

# Eyelights



The Newsletter of Glaucoma NZ  
Volume 5 | Issue 3 | October 2008

## Inside:

**Survey Results**

**Visual Field Tests**

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*Life is our life's work*

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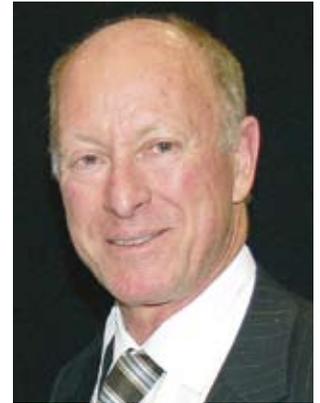
We make it visible

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## From the Foundation Chairman

**What does Glaucoma NZ really stand for? Here is my personal opinion on the APC of GNZ.**



*Dr Ken Tarr*

**The A is for Action.** Glaucoma NZ is a “do it” organisation. We have made things happen through nationwide public meetings and awareness events, through professional education and through our informational resources to benefit each one of you. Our new website is the latest “do it” achievement. Make sure you visit [www.glaucoma.org.nz](http://www.glaucoma.org.nz).

In contrast to an “Action” charity like GNZ there are many “Acquisition” charities with a key focus on accumulation of wealth for their future “security”. GNZ has avoided that non-productive path in choosing to DO as much as possible with the resources available. We will continue to work hands-on to achieve our mission to eliminate glaucoma blindness.

**The P is for Professional.** Glaucoma NZ provides professional information and education resources both for eye-care workers and for you, people with glaucoma. We all need good, solid, honest advice stripped of the commercial, the promotional and the self-interest that dominates our community. That is really hard to get even in eye care. GNZ provides that advice. We use evidence based medicine and research data wherever possible.

We know the job that must be done to eliminate glaucoma blindness and that it must be achieved with professional and commercial integrity. The Glaucoma NZ “45 Plus 5” motto is one example: to promote glaucoma eye checks on or before 45 years of age and then every 5 years, provided no risk factors for glaucoma are identified. This is the keystone to elimination of glaucoma blindness. It must be promoted with sensitivity and understanding, and without exploitation of its important message.

*...continued over page*

**The C is for Community.** Glaucoma NZ is here to improve the eye health of our community and that means each one of you, every one of your family, your friends, neighbours and even your enemies! Blindness, visual impairment and disabilities drastically limit quality of life. As an eye specialist, it is just so sad to see avoidable blindness walk into the consulting room. We immediately know the battle ahead for that individual and that it could all have been prevented through earlier detection and modern glaucoma care. It is another indictment on the disaster of health delivery in our community.

Glaucoma NZ is an action packed organisation with medical professional leadership here to serve our community and you through the elimination of glaucoma blindness. It needs you. It needs professionals. It needs more nationwide support from eye specialists. Support it.



Ken Tarr, Foundation Chairman

Please send feedback and suggestions for Eyalights to the editor. Questions for publication in Eyalights are welcomed.

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## Your Questions

**I have to instil two brands of eye drops twice daily: Travatan and Azopt. I keep my eyes closed with my fingers in each corner for about a minute. Is it normal to have a rather bitter taste in my throat afterwards?**

Azopt can cause a bitter taste. If the taste is reaching your throat you're not being successful with the punctual occlusion (blocking of the tear drainage duct.) Try pushing your finger backwards. If you are still having problems ask the doctor or nurse to observe you putting in your drops next time you visit the eye clinic.

**When I get tired I tend to rub my eyes. I massage them with the back of my hands. Is that harmful?**

Eye rubbing is usually not harmful, and everyone does it occasionally. It is not something that affects glaucoma. But you should not rub your eyes constantly, because you could scratch the cornea. Recent studies suggest there may be a link between eye rubbing and keratoconus, a corneal disorder.

## Your Tips



"I write the date started on my eye drop bottle. My drops are calibrated to last the exact time prescribed.

I count forward and put a question mark on the calendar so I know when to expect to need a new bottle."

"I use the alarm on my mobile phone to remind me each evening that it's time to put in my drops."

"I keep my eye drops in the fridge. I can tell when a drop has successfully reached my eye because I feel the cold."

