

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



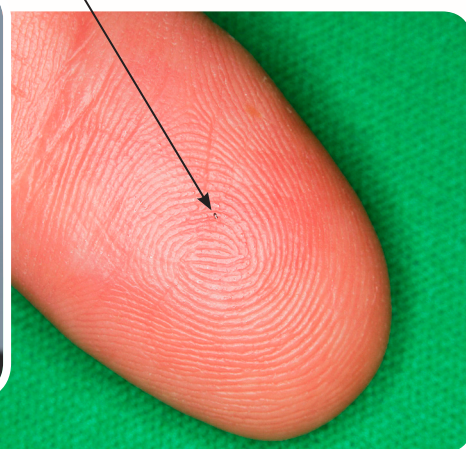
Glaukos iStent inject

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

Glaukos iStent inject actual size



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

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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.



The Xen Gel Implant, a tiny gel tube 6mm long is now available for the treatment of glaucoma in New Zealand. Photo/Copyright 2017 Allergan. Used with permission.

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.

MIGS procedures may be particularly beneficial in:

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.

Who is covered?

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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Order your Entertainment Book now and not only will you receive over \$15,000 in valuable offers, valid to 1st June 2020, but you will also help raise vital funds for the ongoing work of Glaucoma NZ.

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Steroids and Glaucoma: What's the Connection?

Glaucoma may be divided into two groups: primary or secondary. Most types of glaucoma are primary and have no obvious cause.

However, there is an important sub-group of glaucoma types called the secondary glaucomas, where there is identifiable cause for high eye pressure. Secondary types of glaucoma include traumatic, exfoliation, pigmentary, inflammatory, neovascular, and steroid-induced glaucoma.

sprays and skin creams.

Prescription steroids include pills, inhalers, shampoo, joint injections, and ear drops.

Steroids cause changes in the aqueous fluid outflow system (trabecular meshwork, Schlemm's canal, and the aqueous veins) resulting in increased eye pressure. This steroid response can occur in a few weeks, or in as little as a few days in highly sensitive people. If unrecognised, the steroid response

glaucoma (especially in a first-degree relative), African descent, previous steroid response, use of stronger steroids, diabetes, high myopia, connective disease (e.g. rheumatoid arthritis), and inflammatory glaucoma.

If possible, people in high-risk groups should limit their exposure to steroids unless absolutely necessary. Fortunately, there are non-steroidal options for many conditions. High-risk patients considering steroid use should consult their prescribing physician and eye specialist.



Steroids were first used in the US in 1912. Steroid-induced glaucoma has been recognised for over 60 years after a report in 1950 of a rise in eye pressure after systemic adrenocorticotrophic hormone (ACTH).

Steroids are commonly used to treat a wide variety of medical conditions, including inflammatory, allergic, and immunologic diseases. This includes everything from nasal allergies to eczema, asthma, and rheumatoid arthritis. Preparations now include over-the-counter nasal

can develop into steroid-induced glaucoma and cause permanent optic nerve damage.

There are many risk factors for developing steroid-induced glaucoma. It occurs, for example, in up to 8% of the general population in the United States but is much more common in patients with glaucoma and their blood relatives. In fact, 90% of patients with open-angle glaucoma develop a steroid response. Other risk factors include advanced glaucoma, family history of

Steps for glaucoma

A US study shows increased physical activity slows the rate of visual field loss in glaucoma patients. Patients who took an additional 5000 daily steps for 2.6 hours of physical activity decreased the average rate of visual field loss by about 10%, reported researchers from the Wilmer Eye Institute in Baltimore. All 141 study participants, all older adults with suspect or manifest glaucoma, wore accelerometers for one week. The results could mark physical activity as a novel modifiable risk factor for preventing glaucoma damage, but further, longer studies are required to confirm this, they said.



