

Eyelights



The Newsletter of Glaucoma NZ
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Eye on Research

Glaucoma and Cholesterol: Unlikely buddies

As you know, glaucoma is a silent thief. It slowly but surely robs us of small amounts of vision, and left unchecked can lead to severe visual loss. It has a brother in arms – high cholesterol. Raised levels of cholesterol in the blood are known to be a significant risk factor for plaques, which can eventually block and lead to heart attacks or strokes. Many of you have probably been told that you also have high cholesterol. Not surprisingly then, many of you will be treated with statins, a common cholesterol lowering medication. Fortunately, this may be helping more than just your cholesterol levels.

Over the last ten years, many studies have looked at the association between statin use and other conditions. Previous studies have showed that statins may have protective effects on nerves in the brain independent of their cholesterol lowering effect (1-4). As glaucoma affects the nerve connecting the eye and the brain, many researchers have looked into the role of statins and the development or progression of glaucoma. One study performed by De Castro and colleagues (5) showed that people who had been on statins for greater than 23 months had a reduced likelihood of developing glaucoma (having had suspicious changes to their nerves prior to being involved in the study). Another study looking at over 7000 people showed that the use of statins for more than 24 months was associated with a reduced risk of having glaucoma (6). This study also found a reduced chance of having glaucoma in those using other cholesterol lowering agents.

The largest study to date looked at a database of over 500,000 patients diagnosed with raised cholesterol (7). The results once again confirmed the protective role of statins in those with glaucoma. Patients on statins had a 0.3% less chance of developing glaucoma for every month on the medication. Also, in those who had changes suspicious for glaucoma, there was a 0.4% less chance of progressing

Continued over page

to glaucoma per month of use. Finally, in those with established glaucoma, for every month of statin use, there was a 0.4% less chance of having a new eye drop added for glaucoma control. Unfortunately, there was no significant effect of statins on the chance of needing laser or surgical treatment of glaucoma.

So what does this mean for you? Should all glaucoma patients be on statin medication? Unfortunately, the solution is not that easy. Statins, despite being one of the most widely used medications globally (with over \$20 billion USD of sales in 2012) have many associated side effects, some of which can be serious. However, for those of you already on statins for raised cholesterol, they may also be helping to slow down the progression of glaucoma and therefore acting as the policeman to these common thieves.

It is hoped that with ongoing research and the discovery of new agents that help to stop this silent robber of vision, we can eventually help prevent the damaging blindness that can result. Who knows, maybe one day we can take one magic pill to cure all our ailments.

As always, regular eye check-ups and monitoring are the only way we can track this thief, and early diagnosis is crucial. Please remember the "45+5" message. Glaucoma NZ recommends that everyone has an eye examination for glaucoma by the age of 45 then every 5 years after that until age 60, and three-yearly after that. Those with risk factors for glaucoma such as a family history of glaucoma or steroid use should be examined earlier.

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Contributions to Eyelights

We would like thank the following for contributing articles which featured in the 2013 editions of Eyelights.

- | | |
|-------------------|-----------------------------------|
| Dr Wayne Birchall | Professor Helen Danesh-Meyer |
| Dr Mark Donaldson | Dr Sam Kain |
| Dr Justin Mora | Dr Siddharth Ogra |
| Dr Hussain Patel | Assoc. Professor Gordon Sanderson |

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.

Glaucoma NZ is a registered charitable trust which receives no government funding. We rely solely on donations, sponsorship, grants and fundraising. All the information available to you from Glaucoma NZ is free.



Suggested ways you could help Glaucoma NZ help you:

- Purchase our Christmas Cards.
- Continue with your most welcome and appreciated donations.
- Arrange a community fundraising event in your area.
- Contact us to arrange for a glaucoma educator to speak at your club/organisation or workplace.
- Attend our free Public Meetings.
- Purchase an Entertainment Book.
- Suggest to your work colleagues that they hold a special day or event to support our charity.
- Support our July Annual Awareness Appeal.
- Think of us when preparing or updating your Will.
- Tell everyone about Glaucoma NZ and its services.

P.S. If you are looking at holding a fundraiser, please don't hesitate to contact us to discuss ideas and promotional material we have to enhance your event.

Moving House?