## Living With Eye Drops - Survey Results

Eyelight readers responded in droves when a research survey was sent out with the last issue!

The Optic Nerve and Glaucoma research team at the University of Auckland's Department of Ophthalmology were delighted to receive more than 2600 responses. "This makes it one of the largest studies carried out in the world into people's experience of using glaucoma medications," says Dr Nathan Kerr. "We greatly appreciate the time and trouble Glaucoma NZ members took to complete the survey."

Even though glaucoma is common worldwide, little is known about how people with glaucoma feel about their medication. This prompted the Auckland research team to conduct the survey. The results will be invaluable for scientists and clinicians working to develop more effective glaucoma treatment.

The data is still being analysed in preparation for scientific publication. But already some interesting facts are thrown up.

People surveyed have had glaucoma or ocular hypertension for an average of 8 years. The minimum time ranged from a newly diagnosed couple of weeks right up to 84 years.

Most people are on just one type of eye drop (see Figure 1.) However, 31% of you use two different types of eye drop. A very small percentage of people (0.3%) have to use four different kinds of medication each day!

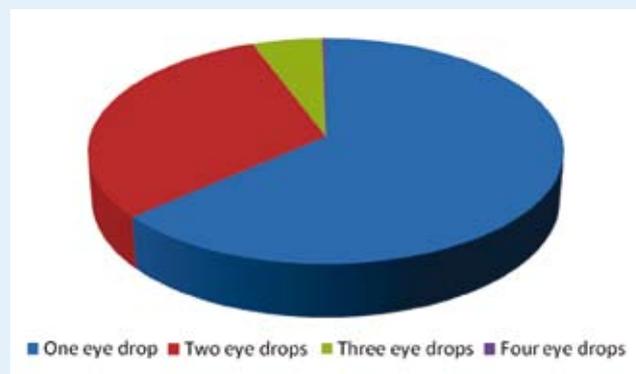


Figure 1. Number of different types of eye drops administered daily

Most people put in eye drops for glaucoma or ocular hypertension just once (48%) or twice (42%) a day. But for some people eye drops have to be used six times each day.

When it comes to putting in your eye drops the most commonly adopted position is standing (43%). However many of you prefer to apply them lying down (31%) or sitting (25%). Punctual occlusion (pressing the corner of your closed eye with your index finger to help the medication stay where it's supposed to) was performed regularly by 46% of you. Of this group, 52% performed this for 4 minutes or more. We were impressed!

Most of you are satisfied with eye drops as a way to administer your medication, and report that using drops interferes very little with your quality of life.

Thank you to everyone who supported glaucoma research by completing this survey. Watch out for more findings in a future issue of Eyelights.

### Can You Help?

Do you live in Auckland? We would love more volunteers to help fill envelopes with Eyelights. The next mail-out day will be in February. The company is great, and we have a lot of fun. Glaucoma NZ provides lunch. If you think you could help please phone Karon on 09 373 8779 and give her your contact details, or email [admin@glaucoma.org.nz](mailto:admin@glaucoma.org.nz). Nearer the time we will let you know the date. If it suits we'd love to see you.

## For New Readers

*Welcome to everyone who has joined Glaucoma NZ since the last issue of Eyelights! Here are some basic facts about glaucoma:*

There are different types of glaucoma, but they all involve damage to the optic nerve at the back of the eye.

Glaucoma is not curable. If you have glaucoma you must be monitored for the rest of your life.

Current treatments for glaucoma all aim to lower eye pressure.

Medication in eye drops can have side effects on other parts of your body. Tell your eye specialist.

People of all ages can get glaucoma.

A family history of glaucoma means you are at much greater risk of developing glaucoma.

If you have glaucoma you should tell your relatives, especially close relatives like sisters, brothers and adult children, of their additional risk and advise them to have their eyes examined.

Glaucoma NZ is a registered charitable trust which receives no government funding. It relies solely on donations, sponsorship, grants and fundraising.



