ACHIEVING ULTRASAFE HEALTHCARE 17RC2

WHAT BARRIERS HAVE TO BE ADDRESSED?

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Improving patient safety has become a leading priority in the health care systems of many Western countries.

It is often assumed that adopting success stories from non-medical industries such as civil aviation and the nuclear industry will make medicine just as safe. Because of this, health care authorities tend to expect rapid improvements as the result of a triad of supposed win-win strategies: first intensively developing health care quality [1]; second, thinking in a more systematic fashion when designing safety strategies [2]; and third, changing the safety culture of care-givers (adopting a learning and just culture [3,4]).

It is not that simple. The reality of safety improvements achieved after 7 years of constant high pressure on healthcare is rather disappointing. The best result is that actions have changed the way health care professionals think and talk about medical errors and injury. Few are left doubting that preventable medical injuries are a serious problem. As Leape and Berwick say, "It truly changed the conversation" [5]. However, progress in patient safety is very slow at the national level despite the emergence of a few local champions [6]. This lecture tries to explain the reasons for this, proposing a systemic approach with special emphasis on a bench-marking approach to safety in high risk industries [8].

The most significant difference among industries is not so much in the relevant safety toolbox, which is the same for most industries, but rather in the industry's willingness to abandon historical cultural attributes and beliefs linked to performance and autonomy in a constant drive towards a culture of safety.

Five successive systemic barriers of this type keep medicine from becoming an ultra safe industrial system:

(1) The need for placing limits on the discretion of workers. This first barrier involves regulations that limit the level of risk allowed. This level is dictated in situations where high levels of production and performance are also sought. When these limits don't exist - as in "get this high level of production, no matter what it takes" – this is characteristic of very unsafe systems. This level of risk characterizes both amateur and pioneering systems. Professionals working within these systems are often extremely competent individuals. Low safety levels do not arise from incompetence. The greater risks in complex domains are incurred by experts who are challenging the boundaries of their own maximum performance. The more audacious the expert, the more risky the adopted strategies, and the more frequent the bad outcomes.

(2) The need to reduce worker autonomy. The second barrier involves restricting the autonomy of health care professionals. In road safety, traffic is a collection of drivers, each of them pursuing their personal goals (destination, timing, etc.). For each individual, all the other actors (drivers, pedestrians) are in some sense barriers to reaching these personal goals. A growing movement toward educating health care professionals in teamwork and strict regulations have reduced their autonomy, and thereby improved health care safety. But the barrier of excessive autonomy cannot be totally overcome when teamwork must extend across departments or geographic areas, such as among hospital wards or specialities.

(3) The need to transition from a "craftsmanship" attitude toward work to the principle of "equivalent actor". To achieve the next increase in safety, professionals must face a very difficult transition: abandoning their status and self-image as craftsmen, and instead adopting a position that values equivalence among their ranks. Patients view anaesthesiologists as being very similar when they come to surgery. Practice is highly standardized and the professionals involved have, in essence, renounced their individuality in the service of a reliable standard of excellent care. Conversely, many patients request and can recall the name of their surgeon. Often, the patient has chosen the surgeon, and believes that the result of their surgery could vary according to that choice. This view is typical of a craftsman market. Safety figures for surgeons are much worse than for anaesthesiologists, nearer to 1 in 10^4 than to 1in 10^6.

(4) The need for system-level (i.e., senior leadership) arbitration in the optimization of safety strategies. The fourth barrier is the result of health care executives overprotecting themselves in the face of legal pressures and threats of litigation. Health care executives declare their willingness to improve safety by confronting the fourth barrier. They do this by imposing additional constraints on other colleagues. However the perverse effect is that their decisions primarily absolve them of their responsibility, without clear recognition of the impact of those decisions. The resulting proliferation of checks and procedures weighing on care givers' shoulders may result in pushing the envelope and increasing violations and migrations [9]. This fourth barrier is heavily influenced by the increase of medical malpractice liability pressure and media scrutiny.

(5) The need for simplification. This fifth and ultimate barrier typically derives from the perverse effect of excellence. The barrier is generated by the accumulation of safety layers which make the system very complex and ultra-protected. Accident reporting looses relevance. At a risk level of 1 in 10^3, the next accident will repeat the previous accidents; at 1 in 10^6 level of risk, the next accident has never been seen before. When analysed, such an accident may involve a series of previously seen micro incidents, although most have been deemed to small to be dangerous [10]. The visibility of risk becomes small, and decisions are taken without clear proof of their benefit, sometimes introducing a potential contradiction among regulations and policies [11].

DISCUSSION

It is not enough to simply borrow off-the-shelf, well-tested safety strategies from ultra safe industrial activities, at least in the short term. The remaining barriers are associated with deep cultural differences and take much longer to overcome. Professions must change culturally, not just in the safety tools they use or in a few superficial attitudes.

Conversely, we must realize that striving towards the ultimate ultra safe system should not be the only driver in system optimization; paying too much attention to safety alone can damage the whole system.

