Royal College of Midwives

The solution series: 3

Making maternity services safer:

human factors

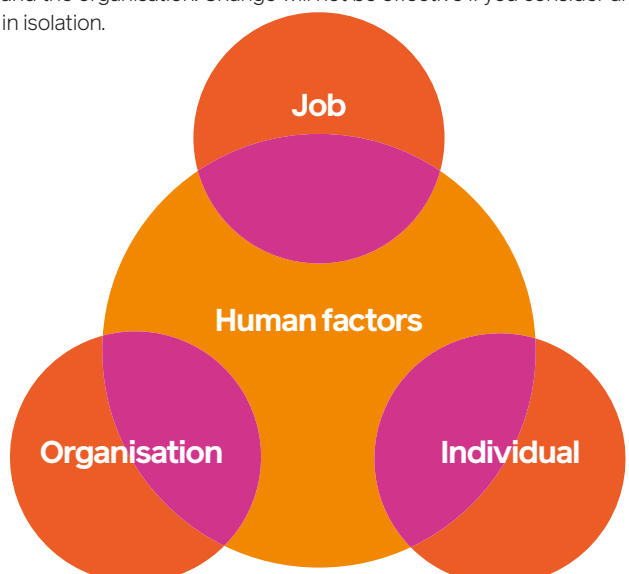
Human factors

Human factors theory and practice, first developed in the aviation industry, recognises that humans make errors, and therefore systems should be designed to help prevent humans from making errors. It also recognises that telling staff not to make the same mistake again may not prevent the error from reoccurring.

'Human factors' are an important way for us to understand what affects how health professionals perform their role. Using a human factors approach can be helpful when seeking to improve safety in maternity care. A human factors approach encourages us to acknowledge the impact of a range of factors on safety and performance. These include:

- **Equipment** – ease of use, training to use,
- **Physical environment** – noise levels, distractions
- **Fatigue –** impact of working patterns, ability to take breaks, staff access to nutrition and hydration
- **Stress** – workload and information overload, need to multi-task, team working practices and communication style
- **Preparation for task or role** - knowledge and skill of professionals.
- **Team working** – style of leadership, hierarchy, approaches to supporting staff

The model below includes three connected aspects that should be considered in creating safe maternity teams: the job, the individual and the organisation. Change will not be effective if you consider any in isolation.



The job:

This includes the nature of the task, the design of displays and controls, the role of procedures and use of equipment. It is vital that maternity professionals do not become overloaded with too much information or multi-tasking as this will lead to more mistakes and poor decision making. In any emergency it is important to reduce the risks associated with task fixation, by ensuring that a leader is allocated who gives instructions, maintains a helicopter view and is not involved in tasks.

The individual:

This includes the level of a health care professionals' confidence, competence and skills to undertake the role they are being asked to perform. Individual personality, attitude, and risk perception and how well s/he works in teams are also important individual factors. Individual performance will be significantly impacted by fatigue, stress, workload and information overload.

The organisation:

This includes the organisation of task allocation, workload and the working environment. This also includes the culture of a team. An organisation's culture will influence behaviour and performance at work. This includes work patterns, the culture of the workplace, resources, communications, leadership and so on. Such factors are often overlooked during the design of jobs but have a significant influence on individual and group behaviour.

Good practice

To learn from adverse events, it is helpful for teams to look at the potential impact of human factors on the process and outcomes.

How did the elements of organisation, task/job and the individual interact to influence the outcome and can any of these elements be addressed and improved?

A human factors approach is fundamentally about making the right thing to do, the eaiest thing to do.

Maternity services cannot do this in isolation; addressing risks and acknowledging the role of human factors in safety, is the work of the whole Trust or Board team. The table below suggests how different parts of the organisation can contribute:

A human factors approach is fundamentally about making the right thing to do, the easiest thing to do

The structure – What good looks like in maternity: Human factors

Structure	Examples of good practice
Board management and practice	▶ All Trust/Board staff are provided with training to understand the impact of human factors on safety. ▶ All staff receive continuing professional development in the technical and non technical skills to perform their role to a high level. ▶ Consistent and managed approach to policy and procedure development and review. ▶ The maintenance of safe staffing in all areas is a responsibility of the Trust or Health Board, with an appropriate allocated lead for safe staffing. ▶ Ensure actions and recommendations from historical investigations have been completed.
Clinical management and leadership	▶ The Head/Director of midwifery, matrons, managers and leaders have the right education, training and support to implement and sustain positive change. ▶ Positive respectful network of senior maternity leadership multi-disciplinary. ▶ Leaders support clinical staff by ensuring that all areas are adequately staffed and resourced and all staff are educated to provide high-quality care. ▶ Compassionate, inclusive authentic and collective leadership styles are the norm. ▶ All members of the maternity team are supported to maintain their education and skills with CPD built into their working time. ▶ Evidence based up to date guidelines readily available that guide practice. Midwives are supported to have access to PMA (professional midwifery advisor) or midwifery supervision services.

