomy is the predominant (first among equals) ethical principle at this level.[8] Since, at this time, there is little constraint on resources and time, patients, their families and healthcare professionals engage in shared decision-making.[9] This shared decision-making is generally done in an unhurried manner that allows time for due reflection and communication of the balance between benefits and burdens of proposed treatments. Medical decisions can be entirely individualised and made in the patient's wider best interests (taking strong account of values, wishes and beliefs and not just on singular outcomes like mortality) as perceived by the patient or surrogates (if the patient lacks capacity[10]). Many intensivists will acknowledge that this is perhaps an idealistic view of UK critical care, but it certainly describes the decision-making context that is strived for.

CRITCON-Pandemic 1: Preparatory

CRITCON 1 represents the early state of the pandemic which the majority of ICUs in the world are either in or have passed through. A pandemic has been declared and hospitals are instigating preparations to expand ICU capacity to cope with the expected future influx of infected patients. Preparations include minimising elective surgery to urgent and life-saving cases which allows for the conversion of operating theatres and recovery rooms into quasi-ICU areas and the redeployment of anaesthetists and other staff to critical care. The aim is to create more capacity than is currently required in order to be ready for admissions.

The BMA Ethics Guidance highlights that, 'In dangerous pandemics the ethical balance of all doctors and healthcare workers must shift towards the utilitarian objective of equitable concern for all – while maintaining respect for all as "ends in themselves"' (page 4).[7] One main ethical risk at this level is slipping into 'Drawbridge Ethics', where the metaphorical drawbridge is raised long before the enemy army actually arrives, preventing the populace from reaching the safety of the castle. For hospitals, this is equivalent to cancelling or restricting so much other activities that the mortality in the non-infected patients might exceed the deaths in that hospital of infected patients; an example is cancer patients awaiting surgery. This premature raising of the drawbridge represents a failure to apply the ethical principle of justice to ensure a fair distribution of resources. The anticipation of future patients can be ethically sound if it encourages appropriate preparation and far-sightedness in terms of anticipating the pending pandemic.[11] However, if it results in an over-proactive focus on future infected patients then this can lead to tunnel vision, which at its worse results in 'Moral Panic' with hospital managers, clinical staff and society as a whole prematurely acting like, and making decisions as if, they are already at the worst stages of the pandemic (for example when members of the public panic buy toilet paper unnecessarily, creating shortages of it for some other citizens). In this paper, we use shorthand ethical terms, such as 'Drawbridge Ethics' and 'Moral Panic' to summarise ethical risks and concepts for clinicians on the front line, and these are explained in Table 3.

At CRITCON-Pandemic 1, clinicians must strive to meet the healthcare needs of the non-infected while preparing for the future needs of the infected.

Table 3. Explanation of main pandemic ethical risks.

CRITCON-2020	Main ethical risks	Definition	Context / Example
0 – Normal	Usual practice		
1 – Preparatory	Drawbridge ethics	When the drawbridge is raised long before the enemy army actually arrives, preventing the populace from reaching the safety of the castle. A failure to apply the ethical principle of justice to ensure a fair distribution of resources.	Cancelling or restricting so much other hospital activities that the mortality in the non-infected patients might exceed the deaths in that hospital of infected patients.
	Moral panic	Over-proactive focus on the future leading to tunnel vision and prematurely acting like, and making decisions as if, we are already in the worst stages of the pandemic.	Hospital managers and clinical staff cancelling all other activities or using apocalyptic language. Panic buying of toilet paper.
2 – Sustained surge	Magic number ethics	Reducing complicated and individualised patient care decisions to an arbitrary 'cut off'. Use of prognostic scores or absolute restrictions is attractive because they give the illusory appearance of removing moral responsibility for decisions from the clinician.	Reliance on a prognostic score or age restriction that results in a 'cut off' for accessing ICU treatments.
	Moral blindness	Loss of due attention to accepted (and still applicable) ethical, legal and professional norms risking discrimination or arbitrariness.	Guidelines and policies are published and accepted rapidly without due consideration and scrutiny, leading to revision (e.g. NICE use of Clinical Frailty Scale criticised by disability groups, requiring NICE to modify and clarify[13]).
	Paternalism	'The power and authority one person or institution exercises over another to confer benefits or prevent harm for the latter regardless of the latter's informed consent[12,]	Individual clinicians failing to engage with, and provide explanation and transparency in, patient and family communication, or share decision-making when it is possible to do so. (e.g. alleged *en masse* DNACPR decisions in nursing homes[14]).
3 – Super surge	Moral confusion	Rational and ethical thinking beginning to fail, and decisions are being made on instinct (heuristic) without reflection.	Dangerous and inconsistent decision-making without consensus or justification.
4 – Code red: Triage risk	Moral paralysis	Rational and ethical thinking has failed and decisions that should be made are not being made. No one is in control	Clinical staff and leaders are simply unable to make decisions, emotions are high (shouting, crying) and patients are dying in a chaotic and uncontrolled manner.
	Hobbesian ethics	From Thomas Hobbes, 1651.[15] 'Where there is no common power, there is no law- . . . every man against every man. . . and the life of man, solitary, poor, nasty, brutish and short'. .	Where the noisiest opinion (by clinician, patient or family) or strongest action wins (actions without agreement or consensus), regardless of any considered ethical judgement.

