



Human Factors for Primary Care

An introductory guide

What are human factors?

There are three common factors in the majority of adverse events: **medical complexity**, **system factors** and **human factors**. Common human factors that can increase risk include: mental workload, distractions, the physical environment, physical demands, device/ product design, teamwork, process design.

“We’re all human. We all make mistakes and forget things. Our attention span is limited. We overlook key information when making decisions. We get distracted, bored, tired or preoccupied. We mishear and misunderstand.

These are as much a part of human life as breathing and sleeping. Human factors are concerned with understanding and managing the capabilities and limitations of people.

Clearly, we can’t change the human condition, but we can design activities, equipment, processes and procedures in such a way that takes into account human imperfections.”

Martin Anderson, <https://humanfactors101.com/>

Human factors are a term often used to encompass the ways **individuals** work within **systems**. This can include how they interact with each other (**human interaction**), but also how the **environment**, **task** and **equipment** affect how people work.

One of the best introductions to human factors in healthcare is this video “Just a Routine Operation” available at <https://vimeo.com/970665> which tells the story of Martin Bromiley and his wife Elaine. Another patient story which demonstrates how the task and environment can create unsafe conditions is “The Human Factor: Learning from Gina’s Story” available at <https://youtu.be/IJfoLvLLoFo>

Clinical Human Factors Group have published a guide to common terms in use in Human Factors in Healthcare available at <http://chfg.org/wp-content/uploads/2016/03/chfg-human-factors-common-terms.pdf>

One way to remember the different factors is the mnemonic **SHEEP** developed by Debbie Rosenorn-Lanng:

Systems – Human Interaction – Environment – Equipment – Personal

Systems Thinking

"[Systems thinking] is understanding a world of interdependence and things continually changing. How do you see a system and not just a bunch of isolated things?"

Peter Senge

This guide, designed for schools, is an excellent introduction to systems thinking

http://www.instituteofplay.org/wp-content/uploads/2013/09/IOP_QDesignPack_SystemsThinking_1.0.pdf

Human interaction

Non-technical skills of **communication**, **teamwork** and **leadership** influence on both culture and safety. The SCORE survey will give you an indication as to how these factors are affecting your practice environment and some potential areas to improve.

Communication

Structured communication techniques, for example SBAR can help improve communication.

S	Situation: patient's / client's details - identify reason for this communication, describe your concern
B	Background: relating to the patient / client, significant history - this may include medications, investigations, treatments
A	Assessment: your assessment of the patient / client or situation - this can include clinical impression, concerns, vital signs, early warning score
R	Recommendations: be specific - explain what you need, make suggestions, clarify expectations, confirm actions to be taken

Teamwork

The Circle of Care is a framework to help healthcare professionals think about, practise and demonstrate high quality compassion healthcare in a team <https://vimeo.com/166819236>

Circle of Care was created by Clod Ensemble's Performing Medicine programme – performingmedicine.com – and The Simulation and Interactive Learning Centre, Guy's and St Thomas' NHS Foundation Trust – www.sailcentres.kcl.ac.uk



As described in the Circle of Care supporting information, “research shows a strong link between the experience and wellbeing of healthcare professionals with the self-reported experience of patients. Where staff report high levels of wellbeing, patient care and outcomes are improved.”¹

Environmental and equipment factors

Environmental factors include **equipment, IT, design** and **ergonomics**. This is a topic that encompasses a number of factors, and often when environments are well-designed, this is invisible to us as the users. It is more evident when something is poorly designed. Some examples:



¹ <http://guysandstthomaseducation.com/wp-content/uploads/2016/10/Circle-of-Care-Brochure.pdf>

For more on this topic including case studies visit <http://www.ergonomics.org.uk/what-is-ergonomics/>

Guidance is available for manufacturers on how to produce medical devices that are usable, and this gives an overview of factors to consider, available here:

<https://www.gov.uk/government/news/human-factors-and-usability-engineering-guidance-for-medical-devices-including-drug-device-combination-products>

Personal factors

The main **physical factors** which can affect human performance can be remembered as **HALT** – hungry, anxious/angry, late, or tired. For a case study where these factors were part of an incident in primary care see <http://www.medicalprotection.org/uk/resources/case-reports/case-reports/uk-skipping-over-the-details> and for a video from Dr Mike Evans with some strategies to support you visit https://youtu.be/o_X0K4ZrvFQ



James Reason's "three bucket" model gives examples of ways in which you can anticipate these and mitigate against their impact, available at

<http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=60160>

Other **cognitive factors** include **attention**. Attention is a limited resource, as demonstrated by the video "The Monkey Business Illusion". This and other videos on the topic of **in-attentional blindness** are available at <http://www.theinvisiblegorilla.com/videos.html>

In "The Invisible Gorilla Strikes Again, Sustained Inattentive Blindness in Expert Observers" radiologists were asked to perform a lung-nodule detection task. 83% of the radiologists did not see an image of a gorilla in the image.²

² <http://search.bwh.harvard.edu/new/pubs/DrewVoWolfe13.pdf>