Testing the Usability of a Clinical Guideline

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ABSTRACT

Clinical Guidelines provide essential evidence-based support and direction to clinical staff at both routine and critical events along a patient's care pathway. This study describes the testing of a new clinical guideline for hyperkalaemia for a large acute trust prior to the guideline being implemented into practice. The study was commissioned via the Pharmacy lead, and was designed to explore whether doctors in training and qualified nurses could understand and implement the new guideline with ease, avoiding prescribing errors and ensuring prompt management of the patient. The usability engineering framework (MHRA, 2017) used for medical devices was adapted as the human factors framework for reviewing the guideline. The purpose was to understand whether the interaction between the written guideline and the users, user interface (paper guideline) and use environment resulted in safe and effective use. Scenario based testing use high and low fidelity simulation was used to test the guideline in two different clinical scenarios. A task analysis of the guideline informed the design of the simulation scenarios and was reviewed and agreed by a team of medical, nursing and simulation educators to ensure fidelity of the scenario.

Method

A Perception, Cognition and Action (PCA) (Shortt, 2018) approach was taken to design the study and inform the evaluation plan. The study took place over a five week period in 2018 with 36 doctors in training and qualified nurses participating. Participants were asked to read the guideline and complete a questionnaire to explore ease of accessibility, and interpretation (Perception and Cognition). Participants were recruited to take part in one of two clinical scenarios to test the application of the guideline in a realistic, simulated environment (high fidelity simulation centre or ward clinic room) which was observed by a multiprofessional team (Action). An expert group of medical staff reviewed the guideline and provided feedback.

Data was collected as follows:

- observation data from the multiprofessional team during the scenarios
- verbal feedback and debriefing with the participants by multiprofessional team
- self- reported qualitative questionnaire (Likert scale) from participants including free text responses

Evaluation of the 3 data courses was undertaken via a thematic analysis of the observational data, verbal feedback and free text responses. Questionnaires were analysed to produce a score (1-10) based on the Likert scale. A Flesch Reading Ease (Flesch, N.D.) score was calculated using the built-in programme within Microsoft Word to indicate the readability of the guideline.

The results were structured around ease of access, understanding and application of the guideline and identified areas of good practice as well as recommendations for change. Findings were reported to the commissioner (Pharmacy) who reviewed them and implemented a number of changes. This approach provided greater insight into the needs of the clinicians and highlighted design issues that would previously have not been considered.

References

MHRA (2017) Human Factors and Usability Engineering – Guidance for Medical Devices Including Drug-device Combination Products v1.0.

Shortt, N. (2018) Perception, cognition, action: Applying Human Factors to Medical Device Design. Frederick Furness Publishing, www.ondrugdelivery.com

Flesch Reading https://readable.io/blog/the-flesch-reading-ease-and-flesch-kincaid-grade-level/