## Visual Field Tests

*Part 1 of this series (Eyelights Vol 5 Issue 1) discussed measuring your eye pressure.*

*Part 2 (Eyelights Vol 5 issue 2) covered examination of your optic disc.*

*In this third and final segment we describe how your peripheral vision is measured.*

Glaucoma damages our peripheral vision or 'visual field'.

So how would you go about measuring it, to detect a problem in the first place or to monitor for any further loss?

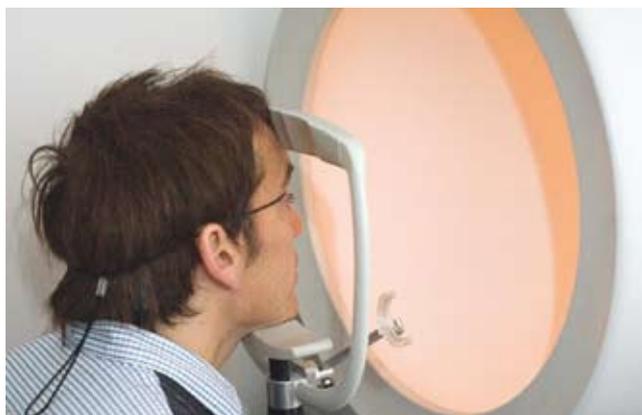
You could buy a square metre of black felt to hang on the wall, then sit your subject down a metre in front of it, with instructions to keep looking at a central white spot. Then, like a magician, advance from the edge a little white disc on the end of an invisible black wand - ask your subject to tell you when they first see it.

You could map out all the edges of the visual field this way – and check that there are no blind spots within these edges (apart from the one that is allowed to be there which corresponds to the place where the retinal nerve fibres leave the eye).

That is exactly how visual fields used to be measured and the method was named after Bjerrum.

## ...Your Glaucoma Eye Examination: Part 3

Then came the Goldmann '*perimeter*' ('peri' meaning round, about and 'meter' meaning measure). This used a clever arrangement of levers to move a projected light towards the centre on the inside surface of a round white bowl. A corresponding pointer moved on a paper grid so that marks could be made when the light was first seen and later joined up to map the visual field. The size and brightness of the white light could be varied to give a range of standardised measurements. This test was the gold standard for a number of years. However, even with a skilled operator it was somewhat open to interpretation.



Then along came computers! These allowed precisely controlled small increases in a light's brightness, so that the level at which the person just sees it can be measured. Lights are projected at different points in the perimeter's bowl until all parts of the visual field have been covered.

A number is given to the difference between the test spot brightness and the background brightness. The numbers are then put together in a visual field map.

Also this digital information, which has been acquired in a standardised way, can be analysed and compared to visual fields of a normal population. Better still, it can be compared to an age-matched normal population - important since our visual field sensitivity diminishes gradually with age.

This computer assisted testing process is more objective and efficient than previous methods. But that doesn't mean that you, the examined, will find it any easier!

The test is designed to identify the threshold of seeing, ie. that light intensity just visible against the background. You have to make a subjective decision each time as to whether you see the light or not. Such intense and repeated decision-making over five minutes for each eye is hard work! You are allowed to be tired afterwards.

