

Initial service evaluation of an online triage tool for urgent eye conditions

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Aims

- 1) To compare the sensitivity and specificity of eye.dot to gold-standard urgent triage disposition
- 2) To evaluate its usability and potential barriers to implementation

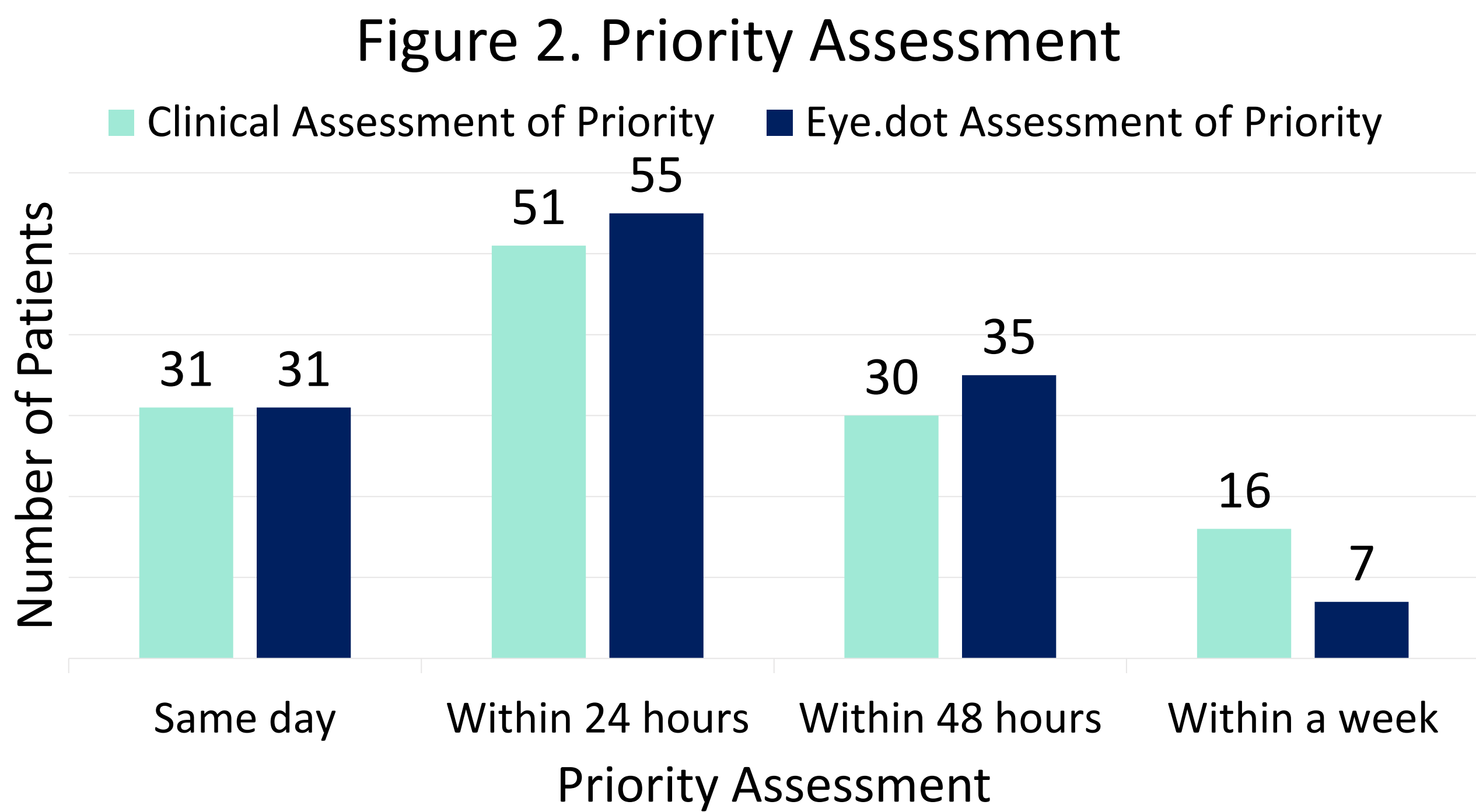
Methods

Accuracy

Reception or nursing staff offered patients attending ED and EEC a QR link to eye.dot. Automated eye.dot disposition was compared to masked consultant triage based on the eye.dot report alone. Patient dispositions included service type (hospital, community optometrist, pharmacist) and urgency (same-day, <24 hours, <48 and within a week). Need for urgent care was defined as gold-standard triage to hospital attendance within 24 hours.

Acceptability

A visual Likert score in the app facilitated patient feedback. Additionally, selected patients were asked to complete a validated usability questionnaire. [2] Semi-structured interviews to identify barriers and enablers to implementation were undertaken with triage staff.



Background

Approximately 6% of emergency department (ED) attendances are eye-related, but many patients are referred unnecessarily because primary care triage staff tend to be risk averse [1]. More effective triage could reduce the pressure on ED and Emergency Eye Clinics (EEC).

