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PERSPECTIVE

CREW RESOURCE MANAGEMENT GOLD RUSH: RESISTING AVIATION IMPERIALISM

What a welcome and timely question to ask: are we too solution focused in importing crew resource management (CRM) training into surgery? As a newly minted airline pilot and a professor at a faculty of medicine, I can see accusations of imperialism brewing. Grafting an off-the-shelf 'solution' onto an ongoing and well-established field of practice, without showing the evidence base to justify it, is 'simplistic' as Callaghan *et al*. point out in this issue.[1]

So why should medicine be sceptical, or at least think twice before jumping on this bandwagon? Hunt and Callaghan lay out three arguments. The first revolves around the differences between flying and surgery (more about that later). The second is that aviation does not have evidence that CRM training actually improves safety in its own backyard – let alone that it benefits newly colonized areas.[2] The final argument is that there should be better ways to spend scarce resources on safety improvements in medicine rather than giving it to mercenaries who have found, as Hunt and Callaghan call it, a new 'cash cow'. They may seduce medicine to embrace a 'solution' that will be notoriously difficult to resect once ensconced – if anything because it would give litigators a field day ('Oh, you abandoned your CRM training for surgeons? No wonder errors were made! Now pay up'.). This, some maintain, is an important reason that no airline (or even regulator) in the world is willing to drop CRM training for its crews.

Now let us look at some of Hunt and Callaghan's differences between aviation and surgery. First, they say that CRM training is intended to forestall crises rather than resolve them. True, but that does not rule out its usefulness for any safety-critical field. Averting bile duct injury during laparoscopic cholecystectomy through systematic double-checking or the assertive intervention of a junior onlooker is more desirable than mitigating its consequences. Yet, 'contextual relevancy' trumps it all, say Hunt and Callaghan. I can only agree. What are some of the factors that challenge such contextual relevancy for CRM in surgery? Hunt and Callaghan name four factors, namely hierarchy, knowledge diversification, decision-making and followship.

Whether hierarchy plays a stronger role in aviation than it does in surgery is probably quite debatable. Persons in aviation would argue that authority distances have shrunk enormously over, say, the last few decades (and some would even credit CRM training!) and that junior pilots have a little trouble speaking up to a senior captain as to their own parents. Shifting societal norms about how elders are addressed or respected (or not) seep into the cockpit too (in other words: so much for CRM claim to success). At the same time, others assert, medicine and surgery in particular, is fixated in absolute and pervasive competence hierarchies where senior consultants tower over everybody else, largely immune against accountability demands from below. Such pre-industrial, guild-like arrangements, which include extreme gender-skewed and socially skewed recruitments into the profession, are legitimated by society because surgeons presumably possess the sole power to arbitrate between life and death – a presumption going all the way back to the witch doctor's status as interlocutor with the metaphysical.[3,4] This is not a system suited for efficiency, rational production or the kind of customer service demanded today (both of airlines and of health care, actually!) and could thus be argued to be prime territory for colonization by CRM and other safety do-gooders.

No, say Hunt and Callaghan: the assertion of rank through outward symbology in medicine has declined. Really? Perhaps, it depends on where you look and what you believe counts. I see language, mythologies, tools, rituals ('Whose neck has a stethoscope around it when going down for a coffee?' 'Who wears scrubs in the side-walk café, face mask still dangling underneath the scoops of chili con carne that pass by into the mouth?' or 'Who wears a tie when meeting patients? And who does not?'). All this is subtly enforced and sustained by unwritten rules and norms and where uniforms (e.g. in a trauma bay) have blotted out ostentation, ranks get engineered back in by pasting stickers across people's chests that unequivocally display their role (and thus rank).

Not that this matters, by the way. On one recent multiple trauma, I saw the consultant (team leader, the sticker screamed from his chest) bend over the lower leg of a victim for more than 15 min to patch up a minor technical detail that was clinically entirely banal and could have been carried out splendidly by somebody who gets one-tenth of the consultant's paycheck. No assertion of the role of team leader was ever on display, other than the sticker. No briefings (although the wait for the helicopter had been 9 min, with everybody standing around doing nothing), no oversight, no coordinative efforts, no double-checks, no guidance, no stepping back and no questions. Just a green back bent quietly over a shin. This would drive CRM zealots insane, of course. It also raises Hunt and Callaghan's next issue, that of increased knowledge diversification in medicine. A team that blends multiple specialties into the care for a single patient could benefit from the sorts of generic CRM skills that aviation teaches: like how to talk to each other, the value of multiple perspectives and minority viewpoints and briefing, checking and de-briefing.

Such things are difficult to get traction with in surgery, though. One hospital I visited proudly announced its presurgical 'time-out' policy to me. The entire team was supposed to drop everything, step back from the table and do a review (right patient, body part, procedure, that sort of thing). When I asked around, there was no anaesthetist who actually knew what she or he was exactly supposed to review during time-out, so some had come up with their own little mental checklists. An airline could get grounded for squandering such an opportunity at standardization and quality control.

More intriguingly, after talking to some of the scrub staff who were preparing in the side room before one procedure, I made my way into the theatre. The consultant had already opened up the patient and was studiously peeling his way down to a tumour. 'What about the time-out?' I enquired quietly. It had already been carried out, I was told, by the surgeon himself. What can you say? His list was long and his day was short. This is where I believe that both pilots and surgeons feel the perfusion of external pressures into their decisions the entire time. True, we do not ask passengers for their opinion in a diversion or cancellation decision. But at a higher level, the airline and the marketplace in which it

operates, does, and such preferences and priorities make their way back into the cockpit through subtle signals about dollars, fuel, load factors, all of which may concatenate to push some crewmember's trade-off one way or another on a dark and lousy night somewhere.

Although surgical specialties vary widely, as Hunt and Callaghan say, similar or identical specialties (distributed across staff of different rank and experience) will likely find themselves assembled in one operating room for a particular procedure. This again, CRM devotees would argue, provides interventions from others into what is going on, based on similar knowledge, but slightly different perspectives. But Hunt and Callaghan caution that this will be difficult. Where aviation has proceduralized, documented and regulated role authority, responsibility and accountability, surgery lacks such consensus, they say in their piece about followship. My experiences suggest that such consensus probably does exist, but it gets worked out dynamically and subliminally while surgical work is being conducted. This indeed means that CRM golden oldies to challenge authority (Whose? When?) or brief (About what?) or be a team leader (Huh?) are useless without the sorts of evidence of the problem in medicine that Hunt and Callaghan entirely justifiably demand.

Not only may we have become too solution-focused, we may also be starting at the wrong end. Hunt and Callaghan suggest as much: CRM training in aviation falls into a well-prepared bed of human factors knowledge and a life of constant double-checking, peer review, proficiency control. Pilots know about decision-making, authority gradients, cognitive fixation and automation surprises. Otherwise they do not get a licence to begin with. Such fertile ground is generally not created in basic medical training, but it probably should. Before that, I can only agree with Hunt and Callaghan and amplify their message. Not only is a focus on an imported 'solution' simplistic, as Hunt and Callaghan argue. It is probably counterproductive, both for medicine and the reputation of human factors. Let us base our interventions on evidence, not on a gold rush.

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