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

Paediatric Glaucoma

Glaucoma is thought of as a disease of adulthood with a greater risk as one ages and this is largely true. However glaucoma can strike at any age and sometimes it affects children.

Early onset glaucoma arises because of an inborn abnormality of the structure and/or function of the pressure drainage area in the eye, the trabecular meshwork. Depending on the severity of the abnormality it can be present when a baby is born or it can arise later. When glaucoma occurs under the age of three we call it infantile glaucoma and if after the age of three then it becomes juvenile glaucoma.



Child with buphthalmos from glaucoma

A lot of the glaucoma seen in young people is secondary, meaning that some other disease or condition has caused it. This includes, for

example, another type of inborn eye problem, an injury or inflammation in the eye. Children who are born with cataracts that require removal within the first few weeks of life can develop glaucoma. This means any child who has cataract surgery must be kept under glaucoma surveillance by an ophthalmologist or optometrist for the rest of his/her life.

Infantile glaucoma behaves quite differently from the glaucoma seen in older people. The cornea, the window portion on the front of the eye has a far greater tendency to become cloudy (oedematous) and this leads to watering and light sensitivity.

Sometimes that watering leads to a misdiagnosis of a blocked tear duct. A young eye is relatively soft so any pressure rise can cause the eye to enlarge (buphthalmos), something that doesn't occur after the age of three.

The optic nerve in children can be more tolerant of elevated pressure than an adult nerve but on the other hand even a slow worsening is more relevant when your eyes have to last 70-80 years rather than 20-30.

When glaucoma causes loss of nerve fibres we see increased cupping of the nerve, meaning that the depression in the centre of the nerve head in the eye gets larger as the rim of nerve fibres gets thinner. In children and young adults some of that cupping may be reversible with the cup getting smaller again, and the nerve rim improving, as the disease is brought under control.

This occurs because the less rigid eye of a child allows some outward bowing of the nerve which makes it look more cupped. When the pressure comes down the outward bowing reverses and the cup size gets smaller again. This can be seen in people as old as 35.

The treatment of infantile glaucoma is also very different with surgery being the primary therapy and drops more as an adjunct. Different types of surgery may be appropriate in children including goniotomy, which involves using a needle inside the eye to

try to open up the trabecular meshwork so it can work more efficiently. This is usually very effective but is less so when the glaucoma is due to some other disease than when it occurs on its own.

The surgeon needs to be able to see into the eye to perform goniotomy and if this isn't possible then trabeculotomy is the other option.

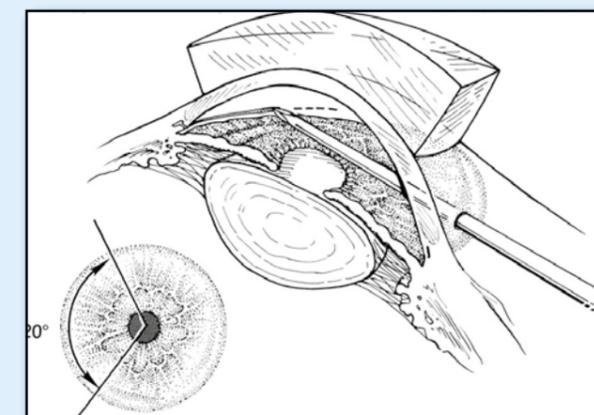
This should not be confused with trabeculectomy which is the standard adult glaucoma operation. With trabeculotomy a flap is created on the sclera (the white of the eye) and the channel that drains pressure from the trabecular meshwork is identified. A probe is passed along this channel and then rotated into the eye. You can think of trabeculotomy as creating a pathway from the outside in and goniotomy from the inside out.

Glaucoma eye drop use in children is different from adults with fewer options available. For example Alphagan (Brimonidine) can cause sleepiness and affect breathing and is usually avoided in children under eight years of age. If babies are treated with Timolol drops then they should sleep on an apnoea mattress as this drop can affect breathing.

