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Community Optometrist–Led Monitoring of Quiescent Neovascular Age-Related Macular Degeneration

The FENETRE Randomized Clinical Trial

Anitta Sharma, MSc; Aljazy Jaber, BSc; Bishwanath Pal, MD; John G. Lawrenson, PhD; Robert A. Harper, DPhil; Adnan Tufail, MD; Annastazia E. Learoyd, PhD; Emily Robinson, MSc; Abdel Douiri, PhD; Rachel Burman, MSc; Ashleigh Kernohan, PhD; Sofia Vougioukalou, PhD; Simon Read, PhD; Judit Csontos, PhD; Aled Jones, PhD; Sajjad Mahmood, MD; Martin McKibbin, MD; Janet L. Peacock, PhD; Richard Gale, MD; Praveen J. Patel, MD; Pearse A. Keane, MD; Robin Hamilton, MD; Luke Vale, PhD; Catey Bunce, DSc; Konstantinos Balaskas, MD

Abstract

IMPORTANCE Hospital-based ophthalmology faces increasing demand for long-term monitoring of neovascular age-related macular degeneration (nAMD). Safe redistribution of routine monitoring to community clinicians is relevant to integrated community (primary)–secondary care models.

OBJECTIVE To examine whether community optometrist–led monitoring of nAMD is noninferior to hospital-based monitoring for detecting disease activity requiring treatment.

DESIGN, SETTING, AND PARTICIPANTS This multicenter, noninferiority randomized clinical trial was conducted from October 8, 2019, to January 31, 2024, at secondary centers (17 hospitals) and primary centers (60 community optometry practices) with 12-month follow-up. Statisticians were masked to patient grouping. Adults 55 years or older with quiescent AMD in at least 1 eye (and quiescent or nonneovascular disease in the other) were recruited at participating hospitals. Data analysis was performed from October 2024 to March 2025.

INTERVENTIONS Participants were randomized 1:1 to monitoring sessions once every 2 months in hospitals (control) or community practices (intervention). Trained and accredited optometrists performed optical coherence tomography imaging, clinical examination, patient management, and online reporting at each visit.

MAIN OUTCOMES AND MEASURES The primary outcome (participant level) was a binary indicator of whether a false-negative clinical management decision occurred at any visit within 12 months (missed quiescent nAMD reactivation or new fellow-eye nAMD, adjudicated by a central reading-center reference standard). The noninferiority margin was a 10–percentage point absolute risk difference. Secondary outcomes were false-positive clinical management decisions, attendance adherence, visual acuity change, harms, loss to follow-up, suspicious classifications, and confirmation visit outcomes.

RESULTS Of 704 randomized participants, 635 (90.2%) completed at least 1 follow-up visit, including 287 at community practices (mean [SD] age, 80.6 [8.1] years; 236 [67.4%] female) and 348 at hospitals (mean [SD] age, 80.1 [8.5] years; 203 [57.3%] female). False-negative clinical management decisions occurred in 11 of 287 community participants (3.8%) vs 27 of 348 hospital participants (7.8%) (risk difference, −3.9 percentage points; 95% CI, −7.4 to −0.3 percentage points; $P = .04$; adjusted odds ratio, 0.51; 95% CI, 0.24-1.07; $P = .08$), meeting noninferiority. False-positive clinical management decisions occurred in 24 of 287 community participants (8.4%) vs 12 of

(continued)

Key Points

Question Is community optometrist–led monitoring of quiescent neovascular age-related macular degeneration noninferior to hospital monitoring for identifying disease activity requiring treatment?

Findings In this randomized clinical trial of 635 adults, false-negative clinical management decisions occurred in 3.8% in the community group and 7.8% in the hospital group for a difference of −3.9 percentage points, meeting the criterion for noninferiority.

Meaning This study's results support the use of community optometrist–led monitoring of quiescent neovascular age-related macular degeneration for detecting disease activity requiring treatment in integrated clinical care models.

+ Visual Abstract

+ Invited Commentary

+ Supplemental content

Author affiliations and article information are listed at the end of this article.

Abstract (continued)

348 hospital participants (3.5%) (risk difference, 4.9 percentage points; 95% CI, 0.9-9.0 percentage points). Findings were consistent across per-protocol, cluster-adjusted, and relative risk sensitivity analyses. No adverse event–related withdrawals occurred.

CONCLUSIONS AND RELEVANCE In this randomized clinical trial, community optometrist–led monitoring of quiescent nAMD was noninferior to hospital monitoring for detecting disease activity requiring treatment. These results provide evidence for its use in integrated clinical care models.

