

Adaptive Resilience for Emergency Services

We are living in extraordinary times. Frontline staff dealing with COVID-19 have described this as ‘a war zone’, a ‘tsunami’, ‘surreal’, ‘abnormal’. They seem to be saying that this is not business as usual but business as unprecedented.

It is a global crisis and, although the considerable and extensive expertise of NHS staff will enable them to deal with this, they are going to have to, with speed and efficiency adapt, innovate and work with fewer resources, for longer hours and deal with a pandemic the size and scope of which is a once in a hundred years or more event. This will require adaptive resilience.

Project ARES offers a series of resources which, as and when (and if) they chose to, frontline staff can adopt. These resources are available to all, free to all – here in the UK and internationally (we have already had request from India and the US). There is no research funding attached to the project and all involved in this project have given their expertise freely.

Many of those involved are from a military or emergency services background. They have worked in extreme environments or have studied those environments. Many of the resources offered under Project ARES may be imperfect but they have been built and designed with the maxim of ‘imperfect but rapidly available resources are better than perfect ones that came too late’. We have not applied for any grants or any research funding (there wasn’t the time nor desire). All the offerings here are suggestions based on our decades of research and practical experience of dealing with critical incidents.

The Problem

When Italian hospitals reached capacity and all of their resources were over-stretched, they were forced to bring in guidelines that were similar to moral choices doctors may face in wartime triage or “catastrophe medicine”. The British Medical Association (BMA) has recently brought in similar guidelines for U.K. doctors as they face a fast-moving, unpredictable pandemic with an unknown duration¹. The BMA states that doctors are being diverted into new and unfamiliar areas of work and working at or even beyond their normal limits of competence or expertise.

Retired doctors are returning to practice, final year medical students are being fast-tracked into front-line roles, resources are becoming restricted and choices of available care are becoming limited. The BMA

¹ <https://www.bma.org.uk/media/2226/bma-covid-19-ethics-guidance.pdf>

DECISION-MAKING OVERVIEW

guidelines are based on utilitarianism, this means they are informed by the principle of maximizing benefits for the largest number. The guidelines state that under these high-pressure and uncertain conditions, NHS staff may be forced to make high-consequence decisions in which all options are high-risk and morally/ethically challenging.

Additionally, NHS staff may find they have no previous experience or policy/doctrine to follow when forced to make tough decisions. We have conducted extensive research into how military and emergency services personnel make difficult decisions in high-stakes, uncertain environments that may offer insight and guidance to NHS staff faced with making difficult decisions and living with the consequences of those decisions made during the COVID-19 crisis.

Situations that NHS staff may be faced with include:

- **Triaging** - during the pandemic it is possible that demand on health services will override the ability of the NHS to deliver services to pre-pandemic standards. This will mean NHS staff may have to implement decision-making policies that mean some patients are denied or are withdrawn from treatment they would have normally received outside a pandemic in order to enable treatment of patients with a higher survival probability. Similarly, NHS staff may have to choose who to bring into hospital for life-saving care and who is better off being left to die at home.
- **PPE** - Lack of Personal Protective Equipment (PPE) for a range of NHS staff has been repeatedly reported since the COVID-19 outbreak in the UK². Whilst efforts are being made to acquire enough PPE, it is putting NHS staff in difficult situation such as whether to attend to a patient who is COVID-19 positive, without adequate PPE, or for managers deciding which members of staff are given PPE where there is not enough to go around.
- **Managing deaths** - due to the COVID-19 crisis, relatives are unable to visit and be with their loved ones. When patients are critically ill and dying it raises a number of moral issues around enabling a compassionate death.

We have put together a series of mini lectures on key areas of decision-making based on our research extensive research how military and emergency services personnel make difficult decisions. Below is a summary of the key areas with examples of how this relates to NHS staff.

² <https://www.bbc.co.uk/news/uk-england-suffolk-51914221>; <https://www.bbc.co.uk/news/health-52145140>

DECISION-MAKING OVERVIEW

FEATURES OF CRITICAL INCIDENTS

Research with military and emergency-services personnel has found that the biggest problem in high-stakes, uncertain and low resource critical incidents is not error but inertia (i.e. failing to make a decision in time). Decisions made during the COVID-19 crisis are likely to be complicated by a series of environmental factors that are also present in high-stakes military police and governmental decisions adding stress to the decision-making process. These include:

- **Uncertainty & Stress**
- **High Stakes** - i.e. someone will die based on this decision.
- **Emotion**
- **Volume of Information** - e.g. too much or too little.
- **Inability to Diagnose the Problem**
- **Accountability** - worry about legal or criminal charges if they went against wishes of patient or family.
- **Time-Pressure**
- **Inter- and Intra-agency Teams** - members of staff being moved around to different wards due to more critical need which creates teams of people who haven't worked together leading to uncertainty.

Additionally, decisions that we make are driven by previous experience or by rules, doctrine or policy. As a doctor when a patient comes in with a certain set of symptoms you make a decision on how to treat them either based on your many experiences with patients you've seen with the same set of symptoms or from a rule-based knowledge - i.e. 'if a patient presents with symptoms X, the treatment is Y.' The problem is, when faced with uncertain, new environments, you may find you have little experience or guidance to go on when being forced or required to make a very hard decision. For example, there may be:

- **Uncertainty** - "What happens if I do A, or B? Is this my decision? Who can I ask for guidance?"
- **No analogies** - "I have not dealt with this before"
- **No doctrine** - "The policy doesn't cover this"
- **No doctors have dealt with this in the past** (e.g. not enough ventilators and high numbers of severely ill patients at one time)

We have explored what makes a decision difficult and why, what experts do differently to novices and how you can accelerate expertise. We outline the key concepts and recommendations below along with some clinical examples of difficult decisions you may be faced with.