The structure – What good looks like in maternity: Human factors

Structure	Examples of good practice
Team management and practice	▶ Appropriate skills mix and task allocation on each shift. ▶ Allocation of breaks at the beginning of the shifts and ensuring these breaks are taken in a timely manner. ▶ Ensure there are facilities provided to ensure that staff are able to restand maintain hydration and nutrition during their working hours. ▶ Recognition of pressures on staff during busy periods and seek to provide relief or support for those under pressure. ▶ Learning lessons from previous incidents to improve practice through regular shared team reviews of key learning. ▶ Teams undertake training together. ▶ Regular, focussed team communication using daily briefings or huddles and debriefing techniques. ▶ Any potentially unsafe behaviours are constructively challenged. Negative behaviours are challenged. ▶ Staff encouraged to take adequate time off to recharge and not book bank shifts during annual leave. ▶ Review roster rules report to ensure equitable allocation of shifts and ensure work life balance is supported.
Design and procurement management and practice	▶ Medical equipment is designed on the basis of human factors principles. ▶ Medical and IT equipment is piloted to ensure it enhances human performance. ▶ Medical and IT equipment is standardised across the service, and all staff are trained in its use. ▶ Data about the service – outcomes and processes - are shared with the whole team.

The contribution of human factors to errors and adverse outcomes within most healthcare systems is significant.

The willingness of an organisation to recognise and act on these sorts of contributory problems is a good marker of the organisation's approach to improving safety and quality of care.

Organisations should foster an open and fair culture that encourages reporting of incidents so that everyone can learn from mistakes and near-misses.

Information adapted from Clinical Human Factors Group (CHFG)
chfg.org/what-are-clinical-human-factors/

Self check-in: Key human factors when working under pressure

Good teamwork, leadership and communication give everyone a better chance of staying safe.

Question:	Response:	Action (if responded no/sometimes)	Practical tips:
Do you brief the whole team?	Yes ☐ No ☐ Sometimes ☐	Brief the whole team, even if rapid and short. Best at the start of a shift but can be done at any stage. Check their understanding.	▶ Agree on clear language protocols to avoid doubt and speed up responses ▶ Check staff skills before assigning roles. Ensure clarity of roles: Who, how & what if? ▶ Agree on the way to share concerns ▶ Brief prior to donning PPE if possible.
Do you and your team take conscious action when under stress?	Yes ☐ No ☐ Sometimes ☐	Anxiety and stress drive action in simple situations, but our current situation is not simple. Take a moment before trying to think about what to do. Arrange a meeting with your PMA as a 1:1 or in small group setting.	When there are high levels of stress, individuals are hard-wired to act: ▶ Take deep breaths or count to 10 ▶ Pause the team – with an agreed action or word ▶ Use a mnemonic such as ABCDE to guide initial action ▶ Ask an open question – What do you think is happening? ▶ Use a task, such as donning PPE, to pause.

Self check-in: Key human factors when working under pressure

Good teamwork, leadership and communication give everyone a better chance of staying safe.

Question:	Response:	Action (if responded no/sometimes)	Practical tips:
Do you lead by being open and inclusive for rapidly changing scenarios?	Yes ☐ No ☐ Sometimes ☐	Ask questions first and lead second. Listen to expertise based on who knows what is happening now. Listen to staff from different disciplines and levels of seniority for further insight into threats and error.	▶ Ask open questions before acting – What do we think is happening? What do we need to do? ▶ Focus on what's right, not who's right.
Do you help staff who are unfamiliar with their work?	Yes ☐ No ☐ Sometimes ☐	New staff, such as agency, bank, supernumerary, or junior staff, may feel under-prepared or insecure if unfamiliar to the environment. Ensure protocols are clear and practices and equipment are explained. If time, give newer staff the opportunity to practise using simulation.	▶ Be kind and empathise and anticipate stress triggers ▶ Explain why things are done in a specific way.
Do you use checklists and aide memoirs to support tasks?	Yes ☐ No ☐ Sometimes ☐	Do the action, then check output not input, for example, turn oxygen on and check the flow, not the position of the switch. Don't move on until you've checked the output or received the appropriate response. Try to avoid interruptions; these significantly increase errors.	▶ Make each action deliberate and thoughtful ▶ If interrupted, stop, and consider if starting from the beginning is safer.