TRIAL REGISTRATION ClinicalTrials.gov Identifier: NCT03893474

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Introduction

Chronic diseases place increasing demands on health systems, prompting integrated care models in which routine monitoring is shared between specialist and community clinicians. In diabetes, heart failure, and glaucoma, such approaches have demonstrated that trained community professionals can deliver safe monitoring while alleviating pressure on hospital services.[1-5] Community–secondary care integration is essential to sustain specialist capacity within resource-constrained health systems.

Age-related macular degeneration (AMD) is a leading cause of irreversible visual loss, with affected individuals projected to increase by nearly 50% between 2020 and 2040.[6-8] Neovascular AMD (nAMD) requires frequent intravitreal anti–vascular endothelial growth factor (anti-VEGF) therapy, and many patients subsequently enter a phase of quiescent nAMD (QnAMD).[9-11] However, asymptomatic reactivation occurs in approximately 20% within the first year after pausing treatment, often detectable only with optical coherence tomography (OCT).[12] These monitoring needs contribute to increasing demand on hospital eye services, which face capacity strains and extended wait times.[13]

Community optometrists provide most primary eye care in the UK and other health care settings and increasingly have access to OCT.[14-17] Integrated care models in ophthalmology have shown high diagnostic accuracy, but robust randomized evidence for community-based QnAMD monitoring is lacking.[18-20]

The FENETRE trial is a pragmatic, multicenter randomized clinical trial designed to assess whether community optometrist–led monitoring is noninferior to standard hospital-based monitoring for detecting QnAMD reactivation or new nAMD in the fellow eye. We hypothesized that, within a structured shared-care framework and defined referral pathway, community-based monitoring would be noninferior to hospital monitoring for identifying disease activity requiring treatment.

Methods

Study Design

FENETRE is an open-label, multicenter, noninferiority randomized clinical trial comparing community optometry with hospital monitoring of QnAMD during 12 months. FENETRE was designed to be pragmatic, which we defined as testing the effectiveness of the intervention in settings that reflected routine health care practices. Participants were recruited from 17 UK National Health Service hospital sites and randomized 1:1 to hospital nAMD clinics (control) or accredited community optometry practices (intervention) (see eFigure 1 in Supplement 1 for site location and distribution). All community optometrists completed a dedicated training and accreditation program. The participant was the unit of analysis; both eyes informed management decisions.[21-23] The study protocol (Supplement 2) was approved by the London-Bloomsbury Research Ethics Committee. An

independent trial steering committee and data monitoring committee provided oversight. Training; site selection; diversity, equity, and inclusion details; and protocol amendments are detailed in the eMethods in Supplement 1. Results are reported in accordance with the 2025 Consolidated Standards of Reporting Trials (CONSORT) reporting guideline.

Participants

Eligible participants were 55 years or older with QnAMD in at least 1 eye after anti-VEGF therapy. QnAMD was defined as either (1) a treatment-free interval of 3 months or longer after an as-needed (pro re nata) anti-VEGF regimen or (2) successful extension of a treat-and-extend regimen to 12-week intervals with maintenance on 1 consecutive occasion or more; patients already in a quiescent surveillance phase without active treatment were also eligible. Detailed definitions of quiescence and treatment regimens are provided in the eMethods in Supplement 1. Key exclusion criteria were inability to obtain OCT imaging of sufficient quality, diabetic retinopathy worse than mild nonproliferative or with diabetic maculopathy, and secondary causes of macular neovascularization. Concurrent macular edema from other causes was also excluded. Written informed consent was obtained at recruiting hospitals; telephone consent was permitted during the COVID-19 pandemic.

Randomization and Masking

Randomization was performed using a secure web-based system (Sealed Envelope software, version 6.2.1, Sealed Envelope Ltd) with permuted blocks of varying size and minimization for recruiting hospital site (17 levels) and laterality (unilateral vs bilateral QnAMD), using an 80% probability of allocation to the group that best balanced these factors. Allocation was concealed from site staff until assignment. Participants and clinicians were unmasked; statisticians and health economists were masked.

Outcome determination relied on comparison against a central reading-center reference standard at the Moorfields Ophthalmic Reading Centre. Deidentified OCT images and clinical data were graded according to an imaging charter, with double grading and adjudication. Graders were masked to participant identity, site, and clinical decision; allocation could be inferred in some referred cases when hospital confirmation visit data were available. See the eMethods in Supplement 1 for the reading-center workflow.