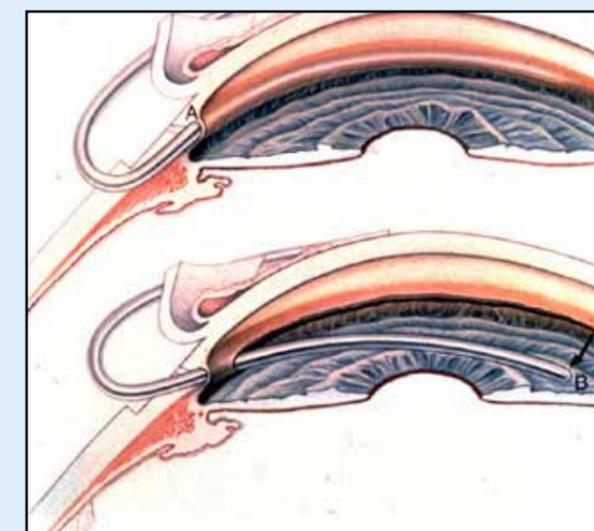
Monitoring eye pressure in young children can be challenging and full assessments sometimes require repeated general anaesthetics. However, most of the time, with the equipment available nowadays, the checks can be done in the clinic.

Of particular value in measuring the pressure is the i-care tonometer which can be used without even putting anaesthetic drops in the eyes, a real bonus when dealing with children. In fact it is remarkable how well some young children manage their eye checks; even at three or four some will sit on Mum or Dad's lap and happily put their chin up on the microscope for the examination.

A unique problem with paediatric glaucoma is the fact that the vision in children is still developing until around eight years of age.



Goniotomy surgery



Trabeculotomy surgery

Any eye condition that interrupts normal vision, including glaucoma, can slow that development and cause laziness of the vision (amblyopia). We can treat that with patching of the better eye but sometimes it is difficult to reverse and in fact more children with glaucoma lose vision from amblyopia than from optic nerve damage.

Paediatric glaucoma is quite different from adult disease and its management has some special challenges. On the other hand, as is usually the case when dealing with young people, the visits can be fun and the satisfaction of helping a young child maintain vision for a lifetime is particularly rewarding.

July 2013 Glaucoma Annual Awareness Appeal

Glaucoma NZ extends a big thank you to all those who supported the 2013 July Annual Awareness Appeal.

It has been extremely encouraging to have so many regular participants willing to help out once again and also some new faces and places joining in. Optometrists and ophthalmologists responded by taking donation boxes to display at their practices, as well as some making a donation from eye and/or glaucoma examinations undertaken during July. The support nationwide of pharmacies and ASB Bank also made a significant difference.

A large amount of media exposure was generated resulting in radio interviews, together with articles and promotions appearing in a variety of national magazines and newspapers. We are also very grateful to Sir Richard Hadlee for agreeing to lend his support as an ambassador for the cause, fronting the Campaign, and appearing on TVNZ's 'Breakfast' show (to view visit www.glaucoma.org.nz click Annual Appeal/highlights). Glaucoma NZ also secured interviews on Canterbury TV and Central TV. GNZ awareness posters featured on NZ Buses around Auckland, in ASB Bank branches, and many participants took the opportunity to have special glaucoma awareness days and displays in-house.

GNZ's 0800 advisory line was busy with enquiries from the public wanting to know more about glaucoma and early detection. Many of these people were subsequently advised to visit their local optometrist for an eye examination.

The Appeal overall has been a great success, lifting the awareness of glaucoma and boosting much needed funds.

Again, Glaucoma NZ appreciates all your efforts during the 2013 July Annual Awareness Appeal and your continued support throughout the year working towards eliminating blindness from glaucoma.

Thank you very much!

Simple test could save your sight

Bay of Plenty Times, 22nd July 2013

By Kiri Gillespie



Eye test result showing an eye scan in detail

The sensation of a rogue eyelash creating a slight blur in Pamela Band's vision turned out to be a crucial sign that glaucoma was robbing her of her eyesight.

Ms Band has joined Tauranga MP Simon Bridges in calling on people aged over 40 to have their eyes tested for the blinding disease. Mr Bridges had his eyes examined yesterday at Langford Callard Optometrist.

"Once you hit a certain age, probably 40, you're a fool if you don't have a check up every few years. For 10 minutes of your life, you're ensuring good sight," Mr Bridges told the Bay of Plenty Times Weekend.

"The eye is so important and we can take it for granted but without really good vision, life becomes so much more difficult, so it's really good to get this glaucoma check up." Glaucoma is the number one preventable cause of blindness in New Zealand.

About 68,000 New Zealanders aged over 40 have the disease but it is believed half of those people won't realise it.

