

British Journal of Oral & Maxillofacial Surgery

Editorial: personal black box thinking to improve our communication, behaviour and interaction with others.

--Manuscript Draft--

Manuscript Number:	
Article Type:	Editorial (Invited only)
Keywords:	human factors; hierarchy; authority gradients; black box recorder; communication
Corresponding Author:	Peter Brennan Portsmouth, UNITED KINGDOM
First Author:	Peter Brennan
Order of Authors:	Peter Brennan Graham Shaw Justin Davies Rachel Oeppen

2/3/20

Dear Kaveh

Editorial: 'Personal black box' thinking to improve our communication, behaviour and interaction with others

Further to our email correspondence, please find enclosed this editorial for consideration. I'm sure this will get lots of attention and add to the citation scores!

Thanks as always

Best wishes

Peter

Editorial

‘Personal black box’ thinking to improve our communication, behaviour and interaction with others

Peter A Brennan MD, PhD, FRCS, FRCSI FFSTRCS, FDSRCS
Consultant Oral and Maxillofacial Surgeon
Honorary Professor of Surgery
Queen Alexandra Hospital
Portsmouth, PO6 3LY, UK

Graham Shaw
Captain, Boeing 777
Director, Critical Factors Ltd
Heathrow Airport
Hounslow, Middlesex, UK
TW6 3AW

Justin Davies MA MChir FRCS, FEBS(C) FASCRS,
Consultant Colorectal Surgeon
Deputy Medical Director
Addenbrookes Hospital
Cambridge University Hospitals NHS Foundation Trust
Cambridge, UK CB2 0QQ

Rachel S Oeppen FRCR, MRCP (UK)
Consultant Radiologist
University Hospitals Southampton
Tremona Road
Southampton, UK
SO16 6YD

Correspondence to
Professor PA Brennan

Peter.brennan@porthosp.nhs.uk

Tel +44 2392 286736
Fax +44 2392 286089

Key words: human factors; hierarchy; authority gradients; communication; black box recorder.

Editorial: ‘Personal black box’ thinking to improve our communication, behaviour and interaction with others

Commercial aviation and medicine are sometimes compared but in reality are diverse professions. What they share is the ‘human element,’ in that whatever we do, we make mistakes on a regular basis. The understanding of several human factors (HF) common to both medicine and aviation such as leadership, optimising communication, effective team work, stress, loss of individual and team situational awareness, fatigue and lowering authority gradients are essential to minimise error. ¹⁻⁵

Comparisons between commercial aviation and medicine are not new; they are of course diverse professions. What they have in common is both the need to prevent errors from manifesting and an understanding of the ‘human element’. The way HF influence outcomes requires an understanding of both the non-technical skills that professionals need to carry out their roles successfully including good leadership, effective communication, team work , building and maintaining situational awareness (on individual and team level) and the impact of the environment in which they perform such as stress, fatigue and authority gradient.

Often individuals have had little training in how to develop non-technical skills, instead they are expected to have gained them by osmosis through the years spent gaining technical competence.

The well-known black box flight recorder not only monitors many parameters during flight, but also acts as a flight deck voice recorder, which can be used in the event of an incident. The concept of black box recording in the operating theatre is not new and there are several studies that have evaluated its effectiveness in this setting.⁶⁻⁸

Video recording of clinical performance in the operating theatre can be useful as a learning tool to improve teamwork and support patient safety initiatives. However, there are inherent problems and barriers to its formal introduction both from clinical staff and patients.⁹ Issues with privacy and possible use in litigation, as well as cultural barriers, have limited its widespread implementation.¹⁰ A question to consider is 'would you change your own behaviour or the way you speak to other team members if everything you do was being recorded?'

There is increasing research on the effects of incivility both on patient safety and how such actions affect team members and the individual(s) who have instigated this behaviour. Rudeness to others can result in a significant deterioration in clinical performance.¹¹ A recent study found incivility adversely affects communication and situational awareness, as well as the perceived safety environment.¹² Regardless of whether they apologise to the team or individual, many perpetrators of incivility regret their actions afterwards and they can suffer from a raised risk of burnout.¹³

Perpetrators may not appreciate that the manner in which they behave has an impact on others. The effort required to rebuild a relationship with a colleague is likely considerably greater than the effort needed to have avoided offending them in the first place.

In an attempt to optimise behaviour towards others, a novel approach that we have adopted in our clinical practice and promote widely for others during HF training sessions is to treat our name badges as 'personal black box recorders.' While we do not record our own behaviour or those with whom we interact (as compared to other professionals such as police officers who wear recording equipment to protect themselves and the public), our own personal black box is an easy concept to adopt, particularly when other team members also do the same.

From widespread feedback from many different healthcare professions and based on our own experiences, this simple initiative makes us think twice about behaviour and how we speak to others, particularly during periods of high workload or stress. For example, when we are in a stressful situation where we might say something that we later regret, our advice is to 'stop and think name badge' before speaking or shouting at others.

A name badge usually identifies both name and job title. When you put it on, please give some thought as to how your job title (consultant, specialty registrar, doctor) will be perceived by others (Figure 1).