Procedures

Baseline data and bilateral OCT images were obtained at the recruiting hospital. For unilateral QnAMD, the affected eye was the study eye; for bilateral QnAMD, it was the better-seeing eye or randomly assigned if visual acuity (VA) was equal.

Participants were scheduled for monitoring visits once every 2 months during 12 months in their allocated group (hospital AMD monitoring clinics or community optometry practices). At each visit, clinicians in both groups assessed each eye using clinical examination and OCT image and recorded QnAMD activity for each eye (bilateral QnAMD) or, if applicable, new nAMD in the fellow eye (unilateral QnAMD). In the community group, optometrists could also record a suspicious classification when uncertain about disease activity. Prescriptive referral rules were not provided; community optometrists were encouraged to apply clinical judgment within the training framework.

Hospital monitoring was delivered by multidisciplinary teams under consultant ophthalmologist oversight (medical retina fellows, trainees, hospital optometrists, and/or nurses). Active classifications triggered internal referral to nAMD treatment clinics for possible reinjection; in the community group, active and suspicious classifications triggered hospital referral for confirmation and potential reinjection. Monitoring ceased after referral. Fellow eyes (unilateral QnAMD) were assessed for new nAMD at each visit; detection triggered referral and monitoring discontinuation. All data were transferred via encrypted link to the reading center. See eTable 1 in Supplement 1 for the mapping of eye-level to participant-level reference standard. See eFigures 2 and 3 in Supplement 1 for case examples.

Outcomes

The primary outcome was, for each participant, a binary indicator (yes or no) of whether, at any study visit within 12 months of randomization, QnAMD reactivation in either eye or new nAMD in the fellow eye was present according to the reading center reference standard but was not identified as such by the treating clinician (false-negative clinical management decision). The between-group comparison was the absolute risk difference (RD) in the proportion of participants with a false-negative outcome.

Seven prespecified secondary outcomes were as follows: (1) false-positive management decisions (participants without reactivation or new nAMD by reference standard who were incorrectly identified as having so); (2 and 3) proportions of community group referrals for active or suspicious nAMD that were and were not confirmed as requiring treatment at the hospital confirmation visit; (4) proportion of community group visits classified as suspicious; (5) change in habitual VA in the study eye between baseline and last study visit; (6) the proportion of participants' loss to follow-up (no postbaseline visits); and (7) adverse events. Attendance, nonattendance, and cancellations per visit were also summarized.

Sample Size

The original design assumed a 20% false-negative rate in the hospital group and specified a 10–percentage point noninferiority margin for the absolute RD. Under these assumptions, 742 participants (allowing for 10% loss to follow-up) provided 90% power at a 1-sided $\alpha = .025$. COVID-19–related disruption led to a protocol amendment extending recruitment and revising the target sample size to 704 (352 per group), corresponding to 88.5% power under the original assumptions and loss to follow-up rate. Sample size calculation was performed using PASS, version 15.03 (NCSS LLC). The sample size calculation and noninferiority margin rationale are detailed in the eMethods in Supplement 1.

Statistical Analysis

The primary analysis used a modified intention-to-treat (mITT) approach, including all randomized participants with 1 or more postbaseline visits, analyzed in their corresponding allocation group. Baseline characteristics were summarized by group. Continuous variables were reported as means (SDs) or medians (IQRs) and categorical variables as numbers (percentages).

For the primary outcome, logistic regression estimated the effect of community vs hospital monitoring, adjusting for minimization factors (site and laterality). Odds ratios (ORs) with 95% CIs were reported. Because SEs varied across sites, nonparametric bootstrapping was used to obtain robust CIs for the OR. Between-group secondary outcomes (false-positive outcomes and loss to follow-up) were similarly estimated. Cluster-adjusted absolute RDs were estimated from generalized estimating equations with binomial family and identity link (exchangeable working correlation), clustering by care delivery unit (optometry practice in the intervention group, and hospital site in the control group), and adjusting for the minimization factor laterality.

Because suspicious classifications in the community group always triggered referral, suspicious cases were grouped with active cases in these analyses. A prespecified sensitivity analysis for the primary outcome grouped suspicious with inactive cases.

