IMPROVING TIME TO LASER TREATMENT FOR NEW PROLIFERATIVE DIABETIC RETINOPATHY AT SUNDERLAND EYE INFIRMARY

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Why is this important?

- Prevalence of diabetic retinopathy continues to rise across the UK[1]
- Delivery of panretinal photocoagulation (PRP) is essential to prevent disease progression of active proliferative diabetic retinopathy (R3A)[2,3]

NICE Guidelines August 2024 (NG242)[4]

Begin PRP within **4 weeks** of diagnosis and offering treatment → Or within **6 weeks** if earlier treatment not possible → Completion of PRP within **4 weeks** of initiating treatment

- We evaluated **time to initiation and completion of PRP** for **newly diagnosed R3A**
- Took place at **Sunderland Eye Infirmary**, a tertiary ophthalmic centre in North-East of England
- Objectives:
  - Assess **compliance** against **updated NICE standards**
  - Identify **achievable service improvements** to support timely laser treatment

Methods

Patient population

1st cycle: All patients at SEI with new diagnosis R3A following Diabetic Eye Screening Programme (DESP) or clinic between 13 August 2024 and 8 April 2025

2nd cycle: All SEI patients with new R3A diagnosis after introduction of intervention between 1 October 2025 to 13 November 2025

Patients for whom R3A was not confirmed in clinic were excluded

We identified all patients attending SEI for new proliferative retinopathy. The first audit cycle assessed SEI's compliance against updated NICE standards. The second audit cycle was completed after intervention, to assess effectiveness of service improvements.

Primary outcomes

1. **Mean time (days) from R3A diagnosis to first PRP session**
2. **First PRP session to completion**

Completion PRP definition:
- Two PRP sessions total >4000 laser shots with no previous PRP
- OR one fill-in session for preciously lasered eyes

Service provision analysis modelled minimum number of PRP sessions per week required to meet NICE recommendations. A second cycle with additional PRP slots were added.

Results

First cycle

DESP referrals 57 patients (80 eyes) → R3A confirmed 28 patients (39 eyes)
R3A confirmed in clinic 10 patients (10 eyes)
→ Total 38 patients (49 eyes)
39 eyes completed PRP during this audit period

N (%) to first PRP within 4 weeks	21/49 **(42.9%)**
N (%) to first PRP within 6 weeks	32/49 **(65.3%)**
N (%) to completion PRP within 4 weeks	24/39 **(61.5%)**

Intervention:
- 18 eyes required one fill-in, 31 eyes required at least 2 PRP sessions. This equated to a minimum 2.2 PRP sessions per week to meet demand.

Second cycle

Addition of two more dedicated laser slots for new R3A

Total R3A confirmed
35 patients (38 eyes)

N (%) to first PRP within 4 weeks	18/38 **(47.3%)**
N (%) to first PRP within 6 weeks	32/38 **(84.2%)**
N (%) to completion PRP within 4 weeks	19/33 **(57.6%)**

Discussion:

- SEI was not initially meeting nationally recommended four -and six-week timeframes for laser treatment of newly diagnosed R3A diabetic retinopathy.
- Service modelling demonstrated that two dedicated PRP slots per week predicted to to meet demand.
- Re-audit demonstrated significant improvement in time to first PRP within 6 weeks.
- However, rates of first treatment within 4 weeks and completion of PRP within 4 weeks remain relatively unchanged, which reflects ongoing scheduling and pathway challenges. We plan to investigate and use audit data to inform service provision changes to improve pathway.

Our conclusion:

Allocating dedicated slots for R3A patients is a potentially simple yet effective method to reduce time from diagnosis to first laser treatment, helping services meet increasing demand in proliferative diabetic retinopathy.
However, ongoing challenges remain in reducing time to completion of laser treatment. Further research is required to ensure timely treatment for patients at highest risk of vision loss.

References:

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