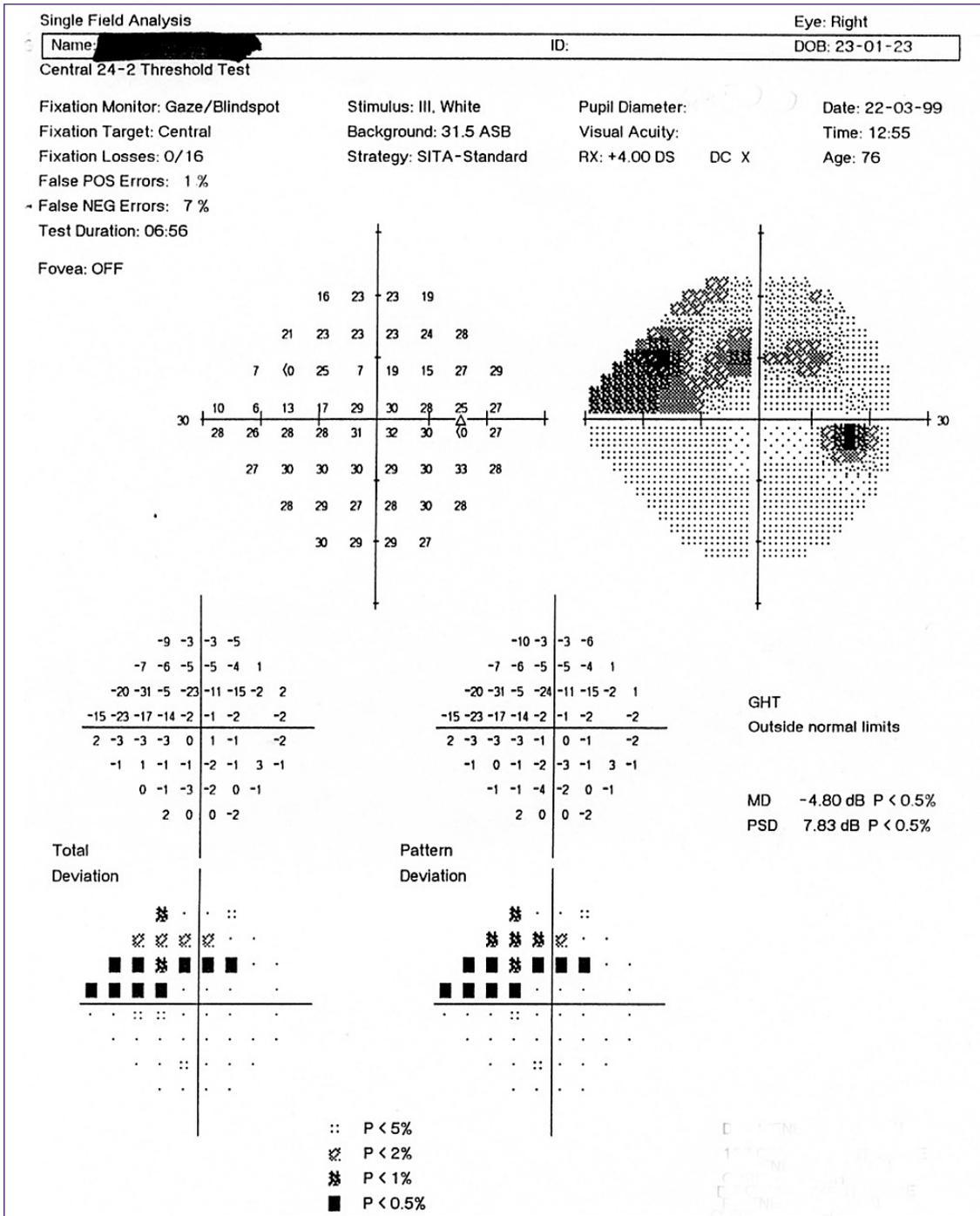
Fortunately most people can perform very reliable field tests, and the software program assesses reliability which makes the test printout even more useful.

Once good baseline field tests are obtained they need to be repeated on a regular basis. These tests are to see if visual field defects are progressing, and to help determine what level the eye pressure needs to be lowered to, to halt progression.

As poet James K Baxter wrote, "Loss is a precious nectar". It helps us appreciate what we have in the first place to lose. Let's be thankful for full visual fields that give us much of our awareness of landscapes and loved ones. And let's look after them.



Continues...



**Humphrey Visual Field Test**

There are a number of different models of computer perimeter. One common brand is ‘Humphrey.’ The result of a Humphrey field test is shown here.

The printout shows a typical glaucoma defect: a curved bow-shaped blind patch within the normal-seeing field. A defect like this corresponds to the typical pattern of structural defect that occurs in the optic nerve head and retina.

The top number-grid shows the point values measured in a 24 degree field test, central fixation being where the vertical and horizontal lines intersect. The numbers represent the level of brightness at which the test light is just seen against the background (from zero when not seen even at great brightness to a maximum of about 34 for normal vision, when a very small additional brightness can be seen).

The greyscale plot to the right represents these same numbers in graphical form, the darker the shading the worse the vision with black showing areas of complete blindness.

The lower right number-grid represents the difference between this patient's eye and an age-matched normal one, this time zero being normal and up to -34 (below normal level) being completely blind for that point.

