

Transforming the intravitreal injection services with injection assisted device (Precivia)

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Introduction

The landscape for intravitreal injection (IVT) provision needs to change with an ageing population, more retinal conditions and newer intravitreal therapies necessitating an increasing demand for IVTs in the UK. In the past ophthalmologists delivered this treatment but with the increasing demand for IVT the Royal College of Ophthalmologists (RCOphth) recommends training allied health professionals, including nurses and technicians, to administer these injections. The most common method used to deliver IVT is disposable drape and speculum. However, with further rises in numbers of IVT with various anti-VEGF drugs availability and limited resources, in 2015 the Great Western NHS Hospital (GWH) in Swindon successfully transitioned into a nurse-led intravitreal injection service through training and use of the Precivia® (FCI Ophthalmics, USA) injection assist device.

Precivia® intravitreal injection assist device

The Precivia® is a novel single-use device composed of a polycarbonate mould that sits on the patient's limbus with a central window enabling patient fixation and flanges that are placed in the superior and inferior fornices, bypassing the need for a separate speculum (Figure 1). A 28° angled guided port facilitates entry with a 30-gauge needle at a fixed depth of 5.6mm to deliver therapies in a consistent and repeatable manner.

The advantages of Precivia include:

- Eliminating the need for traditional 'paint-drape and speculum' methods for intravitreal injections; hence it takes 'less time' per injection, thus increasing the number of injections per session by around 15-20% with existing resources
- Up to 30-40% reduction in cost can be noted by switching to the Precivia® device as it reduces the consumables
- With the unique design of Precivia there is no risk of lens touch/trauma

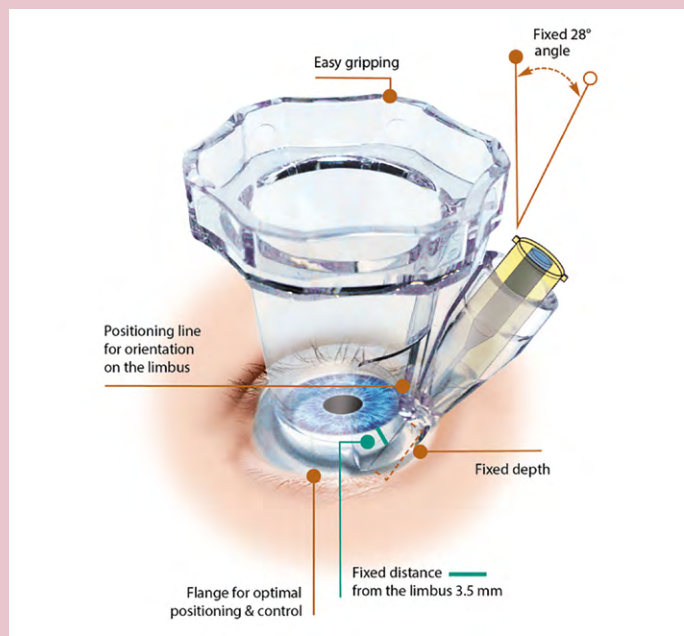


Figure 1 – The Precivia® intravitreal injection assist device, manufactured by FCI Ophthalmics USA

- It is suitable for any anti-VEGF intravitreal injections and is compatible with pre-filled syringes
- It has a faster learning curve.

Some limitations of Precivia

- It can only be used for anti-VEGF intravitreal injections and cannot be used for other intravitreal agents like steroid implants
- Relative contraindications for the device use include previous trabeculectomy or keratoplasty, recent cataract surgery, history of recurrent corneal erosions, patients with excessive blink reflex.

A five-year retrospective study of all nurse-led intravitreal injections using the Precivia® device from 2015 to 2020 at GWH exhibited a sequential annual increase in number of injections with total of 20,421 injections performed by nurse injectors during that period⁽²⁾. Of these, there were no cases of lens touch/trauma reported. Only three cases of post-injection endophthalmitis giving an endophthalmitis rate of 0.015%⁽²⁾. This is significantly less when compared with that of national reported rates of 0.025-0.035%⁽³⁾, thus establishing the device's safety in nurse-led intravitreal injection services.

A retrospective review of 38,000 injections over a three-year period by Hasler et al demonstrated that 63% of IVTs were performed by nurses with an overall rate of endophthalmitis of 0.036%⁽⁴⁾. Hasler et al also reported greater complication rates in kyphotic patients⁽⁴⁾, a difficulty the Precivia® device

eliminates as nurse injectors can deliver IVTs with patients semi-recumbent or in Fowler's position ensuring injector and patient comfort. This method has been reported to be well accepted by nurse injectors and patients by Hasan et al ⁽⁵⁾.

By avoiding the need for additional equipment used in traditional injection procedures, the financial and time-saving implications are significant ⁽¹⁾. For 20,421 patients in the study, a saving of approximately £157,000 over five years is made highlighting its economic advantage ⁽²⁾.

Another advantage of Precivia is sustainability. This will eliminate the need for traditional speculum/drape injection techniques, which ultimately reduces the carbon footprint.

Alternative injection assist devices

Some alternative injection-assisted devices are also available including Malosa Intravitreal Injection Guide (Beaver-Visitec International, Waltham, MA) ⁽⁶⁾ & the Rapid Access Vitreal Injection (RAVI) Guide (Katalyst Surgical, Chesterfield, MO) ⁽⁷⁾. However, there is limited evidence available on safety and efficacy of these devices.

Current model at Great Western NHS Hospital, Swindon

In a single half-day session, one nurse injector, with Precivia[®], can perform 17-18 injections.

Training for the nurse injector is composed of a 12-week IVT competency programme, including theory assessment with multiple-choice question followed by observation and then performing IVT under supervision⁽⁹⁾ with final sign-off assessment in 12 weeks to be ready to perform independent IVT session.

GWH nurse injectors provide approximately 80% of the total intravitreal injections ⁽⁹⁾. To ensure high safety and quality standards, nursing injectors must revalidate every two years and maintain a logbook ⁽⁹⁾. Clinicians will undertake the remainder of the injections. A patient satisfaction survey demonstrated wide acceptability of the service by both nurse injectors and patients ⁽⁵⁾.

One of the difficulties reported with the device was the guided port being found to be narrow. A single incident of corneal abrasion was noted. Consequently, the administration of lubricants has been initiated.

An example video of a real-life patient, their journey and how the nurse injectors use the device to deliver an injection can be found on YouTube titled: 'Swindon Intravitreal injection course' www.youtube.com/watch?v=as197vKldAI ⁽⁸⁾.

Training and setting up a nurse-led intravitreal service skills course at the RCOphth Annual Congress 2023

At the Annual Congress in Birmingham in 2023 we conducted a training course on setting up a successful nurse-led intravitreal injection service. The session included presentations by the clinicians, interactive Q&A followed by a wet lab session for the Precivia[®] device.

Conclusion

Intravitreal injection provision is evolving and capacity demands mounting, therefore efficient techniques are needed. The Precivia[®] device has been demonstrated to be safe and effective. Additionally, improving the throughput with economic enhancement, in a nurse-led service. Further

comparative studies are warranted between intravitreal injection assist devices to assess their clinical performance.

The authors do not have any financial interest in any of the products described above.



Image shows session presenters, delegates and Veni Vidi team at the end of a successful course on training and setting up of a nurse-led intravitreal team using the Precivia[®] at the RCOphth Annual Congress 2023, Birmingham

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