Evaluation of Virtual Diabetic Retinopathy Clinics – An Analysis of the First 1000 Appointments

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Introduction

Increasing prevalence of diabetic retinopathy (DR) has increased demand for hospital DR services.[1] The demand-capacity mismatch has been exacerbated by the Covid-19 pandemic. Virtual Diabetic Retinopathy Clinics (VDRCs) have previously proven to be a safe and efficient way of assessing higher volumes of patients.[1, 2]

Aims

- To assess the safety and efficiency of VDRCs in a District General Hospital in South Wales
- To evaluate the spectrum of disease severity of patients reviewed in VDRCs to inform future DR service provision

Methods

Analysis of data collected prospectively from the first 1000 VDRC appointments at Cwm Taf Morgannwg Health Board between October 2019 and October 2021. Twenty patients attended for imaging throughout the week with one session allocated for Consultant review of the images. Data was entered into a word document using "content control" fields. These fields were then extracted in an automated process into Microsoft Excel for analysis.

Results

There were 761 patient attendances during the first 1000 appointments. A mean of 16 patients were reviewed per VDRC with a mean time from image capture to analysis of 9.6 days.

Following assessment in the VDRC, 19.9% of new patients (n=273) and 34.1% of follow up (FU) patients (n=488) had disease graded as severe non-proliferative DR (NPDR) or worse (Fig. 1).

Figure 1.

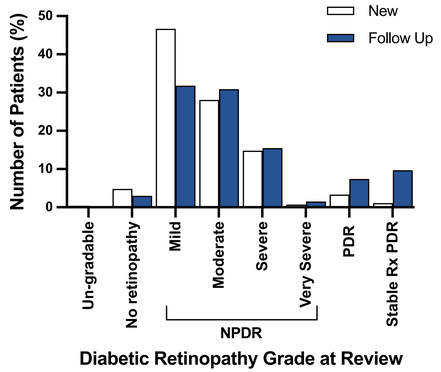


Figure 1. Diabetic Retinopathy Grade diagnosed during VDRCs for new (white) and FU (blue) patients.

Following review in the VDRC, 59% of new patients and 56% of FU patients either remained in the VDRC or were discharge back to community care. 37% of new patients and 41% of FU patients required further face-to-face (F2F) assessment (Fig. 2).

Figure 2.

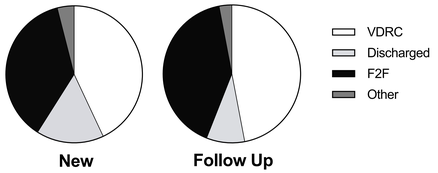


Figure 2. Outcome of VDRC for New and Follow up patients

F2F review was largely required for a clinical reason (66%, Fig. 3).

Figure 3.

Reason for F2F Review	Number of patients (%)
Urgent treatment (may be) needed	28
Close follow up of severe disease	28
Routine treatment needed	7
Other diagnosis needing follow up	2
Further investigation needed	1
Image quality inadequate or not saved	13
Symptoms not explained by image findings	7
Booking error	5
Patient not suitable for virtual clinic	3
Other	6

Figure 3. Table showing indications for F2F review categorised into clinical (blue) and logistical reasons (white).

For patients returning for assessment and possible treatment of diabetic macular oedema, only 5 of 20 patients required intravitreal injections. Mean time from VDRC review to injection was 22 days.

40 patients had a F2F review for suspected or definite PDR. Of these, 24 patients required laser treatment. Mean time from VDRC review to laser was 35 days.

Conclusion

1. **Safe and efficient**
   VDRCs allow for assessment of greater number of patients per session than F2F clinics without causing any significant delay to required treatment.
2. **Majority have low risk disease**
   Most patients reviewed in the VDRC had mild or moderate disease and did not require F2F assessment.
3. **Development of community services**
   Patients with lower-risk disease could be managed in a community Optometry-led DR service. Such schemes are in operation in other Welsh Health Boards and enables prioritisation of hospital resources for those patients more likely to need treatment.

References:

1. Faes, L., Fu, D.J., Huemer, J. et al. A virtual-clinic pathway for patients referred from a national diabetes eye screening programme reduces service demands whilst maintaining quality of care. Eye 35, 2260–2269 (2021). https://doi.org/10.1038/s41433-020-01240-z
2. Hanumunthadu, D., Adan, K., Tinkler, K. *et al.* Outcomes following implementation of a high-volume medical retina virtual clinic utilising a diagnostic hub during COVID-19. *Eye*(2021). https://doi.org/10.1038/s41433-021-01510-4

Abbreviations:

DR = Diabetic Retinopathy
VDRC = Virtual Diabetic Retinopathy Clinic
NPDR = Non-proliferative Diabetic Retinopathy
PDR = Proliferative Diabetic Retinopathy
FU = follow-up
F2F = face to face