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# Investigating the feasibility and acceptability of using technology to improve adherence to glaucoma medication



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## Background

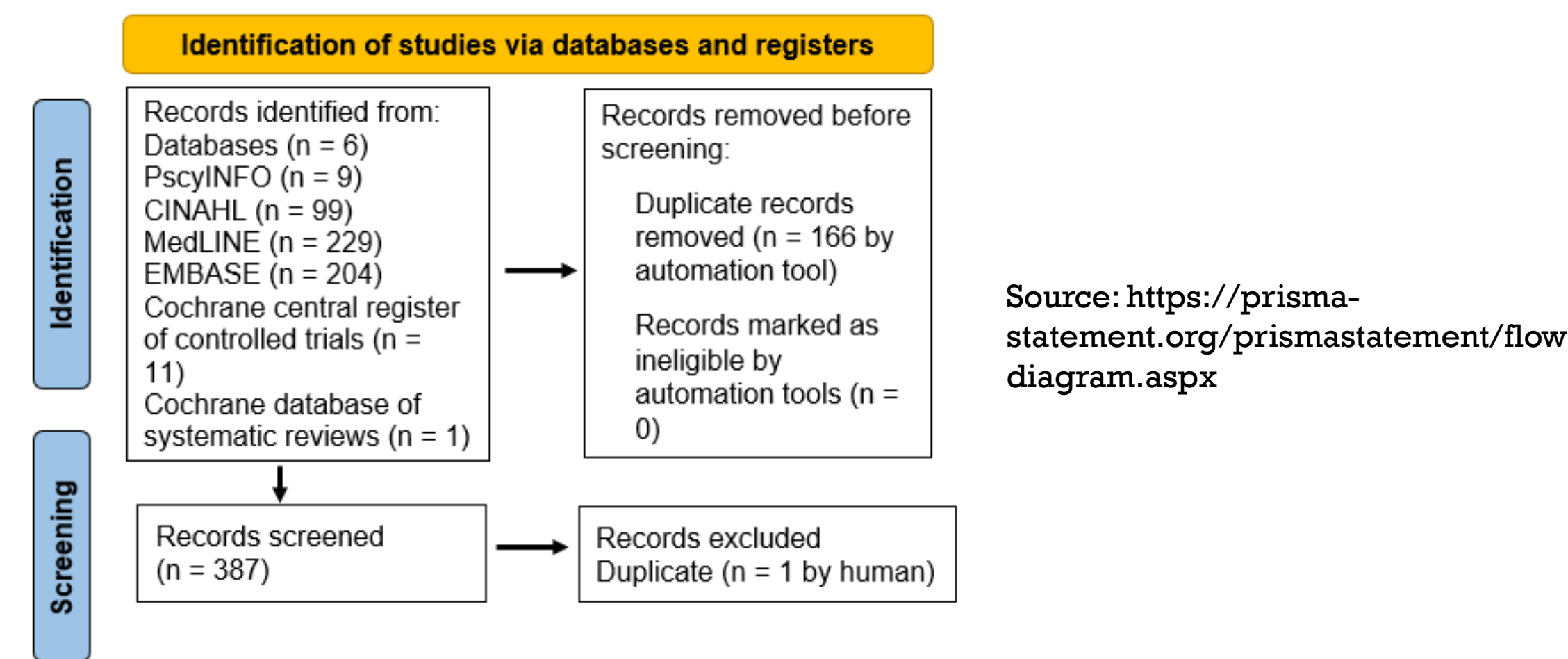
- Adherence to long-term medication for chronic conditions is poor.<sup>1</sup> Sub-optimal adherence reduces treatment effectiveness leading to disease progression and visual loss.
- Interventions to improve adherence have achieved limited success, lacking robust theoretical underpinning.<sup>2,3</sup>
- Chatbots (AI technology) are used in other health conditions to improve medication adherence.
- There is a lack of evidence investigating their potential in glaucoma care.
- We aim to investigate the determinants of glaucoma medication adherence and whether technology can help improve this.

## Methods

- Systematic review will identify the key modifiable determinants of glaucoma medication adherence.
- The Theoretical Domains Framework (TDF), will be applied to identify the determinants of behaviour change.<sup>4</sup>
- Content and framework analysis – data extraction, deductive analysis (TDF coding), inductive analysis and identification of important domains.
- Interviews will be conducted with glaucoma patients and practitioners.
- Scoping literature review will identify what forms of technology are available.
- A suitable technology-based intervention will be identified with PPI and utilised in a feasibility trial.