Ms Band, 57, was diagnosed with glaucoma and now takes eye drops every day to help manage the condition.

"It was funny. I noticed when I was driving, it felt like an eyelash on my top lid of my left eye was in the way. I pulled the lid, thinking it was the lash, but it didn't go away. I remember it was when I would be driving from Papamoa beach to the Mount, into the light, but as soon as I would get into different light I would forget about it," Ms Band said.

"Now, if I cover my right eye, it looks like I'm looking through a mouth - that kind of oval shape."

Ms Band said the thing with glaucoma was by the time anyone noticed something as seemingly insignificant as a blur in their vision, it was already too late.

"It's like a silent thing. You just think that's

for older people, which is not right. We can make it have more awareness. Anyone at 40 should get checked."

Optometrist Mike Callard said glaucoma snuck up on people, rendering some blind in worst-case scenarios.

"The main issue of it is it's a symptomless problem. Most people will not be aware they have it until they have a test," Mr Callard said.

Glaucoma slowly removes a person's peripheral vision to the point where that person eventually sees through tunnel-like vision. "At that point you are registered blind not because you can't actually see but you have no visible field," Mr Callard said.

For more information visit www.glaucoma.org.nz.

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Out and About

Inspirational teacher wins supreme award

Glaucoma NZ trustee, Associate Prof. Gordon Sanderson, has been given New Zealand's top award for tertiary teaching at the University of Otago.

The Prime Minister's Supreme Award as well as the Sustained Excellence in Tertiary Teaching Award were presented to A/Prof Sanderson at a formal function at Parliament hosted by the Prime Minister, John Key, and attended by over 100 guests.

Gordon has dedicated a 40-year career to teaching under-graduate and post-graduate medical students in the specialist area of ophthalmology. He has maintained a burning desire to understand how students make



Gordon Sanderson, receiving the Supreme Award from PM John Key

sense of this highly demanding medical discipline.

Congratulations Gordon!

New Developments

When medical or laser therapy fails to control the intraocular pressure, the next level of care is glaucoma surgery. Recently, a new micro-stent has become available and offers an alternative surgical procedure to lower intraocular pressure.

The Glaukos iStent is the smallest implant in medicine and was approved by the US Food and Drug administration for the treatment of glaucoma mid 2012. The iStent is a 2mm titanium snorkel that perforates the hardened drainage tissue of glaucoma patients' eyes re-establishing free passage for eye fluid to leave the eye and reducing pressure build up.

In the standard operation for glaucoma (trabeculectomy) a trapdoor is created in the wall of the eye that lets the eye fluid leave the eye to be absorbed back into the body from a blister called the bleb. The operation is undertaken from the outside of the eye and may take up to three months to fully settle.

The iStent is implanted at the time of cataract surgery. It is like a needle through the hardened drainage tissue (trabecular meshwork) into the natural collector channel called Schlemm's canal from the inside of the eye. Once in place the iStent remains sitting in the Schlemm's canal, permanently connecting this canal to the inside of the eye. The iStent does not make an opening in the wall of the eye; it re-establishes drainage through the trabecular meshwork and prevents the connection from healing by providing a permanent channel.

Studies have shown that the iStent can lower intraocular pressure an additional 15% for patients who are already on glaucoma medication when combined with cataract surgery. Although cataract surgery itself can lower intraocular pressure by approximately 10%, the iStent increases this efficacy. When glaucoma patients were taken off their drops and their untreated eye pressures compared to the pressures following cataract surgery



The Glaukos iStent, the smallest implant in medicine.

plus the iStent, there was a 30-35% reduction in pressure and many patients did not have to return to eye drops after the surgery.

The exciting aspects of the iStent are that recovery from the surgery is much quicker than following trabeculectomy, it is less invasive and does not create an opening in the eye wall which occurs with trabeculectomy surgery. In addition, studies have shown that it is very safe. The safety profile of the iStent device is its great advantage over trabeculectomy. There have been more than 10,000 iStents implanted worldwide. The complication rate is exceedingly low and rehabilitation very rapid.

However, in general the pressure reduction achieved with iStent is not as large as with a standard trabeculectomy, but it provides a valuable reduction in pressure with peace of mind. So it may not be an adequate form of pressure control for those with advanced glaucoma or who require very low intraocular pressures. But very low pressures required for a subgroup of patients with glaucoma are not necessary for all patients and often a smaller reduction in pressure is all that is required to halt progression and render the eye "drop-free". Also, at the present time it is only recommended to be done at the time of cataract surgery and cannot be placed in eyes that have the natural lens.