Self check-in: Key human factors when working under pressure

Good teamwork, leadership and communication give everyone a better chance of staying safe.

Question:	Response:	Action (if responded no/sometimes)	Practical tips:
Do you encourage staff to speak up?	Yes ☐ No ☐ Sometimes ☐	Encourage all staff to speak up about their concerns as they might be the one who prevents an avoidable disaster. A low authority gradient makes it easier for junior or new members to speak up, such as making sure everyone has been introduced by name and ensuring eye contact.	▶ Praise and do not belittle anyone who asks a question or raises issues ▶ Give permission explicitly for all staff to raise concerns.
Do you recognise factors that may hinder you, or your colleague's or teams performance?	Yes ☐ No ☐ Sometimes ☐	Good team players recognise colleagues who are under stress and support them by sharing workload and giving emotional support. Look out for the stresses that affect performance, such as, tiredness, worries, other's poor behaviour, illness, noise, distractions and hunger.	▶ Remind each other to take a break – we may not recognise this ourselves ▶ Adhere to break schedules and ensure staff eat, drink and use the toilet and shower facilities, especially if wearing PPE for long periods.

Self check-in: Key human factors when working under pressure

Good teamwork, leadership and communication give everyone a better chance of staying safe.

Question:	Response:	Action (if responded no/sometimes)	Practical tips:
Do you debrief as a team to learn from experiences?	Yes ☐ No ☐ Sometimes ☐	Your experiences can play on your mind, especially the mistakes you think you might have made. At the end of a shift debrief as a team and share thoughts to enable learning and maintain mental wellbeing. Sign-post staff to available support measures.	▶ Remind each other to take a break – we may not recognise this ourselves ▶ Adhere to break schedules and ensure staff eat, drink and use the toilet and shower facilities, especially if wearing PPE for long periods.
Do you think about the wider healthcare team and the hospital as a system?	Yes ☐ No ☐ Sometimes ☐	All staff will be under pressure, for example, reception, domestic MSWs, porters, but they may not have the training and experience for this situation. They may look to you for ideas and support. Also, they may have critical insights that you don't have.	▶ Listen to questions and issues they raise about patients – They may have crucial information ▶ Support them with their PPE use and listen to their concerns about contact with potential unwell patients.

Additional resources

Bowie P. *Introduction to human factors and maternity systems presentation* [webinar]. Te Tāhū Hauora Health Quality & Safety Commission. 2022. youtube.com/watch?v=QLBXK6z9lJ8

Chartered Institute for Ergonomics and Human Factors. ergonomics.org.uk

Chartered Institute of Ergonomics & Human Factors for Health Education England. Human factors and healthcare. Evidencing the impact of Human Factors training to support improvements in patient safety and to contribute to cultural change. hee.nhs.uk/sites/default/files/documents/Health%20Education%20England%20and%20CIEHF%20-%20Human%20Factors%20and%20Healthcare%20Report.pdf

Clinical Human Factors Group. (CHFG). chfg.org

Health and Safety Executive. *Human Factors: Staffing.* hse.gov.uk/humanfactors/topics/staffing.htm

HEE patient safety. www.hee.nhs.uk/our-work/patient-safety

HSE.IE, An Stiúrthóireacht um Ardchaighdeáin agus Sábháilteacht Othar / National Quality ad Patient Safety Directorate. *An Introduction to Human Factors for Healthcare Workers.* www.hse.ie/eng/about/who/nqpsd/qps-incident-management/incident-management/a-guide-to-human-factors-inhealthcare-2021.pdf a-guide-to-human-factors-in-healthcare-2021.pdf (hse.ie)

New Zealand Government, Clinical Evidence Commission. *Human factors and the dirty dozen: A webinar for midwives, obstetricians and trainees.* 2021. youtube.com/watch?v=YAVX-CgARsU

NHS England. Human *factors>Gina's Story.* hee.nhs.uk/our-work/human-factors

NHS England. *The NHS Patient Safety Strategy.* england.nhs.uk/patient-safety/the-nhs-patient-safety-strategy/

Royal College of Midwives (RCM). *Human factors: reducing errors in maternity care* (i-learn module). 2020. ilearn.rcm.org.uk

Royal College of Midwives (RCM). *Promoting positive cultures – creating a strong team.* Updated 10/2/20. positive-cultures-workshop.pptx (live.com)

The Health Foundation. health.org.uk

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