The greyscale plot next to it shows the statistical probability that this patient differs from a normal patient (ie. has glaucoma), small dots being normal and black squares being highly likely to be different from normal. This is the most useful plot for your eye professional to look at for diagnosing glaucoma, because it has a built-in comparison to the age-matched average normal field.

Please note that however bad a field test may look, it does not give much indication of your 'visual acuity' (sharpness of central, fixation vision.) Acuity is often last to be affected by glaucoma progression, and is measured on a Snellen vision chart or similar.

## Your Eye Examination - Summary

### A checklist for your visit to the optometrist

Glaucoma NZ recommends that people without any symptoms of eye problems have an examination for glaucoma by the age of 45. If the examination is normal we recommend it be repeated every 5 years. The examination is not only to detect glaucoma early, but also to assess your risk of developing glaucoma.

Your vision will be tested, but how well you see detail is no indication of glaucoma unless very severe damage is present.

In a routine examination for glaucoma you should also expect:

- Questions about any family history of glaucoma
- Questions about any eye injuries in the past
- Questions about whether you use any drops, ointments, nasal spray or tablets containing steroids.
- Discussion of your extra risk if you are very short sighted
- Discussion of the risk for angle closure glaucoma if you are long sighted
- Measurement of your eye pressure, by Goldmann tonometer if possible (See Eyelights Feb 08)
- Examination of the angle
- A check for the presence of other conditions that could lead to glaucoma
- An assessment of the health of the optic disc (See Eyelights June 08)

On the basis of the clinical findings a decision would be made as to whether you require:

- A visual field test. If the optic disc is suspicious of glaucoma a visual field test should always be done. (See p4)

**If the optic disc is very healthy and there are no risk factors present, then a 5 yearly examination is appropriate.**

### Further investigations

Other tests are also used, often when you have been referred to an eye specialist for investigation and possible treatment. Some optometrists also offer these assessments. Ask your eye health professional about:

- Gonioscopy to examine the angle
- Measurement of central corneal thickness
- Stereo photography
- Scanning of the optic disc with modern technologies eg. HRT, GDx or OCT

## Reader's Story

*Our reader's story in February Eyelights inspired one of our members to write about her own experience with glaucoma. Judi had closed angles and high eye pressure. Laser peripheral iridotomy was the appropriate treatment.*

*Every case is different. Your own eye specialist will advise you of the best treatment options for you.*

### Science and Sunsets

by Judi Brown (Te Puke)

Being a normal, vain female I felt it was time I had some real nice, trendy glasses to match my so-called trendy wardrobe. At the time my eyes were feeling rather strained. I put this down to the fact that I had gone back to the workforce now that my children no longer needed their mother hen. My job involves a lot of administration paperwork.

To my surprise and dismay when I went to our local optometry clinic I found that the pressure count in both eyes was extremely high and over the safety mark. I was told I would be referred to a specialist and might require laser treatment. I felt quite scared about the whole issue.

But after meeting my eye specialist and having my eyes examined I felt very confident with his professionalism. He told me my eyes required urgent attention, or there could be a possibility I could go blind in hours or weeks or months!



Straight away I thought about colour and how much I love it, bees and birds, water, sunsets, art – all those sorts of things we take for granted. I also thought about how it would affect my family if I was to go blind.

An appointment was set up within days, to have the first eye lasered.

The treatment was reasonably quick – quite uncomfortable at times, but all was OK. I did feel uncomfortable for hours after, and my head felt like it was burning. The tears just kept on streaming out of my eye. I was given steroid eye drops for the inflammation which did give me relief. Prior to the cutting through to enable my eyes to drain, the pupils needed to be softened first with one laser, then onto another machine for the cutting process. This enables the eyes to drain and keeps down the high count.

I was given an appointment for the second eye for the next week. I really needed to prepare myself for the next treatment. The second eye was harder to cut through, so I had to go back again onto the first machine. My doctor said, “You must be of strong stock!” The eye then decided to bleed, so after a small rest he resumed treatment and everything was completed. I felt very uncomfortable but those eye drops were a great help and very soothing.