Noninferiority on the absolute scale (primary outcome) was assessed by comparing the upper bound of the 95% CI for the adjusted RD with the 10–percentage point margin (1-sided $\alpha = .025$). Because the observed control false-negative rate (7.8%) was lower than the 20% assumed at design, the prespecified absolute 10–percentage-point margin permits a broader relative margin than intended. Post hoc sensitivity analyses therefore assessed noninferiority on the relative risk (RR) scale against a stricter multiplicative margin of RR = 1.25 (corresponding to 5 percentage points at 20% control risk or 2 percentage points at the observed rate) and RR = 1.50 (the planned 10% margin at 20% control risk), using stratified Mantel-Haenszel RRs and Poisson models with robust variance.

Community-only secondary outcomes (suspicious classifications and hospital confirmation visit outcomes for referred participants) were summarized with exact binomial 95% CIs and similarly for adverse events (Wilson 95% CIs). Change in study eye VA per group was estimated (paired *t* test). A prespecified missingness analysis examined associations between baseline characteristics and loss to follow-up. Numbers of participants lost to follow-up per site were reported with and without cluster adjustment. Participant attendances, nonattendances, and cancellations per study visit for each group (month 1 to month 12) were reported.

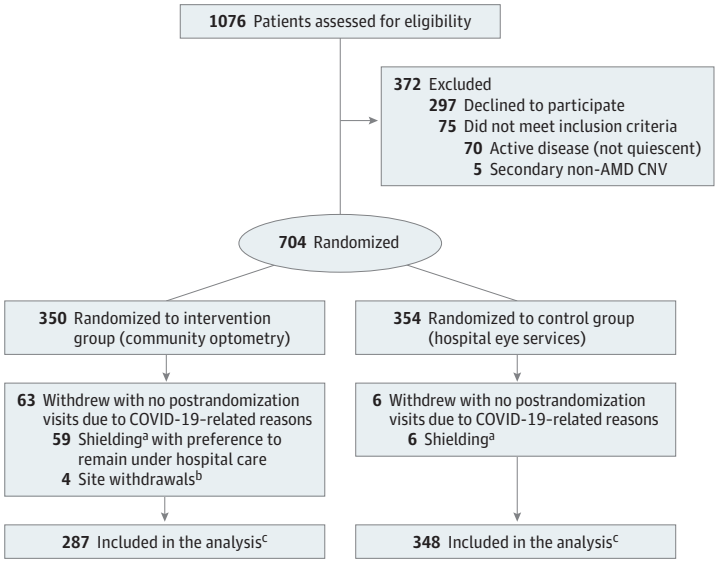
Additional post hoc sensitivities included study eye–based analyses for false-negative and false-positive outcomes, generalized estimating equations for cluster-adjusted ORs, absolute risks, RDs, and RRs by care delivery unit (community practice or hospital site), intracluster correlation coefficient estimations by care delivery unit, cluster-adjusted per-protocol analyses restricted to participants completing 12-month follow-up or exiting early after a positive referral, and a tipping-point analysis assessing the robustness of noninferiority to the asymmetric loss to follow-up by computing the number of nonretained community participants who would need to have had false-negative outcomes to overturn the noninferiority inference (see eResults in Supplement 1). Data analysis was performed from October 2024 to March 2025 using Python, version 3.13.2; full analytic details are provided in the eMethods in Supplement 1. For additional results, see the eResults in Supplement 1.

FENETRE included qualitative research reported separately.[24,25] A process evaluation assessed acceptability, training effectiveness, and implementation factors. An economic evaluation will be reported separately.

Results

Between October 8, 2019, and January 31, 2023, 1076 individuals were assessed for eligibility; 704 were randomized (**Figure 1**), with 350 assigned to community optometry and 354 to hospital eye services. Overall, 63 participants (18.0%) in the community group and 6 (1.7%) in the hospital group had no post-baseline visits (lost to follow-up) and were excluded from the mITT analysis, leaving 287 and 348 participants, respectively. Of 704 randomized participants, 635 (90.2%) completed at least 1 follow-up visit, including 287 at community practices (mean [SD] age, 80.6 [8.1] years; 236 [67.4%] female) and 348 at hospitals (mean [SD] age, 80.1 [8.5] years; 203 [57.3%] female). Baseline

Figure 1. CONSORT Trial Flow Diagram



AMD indicates age-related macular degeneration; CNV, choroidal neovascularization; CONSORT, Consolidated Standards of Reporting Trials.

[a] Shielding was a measure used to protect people who were clinically at higher risk by reducing interaction during the COVID-19 period.

[b] Four participants were supposed to be monitored in optometry practices that withdrew from the study due to COVID-19–related pressures.

