Minimally Invasive Glaucoma Surgery (MIGS)

The term 'glaucoma' refers to damage to the optic nerve related very closely to pressure inside the eye.

Surgery in glaucoma has generally been reserved for those patients who have not been able to achieve sufficient intraocular pressure (IOP) control with eye drops or laser treatment. Traditionally, the standard operation for glaucoma is trabeculectomy. Despite some modifications, present day trabeculectomy surgery is essentially similar to the original procedure developed 50 years ago. Trabeculectomy is most often successful in achieving control when drops and laser are not successful. However, trabeculectomy is associated with prolonged recovery time following surgery and requires intensive post-operative follow-up.

In an effort to find alternative surgical means to control IOP with fewer potential side effects and faster recovery, new techniques and implants are being developed. These are collectively called MIGS: minimally invasive glaucoma surgery, and there have been recent news items concerning these. Most MIGS operations are designed to allow extra fluid to leave the eye, and hence lower the IOP.

This article examines MIGS and its potential benefits for glaucoma patients.

The iStent® *inject* implant is a tiny device (less than 1mm) that is inserted through the trabecular meshwork into Schlemm's canal, usually at the time of cataract surgery to aid fluid outflow. Previous variants had a different shape, like a periscope that is inserted sideways. (www.glaukos.com)

- The XEN® gel implant, on the other hand, drains fluid from the anterior chamber into the conventional surgical drainage space, the subconjunctival tissue. (https://www.xengelstent.com)

- The Hydrus® is an implant that holds the canal open and helps outflow of fluid (www.ivantisinc.com)

- Canaloplasty 'tents' the canal open by feeding in and then tying off a fine circumferential thread within the canal.

- Micropulse cyclodiode laser – which is a variation of an older external treatment called cyclodiode laser – is usually classed as a MIGS treatment.

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Many of the MIGS procedures can be combined with cataract surgery. However, not all of these implants are currently available in New Zealand as there are safety and regulatory hurdles to be overcome before they can be released. Furthermore, there are significant financial considerations for the manufacturers (given that New Zealand is a relatively small market) and additional training required of surgeons in New Zealand in these new techniques. At the present time, iStent®, Hydrus®, Xen® and Micropulse cyclodiode laser have been introduced.

In terms of efficacy, MIGS procedures do not provide any treatment effect that cannot already be achieved with standard treatment, but it is evident that side-effects with MIGS are fewer compared to trabeculectomy. Long-term results are not available for some MIGS procedures, as new devices are constantly being developed. MIGS procedures at present are better classed as operations that enhance existing glaucoma control, or which may allow a reduction in eye-drop treatment burden.

<u>MIGS procedures may be particularly beneficial in:</u>

1. Persons intolerant to eye drops because of side-effects or allergy
2. Persons unable to use eye drops for other health reasons
3. Persons having a cataract operation who has mild to moderate glaucoma who would like to decrease the number of drops they are using

Speak to your surgeon if you are interested in a MIGS procedure.

<u>Who is covered?</u>

Some MIGS have recently become available in the public system. However, private health insurance rebates for the new operations are variable.

To date the following is reimbursement provided:

NIB:	Funded
Sovereign:	Funded
Accuro:	Funded
AIA:	Funded
Partners Life:	Funded
Unimed:	Not funded
Southern Cross:	Not funded

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