

# Demographic and clinical factors that influence the visual response to anti-vascular endothelial growth factor therapy in patients with neovascular age related macular degeneration: a systematic review.

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## Background

- Neovascular age related macular degeneration (nAMD) is a leading cause of blind registrations in the developed world.
- Standard therapy includes the use of anti-VEGF drugs, and whilst the clinical efficacy is well-established, there is variability in the clinical effect of visual outcome.
- The purpose of this study is to summarise some of the demographic and clinical factors that influence the effectiveness of anti-vascular endothelial growth factor (VEGF) therapy in patients with nAMD, in settings comparable to the National Health Service (NHS).

## Methods

- Electronic databases Medline, EMBASE, Web of Science, CINAHL and the Cochrane Library, were searched for relevant published literature, dated from 2005 onwards.
- Eligibility criteria: patients with nAMD being treated with anti-VEGF, associated demographic and clinical factors, in comparable settings to NHS hospitals.
- Study design: Systematic review of randomised controlled trials, prospective cohort studies, case series, retrospective cohort studies looking at demographic and clinical factors were appraised using the Newcastle-Ottawa scale, and a narrative synthesis conducted.



Retinal image showing large amounts of drusen with accompanying haemorrhage at the edge of the lesion. (Source: Ophthalmology.com)

## Results

- 30 papers were included in this review.
- The number of anti-VEGF injections that patients receive and age and lesion size at baseline are factors that were found to influence the effectiveness of anti-VEGF therapy in the short and long-term.
- Baseline visual acuity was found to influence effectiveness of anti-VEGF therapy at longer time-points of more than two years.

## Discussion and Key Findings

Higher numbers of anti-VEGF injections, higher visual acuity at baseline, lower age and smaller lesser lesion size at baseline all positively influenced the effectiveness of anti-VEGF therapy.

Visual acuity, age and lesion size were more likely to be detected in larger, international studies of clinical trial data, rather than in smaller, single centre retrospective studies.

Number of injections was detected in all types of studies, including smaller retrospective studies.



Patient receiving intravitreal anti-VEGF therapy (Source Ophthalmology.com).

## Conclusions

- This review has demonstrated that there are clinical and demographic factors that affect the effectiveness of anti-VEGF therapy and hence variation in VA outcome.
- Some of these, such as VA and lesion size at diagnosis, and the number of injections are potentially modifiable through improvements in early diagnosis and service provision.
- Future work needs to focus on the importance of this variation such as the effect on patients' quality of life and how variation can be minimised.

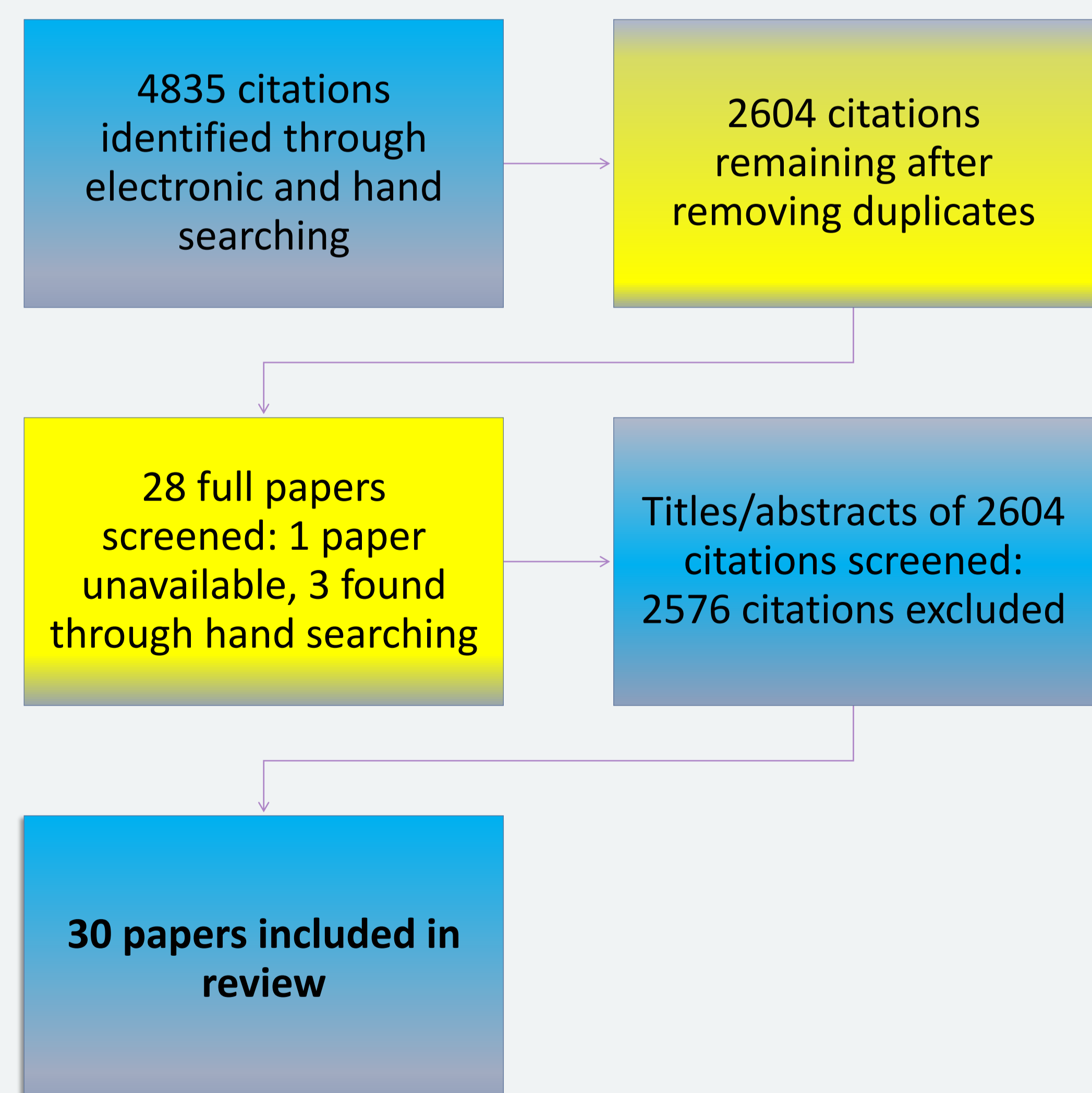


Diagram showing screening process