THE ROYAL COLLEGE OF MIDWIVES

THE SOLUTION SERIES: 3

MAKING MATERNITY SERVICES SAFER: HUMAN FACTORS

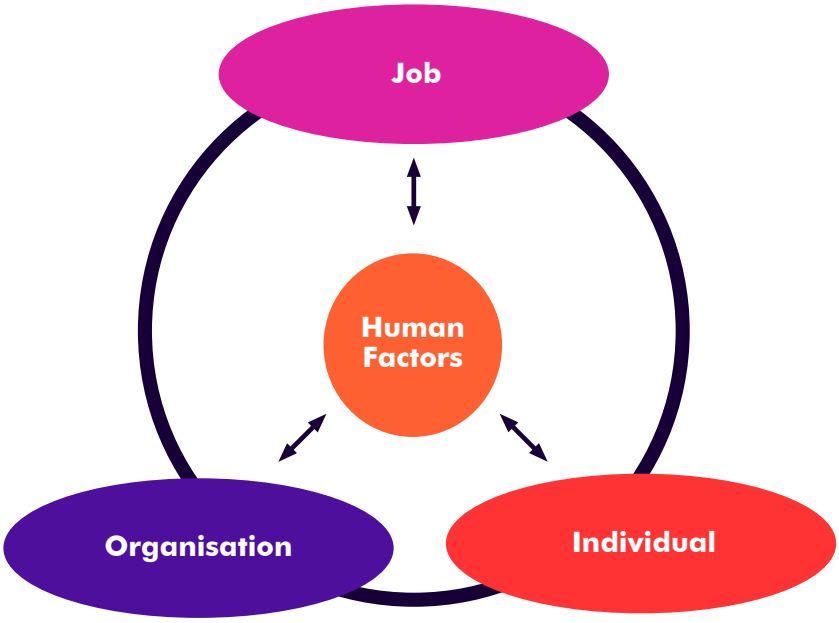
Human factors

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 effects 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, resources, communications, leadership communication approaches and leadership style.

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:

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 • 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 HoM/DoM, Matrons, Managers and Leaders have the right education, training and support to implement and sustain positive change • Leaders support clinical staff by ensuring that all areas are adequately staffed and resourced and all staff are educated to provide high-quality care • 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.

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 • Review roster rules report to ensure equitable allocation of shifts and ensure work-life balance is supported • Staff encouraged to take adequate time off to recharge and not book bank shifts during annual leave • Ensure there are facilities provided to ensure that staff are able to rest and 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 • Any potentially unsafe behaviours are constructively challenged. Negative behaviours are challenged.
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 us • Data about the service – outcomes and processes – are shared with the whole team.

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

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.

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.
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.

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 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.
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 MSW's, 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 withpotential unwell patients.

Additional resources

RCM i-learn module on Human Factors:
www.ilearn.rcm.org.uk/enrol/index.php?id=682

What do we want to do as a team to improve the culture?
www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwia-46S50I3xAhVB8xQKHbsCAc0QFjABegQIAhAE&url=https%3A%2F%2Fwww.rcm.org.uk%2Fmedia%2F4232%2Fpositive-cultures-workshop.pptx&usg=AOvVaw3MIJ3DdwkyP0VY1N0Uk1rI

NHS Health Education England: Based on real events, Doncaster Royal Infirmary has created the film Gina's Story. The film demonstrates how human factors errors can have serious implications for patient safety and how simple process changes can make a big difference:
www.hee.nhs.uk/our-work/human-factors

Paul Bowie webinar Introduction to human factors and maternity systems Held by the Health Quality & Safety Commission.
www.youtube.com/watch?v=QLBXK6z9IJ8

NHS Health Education England (2019) Evidencing the impact of Human Factors training to support improvements in patient safety and to contribute to cultural change
www.hee.nhs.uk/sites/default/files/documents/Health%20Education%20England%20and%20CIEHF%20-%20Human%20Factors%20and%20Healthcare%20Report.pdf

Human factors and the dirty dozen: A webinar for midwives, obstetricians and trainees
www.youtube.com/watch?v=YAVX-CgARsU

Clinical Human Factors Group (CHFG)
chfg.org

Designing Out Medical Error (DOME)
www.domeproject.org.uk/

The Health Foundation
www.health.org.uk

Institute for Ergonomics and Human Factors
iehf.org/

Patient Safety First
www.patientsafetyfirst.nhs.uk/

Health and Safety Executive
www.hse.gov.uk/humanfactors/topics/staffing.htm

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Published: June 2021
www.rcm.org.uk