## Results to date

- Systematic review underway, protocol registered with Prospero. n= 387 potential papers identified.
- TDF codebook developed to aid deductive analysis.



TDF domain and definition	Determinants (i.e. barriers and/or facilitators) of adherence
<b>Knowledge:</b> awareness of the existence of something	Patient's knowledge or HCP/carer referring to patient's knowledge of: <ul style="list-style-type: none"> <li>Glaucoma</li> <li>Rationale for using eyedrops</li> <li>Consequences of adherence/nonadherence</li> <li>Treatment application and regimen</li> <li>Side effects of eyedrops</li> <li>HCP awareness/lack of awareness regarding adherence/nonadherence in practice</li> </ul>
<b>Skills:</b> ability or proficiency acquired through practice	<ul style="list-style-type: none"> <li>Physical skills needed by patient/carer to instil eyedrops correctly e.g. poor manual dexterity prevents opening or squeezing bottle or poor VA prevents being able to use drops (barrier)</li> <li>Ability to obtain ongoing supplies of eyedrops by patient (facilitator)</li> <li>References made by HCP regarding patient's ability to instil eyedrops correctly</li> <li>HCP competence may include skills needed to inquire about/assess adherence (facilitator)</li> </ul>
<b>Behavioural Regulation:</b> anything aimed at managing or changing observed or measured actions	<ul style="list-style-type: none"> <li>References from either patient / HCP in using/providing techniques/habits/processes to remember to instil eyedrops</li> </ul>

Extracts from TDF codebook

- Ethics approval for interviews granted. Topic guide, mapped to TDF, finalised.
- Recruitment process started. Glaucoma UK article published.



"Do you know why you take your drops?" (Knowledge domain)

"On a daily basis do you have any problems putting your eyedrops in?" (Skills domain)

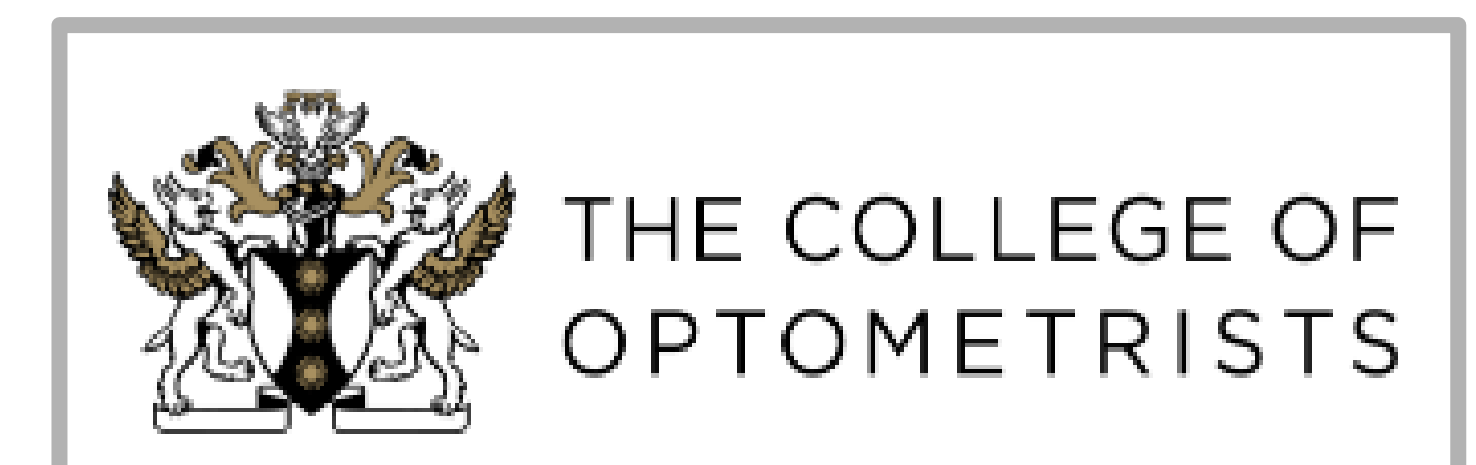
"How do you classify a patient as nonadherent?" (Knowledge domain)

"Do you currently recommend any form of technology to help patients take their eyedrops?" (Behavioural regulation domain)



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## Summary

- Systematic review will identify key factors influencing glaucoma medication adherence.
- Development of behaviour change intervention is in line with UK Medical Research Council Framework.<sup>5</sup>
- Feasibility trial outcomes will provide evidence for future RCTs into the usefulness of technology to improve adherence.

## Acknowledgements

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