Shared decision-making and respect for autonomy should continue, but it may be necessary to explicitly explain to patients and families about resource availability and why some services are to be modified or reduced.

CRITCON-Pandemic 2: Sustained surge

Many critical care units in the UK are (at the time of writing) already at this level, and during the pandemic, this is the level critical care units should aim to hold through an active approach to mutual regional aid. At this level resources are available but to maintain this state, difficult ethical decisions will have to be made. Revised 2017 government pandemic flu ethics guidance quoted by the BMA states that, 'everyone matters and everyone matters equally, but this does not mean that everyone will be treated the same'.[16] Neither healthcare managers, clinicians or the public should make the mistake of thinking this is a good place to be in or that it is business as usual. Pandemics are dreadful, and the moral distress for patients, families and staff[17] is substantial and sustained.[18,19]

In non-pandemic normal circumstances there are many reasons, apart from survival, why ICU treatments like invasive mechanical ventilation are offered and persisted with.[20] Such reasons include patient and family requests, giving time for family understanding, cultural preferences around end-of-life care, fear of complaint or legal challenge, lingering doubt about a poor prognosis, guilt from an iatrogenic injury or comfort from treatment being tried even when failure is expected. Such reasons are common and often acceptable because they satisfy important other outcomes of relevance for patients, families and healthcare professionals.

Pandemic situations, where resources are threatened with being overwhelmed, require a different response. Ethically, the focus is now squarely on justice and offering ICU treatment only to those who may gain a reasonable chance of having a survival benefit and preventing the harm (maleficence) that results from 'wasting' resources on those who will not benefit. The BMA holds that 'it will be necessary to adopt a threshold for admission to intensive care or use of scarce intensive treatments'.[7] Instigating or maintaining ICU treatment which is believed unlikely to lead to patient survival for the purposes of satisfying guilt (where there is only a theoretical possibility of survival), minimising external criticism or giving more time for families to accept the expected poor outcome, may need to be curtailed. Implicitly, this is to begin applying a narrower interpretation of best interests that focuses on not delivering care for reasons other than survival.

It is easy to be seduced at this level by the illusory certainty offered by guidelines and scoring criteria that lay down strict rules for determining who is prioritised for ICU beds. This 'Magic Number Ethics' may seem appealing because it can be used to remove moral responsibility from the clinician, reducing moral distress. But scoring systems risk becoming a substitute for making a genuine ethical choice. There is a significant danger that any score will be set too high, utilising ICU for those unlikely to survive, or too low, and failing to save those who might have been saved. Prognostic scoring tools can be useful but must only ever be used as guidance (as scoring criteria can be helpful in terms of informing discussion) and not as rigid rules that fail to allow for the context of individualised patient care. This is especially the case for an emerging disease where prognostic scoring will inevitably be unvalidated and based on a likely confounded and biased data set. The BMA finds that simple 'cut-off' policies with regard to age or disability would be unlawful as it would constitute direct discrimination, under the Equality Act 2010.