Some individuals might perceive that their job title demands a certain behaviour commensurate with the authority it bestows. Such role modelling is likely based on outdated leadership styles, having been encountered during their own medical training.

While there has to be some team hierarchy such that everyone knows who is ultimately responsible for a patient's care, it is worth remembering that a job title or position can create a steep hierarchy for those more junior or working in allied healthcare professions. For example, a consultant title may instil fear for a new specialty registrar in the unit, and nursing staff might feel intimidated by both. Similarly, a newly qualified foundation doctor or dental core trainee working in an unfamiliar hospital environment can be overwhelmed by nursing staff as well as those on the medical team who are more senior to them.

Authority gradient can form a barrier to communication and support, sometimes even further supporting the perception of the leader that all is well.

We should be actively lowering authority gradients by empowering those more junior to speak up if they have any concerns.^{1,4,5} A good time to do this is at the team brief before an operating list or ward round. Not only does this enhance patient safety but it also improves team working, communication and morale. Leaders should perceive this as a reflection of their own confidence and ability that they are willing to be questioned, not a sign of weakness. We should be aiming for a gentle hierarchal gradient in medicine as occurs on the flight deck in commercial aviation, where the first officer or even non-pilot staff can question the captain not only without fear or retribution, but expect to be thanked for their interest and concern. By remembering that every time we put

on our name badge, we need to actively reduce hierarchy, we are once again using our name badge as an imaginary black box recorder.

Conclusion

The idea of using a name badge as our own 'personal black box' will not stop those rare individuals who cause deliberate harm to patients and bring the profession in to disrepute,¹⁴ just as a black box will never prevent extreme pilot behaviour as happened with the 2015 Germanwings crash.¹⁵ However, by adopting this simple concept in to our daily practice, it enables us to be more vigilant about our own behaviour towards others, and might help to reduce our incivility to others.

Conflict of interest: none

Financial support: not applicable

References

1. Davidson M, Brennan PA. Leading article: What has an Airbus A380 Captain got to do with OMFS? Lessons from aviation to improve patient safety. *Br J Oral Maxillofac Surg.* 2019;57:407-411.
2. Parry DA, Oeppen RS, Amin MSA, et al. Sleep: its importance and the effects of deprivation on surgeons and other healthcare professionals. *Br J Oral Maxillofac Surg.* 2018;56:663-666.
3. Murden F, Bailey D, Mackenzie F, et al. The impact and effect of emotional resilience on performance: an overview for surgeons and other healthcare professionals. *Br J Oral Maxillofac Surg.* 2018;56:786-790.
4. Green B, Oeppen RS, Smith DW, et al. Challenging hierarchy in healthcare teams - ways to flatten gradients to improve teamwork and patient care. *Br J Oral Maxillofac Surg.* 2017;55:449-453
5. Brennan PA, Davidson M. Improving patient safety: we need to reduce hierarchy and empower junior doctors to speak up. *BMJ.* 2019;2;366:l4461.
6. Gambadauro P, Magos A. Surgical videos for accident analysis, performance improvement, and complication prevention: time for a surgical black box? *Surg Innov.* 2012;19:76-80.
7. Bowermaster R, Miller M, Ashcraft T, et al. Application of the aviation black box principle in pediatric cardiac surgery: tracking all failures in the pediatric cardiac operating room. *J Am Coll Surg.* 2015;220:149-55.

8. Goldenberg MG, Elterman D. From box ticking to the black box: the evolution of operating room safety. *World J Urol.* 2019 Jul 30. doi: 10.1007/s00345-019-02886-5. [Epub ahead of print] PubMed PMID: 31363833.
9. Etherington N, Usama A, Patey AM, et al. Exploring stakeholder perceptions around implementation of the Operating Room Black Box for patient safety research: a qualitative study using the theoretical domains framework. *BMJ Open Qual.* 2019;8:e000686.
10. van Dalen AS, Legemaate J, Schlack WS, et al. Legal perspectives on black box recording devices in the operating environment. *Br J Surg.* 2019;106:1433-1441.
11. Riskin A, Erez A, Foulk TA, et al. The Impact of Rudeness on Medical Team Performance: A Randomized Trial. *Pediatrics.* 2015;136:487-95.
12. Katz D, Blasius K, Isaak R, et al. Exposure to incivility hinders clinical performance in a simulated operative crisis. *BMJ Qual Saf.* 2019;28:750-757.
13. Petitta L, Jiang L. Burning out? Watch your own incivility and the emotions you spread. *Work.* 2019;64:671-683.
14. Dyer C. Breast surgeon is convicted of 20 counts of unlawful wounding and wounding with intent. *BMJ.* 2017;357:j2134.
15. Final report of the 2015 Germanwings crash. Available at https://www.bea.aero/uploads/tx_elyextendttnews/BEA2015-0125.en-LR_03.pdf

Figure 1 Changing culture: a name badge and position can create real or perceived gradients between team members. By treating it as a personal black box, the way we behave and speak to others can be enhanced.



Figure 2 A job title can create a perceived or actual steep gradient. By actively empowering others we can create a shallow gradient as occurs on the flight deck.

