

Human factors in general practice:

what it means for practice, training, and CPD

INTRODUCTION

A gradual shift in healthcare thinking started almost 15 years ago with the powerful testimony of British Airways pilot, Martin Bromiley, whose wife Elaine suffered hypoxic brain injury during routine Ear, Nose, and Throat (ENT) surgery. His subsequent highly successful campaign has raised awareness about the importance of human factors (HF) within health care.

Clinical HF training is the training of cognitive and social skills needed to support technical training, in order to optimise safe and efficient patient care provision. It is about how you manage threats and errors in a given environment around patient care; about people and their environment.

The General Medical Council (GMC) has now introduced HF competency as part of its generic 'professional capability',¹ and it is likely that a medical practitioner will need to provide evidence of this during appraisal and revalidation. The GMC's executive team has also undergone HF awareness training, and the organisation has made a commitment to deliver similar training to all its 'fitness to practice' medical assessors. As part of the Academy of Medical Royal Colleges, The Royal College of General Practitioners (RCGP) signed a Concordat in 2013² to support the National Health Service (NHS) in promoting HF principles and practices in health care. The Concordat also sought to develop inclusion of this in the core training curriculum for all health professionals, and to support ongoing professional development in this area. The Royal Colleges of Surgery, Anaesthetists, and Obstetricians and Gynaecologists have all forged ahead in embedding HF as a compulsory part of the training curriculum. While primary care has made some progress, there is still some catching up to do with other specialties.

WHAT CAN WE LEARN FROM HF TRAINING IN AVIATION?

Since the 1990s, national aviation regulators, such as the Federal Aviation Administration

(FAA) and later the European Union Aviation Safety Agency (EASA) have successfully enshrined HF curriculum into national law. This ensured that HF training became mandatory at every stage of pilot training, from the beginning of training through to annual refresher training for all commercial pilots, including those in the UK. Cynics could say commercial airlines would not want to lose planes, so would invest more in risk reduction strategies, unlike cash strapped clinical commissioning groups (CCGs) and other health funding bodies.

The aviation industry recognises the principles of threat and error management and the need to develop the necessary cognitive and social skills to support the technical skills. While not directly comparable, general practice shares many essential HF competencies with aviation, such as communication, leadership and teamwork, problem solving, and maintaining good situational awareness; all of which help to optimise patient safety. What underpins all of these is the acknowledgement that humans are fallible and prone to making unintentional errors. Adapted for local circumstances, HF (also known as 'non-technical skills'), are applicable to primary care teams worldwide, and could be integrated during medical and nursing training along with the more conventional 'technical skills training'.

Box 1 shows the typical generic domains of a HF course, which needs to be adjusted to individual organisations in order to reflect the nature and needs of each.

WHY IS THERE A NEED TO IMPLEMENT HUMAN FACTORS IN PRIMARY CARE?

In the current general practice landscape, primary care physicians are managing highly complex patients across many specialties while simultaneously caring for a large number of more straightforward patients. GPs make countless and often ceaseless clinical and non-clinical management decisions every day, under unremitting time and workload pressures.

Box 1. CRM course content example

- Creating situational awareness
- Leadership, followership
- Teamwork
- Decision making, de-biasing
- Threats and errors
- Checklist maintenance
- Authority gradient
- Briefings
- Automation
- Monitoring
- Distractions
- Communication/Handover
- An example of an event in the past year

The pressure for maintaining consistency over time is further compounded by current CCG QIPPs (quality, innovation, productivity and prevention), which are often a euphemism for fiscal constraints and devolution to GPs.

More than 40% of patients interviewed in a European-wide survey³ thought that it was likely that their non-hospital-based care in the UK (that is, general practice and pharmacy) was not safe and could potentially harm them; this was noted as an increasing trend when compared to 5 years earlier. In the Netherlands, research indicated that up to 43% of errors during the interface between primary and secondary care are due to HF, and that a third of these 'transitional safety incidents' cause harm.⁴

Harm due to HF in primary care may not be as dramatic as a maternal death resulting from massive haemorrhage and so might go unnoticed. Failure to act on a non-attendance for a cancer appointment, omitting to adjust a prescription for declining renal function, or not recognising an abnormal blood result, are all minor errors when taken in isolation. However, prolonged exposure to these can lead to a cumulative volume of 'small errors' and a culture of accepting these as 'norms'. While GPs show evidence of learning from case studies and significant events, inclusion of HF during reflection of such events is likely to significantly improve this and change the culture of acceptance of these.

Skills can degrade over time and primary care is complex, therefore training in HF needs to be reinforced and repeated, in the same manner as basic life support, that is, in a safe environment as part of

"Training in human factors ... reduces avoidable harm in patients while supporting health care workers caring for them."

statutory training required for continuing professional development (CPD). As with airline staff, we suggest that this training be team-based involving GPs, nurses, as well as ancillary non-medical staff, conducted at least annually, and ideally include non-high-tech simulation scenarios combined with technical skills training. Our speciality will need to dedicate sufficient time, finance, and commitment, in order to embed HF as a part of routine patient care.

HOW DO WE IMPLEMENT HF IN PRIMARY CARE?

It took aviation over 30 years to construct an HF curriculum, and embed this as a mandatory part of ongoing annual training and safety culture. In the past 10 years, the Royal Colleges of Surgery, Anaesthesia, as well as Obstetrics and Gynaecology, have gradually developed and introduced HF into their trainees' curriculum in order to eventually include this as an important part of patient care.

HF awareness might form part of annual appraisal and contribute to understanding of how serious events are often multifactorial in origin. As with other Royal Colleges, HF may also form part of the curriculum for trainers, examiners, and trainees, and even be included in the membership examination of the MRCGP.

Organisations responsible for procurement of primary care services need to consider HF implementation, and also pay attention to ergonomic information technology design, to avoid potential errors that occur at the primary-secondary care interface. Patient safety can be improved if large primary care organisations appoint an appropriately trained HF lead, responsible

for regular team-based refresher training, data collection, and preparation for inspection by regulators.

CONCLUSION

Primary care has become a complex and fluid health system, with significant interfaces with secondary and social care. Compared to some other specialties, it could be construed that primary care takes risks with patient safety because of the absence of consistent applications of HF principles. Training in HF will develop a culture of individual as well as organisational and systemic resilience. This reduces avoidable harm in patients while supporting healthcare workers caring for them. As primary care is an orchestration of medical, social, administrative, and electronic support systems, stakeholders including CCGs, RCGP, GPs, and primary care organisations, could consider how HF can prevent avoidable patient harm by embedding the HF principles into routine patient care.

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Competing interests

Maud Nauta and Wai Yoong are honorary medical faculty for Trainetics Ltd. First Officer Ponnusamy and Captain De Martino are Directors of Trainetics Ltd.

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REFERENCES

1. General Medical Council (GMC). Domain 6: Capabilities in patient safety and quality improvement. In: *Generic professional capability framework*. GMC, 2017; 21–22.
2. National Quality Board. *Human factors in healthcare: a concordat from the National Quality Board*. 2013. <https://www.england.nhs.uk/wp-content/uploads/2013/11/nqb-hum-fact-concord.pdf> [accessed 8 Nov 2019].
3. European Commission. *Special Eurobarometer 411: patient safety and quality of care report*. 2014. http://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs_411_en.pdf [accessed 8 Nov 2019].
4. Poldervaart JM, van Melle MA, Reijnders LJ, et al. Transitional safety incidents as reported by patients and healthcare professionals in the Netherlands: a descriptive study. *Eur J Gen Pract* 2019; **25**(2): 77–84.