[c] Sixteen patients withdrew consent, including 10 in the intervention group and 6 in the control group. Data collected up to withdrawal were included in the analysis.

characteristics are given in **Table 1**. Attendance patterns were similar between groups (eTable 2 in Supplement 1); among the 635 mITT participants, 127 (20.0%) did not attend all visits (54 hospital participants and 73 community participants), with comparable median numbers of attended visits.

Primary Outcome

In the participant-level primary analysis, with suspicious community cases classified as active, the false-negative rate was 3.8% (11 of 287) in the community group and 7.8% (27 of 348) in the hospital group, for an absolute RD of −3.9 percentage points (95% CI, −7.4 to −0.3 percentage points; *P* = .04) (**Table 2** and **Figure 2**). The adjusted OR, controlling for minimization factors (site and laterality), was 0.51 (95% CI, 0.24-1.07; *P* = .08). The cluster-adjusted RD was −5.6 percentage points (95% CI, −11.9 to 0.8 percentages points) (eTable 14 in Supplement 1). Using the prespecified 10–percentage point noninferiority margin, the 1-sided test indicated noninferiority (*P* < .001).

Table 1. Participant Characteristics

Characteristic	No. (%) of participants[a]	
	Community optometry group (n = 350)	Hospital eye services group (n = 354)
Sex[b]		
Female	236 (67.4)	203 (57.3)
Male	114 (32.6)	151 (42.7)
Age, mean (SD), y	80.6 (8.1)	80.1 (8.5)
Smoking status		
Nonsmoker	200 (57.1)	180 (50.8)
Ex-smoker	134 (38.3)	154 (43.5)
Current smoker	16 (4.6)	20 (5.6)
Medical history		
Myocardial infarction	22 (6.3)	28 (7.9)
COPD	31 (8.9)	45 (12.7)
Stroke	29 (8.3)	25 (7.1)
Impaired mobility	85 (24.3)	83 (23.4)
Ocular history		
Wet AMD RE	213 (60.9)	214 (60.5)
Wet AMD LE	235 (67.1)	232 (65.5)
Glaucoma RE	34 (9.7)	28 (7.9)
Glaucoma LE	33 (9.43)	30 (7.9)
Cataract RE	203 (58.0)	186 (52.5)
Cataract LE	202 (57.7)	186 (52.5)
Previous ocular operations		
Cataract surgery RE	152 (43.4)	151 (42.7)
Cataract surgery LE	156 (44.6)	148 (41.8)
Glaucoma surgery RE	6 (1.7)	5 (1.4)
Glaucoma surgery LE	6 (1.7)	5 (1.4)
Ocular medications		
Eye medications	56 (16.0)	45 (12.7)
Prostaglandins	23 (6.6)	23 (6.5)
Carbonic anhydrase inhibitors	9 (2.6)	4 (1.1)
β-Blockers	9 (2.6)	8 (2.3)
AREDS supplements	18 (5.1)	13 (3.7)
Laterality		
Unilateral	265 (75.7)	270 (76.3)
Bilateral	85 (24.3)	84 (23.7)

Abbreviations: AMD, age-related macular degeneration; AREDS, Age-Related Eye Disease Study; COPD, chronic obstructive pulmonary disease; LE, left eye; RE, right eye.

[a] Unless otherwise indicated.

[b] Sex was recorded as female or male; no participants were recorded as intersex or unknown.

Sensitivity Analyses for the Primary Outcome

In the prespecified suspicious to inactive sensitivity analysis, participant-level false-negative rate was 11.1% (32 of 287) in the community group and 7.8% (27 of 348) in the hospital group (RD, 3.4 percentage points; 95% CI, −1.5 to 8.3 percentage points; $P = .18$; adjusted OR, 1.66; 95% CI, 0.95-2.91; $P = .07$) (eTable 3 in Supplement 1). The same analyses on a study eye basis showed similar direction of effect (eTables 4 and 5 in Supplement 1). Post hoc analyses using RR margins and cluster-adjusted models produced estimates consistent with the primary noninferiority inference.

