

USING TOPCON MAESTRO 2 OCT CAMERAS TO ENABLE MOBILE, REMOTE CLINICS

NEC
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INTRODUCTION

Ireland's national diabetic eye screening programme, RetinaScreen, aims to reduce the risk of sight loss among people with diabetes through early detection and treatment of retinopathy. In 2019, NEC Care introduced a new Digital Surveillance (DS) pathway which provides non-invasive Optical Coherence Tomography (OCT) screening. This improves the referral process for those who do not require treatment but do need more regular monitoring. Eligibility was subsequently expanded, allowing more patients to be screened in our DS clinics.

To maximise accessibility and flexibility, we proposed to offer mobile, community-based DS clinics. Appointments were previously available only in static clinics with stable internet connections. To extend the service into communities, we collaborated with Topcon Healthcare and Armstrong Bell to devise a safe method of using and transferring the OCT equipment between clinics.

OBJECTIVES

To provide a new community-based service, in line with both Sláintecare aims and our service objective from the National Screening Service (NSS), we planned to:

- Collaborate with Topcon Healthcare and Armstrong Bell to ensure that the software systems used in static clinics would function equally well in community-based mobile settings without stable internet connections.
- Include failsafe processes to ensure compliance with strict government procedures and programme quality assurance standards.
- Monitor more closely the progression of diabetic retinopathy in patients and ensure accurate and timely referrals.
- Reduce the waiting lists in treatment centres (TCs) by enabling more frequent community-based appointments and facilitating the discharge of patients from the TCs.
- Develop safe methods for the transfer of the Topcon Maestro 2 between clinical venues.

IMPLEMENTATION

The challenges

Historically, Topcon Maestro 2 OCT instruments are used with one central database stored on a server. Therefore, at each screening location, each desktop links directly to the server so that the central database can be picked up. Equally, when images were captured, they are saved straight to the server so that the grading team are able to view any scan captured live across the team.

We recognised that internet connections were not always available and that slower connection speeds also impacted patients as fewer people could be screened.



This meant our choice of venues was limited as we needed strong and stable internet connections.

We also had no way to transport the Topcon Maestro 2 from one venue to another in a way that minimised risk of damage to this specialist equipment.

The solution

To overcome the challenges, we:

- Made each OCT instrument standalone, with its own database, so that it could work offline and therefore open up more venue options.
- Created our own secure central server that allowed multiple users to connect to it and import the information from all scans captured in the clinic. This server became the central database which now allows graders to log in and view scans from each of the mobile clinics.
- Designed a purpose-built trolley and travel box with foam inserts moulded to the exact shape of the Topcon Maestro 2 OCT instrument.



OUTCOMES

- More convenient for patients, with appointments and equipment available in communities across the country to reduce travel time.
- Exceeding programme objectives for patient wait times.
- Reduction in TC referrals, reducing backlogs and decreasing wait times within the TCs.
- Closer monitoring of patients' Diabetic Retinopathy progression: patients are now seen within one month of discharge from the TC and then every six months to monitor their progression.
- We have provided 20,000 Digital Surveillance appointments to over 8,000 patients within the community across Ireland:
 - Only 3% of these patients required a subsequent referral back to the TC for further assessment. This 3% of patients were classed as urgent referrals, meaning they got treatment much sooner than if they had been waiting in a TC.
 - 16% of patients were referred back to the routine digital screening pathway.
 - 73% of patients continue to be safely managed in the DS pathway within the community.

CONCLUSION

NEC Care successfully implemented a new, secure and innovative pathway facilitating the use of OCT in a community-based mobile setting. This provides an additional layer of specialist care and offers patients exceptional healthcare monitoring locally. It also relieves pressure on TCs by allowing them to focus more on at-risk patients who require treatment.