KEY CONCEPTS

Decision Inertia - Decision inertia is the psychological process of avoiding or failing to make a decision in time. This happens when you are faced with two (or more) competing 'bad' options (e.g. someone is going to die either way). This process has been observed in high pressure, extreme environments. There are 3 types of decision inertia:

- **Decision Avoidance** - avoiding making the decision.
- **Redundant Deliberation** - actively trying to make a decision but not being able to commit (this is particularly problematic in the two examples where there is not clear answer).
- **Implementation Failure** - making a decision but not behaviorally doing it/ checking that it has been implemented.

Expertise - Experts have greater accuracy, speed, ability to adapt, better recall of the incident, greater ability to defend decisions, better ability to apply policy and recognize when policy doesn't fit prevailing circumstances and therefore when to use their judgment instead of policy. Importantly, experts have a good awareness of when they need to act and when to ask for more information and delay decision making. Expertise can be accelerated by deliberately and repetitively practicing 'what if' scenarios and gaining feedback.

The Reverse Paradox - When working in extreme environments (like that of the COVID-19 crisis) errors will occur and many of them will be beyond your control. Accepting the negative experience and it will be a positive, it will empower you to be able to act by accepting that there is not a guarantee that everything is going to be okay.

Colliding Sacred Values - Think of decisions as values. Values are deeply held beliefs about the world, and ourselves that may include factors such as the *need to be kind*, belief that *all life is equal* and the value of *do no harm*. Overall values can be thought of in two ways, based on how important they are to you:

- **Secular Values** - important values you would like to support.
- **Sacred Values** - non-negotiable values that you refuse to sacrifice (e.g. religion - you are not willing to make a sacrifice against this value).

The combination of values in a decision dictates how hard that decision will be for you and the consequences of making that choice. The hardest decisions are where two sacred values collide (e.g. In **examples A & B** you are faced with a trade-off between *saving lives* and *doing no harm*). When faced with a decision where sacred values collide, you are more likely to experience **decision inertia**.

Least-worst Decisions - In the examples given above, instead of choosing a known 'best' outcome you're required to choose an unknown 'least-worst' outcome. This is an immensely fragile and complicated process and making such a decision can have a significant psychological impact.

Moral Injury - when having to make difficult **least worst decisions** the lasting emotional, psychological, social, behavioural and spiritual impact of those actions that violate core moral values, you may experience 'moral injury'. This can happen if you have had to personally make the decision but can also occur when you have experienced or witnessed this happen. Making or witnesses a morally injurious event can lead to a process of shame, guilt, anxiety, withdrawing from social life, failure to forgive self and self-condemnation.

CLINICAL EXAMPLES

Current guidance on triaging is that patients who have a greater capacity to benefit or greater benefit more quickly should be prioritized. Doctors are required to respond and make-decisions 'responsibly and reasonably to the circumstances they face'.

- A. But what if you were faced with a scenario where you have two (or more) seemingly equal patients in terms of their severity of illness from COVID-19, their general health, age and chances of survival. All need a ventilator to survive and may die if not given one. *Which do you choose? Why?*
- B. Or, imagine a situation where you have a 24-year-old woman being treated for cancer but has contracted COVID-19 and is on a ventilator in ICU and another patient comes in who is in his 60s with no underlying health conditions, is COVID-19 positive and also needs a ventilator. *Do you stop the woman's treatment to provide a ventilator to the new patient? Why?*
- C. Imagine you are a manager, you have limited PPE available for staff, you have doctors, nurses, health care assistants all needing PPE in order to do their job. You let the doctors and senior nurses have the PPE, but you are later told there are a number of COVID-19 positive patients needing to be washed, dressed and have their vitals monitored. You have 2 members of nursing staff available but only have limited, basic PPE (which is inadequate to fully protect staff). One member of staff says they are willing to go in with the basic PPE. The other clearly doesn't feel comfortable going in without full PPE but feels pressured to do it if the other one is going in. *What are you going to do?*

PRACTICAL RECCOMENDATIONS

- **Try to reduce uncertainty** - do what you can to reduce uncertainty (i.e. find out more information, identify conflicting information etc. if time permits it) but make sure that you made a decision when it is required of you.
- **Focus on communication** - with your team and any other teams you are working with. In many instances, uncertainty about other people (their roles, their expectations) is as stressful as uncertainty about the event itself.
- **Reflect on your decision making** - if you are faced with a difficult decision, ask yourself am I going around in circles redundantly deliberating? Am I avoiding making this decision? Do I need to make a decision now?
- **Accept what can and cannot be controlled** - accept that errors will occur and that many of them are beyond your control. You can only do your best.
- **Know what values are most important** - establish a clear value hierarchy that team members are clear on too so that when two sacred values collide you know which one takes priority (e.g. if faced with deciding who gets a ventilator, 'save the most lives' beats 'protect the vulnerable').
- **Accelerate expertise** - it's important to mentally rehearse difficult decisions and/or scenarios in your mind before you hit them in reality. NHS staff need to deliberately and repetitively practice 'what if X happens' (like the examples given above) worst case scenarios and get feedback on their choice.
- **Commit to dynamic learning** - each day will bring new challenges. Always ask 'what did I do well that I can share' 'what could I have improved'.
- **Be aware of signs of moral injury** - reflect on yourself and your colleagues behaviour to look for signs of moral injury and trauma induced by scenes or decisions that have been ethically or morally challenging. Seek help and/or use resources available to you (e.g. debriefs or Schwartz rounds).