Secondary Outcomes

On a participant basis, the false-positive rate was 8.4% (24 of 287) in the community group and 3.5% (12 of 348) in the hospital group (RD, 4.9 percentage points; 95% CI, 0.9-9.0 percentage points; $P = .01$). The adjusted OR was 2.02 (95% CI, 0.88-3.20; $P = .01$) (Table 2); the cluster-adjusted RD was 3.8 percentage points (95% CI, −1.0 to 8.6 percentage points) (eTable 14 in Supplement 1). Study eye false-positive results were similar (eTables 6 and 7 in Supplement 1). Of community referrals (active or suspicious), 60.4% (61 of 101) proceeded to treatment and 39.6% (40 of 101) did not. The proportion of suspicious classifications in the community group was 16.0% (46 of 287) (95% CI, 12.2% to 20.7%) (participant basis). Mean change in study eye habitual VA from baseline to last visit was small in both groups (eTable 8 in Supplement 1). In the mITT set, the mean change was −2.10 letters (95% CI, −3.23 to −0.96 letters; $P < .001$) in the hospital group and −2.13 letters (95% CI, −3.74 to −0.51 letters; $P = .01$) in the community group.

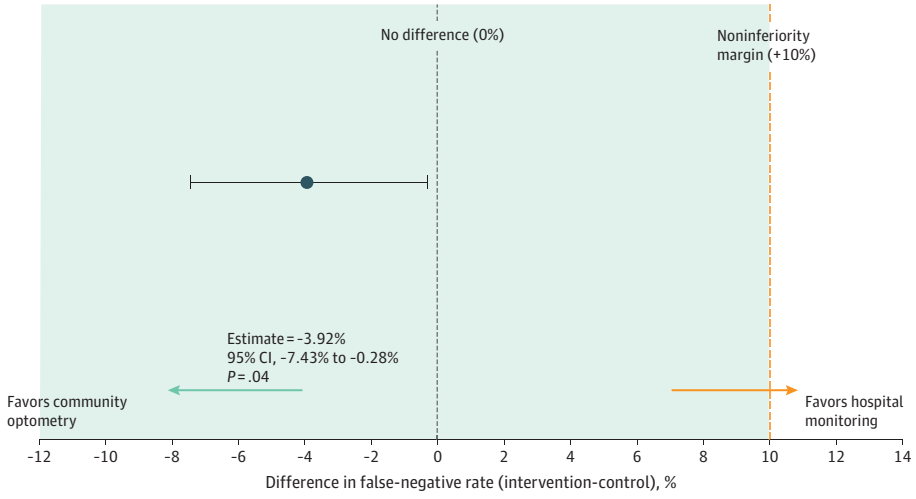
Table 2. Primary (False-Negative) and Key Secondary (False-Positive) Outcomes[a]

Outcome	Participant-based monitoring, No./total No. (%)		Risk difference, % (95% CI)	Coefficient β (SE)			OR (95% CI)		
	Community optometry	Hospital eye services		Unadjusted	Adjusted	*P* value	Unadjusted	Adjusted	*P* value
False-negative clinical management decisions	11/287 (3.8)	27/348 (7.8)	−3.9 (−7.4 to −0.3)	−0.75 (0.37)	−0.66 (0.38)	.04	0.47 (0.23 to 0.97)	0.51 (0.24 to 1.07)	.08
Outcome: false-positive clinical management decisions	24/287 (8.4)	12/348 (3.5)	4.9 (0.9 to 9.0)	0.93 (0.36)	0.75 (0.29)	.01	2.55 (1.25 to 5.20)	2.02 (0.88 to 3.20)	.01

Abbreviation: OR, odds ratio.

[a] Per group proportions, unadjusted ORs, and adjusted ORs on a participant basis (against the reference standard).

Figure 2. Noninferiority Plot of Mean Differences in the False-Negative Rate Between Groups on a Participant Basis



Suspicious cases in the intervention group were classified as active. A noninferiority test was conducted with a margin of 10 percentage points. Error bars indicate SDs.

Loss to follow-up (no postbaseline visits) occurred in 18.0% of community participants (63 of 350) and 1.7% of hospital participants (6 of 354) (adjusted OR, 12.70; 95% CI, 5.41-36.42; $P < .001$). Site-level absolute and cluster-adjusted proportions (eTables 9 and 10 in Supplement 1) and independence analysis of community group participant characteristics did not identify systematic differences between retained and nonretained participants (eTable 11 in Supplement 1). Among 635 mITT participants,18 adverse events were recorded (14 serious), with 1 nonserious event judged to be study related; no adverse events of special interest occurred (**Table 3**; eTable 12 in Supplement 1).

Clustering and Per-Protocol Analyses

Cluster-adjusted models yielded an OR of 0.30 (95% CI, 0.10-0.94; $P = .04$) for the primary outcome, with small intracluster correlation coefficients across outcomes and concordant RDs and RRs (eTables 13-15 in Supplement 1). Per-protocol analyses (n = 508) included participants with comparable baseline characteristics and maintained noninferiority on absolute and relative scales (eTables 16-18 in Supplement 1). Laterality was not a significant risk factor; the low event count precludes subgroup inference.

