

Retinopathy of prematurity (ROP) screening and treatment during COVID-19



This guidance has been developed by the RCOphth COVID-19 Review Team in response to the pandemic and may be subject to change.

The Royal College of Ophthalmologists (RCOphth) has produced guidance as a pragmatic approach to maintain care for those patients who need it while deferring care for those patients who can wait. Individual eye departments may institute their own guidelines.

Retinopathy of prematurity (ROP) is a time sensitive blinding eye condition of premature neonates. Neonates require regular retinal examinations over many weeks. If sight threatening ROP is observed, “type 1 ROP”, then urgent treatment is required as soon as possible and no longer than 72 hours after identification of treatment-warranted ROP (TW-ROP) in order to prevent progression to a retinal detachment.

In any neonatal network, each neonatal unit will have an identified, specially trained ophthalmologist screener and an ROP co-ordinator. The ROP co-ordinator works with the neonatologist and ophthalmologist to schedule these screening examinations which are performed on the neonatal unit in at risk neonates. This is typically weekly or every 2 weeks. To ensure resilience, typically there is a main screening ophthalmologist and a “back-up” screening ophthalmologist, so that there is always an ophthalmologist available with the necessary skills.

Within a neonatal network, there is a treatment centre(s), to which neonates identified network as having possible TW-ROP are referred. The neonatal transport team are involved in the timely preparation and safe transport of the neonate for such treatment. If the neonate has already been discharged to their home, the baby is brought by their parents to an appropriate safe venue for ROP review and, if treatment is required, arrangements made for their admission. Treatment is undertaken on NICUs or operating theatres and often require availability of paediatric intensive care or high dependency facilities.

Covid-19 potential problems

Covid-19 presents the following risks to ROP screening and care:

- Staff shortages (illness, self-isolation, re-deployment) may impact ROP trained nursing staff, ROP co-ordinators, ROP screeners and treaters.
- Shortage of HDU or PICU beds available.
- Neonatal transport teams and ambulances may be stretched if neonates are transferred between units due to staff shortages or ambulances /teams re-deployed for general care.
- Parents of neonates may be unable to bring their baby to hospital for scheduled screening if they are ill or self-isolating, resulting in delay to identification and treatment of type-1 ROP and poorer outcomes.

Actions to take

- Ensure back up for unit ROP co-ordinator. This role is largely administrative, dealing with scheduling screening examinations. A deputy would need to be able to pick up this task.
- Check the neonatal unit's back-up screener is available.
- Agree workable cross cover arrangements between trusts in the network, led by a designated network lead ophthalmologist and the lead of the neonatal operational delivery network.
- If possible, screening cross cover should involve the screening ophthalmologist travelling to the neonatal unit rather than the neonate being transferred to the ophthalmologist. For neonates that have been discharged, parents need to be prepared to travel to a different unit for screening if required.
- Identify which ophthalmologists are able to treat and place on standby if needed for travel to other units or to receive more neonates needing treatment. Make arrangements with neighbouring network treaters and units.
- Neonates requiring treatment should ideally be treated at a site that is experienced with the preparation and peri-operative management of ROP treatments. Consider a peripatetic treatment team comprising a treating ophthalmologist, ROP-experienced neonatal nurse, and appropriate equipment, if transport becomes unavailable.
- If treatment is required at a peripheral unit, due to transport issues, the peripheral unit will need to identify whether they are able to provide a safe environment for treatment to be carried out under sedation, paralysis and ventilation or general anaesthetic. Consideration of anti-VEGF will need individual trust pharmacies to be made aware and fast-track permissions to dispense these agents on to the treating ophthalmologist. A discussion between pharmacy leads should be facilitated if required.
- If treatment is required for outpatient neonates, (eg a patient already discharged) and there are no PHDU or PICU beds available, a risk analysis will need to be undertaken with the paediatric anaesthetist, taking into account the clinical status of the neonate and the available support staff. If, in the event that the risk of post-operative life-threatening complications are too great without the availability of PHDU or PICU beds, the neonate will require urgent referral to another treating unit with available PICU or PHDU beds.
- It is the responsibility of the originating unit to provide all the necessary documentation and ROP records to enable the screening or treating ophthalmologist at/from a different unit to fully understand the progression of ROP.
- Screening and treatment should comply with existing Royal College guidelines, (<https://www.rcophth.ac.uk/wp-content/uploads/2014/12/2008-SCI-021-Guidelines-Retinopathy-of-Prematurity.pdf>) as much as possible but, if the COVID-19 emergency makes this impossible, consider rationalising the ROP screening criteria by using evidence based algorithms such as G-ROP (Binenbaum G. et al. JAMA Ophthalmol. 2020;138(1):31-37. doi:10.1001/jamaophthalmol.2019.45172019;) or ELROP (Hussain S et al. J Pediatr 2013;163:67-72) (see appendix) in discussion and agreement with the network neonatologist lead
- If the network is left with only one or two available screeners or treaters still able to work, consider releasing those ophthalmologists to cover all the units in the area to avoid out of area referrals. Consider rapidly and urgently developing or upscaling a telemedical screening service. This is an established model with high safety and

efficacy. Exploration of central funding for this can be considered by the network leads.

