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Travel Optional for Eye Appointments? Live TeleOphthalmology Decision Support and Remote Vision Testing

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Abstract— Telemedicine is introducing new paradigms in the delivery of ophthalmology services. This work will explore the Scottish experience in delivering remote live decision support and remote visual assessment.

I. INTRODUCTION

The COVID19 pandemic forced a key change in attitudes to access to healthcare. In ophthalmology, where much of the visualization has become digital, with the advent of Optical Coherence Tomography (OCT) and video slit lamps, an opportunity to re-think the classical model of eye care has arisen. This paper summarizes how a nationally procured healthcare application, NHS Near Me, powered by Attend Anywhere, has become key enabler to live decision support for Hospital acute services and Community Optometry, and remote visual assessment direct to patients' home.

Each thread of development debases the construct that direct line-of-sight between patient and clinician is a necessity for efficient care. We summarize our experience in each of the domains listed, evaluating feedback from patients, emergency clinicians, ophthalmologists and optometrists.

II. METHODS

1. Live decision support: The workflow for digital transmission comprises mobile adaptation or video slit lamp [1,2,3]. Likert surveys were provided to patient, referring clinician (community optometrists or emergency department clinicians) and receiving ophthalmologists. Collected information included: devices used, call quality indices, subspecialty, satisfaction, confidence level of remote diagnosis, proportion of obviated hospital reviews.

2. Remote visual assessment: Children attending the amblyopia service in NHS Forth Valley had acuities recorded by orthoptist in clinic (reference), then at home via shared screen and scaling step (index test). The results were compared using Bland-Altman analysis.

III. RESULTS

1. Live decision support: 193 surveys were returned. 22% of video consultations leveraged a slit lamp mount for a mobile device, while 73% mirrored the desktop from an OCT or video slit lamp computer (**Fig 1**). Call quality indices were

high. Anterior segment conditions were most common at 47%. Call indices were 5/5 in >75% of calls. Confidence in diagnosis was 4.5/5(SD 0.68). Secondary care review was deemed obviated in 70% of calls, based on 250 respondents.

2. Remote visual assessment: results from 18 eyes of 9 children aged 5-10 (mean=7) revealed mean difference of 0.0 logMAR, with upper and lower limits of agreement of 0.23 logMAR and -0.24 respectively.

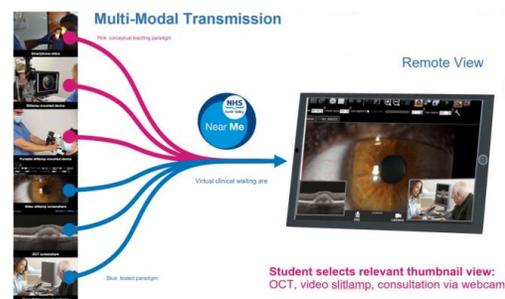


Figure 1 - Multimodal imaging transmission for live decision support.

IV. DISCUSSION & CONCLUSION

Live decision support via video consultation enables colleagues in emergency services and community optometry to increase the scope of conditions they can manage, minimizing patient travel and decreasing strain on hospital services. Integration of such programs into clinical and regional planning remains a focus for emergency eye care. Home Vision testing appears a credible alternative to hospital appointments, of relevance in potential lockdowns.

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