# Confidence of Emergency Department doctors in managing ophthalmic emergencies: a systematic review

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## Introduction

Ophthalmic emergencies comprise ~6% of all attendances to general emergency departments (EDs) in the UK[1]. Many acute eye presentations are sight- or life-threatening, thus it is important that doctors working in EDs can effectively and confidently diagnose and manage acute eye presentations, and recognise where specialist ophthalmic input is required. Foundation doctors working in EDs receive little ophthalmic training and lack confidence in diagnosing and managing ophthalmic emergencies[2]. This is the first systematic review to assess the confidence of doctors working in the ED in managing ophthalmic emergencies.

**Aims:**

1. To evaluate the literature assessing the confidence of doctors across all training grades working in EDs in managing ophthalmic emergencies in the UK
2. To assess the confidence of doctors working in EDs in performing fundoscopy and using the slit lamp
3. To assess the extent of ophthalmic training received in the ED

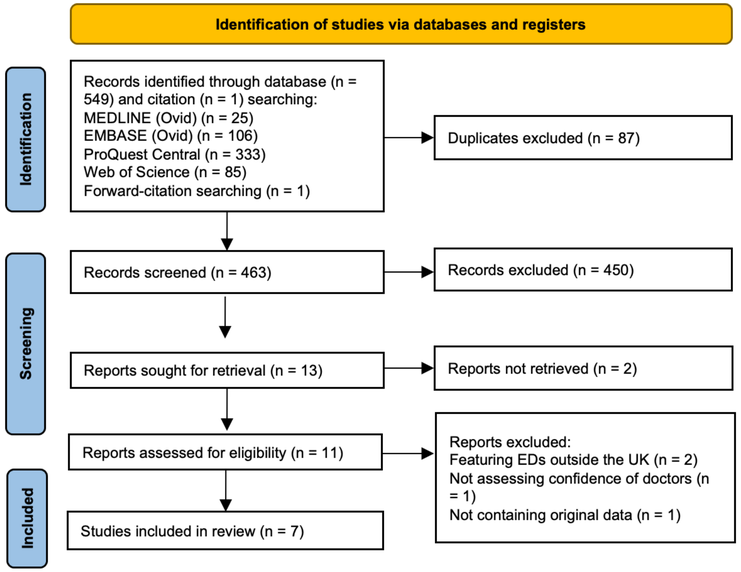



**Figure 1:** PRISMA flow diagram

## Methods

MEDLINE (Ovid), EMBASE (Ovid), ProQuest Central and Web of Science databases and grey literature were searched from inception to 1 October 2022 for publications (1) featuring doctors working in general EDs in the UK; (2) assessing the confidence of doctors in managing ophthalmic emergencies; (3) containing original data; (4) that were full-text; and (5) written in the English language.

Methodological quality was assessed using the Appraisal tool for Cross-Sectional Studies (AXIS). The protocol was registered on PROSPERO (CRD42022365160) and the PRISMA checklist was followed.

## Results

549 publications were retrieved, and 7 studies included in the systematic review, all cross-sectional in design (**Figure 1** and **Table 1**). They collectively assessed the confidence of 966 doctors working in the ED: 721 Foundation doctors (FY1/2)/Senior House officers (SHOs), 117 Specialty Trainees, 21 Specialty and Associate Specialist (SAS) doctors and 97 Consultants. Studies were of variable quality with a mean AXIS score of 12/20.

**Confidence in managing ophthalmic emergencies:** There was a widespread lack of confidence in managing ophthalmic emergencies amongst doctors working in the ED, especially foundation doctors, which has worsened over time (**Table 2**). A minority of doctors were confident in managing retrobulbar haemorrhage and corneal abrasions specifically.

**Table 1**: Summary of study characteristics

| Author (year) | Training grade of doctors | Population size, n | Type of ophthalmic emergency assessed | Study design |
|---|---|---|---|---|
| Tan et al. (1997) | SHOs | 192 | General ophthalmic emergencies | Telephone survey |
| Thyagarajan et al. (2006) | SHOs | 9 | Corneal abrasions | Survey of SHOs before the introduction of corneal abrasion guidelines |
| Sim et al. (2008) | SHOs | 133 | General ophthalmic emergencies | Telephone survey |
| Saifuddin & Brookes (2014) | FY2s | 21 | "red eye" & "visual disturbance" | Survey of FY2 doctors in the local ED |
| Murray et al. (2016) | FY1 to Consultant | 65 | Red eye, acute loss of vision, ocular trauma & chemical injury | Survey of ED doctors in 6 NHS Trusts in the West Midlands |
| Edmunds et al. (2019) | FY1 to Consultant | 190 | Retrobulbar haemorrhage (RBH) | Online survey of ED doctors in 7 UK locations |
| Sim et al. (2020) | FY2s | 346 | General ophthalmic emergencies | Combined online and telephone survey of FY2s |

**Confidence in performing funduscopy and using the slit lamp:** A minority of doctors across training grades felt confident in performing fundoscopy (11% and 29% in the 2 studies where it was assessed). Confidence in using the slit lamp (assessed in 5 studies) was low across training grades.

**Formal ophthalmic training received in the ED:** Of the 5 studies in which this was assessed, a significant proportion of doctors reported inadequate ophthalmology training with the majority feeling further training would improve confidence in managing specific eye emergencies.

**Table 2**: Confidence of ED doctors in managing ophthalmic emergencies

| Author (year) | Summary of results |
|---|---|
| Tan et al. (1997) | **31.3%** (60/192) **"confident"**, 65.1% (125/192) "a little confident", 3.6% (7/192) "not confident" |
| Thyagarajan et al. (2006) | **10%** (1/9) **"confident"**, 90% (8/9) "a little confident" or "not confident" |
| Sim et al. (2008) | **36.1%** (48/133) **"confident"**, 55.6% (74/133) "a little confident", 8.3% (11/133) "not confident" |
| Saifuddin & Brookes (2014) | Confidence averaged 2.3/5 for dealing with the "red eye", and 2.2/5 for dealing with "visual disturbance" |
| Murray et al. (2016) | **40%** (26/65) **"confident"** or **"very confident"** for red eye; **34%** (22/65) for acute loss of vision; **32%** (21/65) for ocular trauma; and **43%** (28/65) for chemical injury |
| Edmunds et al. (2019) | **37.1%** (70/190) "**confident** in performing LC/C for RBH; 62.9% (120/190) were not |
| Sim et al. (2020) | **2.3%** (8/346) **"confident"**, 38.7% (134/346) "a little confident", 59.0% (204/346) "not confident at all" |

## Discussion

This systematic review demonstrates low confidence amongst foundation doctors working in the ED in managing eye emergencies, performing fundoscopy and using the slit lamp. Despite a shift towards a more competency-based Foundation Programme for junior doctors[3], the confidence of FY2s in managing eye emergencies has declined over time. Foundation doctors would be expected to require senior support from their team in the ED or from ophthalmologists in managing these conditions.

**Limitations:** There were few eligible studies and several had low AXIS scores. Data from doctors of higher training grades were lacking. Clinical competency in managing ophthalmic emergencies was not addressed in many of the included studies.

**Future directions:** Further work should evaluate the confidence and competence of doctors working in EDs across all training grades, focusing on specific ophthalmic emergencies to highlight knowledge gaps. Studies should investigate why confidence is low amongst foundation doctors, which may stem back to inadequate training and exposure at medical school[4], to inform the design of training to improve confidence in managing eye emergencies.

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