Cardiopulmonary resuscitation (CPR) can be a wonderful medical intervention. After all, it can prevent premature death, and save ‘hearts too good to die’. However well intentioned, CPR can also prolong inevitable death, increase family duress, extend patient suffering, and squander scarce resources. Like other aspects of contemporary anaesthesia and intensive care unit (ICU), CPR has the power to be both the best and worst of what we do.

‘Resuscitation’ is central to what defines anaesthesia and ICU, and to what concerns medical ethics. However, much of our literature still focuses on ‘how’ to perform CPR, rather than ‘who’ benefits. CPR has also morphed from a targeted intervention (only for those with reversible disease), to a default (an expectation for all without contrary documentation), to a near ‘societal right’ (if families insist enough we usually acquiesce). When supported by robust data, resuscitation is an important investment. When in opposition to robust data, resuscitation is an important investment. When in opposition to robust data, it is often a tragic waste.

In the USA, there are now over half-a-million annual CPR attempts, and over 1 billion dollars spent on unsuccessful attempts. ICU already exceeds 80 billion dollars per annum, consumes over 20% of the total hospital budget, and is approaching 1% of that nation’s entire GDP. One-third of Medicare costs are accrued during the last month of life, and at least 70% of North Americans now die in hospital. With over 130 million annual cardiovascular deaths worldwide, indiscriminate CPR is something we cannot afford—in any sense of the word—to ignore. Anaesthesia played a key in the birth of resuscitation. It needs to guide its growth and maturity.

CPR: fulfilling our medical duty

None of CPR’s pioneers ever argued for it to be universal. Approximately 60 yr on, CPR is increasingly excused the justification of treatments that are similarly invasive, expensive, or unsuccessful. With more elderly now alive than through all human history, resuscitation is also increasingly performed on the infirm and the terminal. Of course, prognostication is imperfect, but it is not impossible. ‘Frailty’, as the complex, but predictable, cumulative effect of ageing, illness, and inadequate recovery, can be quantified and qualified. It should become a key determinant of whether full resuscitation is offered. If not, then social forces will dominate.

Perhaps modern healthcare is so subspecialized that the path of least resistance (‘just do it’) wins out. Perhaps, it is really the fear of litigation, or merely a convenient excuse to avoid difficult conversations. Maybe ‘progress’ is interpreted as ‘more’ but never ‘less’. Perhaps we prefer thinking in ‘black and white’ (do ‘everything’ or do ‘nothing’). Perhaps we find it difficult to distinguish limits from ‘giving-up’, and perhaps a do not resuscitate (DNR) order is still misinterpreted as a ‘do not respond’. Other reasons might include the single patient who unexpectedly survived, encouraging survival from select subgroups, or the promise of new therapies. Regardless, if contemporary CPR reflects the complex interaction of science, psychology, and litigation, then we should be leading a similarly multidisciplinary debate: whether practitioner, patient, or policymaker, CPR matters to all those with a heart.

In a 2012 review of CPR after in-hospital arrest (IHA), the multidisciplinary National Confidential Enquiry into Patient
Outcome and Death (NCEPOD) produced what it believed to be its ‘most important work of the last decade’. This 125-page report entitled ‘Time to Intervene’ aimed to inform patients and relatives regarding DNR decisions. However, it also had wider aims. It wished to force a discussion about our ‘true aim when treating the sick’, and to provoke a ‘wake up call’ for healthcare workers.

The NCEPOD report reminds us of our duty to articulate the realities of resuscitation. In a similar vein, these authors were taught that the family discussion ‘can be the most dangerous procedure performed in the modern hospital’. We have an obligation to communicate that requires time, experience, and skill. It should not be routinely left to chance – or our most junior colleague. Obviously, where practical, decisions should be collaborative, and include time for deliberation. What is not acceptable is when no decision is made (or not documented, or not shared); where we confuse chronologic age and physiologic age, and where we act surprised when frail patients suffer a supposedly unexpected arrest. There is work to do, and this begins at the bedside.