Process Evaluation

Surveys (n = 38) and interviews with 34 patients and 24 practitioners explored patient experience, confidence, and resource needs.[24,25] Key reported findings of the qualitative analysis are referenced in the discussion to contextualize study findings and inform their interpretation.

Discussion

This pragmatic randomized clinical trial found that community optometrist–led monitoring of QnAMD was noninferior to hospital-based monitoring for detecting disease activity requiring treatment. False-negative rates were low in both settings, and the noninferiority inference was consistent across multiple sensitivity analyses, including RR and clustering-adjusted models and a per-protocol analysis. These findings indicate that, within a structured shared-care pathway, trained community optometrists can monitor QnAMD with a level of safety comparable to specialist hospital clinics.

Timely detection of nAMD reactivation is essential given the association between treatment delay and poorer visual outcomes.[26] In FENETRE, community optometrists used standardized training and accreditation, OCT, and a precautionary suspicious classification triggering hospital referral. The consistently low rate of missed reactivations suggests that both pathways can support safe nAMD monitoring.[27]

The lower-than-anticipated hospital group false-negative rate aligns with expectations for actual encounters with access to imaging, examination findings, and patient-reported symptoms,

Table 3. Adverse Events and Serious Adverse Events for the Community Optometry and Hospital Eye Services Group

Adverse event	No. (%) of participants	
	Community optometry (n = 287)	Hospital eye services (n = 348)
Serious adverse event		
Participant deceased	5 (1.7)	3 (0.8)
Participant admitted to hospital for other systemic disease	1 (0.3)	5 (1.4)
Adverse event		
Participant attended ED for ocular symptoms	1 (0.3)	0
Participant not happy with OCT technician	0	1 (0.3)[a]
Participant attended ED for systemic symptoms	1 (0.3)	0
Participant had a knee injury	0	1 (0.3)

Abbreviations: ED, emergency department; OCT, optical coherence tomography.

[a] Study related, mild.

contrasting with vignette-based assessments such as in the precursor ECHoES study.[23,28,29] The similarly low community group event rate may reflect the effectiveness of the FENETRE training program and broader community optometry upskilling during the COVID-19 recovery period.

The suspicious classification captured clinical uncertainty in the community group: 16.0% of community participants were so classified, indicating most decisions were confident and that optometrists erred on the side of safety.[30] A counterfactual sensitivity analysis grouping suspicious with inactive marginally met noninferiority, underscoring the importance of referring uncertain cases and supporting a safety-first referral paradigm in community-based QnAMD monitoring.[31]

The false-positive rate was higher in the community group, although the absolute proportion remained modest (8.4%). In operational terms, additional hospital visits generated by false-positive outcome referrals need to be considered alongside the potential capacity gains from shifting routine monitoring visits for quiescent disease to community settings. In FENETRE, such a shift would substantially reduce hospital monitoring visits, with the observed increase in false-positive outcomes representing a manageable trade-off within an integrated care model. As FENETRE evaluated the safety of monitoring quiescent disease by accredited optometrists within a structured, quality-assured shared-care pathway, its findings should not be extrapolated to support the performance of therapeutic interventions (eg, intravitreal injections) by optometrists or unsupervised clinical decision-making outside an integrated care pathway.

In the embedded process evaluation, community optometrists reported high clinical confidence after training.[24] Community group participants valued proximity to home and reassurance of prompt hospital retreatment when needed, consistent with broader patient preferences for accessible and convenient care.[25] Patient-operated home-based OCT devices represent an emerging complementary approach to community optometry monitoring, currently constrained by device cost, limitations to technology self-use due to patient comorbidities, and image quality variability.

Limitations

This study has some limitations. Loss to follow-up was higher in the community group, largely driven by COVID-19–related factors (eg, temporary practice closures). A cluster-adjusted analysis did not identify site-level drivers of loss to follow-up, and baseline characteristics did not differ materially between retained and nonretained participants, but residual bias cannot be excluded. A tipping-point analysis demonstrated that a rate more than 8 times the observed rate of false-negative outcomes would be needed before noninferiority would be overturned. Ethnicity data were not consistently collected, limiting assessment of representativeness. The lower-than-expected event rate narrows the effective absolute noninferiority margin on the observed scale; however, the RR sensitivity analyses and the upper bounds of the CIs supported the robustness of the noninferiority conclusion. As this was an open-label trial, clinicians were aware of allocation, and partial unmasking during reference-standard determination was possible when referred participants attended hospital confirmation visits, although this was mitigated through masking of identifiers and clinical decisions and through a standardized reading center workflow.