Furthermore, over-reliance on such magic numbers will fail to resolve the myriad of other ethical decisions required during intensive care. The use of decision-making panels as a sort of replacement for individualised patient care decisions, as suggested by some,[21] poses similar risks and should be resisted in the context of UK critical care. It is quite possible that 'Moral Blindness' can occur, where guidelines and policies are published too quickly without due attention to accepted (and still applicable) ethical, legal and professional norms risking discrimination.[22] The role of local ethics committees can be in ensuring policies and procedures are scrutinised to ensure non-discriminatory patient decisions and sound ethical principles are followed. There is the additional ethical risk of 'Paternalism', where individual clinicians, perhaps because of considerable emotional distress, fail to engage with and provide explanation and transparency in patient and family communication, or share decision-making when it is possible to do so.

The best way to mitigate these ethical risks is to use a recognised framework to make individualised care decisions.[5,6] While certainly useful at CRITCON-Pandemic 1, ethical decision-making frameworks are strongly encouraged at CRITCON-Pandemic 2 and 3. This will help clinicians make sound and defensible decisions around escalation of treatment, ensure good governance by involving others in decision-making, supports good communication with patients and their families and facilitates clear documentation.[7]

CRITCON-Pandemic 3: Super surge

At this level, some resources are starting to be overwhelmed. Delivery of care will be the best available but will not meet applicable clinical standards for the majority of patients. This is an emergency situation. A whole-hospital and regional response is required, with the intention of returning the critical care to CRITCON-2 as soon as possible. Resource

limitations may be part of the dialogue and decision-making, but only in the context of survivability and appropriate transfer to other sites with available capacity. This could be achieved through high-volume transfers within and across regional boundaries.

Increased weight must be given to the ethical principles of justice and beneficence or 'Moral Confusion' will result – when rational and ethical thinking may begin to fail. This will require leadership and a clinical focus on prioritising care to those who are likely to have the maximum benefit in the shortest time.[23–25] If CRITCON-Pandemic 2 was about safely identifying *who will not benefit* from critical care, CRITCON-Pandemic 3 is about trying to identify *who will benefit the most* and prioritising that patient's care. The BMA reassures clinicians by stating that in their opinion a 'capacity to benefit quickly' test would be lawful in the circumstances of a serious pandemic.[7] Again, this is a truly distressing state for any patient, family or healthcare professional to be in.

The use of a recognised framework to make individualised care decisions focused on identifying who is likely to maximally benefit from critical care will still play an essential role, even if the documentation may need to be abbreviated. The best available prognostic tools should be used and decisions shared with colleagues, recognising that such tools should be regularly updated as data improve.[26]

CRITCON-Pandemic 4: Code red: Triage risk

At this level services are overwhelmed, and admission and delivery of critical care is resource limited. This stage should never be reached at an individual site unless CRITCON-Pandemic 4 is regionally and nationally declared. It will require full engagement between the clinical frontline, hospital, regional and national/political leadership to de-escalate and avoid the risk of catastrophic loss of life. There is a risk in such an emergency that 'Moral Paralysis' will emerge, where clinical staff and leaders are simply unable to make decisions, resulting in 'Hobbesian ethics' – where the noisiest opinion or strongest action wins, regardless of any considered ethical judgement.

With good leadership, this paralysis can be avoided. The predominant ethical principle in this context is justice, with the focus being a logistics exercise in delivering benefit in an equitable way across a population in order to maximise the number of lives saved. We suggest that for this reason the ranking should closely resemble established fire evacuation plans, where patients are triaged according to dependency.[27] In such terrible circumstances, so-called reverse triage, the withdrawal of treatment from patients unable to benefit quickly, may become necessary, in line with BMA guidance.[7] An example that nearly led to this tragedy occurring was the failure of oxygen supply at Watford General Hospital;[28,29] one can imagine having to reduce the very high flow of oxygen being delivered to a single patient to allow many more to live.

Conclusion

COVID-19 is a global crisis, but the solution to that crisis is not to immediately switch from normal operations to extreme critical care decision-making which risks unjustified deviation from legal, professional and ethical norms. The correct response is not binary, but a gradual escalation as required, taking care to ensure that ethical principles are applied in a balanced way at every step. This will ensure that even during a pandemic, critical care units will be using an ethical framework which is both protecting individualised patient care decisions and actively preventing the CRITCON-Pandemic level from worsening.

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ORCID iDs

Dan Harvey https://orcid.org/0000-0002-5165-3277
Andrew McGee https://orcid.org/0000-0002-5564-9937

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