CPR: getting it right for patients

This editorial is more about the ‘who’ than the ‘how’ of resuscitation. However, if it is worth identifying the right person to resuscitate, then it is worth resuscitating that person right. This is how we meet our side of the social contract, and strive to maintain the public’s trust. In contrast, a consensus statement from the American Heart Association (AHA) suggests a CPR ‘care gap’ exists. Optimal care (what patients should receive) is often different from usual care (what they actually receive). This is one reason why survival from out of hospital arrests (OHA) ranges from 3% to 16%, and survival to discharge from 2% to 12%. Similarly, for IHA, survival ranges from ~10% at night in unmonitored settings to ~40% during the day in operating theatres and post-anaesthetic areas.

IHAs are frequently preceded by failure to document vital signs; and even if documented, a failure to activate an adequate response. Similarly, despite being the strongest predictor of cardiac arrest, respiratory rate is least often recorded. All of this implies that it is not so much that patients suddenly deteriorate, rather that we finally recognize they need help… and often too late. Resuscitation is a ‘science’ and an ‘art’, but it is also ‘engineering’. In other words, our job includes building reliable and predictable systems that protect our patients. Because we have not yet done so, sub-optimal CPR can be realistically described as a ‘failure to rescue’ and a ‘preventable harm’.

If communicating about resuscitation is too important to be routinely left to junior colleagues, presumably so is resuscitation training. After all, if we accept that optimal CPR delivers only 10–30% of normal cardio-cerebral flow, then we have no further room for error. The AHA outlined the need to maintain patient monitoring during CPR (‘how is the patient doing’), but also to increase supervision of individual rescuers (‘how is the rescuer doing’). They also highlighted the need to maintain the entire team through regular training and routine debriefs (‘how is the team doing’). In this way, our educators become ‘resuscitation engineers’: empowered to ensure quality and reliability. Regardless, in addition to getting our medical house in order, we have a larger societal role to play.

CPR: getting it right for society

We have failed to communicate that it is also increasingly uncommon for patients to die because we cannot restore spontaneous circulation or keep organs going. A majority (well over 80%) of adult and paediatric ICU deaths are not because nothing more can be offered, but rather following a decision to withhold or withdraw. In other words, the majority of ICU deaths are not unexpected. We need to be compassionate but we also need to be clear: it is no longer technically difficult to maintain patients well beyond any likelihood of leaving hospital. We stop not because we must, but because we should.

We are still ‘consultants’, and should still be proud to stand by a considered opinion—even if unpopular. If not, then we risk becoming mere technicians who perform (but do not refuse) interventions and start (but do not stop) machines. As stated, prognostication is far from perfect, and obviously, we are eager to save lives wherever possible. However, we also need to communicate that for every patient saved, as many can be harmed. For example, after adult IHA, up to half of survivors can be left with severe disability.

That CPR morphed from targeted intervention, to default, to near societal expectation is proof that the medical slippery slope flourishes even when budgets do not. CPR’s trajectory also offers a useful ‘Cassandra’ for other innovations: all of which were intended only for certain patients, and with the best of intentions. This explains why some intensivists react to innovations with as much foreboding as excitement. It is why there must be time for debate and tolerance for scepticism. Otherwise, death will increasingly become institutionalized and technologically prolonged.

In conclusion, anaesthesia and ICU have led the push for a ‘medical culture of safety’. As such, we understand that thousands can be harmed if interventions, however well intentioned, are badly designed or inappropriately incentivized. We have prioritized resuscitation science and patient autonomy. It is time to devote similar energy to guiding a more complex ‘resuscitation system’. Practitioners and patients alike need a reliable system (i.e. a ‘chain-of-survival’) that prevents premature death where possible but protects the vulnerable always.

CPR’s benefits are only fully realized when complemented by humanity and wisdom. Accordingly, guidelines should not just when to start, and how to proceed, but also when to withhold and withdraw. After all, you do not set sail without a destination… or without an anchor. We must
advocate, but not solely for more resources. It seems unorigin-
al to state that doctors need to become more engaged. It may
de be relatively novel to implore that we relearn the occasional,
compassionate, but immovable ‘no’. Surely, that is true
patient-focused care.

Declaration of interest
None declared.

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