Eye.dot is an online branching logic questionnaire which patients complete on their own device (Fig. 1a). Using a maximum of 25 individualised MCQs, a detailed symptom and history report is compiled for the clinician (Fig.1b). A patient disposition in terms of service and priority is suggested to support primary care triage decisions. This study explores the app's accuracy, usability and potential barriers to its uptake in ED and EEC.

Results

Accuracy

128 patients, mean age 42 years (range 13-85) took part. Red or painful eye was the commonest cause for attendance (46%). Gold-standard triage disposition was urgent hospital care for 82 patients (63%). Sensitivity and specificity of automated triage for urgent cases was 100% and 93% respectively. Overall, concordance for appropriate service and urgency was high at 92% and 89% respectively, with eye.dot being more risk averse (Fig.2).

Acceptability

Mean test duration was 5 minutes. 119 patients completed Likert scoring with 73% rating the app good or excellent. 14 patients undertook the validated usability questionnaire, with average acceptability, feasibility, and appropriateness scores being 3.6, 3.9 and 3.9 out of a maximum 5 points respectively.

Qualitative patient feedback suggested that accessibility may be a barrier to implementation. Among the 9 staff focus group members, interoperability with hospital IT systems was the main concern.

Conclusions

Accurate triage enables patients to be seen in the right place at the right time. Benefits include improved patient experience, fewer appointments and better use of limited resources.

This study has demonstrated eye.dot to have good triage accuracy and usability in the secondary emergency care setting, but its principal use will be in primary care. Further studies are required in this setting. Accessibility and IT interoperability must be optimised to ensure uptake.