Conclusions

This randomized clinical trial found that community optometrist–led monitoring of nAMD was noninferior to hospital monitoring for detecting disease activity requiring treatment. These findings support the role of trained community optometrists within shared-care pathways and may inform redistribution of chronic disease monitoring between primary and secondary care. The FENETRE optometry training program, safety-first referral framework, and integrated communication pathway provide a transferable implementation model for community-based nAMD monitoring.

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Corresponding Author: Konstantinos Balaskas, MD, NIHR Biomedical Research Centre at Moorfields Eye Hospital, UCL Institute of Ophthalmology, 11-43 Bath St, London, EC1V 9EL, UK (konstantinos.balaskas@gmail.com).

Author Affiliations: Moorfields Ophthalmic Reading Centre and Artificial Intelligence Lab, Moorfields Eye Hospital NHS Foundation Trust, London, UK (Sharma, Jaber, Patel, Keane, Balaskas); Optometry, Moorfields Eye Hospital Foundation Trust, London, UK (Sharma); NIHR Biomedical Research Centre, Moorfields Eye Hospital NHS Foundation Trust, London, UK (Sharma, Jaber, Pal, Tufail, Patel, Keane, Hamilton, Balaskas); Institute of Ophthalmology, University College London, London, UK (Sharma, Keane, Balaskas); Medical Retina Service, Moorfields Eye Hospital NHS Foundation Trust, London, UK (Pal, Tufail, Patel, Keane, Hamilton); School of Health and Medical Sciences, City St George's, University of London, London, UK (Lawrenson); Manchester Royal Eye Hospital, Manchester University NHS Trust, Manchester, UK (Harper, Mahmood); School of Population Health and Environmental Sciences, King's College London, London, UK (Learoyd, Robinson, Douiri, Burman, Peacock); Health Economics Group, Population Health Sciences Institute, Newcastle University, Newcastle upon Tyne, Tyne and Wear, UK (Kernohan, Vale); Centre for Adult Social Care Research (CARE) and Centre for Trials Research (CTR), Cardiff University, Cardiff, UK (Vougioukalou); NIHR Health Determinants Research Collaboration Torfaen, Torfaen County Borough Council, Torfaen, Wales, UK (Read); Wales Centre For Evidence Based Care and School of Healthcare Sciences, Cardiff University, Cardiff, UK (Csontos); School Nursing and Midwifery, University of Plymouth, Plymouth, UK (Jones); Leeds Teaching Hospitals NHS Foundation Trust, Leeds, UK (McKibbin); Department of Epidemiology, Geisel School of Medicine at Dartmouth, Dartmouth College, New Hampshire (Peacock); Hull York Medical School, University of York, York, UK (Gale); York and Scarborough Hospitals, NHS Foundation Trust, York, UK (Gale); Global Health Economics Centre and Department of Health Services Research and Policy, Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine, London, UK (Vale); Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, UK (Bunce).

Author Contributions: Dr Balaskas and Ms Sharma had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Jaber, Pal, Lawrenson, Harper, Tufail, Robinson, Douiri, Kernohan, Csontos, Peacock, Gale, Patel, Keane, Vale, Bunce, Balaskas.

Acquisition, analysis, or interpretation of data: Sharma, Lawrenson, Harper, Learoyd, Robinson, Douiri, Burman, Vougioukalou, Read, Jones, Mahmood, McKibbin, Gale, Patel, Hamilton, Vale, Bunce, Balaskas.

Drafting of the manuscript: Sharma, Harper, Burman, Kernohan, Csontos, Jones, McKibbin, Vale, Balaskas.

Critical review of the manuscript for important intellectual content: Sharma, Jaber, Pal, Lawrenson, Harper, Tufail, Learoyd, Robinson, Douiri, Vougioukalou, Read, Csontos, Mahmood, Peacock, Gale, Patel, Keane, Hamilton, Vale, Bunce, Balaskas.

Statistical analysis: Learoyd, Robinson, Douiri, Burman, Vale, Bunce, Balaskas.

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SUPPLEMENT 1.

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SUPPLEMENT 2.

Trial Protocol

SUPPLEMENT 3.

Data Sharing Statement