Six months went by and it was time for my check up. I was so apprehensive as I didn't really want to have to go through it all again. All was successful! “Very healthy, eyes draining well ...” was the verdict.

Today I only wear glasses for reading, and don't require any eye drops. I just have to have an eye examination in twelve months time.

I appreciated the support of my youngest daughter who was with me through the treatment and was my driver. She is fully aware that the type of glaucoma I have is hereditary.

I give full credit to today's science and our wonderful professional doctors, also to my local optometrist who picked up on this problem in time for me to keep my eyesight.

# Laser Treatments for Glaucoma

Eye surgeons have a range of lasers they can use in treating eye problems. Laser treatments used for glaucoma are completely different from the LASIK treatment commonly used for correcting focusing problems.

Different laser procedures are used for different types of glaucoma. Some commonly used laser treatments are:

## Laser Peripheral Iridotomy (PI)

Laser peripheral iridotomy or "PI" is performed usually for patients with narrow angles or angle closure glaucoma. (See Judi's story opposite.)

The 'angle' of your eye is where the eye drainage meshwork is. In some people the iris bows forward and blocks the flow of fluid to the drainage angle, so the fluid is unable to efficiently drain away. These people are said to have 'narrow angles'.

If you have narrow angles you could suddenly develop Acute Angle Closure glaucoma. This is an extremely painful medical emergency that carries the possibility of going blind within hours. A laser peripheral iridotomy (PI) is to prevent this happening.

In a PI a laser beam is used to make a small hole in the iris, the coloured part of the eye. The hole allows the fluid that is trapped behind the iris to drain more freely into the trabecular meshwork (the drainage pathway) of the eye.



The PI is completed in the office with the patient seated at the laser, and requires no sedation. Usually, a special contact lens is placed on the eye after anaesthetic drops are applied. The laser procedure takes a few minutes.

In general only a few brief episodes of slight discomfort are associated with this procedure. Afterwards your eye surgeon may recommend anti-inflammatory eye drops for the next few days. A follow-up visit will be scheduled. PI is an extraordinarily safe procedure.

## Laser Trabeculoplasty

Laser trabeculoplasty is a safe, easy treatment suitable for most patients with chronic glaucoma. In this procedure the surgeon directs a laser beam into the trabecular meshwork, which is the draining channel of the eye.



Laser trabeculoplasty is performed at a slit-lamp microscope similar to the one used in regular eye examinations. It takes about 10 minutes. For most patients it is either pain free or just mildly uncomfortable. Firstly anaesthetic eye drops are put in. Then a contact lens is placed against the eye, and 50 to 100 small burns are placed around the drainage angle of the eye.

Laser trabeculoplasty can lower pressure dramatically and keep it low for many years. It allows some people to avoid having to use eye drops. However, it is not always successful for everyone. Sometimes it doesn't lower eye pressure much if at all, and the effect of the treatment doesn't always last a long time.

Laser trabeculoplasty is a well established treatment for glaucoma that has been in widespread use for many years around the world. It is very safe and easy to perform.

Interestingly, in some countries this kind of laser treatment is usually the first line of treatment, with medication in the form of eye drops being added in later if necessary.

## GNZ News

# New Website Launched

Glaucoma NZ's website has had a make-over. Lots of new information has been added.

Check it out at

[www.glaucoma.org.nz](http://www.glaucoma.org.nz)

You can now make donations or enrol online.

The 'About Glaucoma' section has been expanded and you can download Fact Sheets and selected articles from Eyclights.

Your feedback is welcome as always!



### Moving House?

Don't forget to advise Glaucoma NZ of your new address.

# NZ National Eye Centre

Glaucoma NZ was proud to be associated with the public launch of the NZ National Eye Centre on July 29th.

This exciting new research centre at The University of Auckland brings together the efforts and talents of The Department of Ophthalmology and The Department of Optometry and Visual Sciences incorporating the Molecular Vision Laboratory.

The vision of the NZ-NEC is "to eliminate preventable blindness and reduce visual impairment." The aim is to become a foremost international vision research, clinical and teaching centre through excellence, innovation and collaboration.

