

An evaluation by final year medical students of an app supporting correct use of irradiated and CMV-negative blood components.

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Introduction

Many failures to provide irradiated and cytomegalovirus (CMV) negative blood to patients with special requirements are reported to haemovigilance schemes each year. One reason for mistakes is a lack of knowledge about the indications for irradiated and CMV-negative blood.

Methods

Special Blood Request (SBR) is an app developed to support doctors, nurses and other staff who need to know about special blood components. During a training day at a large UK university, 270 final year medical students were invited to explore and evaluate the app through an online questionnaire incorporating the system usability scale (SUS) inventory.

Results

Based on web analytics, 70% (186/270) of the students explored the app, spending an average of eight minutes each. 54 students left detailed evaluation feedback, summarised in table 1. Most respondents were aged 20-29 and reported using a smartphone at home and at work, but had little experience of special blood components.

| 1. Knowledge of special blood components | SD* | D* | N* | A* | SA* |
|--|------|----|----|----|-----|
| I often prescribe, process or administer special components (n=42) | 26 | 1 | 12 | 2 | 1 |
| I feel confident about the indications for special components (n=43) | 8 | 9 | 20 | 6 | 0 |
| Guidance for prescribing special components is easy to use (n=43) | 5 | 3 | 24 | 11 | 0 |
| Having access to an app for special components would be useful (n=43) | 2 | 0 | 11 | 21 | 9 |
| 2. Evaluation of the Special Blood Request app | | | | | |
| I can definitely see a use for this app (n=54) | 0 | 5 | 5 | 32 | 12 |
| My experience of using the app was enjoyable (n=52) | 2 | 10 | 13 | 25 | 2 |
| I would recommend this app to others (n=54) | 2 | 10 | 10 | 27 | 5 |
| [The information in the app] is worth reading (n=50) | 0 | 1 | 4 | 38 | 7 |
| Looking up the indications [for special requirements] is quick and easy (n=50) | 5 | 5 | 5 | 28 | 7 |
| The quiz [section of the app] is an useful way of learning (n=47) | 2 | 2 | 7 | 29 | 7 |
| System Usability Scale (SUS) score (n=40): | 63** | | | | |

* SD: Strongly disagree, D: Disagree; N: Neither disagree nor agree; A: Agree; SA: Strongly agree.

** SUS score range is 0-100 with <50 considered failure, 67 average and >80 excellent usability.

Table 1 – Questionnaire results.

Conclusion

Most respondents were positive about having access to an app about special requirements and rated the SBR app favourably. The SUS score indicated an acceptable level of usability, although the feedback identified potential improvements to the user interface and learning materials. Junior doctors are often required to prescribe blood despite having received little training about special blood components. Apps can offer learning opportunities, but there is a need to demonstrate knowledge gain, retention and ultimately improved decision making. The authors are planning an online randomised controlled trial to follow up this work.