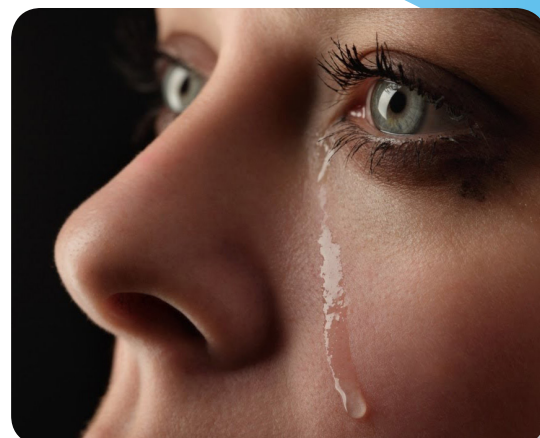
Tears to detect glaucoma?

US Researchers have been given a US \$1.5million grant to discover if proteins in tears can predict glaucoma.

While some patients do have classic high pressure inside the eye, the reality is others with glaucoma don't, said study lead

Dr Ashok Sharma from Augusta University.

Over the next four years, Dr Sharma's team will study the eye fluid of 200 patients with glaucoma and 400 with cataracts and compare their findings with other clinical data to form a signature for glaucoma.



Eyedrop Aids

Using eye drops can be a challenge for many patients, young or old. AutoDrop[®] and AutoSqueeze[™] have been developed to make self-administration as simple as possible – helping to improve patient compliance and reducing reliance on others to help with this task. Many

patients who use eye drops have other conditions that affect their dexterity and ability to squeeze small eye drop bottles.

AutoDrop[®] and AutoSqueeze[™] are re-usable and provide a cost effective solution for simple eye drop application.

You can now purchase these from Glaucoma New Zealand through our website www.glaucoma.org.nz or phone 0800 452 826.



Problems with your eye drop bottles?

Glaucoma NZ has received many phone calls and written complaints about the difficulty with eye drop bottles especially with recent eye drop changes in how they dispense a drop or the bottles have become tougher to squeeze. We understand

that bottles do go through a rigorous process to make sure the material is appropriate for pharmaceutical use, can ensure the stability and sterility of the medicine inside, and delivers the correct dosage per drop etc. However, as the end user, we believe your feedback is also important, especially as it could be adversely affecting medication adherence.

Therefore, on your behalf, we would like to make sure your voice is heard on this matter by sending it to a regulatory organisation who will hopefully pass this onto both the manufacturer, Pharmac and MedSafe.

Please send all feedback to info@glaucoma.org.nz in writing with your name and contact number, product description, and feedback by 1 November 2019. We will aim to publish a response in our next newsletter.

If in the meantime you are struggling to maintain your eye drop application please talk to your eye specialist as its important that your eye drops are taken as directed.

Auckland Patient Symposium

During the month of July, GNZ launched its first ever Patient Symposium in Auckland.

This first ever FREE event, held at Alexandra Park inspired and educated glaucoma patients, their caregivers and family, providing a unique forum for learning about the latest treatment options, and practical tips for living with glaucoma in more detail.

Auckland based eye specialists, Prof Helen Danesh-Meyer (Chair of Glaucoma NZ), Dr Hussain Patel, Dr Sonya Bennett, Dr Jim Stewart, Dr Divya Patel and low vision consultant Naomi Meltzer donated their time to give presentations. Topics included eye drops, surgical

treatments, lifestyle factors, glaucoma and driving, research and the future, and low vision.

Thanks to 'Online Video Specialists' you can watch videos of all topics via our YouTube channel, Facebook and on our website www.glaucoma.org.nz.

Please email info@glaucoma.org.nz or phone 0800 452 826 if you are not able to locate these.



We look forward to hosting such events in the lower North Island and in the South Island in early 2020, and to continue to host the Symposium in Auckland on going.

For New Readers

To those of you who have joined Glaucoma NZ since the last issue of Eyelights, we welcome you!

For your information here are some basic facts about glaucoma:

- People of all ages can get glaucoma.
- There are different types of glaucoma, but they all involve damage to the optic nerve, the nerve of sight, which is at the back of the eye.
- Glaucoma is not curable. If you have glaucoma it must be monitored for the rest of your life.
- A family history of glaucoma means you are at much greater risk of developing glaucoma.
- Current treatments for glaucoma aim to lower eye pressure.
- Medication in eye drops can have side effects on other parts of your body. Tell your eye specialist if you notice any change in your general well-being since you started the eye drops.
- If you have glaucoma tell your relatives, especially those close relatives like sisters, brothers and adult children. They have an increased risk of developing glaucoma so advise them to have an eye examination.



