

Human factors and safety culture in healthcare

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Synopsis

This paper will help the reader to:

- Understand why the consideration of human factors and safety culture is important in healthcare
- Review ideas relating to the development of human factors and safety culture
- Review the streams of work of an acute trust relating to the development of work relating to human factors and safety culture.

What is a safety culture?

The culture of an organisation is very difficult to pinpoint, but is vital to address if the organisation's ambition is continuous improvement. Organisational culture can be defined as the set of assumed understandings between the staff of an organisation: shared views on the way staff should work together and treat each other and their patients. If an organisation intends to develop a safety culture, it must embed the maxim 'first, do no harm', derived from the Hippocratic Oath, into its identity at all levels.

A formal definition might be:

Organizational culture is a manifestation of internalized assumptions or 'taken for granted' understandings that are shared by an organization's members on such matters as the interactions between humans, institutions, and their environment ...

A 'safety' culture is one that integrates the Hippocratic maxim of 'first do no harm' into the very fiber of its identity, infuses it into the norms and operations of an entire organization, and elevates it to the level of a top priority mission ... Safety culture is what emerges as a result of a concerted organizational effort to move all cultural elements towards the goal of safety, including an organization's members, its systems, and work activities.¹

The main elements of a safety culture

- Open and frequent communication
- High functioning multidisciplinary teams
- 'Just' culture (understanding of system errors vs. individual errors)
- Robust error reporting systems that 'close the loop'
- HR practices that support a culture of safety
- Leadership:
 - Focus on 'never events'
 - Willingness to address bad behaviours
 - Accountability for improvement and safety at all levels
- Measurement

Human factors in a safety culture

It is important to understand that human factors and safety culture go hand in hand. An organisational culture that embraces the science of human factors is one that immediately gives itself an opportunity to reach an increased level of safety.

The World Health Organization describes the science of human factors as:

[A]n established science that uses many disciplines (such as anatomy, physiology, physics, and biomechanics) to understand how people perform under different circumstances. In a work context, human factors are the environmental, organisational and job factors and individual characteristics which influence behaviour. 'We define human factors as: the study of all the factors that make it easier to do the work in the right way.'²

If we think of human factors as being organisational culture plus the behaviour of the individuals in that organisation, we can see clearly how the two areas of safety culture and human factors come together. It is thought that the culture that exists in an organisation, combined with the behaviour of individuals, is the cause of 80% of industrial accidents (leaving only 20% caused by technical factors).

Issues that have an impact on human performance and increase the risk for error include:

- factors that are in play before an action takes place (such as fatigue, stress, hunger and boredom)
- factors that directly enable decision making (such as the attention, memory, reasoning and judgement of an individual)
- factors that directly enable decision execution (such as communication and ability to carry out the intended action).

Human factors that can increase risk are:

- mental workload
- distractions
- the physical environment
- physical demands
- device/product design
- teamwork
- process design.³

A robust safety culture is the combination of attitudes and behaviours that best manages the inevitable dangers created when humans, who are inherently fallible, work in extraordinarily complex environments. The combination, epitomised by healthcare, is a lethal brew.⁴ With this in mind it is vital that organisations are proactive in undertaking work to measure and improve the culture of safety. While safety culture may seem intangible, it is actually an area that a number of organisations have spent a significant amount of time attempting to measure and improve. Salford Royal Foundation Trust contracted Pascal Metrics to help in measuring its safety culture, and subsequently to develop interventions aimed at improving outcomes.

Measuring and improving safety culture at Salford Royal Foundation Trust

The first phase of the work at Salford Royal Foundation Trust was based around five specific wards, identified as part of a specific harm reduction and ward improvement project. The Safety Attitudes Questionnaire was used to measure the safety climate on those five specific wards.

If you are measuring safety culture using a survey, then you are measuring clinician and staff perceptions of culture (i.e., safety *climate*) and therefore in order to change culture you have to change perceptions of the relative priority of patient safety compared with other unit or organisational goals, and it must be salient to providers that their actions and attitudes supporting patient safety are actively reinforced by their peers and leaders. For example, it must be explicit that patient safety comes first relative to other unit or organizational goals, such as efficiency, and there must be visible recognition and positive outcomes related to engaging in safe behaviours.⁵

Measuring safety culture helps in:

- diagnosing organisational strengths and weaknesses
- evaluating the effects of organisational changes
- improving communication with employees
- providing context for important organisational variables such as absenteeism and turnover
- developing targeted interventions.⁶

Following completion of the Safety Attitudes Questionnaire, Salford Royal Foundation Trust undertook a programme of work facilitated by Pascal Metrics, which included:

- leadership interviews
 - this session served as a forum for critical discussion of the safety culture data (obtained from the safety culture survey), culminating in courses of action to frame and structure a set of patient safety interventions
 - feedback from leadership interviews was then provided back to the Trust Executive over the course of a two-hour meeting
- teamwork Intervention training
 - this session was delivered in conjunction with clinical leadership, and safety culture survey data was applied to target, train and embed key behaviours to improve teamwork and communication.

Interventions taught at the session to improve culture relating to safety were:

- use of structured communication (SBAR: Situation, Background, Assessment and Recommendation) to ensure that we communicate in a concise, specific and timely manner
- use of briefings and on-going updates to ensure all team members are aware of what plans are, relative to particular pieces of work or patients
- use of debriefings to ensure that learning can be gleaned from all situations
- use of teach-back procedures in order to understand a patient's comprehension of information that they have been given (for example, with relation to medication side effects)

- continued verbalisations as events unfold
- prior discussion of contingency plans in case of emergency
- use of structured/critical language to assert opinions and to ensure that colleagues are able to speak out
- simulation
- all levels of staff allowed to verbalise ‘red flags’. (Red flags are signs that situational awareness may have been lost. Staff can be trained to recognise these signs and speak up to restore the team’s shared mental model. Red flags include, for example, the feeling that something ‘just isn’t right’, feeling of confusion and deviation from established norms.)
- formal training in non-technical skills and human factors. For example:
 - we will explore, with staff in the hospital skills lab (simulation suite), opportunities to design training opportunities to incorporate the University of Aberdeen non-technical skills frameworks for surgeons, anaesthetists and scrub staff.
- frontline interventions for pilot teams to test. For example:
 - setting the tone: promotion of use of establishing the right ‘tone’ at the start of a list and at each case
 - flattening hierarchy: promote use of expressions such as ‘I’m only human; please point it out if you think I’ve made a mistake.’
- leadership actions. For example:
 - addressing bad behaviour
 - programme of safety walk rounds.

The second phase of Safety Culture improvement work has resulted in the development of a specific project to commence in operating theatres, which will again use the Pascal Metrics Safety Attitudes Questionnaire to measure safety culture. Additional areas where interventions will be developed include:

- work relating to the structure of the working day in operating theatres. For example:
 - we will undertake process mapping of the current activity within operating theatres in conjunction with frontline staff in an effort to understand the waste that exists
 - we will work with managers and frontline staff to redesign the care delivery system around safety rather than expecting staff to fit safety into the existing system.

References

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- 5 Weaver SJ, Lubomksi LH, Wilson RF, Pfoh ER, Martinez KA, Dy SM. Promoting a culture of safety as a patient safety strategy: a systematic review. *Ann Intern Med.* 2013;Mar 5:158(5 Pt 2):369-74.
- 6 Leonard M, Frankel A, Simmonds T, Vega K. *Achieving Safe and Reliable Healthcare: Strategies and Solutions*. Chicago: Health Administration Press (2004).