

Building human factors capacity in healthcare

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SUMMARY

This paper describes a human factors education programme that extends to mentoring frontline clinical staff in applying their knowledge to real problems. Bristol's human factors champion programme has been accredited by the Chartered Institute of Ergonomics and Human Factors and is actively developing human factors capacity to ensure an accurate representation and application across the organisation.

KEYWORDS

Healthcare, HF capacity, Education,

Introduction

In May 2023 the role of Head of Human Factors was created at a large acute NHS Foundation trust in Bristol. The goal of the role was to integrate human factors within the NHS trust. The method of integration was detailed within a Human Factors (HF) strategy which had at the heart the ability to optimise the capabilities of people in the system, integrating human factors into business-as-usual. One method to achieve this was to share expertise and knowledge with staff who could be supported by the HF faculty, creating a hierarchy of expertise across the breadth of departments. This reflects the recommendation within the Chartered Institute of Ergonomics and Human Factors (CIEHF) white paper for Health and Social Care (2018). A HF champion course was piloted in summer 2024 and the first cohort completed the programme in July 2025. The Champion course provides staff with an introduction to human factors/ergonomics methods with an emphasis on the application of these methods to investigate work problems, understand work as done and develop actions to improve local safety issues. The Champion programme has gained senior level support across the organisation, this has been achieved by gaining accreditation from CIEHF.

Course content and format

The course was developed to support staff responsible for exploring workplace issues to develop improvements or respond to safety concerns/events. The HF Champion course objectives are:

- 1) To introduce human factors to support patient safety.
- 2) To increase human factors capability to manage risk and inform safety improvements.
- 3) To provide methods and tools to understand and develop inclusive and safe systems of work.

The design of the course aims to support the context of healthcare work and associated demands, as such each weekly topic is delivered twice via Teams for 95 minutes. Participants must be present for ten of the twelve weeks to pass the course and have the option to catch up on two weeks via recordings. Sessions include use of multimedia platforms, such as Microsoft white board which promotes active discussion and collaboration to increase staff knowledge and apply HF/E methods. Each week is supported by complimentary material accessible via the HF 'Hub' hosted as an internal webpage. Participants join a corresponding Teams group where active discussion is

encouraged via the Teams board, this aims to promote connections and collaboration between participants and fosters relationships post course. Prior to starting the program participants are sent a pre-course survey to understand existing knowledge and accessibility needs. A survey to evaluate the course content is first completed after week four, to identify any further challenges in accessibility. Participants are offered 1:1 sessions, if struggling with content and then a final evaluation completed after week 11. To pass the course within Week 12 participants are asked to deliver or record a ten-minute presentation demonstrating application of a HF/E method to solve a work problem. They are asked to include the work problem, rationale for choice of HF/E method, demonstrate application of the method, evaluate their experience of applying the method and next steps for their results. This is assessed by the HF Faculty and participants are given feedback.

Results

In the pilot there were 38 participants. During this time seven participants either left the organisation or moved roles and did not complete the course. Work commitments for 14 staff have required them to join the next cohort. Typically, staff need at least 3-4months notice to plan to attend the course and obviously clinical demand will always be prioritised. In total 17 staff have completed the course and passed the evaluation, representing staff from allied health professions, nursing, safety, digital and clinical engineering teams. At the time of writing there are 25 intended for the next cohort.

The feedback at week four identified issues on use of the multimedia platforms and supported modifications including pre course guides to practise and delivering slides prior to each week's session. Those completing the course (n=17) completed an anonymised survey indicating all felt the course met its objectives. In response to three questions based on a five-point Likert scale the results indicate the delivery format was effective (average rating 4.65) and quality of the material was high (average rating 4.71). The final question asked about the level participant confidence in using their new knowledge, this scored a slightly lower average of 4.06. This has informed the additional support provided to introduce mentoring of staff to address local work issues. This has recently become a model that also supports the HF faculty manage the mismatch in HF capacity and demand. A request for HF faculty support may be responded to by requesting a member of the local team join the course and mentoring supports the team address a safety issue. The comments regarding content and format were predominantly positive particularly relating to discussions, however, sometimes the volume of new information was too much. The mentoring post course is intended to support this. Responses to open questions indicated the course impacted perspectives.

“The change in my thought and reasoning process. Using a different set of eyes and being given some tools to use.”

“I think it has made me think more about my role ... it's not just about meeting safety standards or the frustrations I have with digital products, it's about the people and processes.”

The case studies presented for the evaluation process illustrated a breadth in the application of HF principles and methods to understand safety critical tasks. This included task analysis, operational sequence diagrams and link analysis to recognise system and safety issues influencing oncology medication, radiotherapy, patient identification, infection control and digital system design.

Conclusion

The course although in its infancy has achieved its learning objectives and is developing an organisational community of practice for HF. The HF faculty has benefited being supported by HF champions in Divisional work and delivering team directed education. Furthermore, the growing requests for HF support is considered indicative in part to the success of the champion programme.

References

CIEHF (2018). White paper: Human factors for health and social care. Available at <https://ergonomics.org.uk/resource/human-factors-in-health-and-social-care.html>. Accessed 18 November 2025.