Gordon Sanderson Scholarship

Forth year medical student Waldir Rodrigues De Souza Jr from the University of Otago, was introduced as the latest Gordon Sanderson scholar at the 2019 RANZCO NZ conference for his research into applying artificial intelligence (AI) to detect glaucoma.

De Souza said the award was an honour. "I am keenly aware of how blessed I was to be given the chance to engage in world leading research alongside Professor Helen Danesh-Meyer and Dr Sheng Chiong Hong. Using artificial intelligence to detect glaucoma is amazing and possible, but it is just the beginning."

Like others around the world Dr Souza's research focused on training a deep learning algorithm to detect glaucoma, which the team achieved with 'exciting sensitivity and specificity,' he said. "We used three image modalities to train our convoluted neural network: colour disc photos, visual fields, and optical coherence tomography (OCT) scans. Out of these, the AI performed the best using OCTs. With a single central slice of the optic nerve head, the algorithm was able to correctly detect eyes with glaucoma 92.6% of the time and eyes



without glaucoma 95.2% of the time." The scholarship is awarded annually by Glaucoma NZ to an optometry or medical trainee from the universities of Otago, Sydney or Auckland for research or education relating to glaucoma.

GNZ thanks all our generous donors, including the OSNZ Post Graduate Fund for its significant contribution to create this lasting legacy in Gordon's memory," said Prof Danesh-Meyer, GNZ Chair, presenting the award to De Souza.

July Annual Appeal

"I'm Shelley and I was diagnosed with Open Angle Glaucoma when I was 21. I've had my pressures monitored since I was 2 years old after being diagnosed with Axenfeld-Rieger Syndrome. This affects primarily eye, teeth and umbilical development, and is extremely rare, so I was lucky to have had such an early diagnosis or I might not have had my eyesight today. I didn't really have any major dramas with my eyes until my pressures started rising in my early twenties. I was initially treated with eye drops, but in my mid-twenties they were not enough and I had Molteno drains put in both eyes.

I am now 38 and have since had cataract surgery, two partial cornea transplants, on several different eye drops, plus oral medications. Most

importantly I have my now five year old daughter Lucy pictured with the tasty fundraiser cookies, who is also being monitored for glaucoma as she inherited my syndrome.

I wanted to help fundraise for Glaucoma NZ to help others with glaucoma get the support they need, and also to encourage research into new treatments for my family and others. I have had the fortune of having some amazing eye specialists help keep my eyesight, and I am excited about all the new treatment options becoming available. I also love this newsletter and its invaluable information, so thank you Glaucoma NZ!"



Thank You!

This year Glaucoma NZ had over 160 participants raising awareness and vital sight saving funds to help GNZ continue our sight saving work. Thank you especially to Shelley, Lucy and our other special members who supported the campaign – without you we wouldn't be able to continue what we do. Thank you for partnering with us to save sight.

\$40 Rotary Albany

Coatesville Auckland Garden Ramble

All proceeds raised go to Glaucoma NZ

Sunday 10th November

From 10am to 4pm

Featuring six outstanding gardens:

Mincher
338 Coatesville Riverhead Highway, Coatesville

A'la fois
31 Coatesville Heights, Coatesville

Twin Lakes
83 Sunnyside Road, Coatesville

Mahoenui Farm
344 Coatesville Riverhead Highway, Coatesville

Bumpkin Garden
32 Screen Road, Coatesville

Natural Garden
70 Screen Road, Coatesville

Entry by ticket only.

