

# Consensus of decision-making in virtual glaucoma clinics in NHS Highland

P. Tsoutsanis [1,2], L. W. Khoo [1], R. S. Keys [1], G. Tzamos [1], N. W. Scott [3], T. Leslie [1], L.-Y. Ngai [1]

*1. Raigmore hospital, NHS Highland 2. Ipswich hospital, East Suffolk and North Essex NHS foundation trust, 3. University of Aberdeen*

*Correspondence: tpanos02@gmail.com*

NHS Highland

## Aims:

- To investigate the agreement of clinical decisions made by clinicians in the virtual glaucoma clinics.
- To assess patient safety and satisfaction in virtual glaucoma clinics.

## Methods:

- Data was collected from 84 consecutive patients attending the virtual 'glaucoma monitoring service' (GMS) in Raigmore Hospital, Inverness from March to April 2021.
- Assessments were sent for separate, virtual evaluation by 3 rater categories: glaucoma trained optometrist/glaucoma fellow, and 2 glaucoma consultants.
- The strength of agreements between raters regarding the diagnoses, stability of disease and management were calculated using contingency tables and weighted kappa statistics [1,2].

## Results:

- The diagnoses (glaucoma/OHT vs. no glaucoma/discharge) and disease stability (stable vs. unstable) assessments made by the optometrist/glaucoma fellow raters showed fair or moderate levels of agreement when compared to the 2 consultants (Cons 1: **κ** 0.33; 95% CI 0.08-056 and Cons 2: **κ** 0.47; 95% CI 0.19-0.69), whereas a weaker agreement was demonstrated for the management plans (no change vs. augment treatment) for Cons 2 (**κ** 0.17; 95% CI -0.29-0.62), compared to Cons 1 (**κ** 0.45; 95% CI 0.13-0.77).
- A moderate level of agreement was found between clinical diagnoses and treatment plans of the two Consultants (**κ** 0.48; 95% CI 0.24-0.66 and **κ** 0.41; 95% CI -0.03-0.4). However, a poor agreement was found in their follow-up decisions (**κ** 0.18; 95% CI -0.08-0.43).
- There was poor agreement amongst all raters regarding which clinic the patient should return to (GMS, shared-care, Cons-led, discharge) with **κ** <0.2 (see Tables 1, 2, 3).
- The patient satisfaction questionnaire demonstrated that 94% had confidence in the service and would be happy to return again.

| Table 1 | | Consultant 1 | | | |
|---|---|---|---|---|---|
| | | GMS | SCGC | Dr | D/C |
| Optom/fellow | GMS | 36 | 9 | 2 | 13 |
| | SCGC | 5 | 10 | 0 | 1 |
| | Dr | 0 | 1 | 1 | 0 |
| | D/C | 2 | 0 | 0 | 4 |

| Table 2 | | Consultant 2 | | | |
|---|---|---|---|---|---|
| | | GMS | SCGC | Dr | D/C |
| Optom/fellow | GMS | 33 | 9 | 9 | 8 |
| | SCGC | 4 | 7 | 5 | 0 |
| | Dr | 0 | 1 | 1 | 0 |
| | D/C | 2 | 0 | 1 | 3 |

| Table 3 | | Consultant 2 | | | |
|---|---|---|---|---|---|
| | | GMS | SCGC | Dr | D/C |
| Consultant 1 | GMS | 26 | 4 | 7 | 5 |
| | SCGC | 4 | 10 | 6 | 0 |
| | Dr | 0 | 2 | 1 | 0 |
| | D/C | 9 | 1 | 2 | 6 |

**Tables 1, 2, 3**: Contingency tables showing rater agreement regarding follow-up clinic; shared-care glaucoma clinic (SCGC), Cons-led (Dr), discharge (D/C). Agreement was 'poor', with Table 1: Kappa: 0.19 (95% CI: -0.03 to 0.40), Table 2: Kappa: 0.20 (95% CI: -0.02 to 0.43), Table 3: Kappa: 0.18 (95% CI: -0.08 to 0.43)

## Conclusions:

- The satisfactory level of agreement regarding the diagnoses and stability of disease made by the assessors, indicates that the virtual GMS clinic is safe and viable service in these lower risk glaucoma patients, which is similar to other studies [3].
- The weaker level of consensus in management plans and follow-up suggests analysis is required to determine the cause of variability. Decisions based on multiple tests, all open to interpretation based on level of training/experience, are likely to lead to variation in management plans. Other influencing factors including clinic capacity and COVID affecting clinic access may have led to a reduced level of consensus.
- Despite the variability, these patients are at the lowest risk (early or suspect glaucoma or OHT), and no safety concerns were identified. The GMS offers a safe, logistically viable means to monitor disease progression in selected, low risk patients. This allows streamlining of the glaucoma service, with higher risk patients being seen face-to-face.
- We would advise regular auditing of virtual services to maintain and improve quality of care, and to ensure patient safety as set out by the principles of clinical governance.

**References:**

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3. Clarke, JC, Puertas, R, Kotecha, A, Foster PF, Barton, K. Virtual clinics in glaucoma care:Face-to-face versusremote decision-making. BJO, 2017;101:892–895.