- If a neonate has been discharged home and parents are in self isolation or known to be infected with Covid-19 virus and that infant develops type 1 ROP requiring treatment, delay in treatment may result in a poorer outcome. Consider setting up an isolation pod/unit with personal protective equipment and disposable equipment or single use equipment to enable the neonate to still be brought for ROP screening. The location of such an isolation pod/unit will need to be discussed. If the neonate requires treatment, then further consideration of how to admit the infant and maintain isolation will also need to be made. This may need discussion with our trust infection control department.

Conclusions

The above briefly outlines the considerations that will need to be made for the care of premature neonates at risk of ROP in the event of a significant increase in the spread of Covid-19 virus and significant staffing issues and resource shortages. The ability to continue ROP screening is paramount to the prevention of a lifetime of blindness in vulnerable premature neonates, but with a strong collaborative effort given appropriate high priority by trusts, continuity has a good prospect of being maintained.

Appendix

G-ROP

(from Binenbaum G. et al. JAMA Ophthalmol. 2020;138(1):31-37.
doi:10.1001/jamaophthalmol.2019.45172019)

Data required:

Gestation

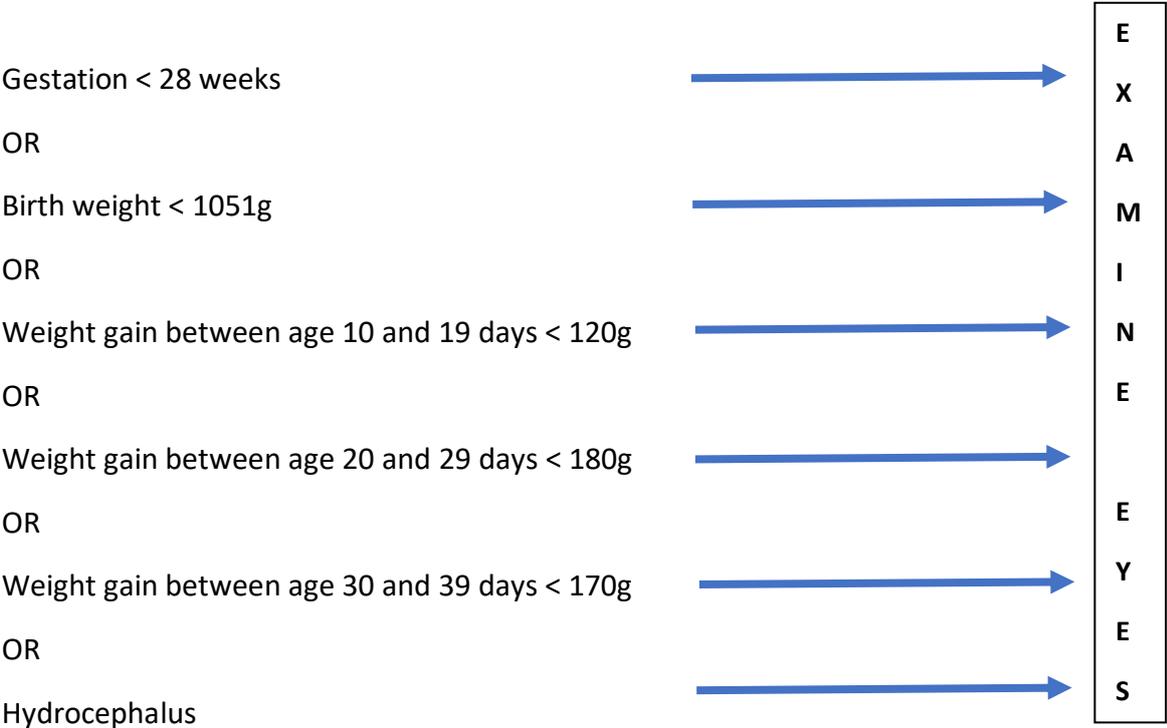
Birth weight

Postnatal weights (as many as available) between day 10 and day 39

Presence or absence of hydrocephalus

How G-ROP works

Enter infant into ROP screening examination schedule if ANY of the following apply:



If NONE of these criteria apply, eye examinations are not needed