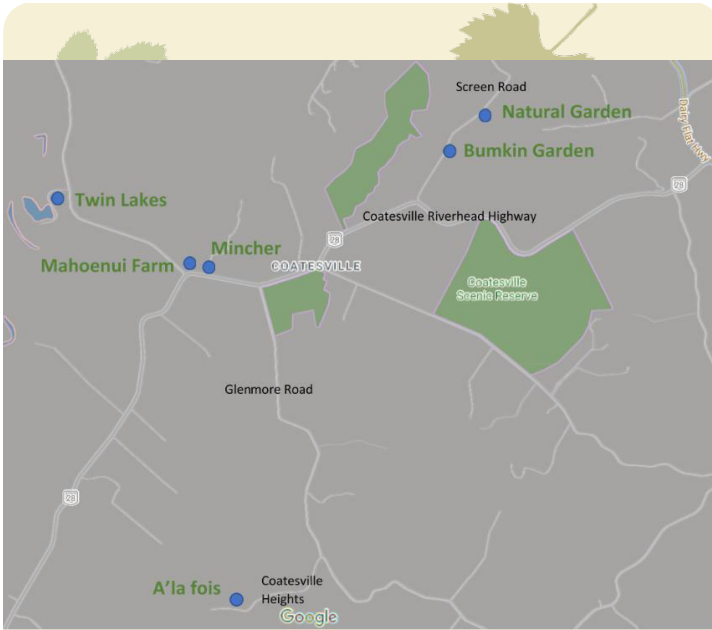












All gardens open at 10am.

Commence your visit at any garden.

A number of food and coffee vendors will be providing refreshments during the day at various gardens, and visitors will also be able to purchase garden related products and raffles. You will need to bring cash for this.

These gardens are private residences – please respect the owners' privacy and take away only happy memories!

To purchase tickets email info@glaucoma.org.nz or phone 0800 452 826

Terms & Conditions

1. No children are permitted and young adults are to be supervised by a parent or guardian. 2. No animals (except guide dogs) are permitted. 3. The ticket is valid for one entry to each garden on the date specified on the face of the ticket. 4. The ticket is non-refundable. 5. Entry may be refused if the ticket is damaged or defaced in any way. 6. Persons entering the gardens do so at their own risk. The organisers and property owners accept no responsibility for injury or damage to property and entry is on this basis only. 7. Visitors are prohibited from bringing alcohol onto the sites. Please support our local onsite food and beverage vendors. 8. These are private gardens so please keep to the designated walkways and follow the signage within the gardens.

Support Groups

Support Group dates from July – Dec were published in our last issue of Eyelights. If you would like further information or updates on dates and locations please go to our website www.glaucoma.org.nz or free phone our helpline on 0800 452 826.



YES! I would like to help Glaucoma NZ save sight

Title ☐ Mr ☐ Mrs ☐ Ms ☐ Miss ☐ Other

First Name _____

Last Name _____

Name to appear on tax receipt

Street Address _____

Suburb _____

City _____ Postcode _____

Email _____

Phone (home) _____

Phone (mobile) _____

☐ **YES! I would like to become a regular donor**

I would like to give a gift (choose one)

☐ Single ☐ Weekly ☐ Monthly ☐ Annually

Amount ☐ \$200 ☐ \$150 ☐ \$100 ☐ \$50 or \$ _____

I would like to pay by (choose one)

☐ Cheque enclosed

☐ Credit Card VISA / Mastercard (circle one)

Card Number _____

Cardholders name _____

Amount \$ _____ Expiry Date _____ / _____

Signature _____

☐ I will give by direct Credit to:

Bank Act: 12-3013-0180964-00 REF: Name

I would like to receive more information about:

☐ Donating on a regular basis by Automatic Payment

For online donations visit www.glaucoma.org.nz

Please complete this form and return to:

GLAUCOMA NZ
Department of Ophthalmology
The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand
Donations over \$5 are tax deductible.

How your donation helps

\$20 Will ensure three people receive initial support and information packs to assist them to answer their glaucoma concerns.

\$50 Helps staff the Glaucoma New Zealand telephone support service (0800 452 826) for a month, to answer calls for information, and emotional support.

\$75 Funds two support groups for a month.

\$100 Assists to increase community glaucoma awareness and the need for regular optic nerve checks.

Glaucoma NZ is a registered charitable trust and receives no government funding. We rely solely on donations, sponsorship, grants and fundraising. All the information available and provided to over 8000 members of Glaucoma New Zealand and the general public is free.

Contact us to find out more on
info@glaucoma.org.nz or
call 0800 452 826

To donate on-line visit www.glaucoma.org.nz

Content in 'Eyelights' is intended to help readers understand glaucoma. Every effort is made to ensure the accuracy of this information. This information is not a substitute for the advice and recommendations of health professionals. Always consult a health professional prior to any decision regarding your eyes or other health concerns.