Ultra safe systems are not ideal in every way [11]. An increase in legal pressure and media scrutiny is a paradoxical characteristic of safer systems. The safer they get, the more they are scrutinized. The first paradox is that the accidents that still occur tend to be more serious because the systems are running at a higher performance level. Such accidents in safe systems are often massively more expensive in terms of compensation for the victims, to such an extent that in many sectors they can give rise to public insurance crises. Accidents therefore become intolerable because of their consequences rather than their frequency. The other paradox of ultra safe systems is that they are poor learning environments and adapt poorly to unexpected events, due to reduction of workers' autonomy and increase of regulations and supervision. This lack of adaptation may result in rare but overwhelming crises which are extremely detrimental to safety.

The development of High Reliability Organisations (HRO) in the 1980s and the recent enthusiasm for the concept of resilience propose some tentative answers to these paradoxes [12, 13]. While HROs have insisted on the adoption of a learning culture, the goal of resilience is more focussed on work design. A resilient system does not rely so much on reducing doctors' autonomy of by means of constraints. Instead it defines a safe envelope of work that allows capable front line staff to be self-adapting when facing surprises.

CONCLUSION: A TWO TIER MEDICAL SERVICE?

First, risks in health care are not homogeneous. A number of clinical domains experience serious complications in the order of 1 in 10^2, and these are not all related to medical errors. The risks are inherent in the clinical circumstances. Second, health care is one of the few risk-prone areas where public demand limits the application of common sense safety enhancing solutions, such as limiting the flow and variety of incoming patients. This demand is a direct threat to overcoming Barrier One – limiting performance. Mastering this first barrier will be a challenge. It will require accepting performance limitations by reducing professional discretion and reducing productivity. The goal of error reduction may require that health care providers constrain professional latitude to the lowest reasonable common denominator, rather than treating each professional as an expert of unlimited capability. This is a clear effect in ultra-safe systems. For example, civil aviation imposes severe constraints on flights, such as restricting pilots on the type of plane they may fly, limits on operations due to traffic conditions and weather conditions, and a minimum list of equipment required before an aircraft can fly. Airline pilots are not allowed to go beyond these limits even when they are trained and competent. Hence, the flight (product) offered to the client is safe, but it is also often delayed, rerouted or cancelled. Would health care providers and patients be willing to follow this trend, and reject a surgical procedure under circumstances where risks lie outside safe boundaries? Such a policy would conflict with the ethical framework of trying everything possible to save an individual patient.

One possibility would be to tailor aspirations to each specific medical sub-sector. Such stratification would lead to a tentative differentiation between two different "speeds" or tiers of medical practice, each with its own type and level of safety goals. "Two tier medicine" could distinguish between medical sectors that are stable enough to reach criteria for ultra-safe medicine, and those that routinely face unstable conditions, and are therefore inevitably less safe. For this last category of medical activity, the models of so-called "High Reliability Organizations" (HRO) and of "Resilience" [4, 13, 14] could be sound, pedigreed alternative safety models, which provide a contextually appropriate level of safety.

What are the consequences for anaesthesiology?

Anaesthesiology is one of the safest areas in medicine. The risk of fatal preventable adverse event is lower than 1 in 10^5. Such a low number makes anaesthesiology a good candidate for the ultra safe category described above. But there are factors to consider in the patients' response to this level of risk. Patients do not come to hospital for anaesthesia, they come for surgery; we know from the literature that they are prepared to accept higher risk levels in events in which they have an element of choice, such as choice of surgeon or operation. They will not accept such high levels of risk when they perceive that they have a limited choice, such as in anaesthesiologist or technique of anaesthesia..

What to do for the future? Safety improvement in anaesthesiology faces a double limitation: on the one hand, anaesthesiology needs the other specialities like surgery, or more globally the hospital, to adopt safer strategies (reduce performance, adopt equivalent actors, etc.) in order to really get all the expected safety benefits of new ideas. On the other hand, the safer anaesthesiology becomes, the greater the impact on the enthusiasm of existing practitioners and young doctors for the profession. Advances in information technology mean that anaesthesiology could become a fully supervised activity, similar to "black boxes" in the aviation industry, giving very little room for individual interpretation.

There is no ideal solution, but the worst strategy for anaesthesiology, at least for the short and mid term, is to attempt to progress in isolation disregarding the strategies of other medical professions. The could result in a lose-lose strategy; losing on safety efficiency because of isolation from the rest of the hospital, and losing professionally because of apathy associated with intensive supervisory tools and restriction of clinical freedom.

Conclusion: Adapt Resilience - and Safety - to the Requirements and Age of Systems

- Forcing a system to adopt the safety standards of the best performers is not only a naïve requirement but could easily result in accelerating the collapse of the system.
- All systems will transition from their native resilience to new levels with much better associated safety. However, the ultimate stage will be so constraining that it will lead the system to die.
- It is crucial to have a good knowledge of the characteristics and the causal events defining the transition for one resilience stage to another. These factors are external and internal.
- Smart safety solutions depend on the stage of resilience. Standardize, audit and supervise are three key families of solutions that have to be successively deployed accordingly to the safety level. Continuing standardization beyond necessity will result in either no effect or in negative consequence.

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