The NZ-NEC departments currently have a combined staff of more than 100 clinicians, clinician scientists and vision scientists. Over the past eight years they have produced more than 400 publications, several textbooks and some international research patents. The new NZ-NEC umbrella will boost visual research through national and international collaborations.

Glaucoma NZ as an organisation is affiliated to the NZ-NEC through our long association with the Department of Ophthalmology. Our office is located within the Department by courtesy of Professor Charles McGhee. The vision statements of the two organisations reflect our common goals.

The NZ-NEC was launched with a full day of lectures and presentations show-casing the diversity of research under the NZ-NEC's departments.

Glaucoma NZ trustees Associate Professor Helen Danesh-Meyer (The University of Auckland) and Gordon Sanderson (The University of Otago) gave addresses in their academic capacity. Helen spoke about developments in the imaging of the optic nerve. Gordon's presentation described 'The War Against Blindness' in New Zealand.

You can read more about the NZ National Eye Centre at [www.nz-nec.org.nz](http://www.nz-nec.org.nz)



*Gordon Sanderson and Associate Professor Helen Danesh-Meyer*

# Research

## New Centre, New Vision

Could cataract become a thing of the past? How can tiny amounts of eye medication reach the eye without wastage?

Speakers described current vision research at the opening of the NZ National Eye Centre. Professor Iain Martin, Dean of the Faculty of Medical and Health Sciences, emphasised that the quality of science within the NZ-NEC group is world class.

NZ-NEC Director Professor Charles McGhee stressed the critical importance of research as New Zealand's population ages. Many eye conditions are associated with age. As people increasingly live longer the prevalence of eye disease could overwhelm us. Prevention is a much better alternative than cure. Hence the NZ National Eye Centre.

Researchers from NZ-NEC gave the audience a taste of the astonishing range of research they are involved in. Only some of the current work could be described in the time available, but reports covered

- new discoveries about how the cornea heals
- investigating the use of anti-oxidants to prevent cataract
- new ways of treating dry eye
- knowledge gained in the laboratory being translated to clinical use to help patients whose wounds are slow to heal
- new technology being used to find out about corneal nerve structure
- investigating more effective ways of delivering medication to the eye
- research into age-related macular degeneration
- advances in cornea and cataract surgery

Guest speaker Professor Hugh Taylor of the Centre for Eye Research Australia spoke about the impact of vision loss and what we can do about it. If our desire to prevent blindness is to be translated into policy we must gather the evidence! Research in Australia has found that 14% of blindness in Australia is due to glaucoma, representing 50,000 Australians. Glaucoma accounts for 3% of visual impairment - 480,000 Australians. This is echoed by figures for New Zealand. Gordon Sanderson pointed out that 36,000 New Zealanders have significant visual impairment, and one third of these people are blind.

Visual impairment affects one's quality of life, leading to falls, depression and early admission to nursing homes. There is a personal economic impact to low vision because it affects people's ability to earn, and brings added expense. The economic impact on a country is considerable, with vision disorders constituting the 7th largest health cost in Australia in 2004. This will increase dramatically by 2020.

Professor Taylor summed up what is needed to tackle the problem:

1. Prevent what we can prevent
2. Treat the diseases we can treat
3. More research

Glaucoma NZ is tackling Number 1 in a major way. Our blindness prevention activities are practical, targeted, and persistent.

Regarding Number 2, best possible glaucoma treatment, Glaucoma NZ promotes co-operation amongst eye health professionals and provides professional education.

Thirdly, despite modest resources Glaucoma NZ's commitment to research is evidenced in its research grants.

Glaucoma NZ welcomes the arrival of the NZ National Eye Centre which will boost vision research in our country.

## Public Meetings 2008

At the time of going to press the following glaucoma information presentations had been confirmed. Come along and see a new slide presentation and learn more about glaucoma. There will be time for questions and a cup of tea will be served at the conclusion of each meeting. Admission is free and all are welcome.

**Saturday  
November 8th**      **Waitakere**  
10am  
New Lynn Community Centre  
45 Totara Ave, New Lynn

**Saturday  
November 15th**      **Whangarei**  
10am  
Flames International Hotel  
Waverley St, Onerahi

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I would like information on leaving a bequest for Glaucoma NZ

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