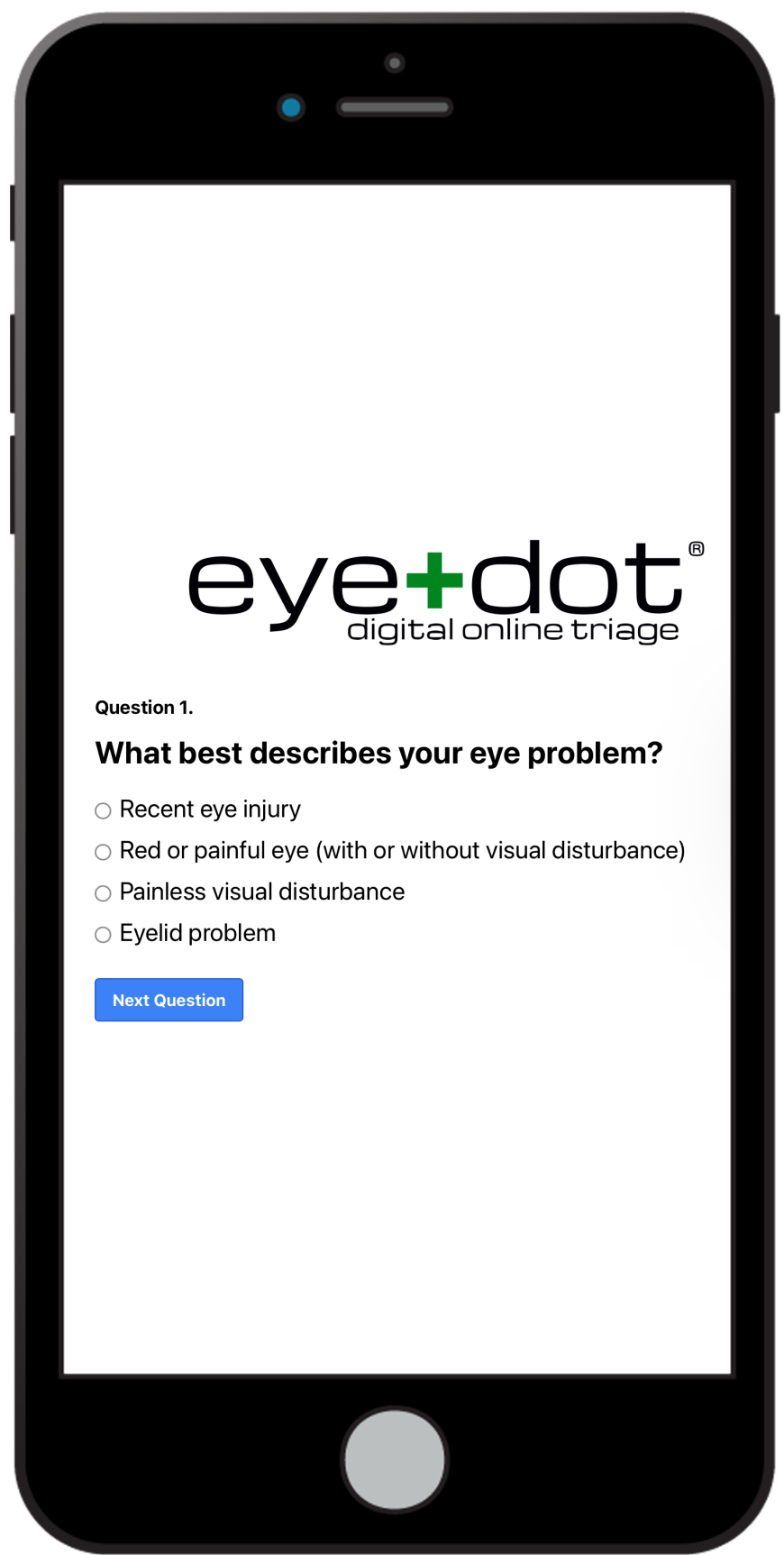


Figure 1a. Eye.dot questionnaire on a patient device

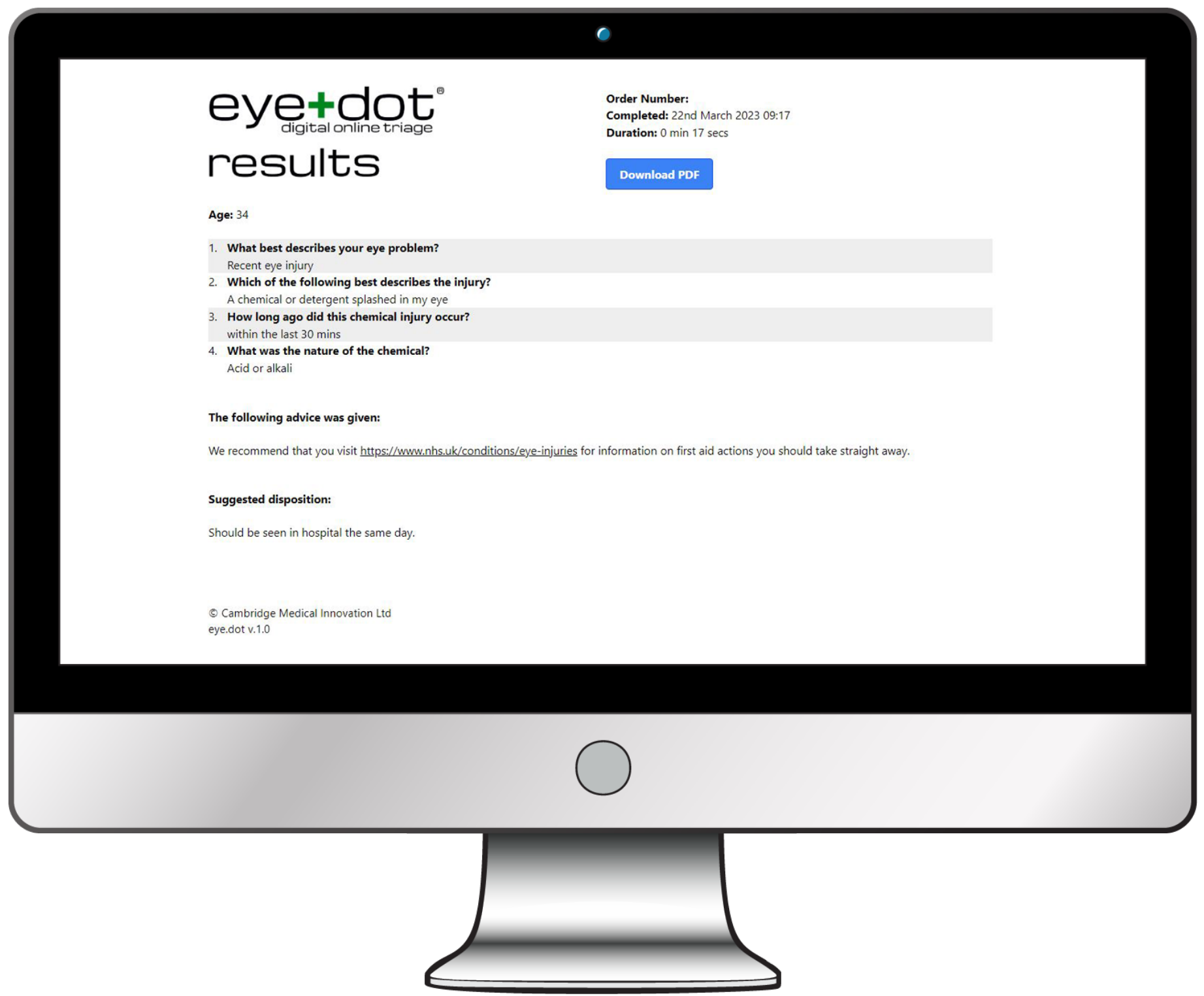


Figure 1b. Clinician report generated by eye.dot

References

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2. Weiner BJ, Lewis, CC, Stanick C et al. Psychometric assessment of three newly developed implementation outcome measures. Implementation Science (2017)12:108 DOI: 10.1186/s131012- 017-0635-3

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Conflict of Interest declaration

Louise Allen is an unsalaried Founding Director of Cambridge Medical Innovation Ltd.