The iStent is an exciting development for glaucoma surgeons. Although at the present time only one year results are available and the long-term effectiveness is unknown, the iStent provides a new option for the management of glaucoma patients.

Sunshine and Eyes

Can ultraviolet radiation from the sun damage my eyes?

Yes, just as ultraviolet (UV) radiation can damage your skin, so eyes can be damaged from sun exposure. Strong sunlight can burn the corneas and conjunctivas of your eyes – long term exposure can contribute to eye disease, especially cataracts, eyelid skin cancers and possibly macular degeneration.

There are a number of sunglasses available to purchase. I am confused as to what to look for when choosing a pair. Can you help?

Here are some tips on what to look for when purchasing sunglasses:

UV Block. Ideally, sunglasses should block the two components of UV radiation – UVB and UVA – by 99% and 95% respectively. Even if the lens glass is dark, untreated plastic lenses do not adequately block UV radiation. Always check if the sunglasses block UV light.

Blue-blocking plastic lenses (yellow lenses). These are often promoted for sun protection and also block red, amber and blue light. This makes it difficult to discriminate traffic light colours.

Polarised lenses. These lenses protect against glare but do not meet the criteria for UV protection unless they have additional UV-blocking material in the lenses. Polarised lenses are best for reducing glare but can cause distortion of light when looking through a partially polarised window or car windscreen when darker patches occur in the plastic or glass you are looking through.

Photochromic lenses. These lenses change in level of darkness depending on the light. This type of lens protects the eyes from glare, sun and UV radiation while also maintaining vision. In addition, photochromic lenses do not distort colour.

Impact resistant/polycarbonate (plastic). No lens is truly shatterproof. Plastic lenses

are less likely to shatter upon impact than glass lenses. Polycarbonate plastic, used in many sports sunglasses, is even more impact resistant than regular plastic, but scratches easily. If you buy polycarbonate lenses, look for ones with scratch-resistant coatings.

Lens Colour. This is much less important than you may realise. Blue lenses are best avoided as they let through the short wavelengths you want to protect your eyes from. Brown and grey shades are usually best. It depends on your personal choice. Green and red lenses don't offer any advantages. Standard clear glasses can also be treated with a material that absorbs UV radiation. UV protection can be obtained for most rigid contact lenses and many soft contact lenses.

Fit-over's. These are sunglasses that can be worn over your regular prescription glasses and they often provide the wraparound feature.

Wrap-arounds. Sunglasses that wrap around the temples prevent the sun's rays from entering from the sides. Wrap-arounds offer added protection.

General tips for sunglasses.

- A high price is not always a guarantee of high quality and protection.
- Designer and fashion frames do not necessarily add to eye protection.
- **The best sunglasses are the ones you actually wear.**





Public Mail Box

Are there ingredients in cough mixtures that can adversely affect people with glaucoma?

A variety of prescription medicines work by acting to stimulate or inhibit parts of the autonomic nervous system. The autonomic nervous system is a network of nerves that run the body's unconscious functions and is divided into two parts the sympathetic and the parasympathetic. Activation of the sympathetic nervous system prepares the body for "flight or fight". Some cough medicines contain sympathetic stimulants such as Phenylephrine. In addition to drying up respiratory secretions this drug may dilate the pupil slightly. In people with narrow angles this may rarely cause angle closure glaucoma. If you have open angle glaucoma, you need not worry about such medications. If you have narrow angle glaucoma your doctor has already taken steps to prevent the angles from closing either with a peripheral iridotomy or a cataract operation.

So if you are worried about the possibility of cough medicines making your glaucoma worse, you need not worry.

I have been diagnosed with early stage glaucoma. Does using a computer all day worsen the condition? What about stress?

Working on a computer all day will have no impact on the worsening of your glaucoma. No studies have shown that stress makes glaucoma worse, but many ophthalmologists have found that eye pressure may be elevated during periods of stress. This may be due to poor compliance with eye drops use. The best way to minimise the worsening

of glaucoma is to use your drops and attend your regular follow-up appointments.



Art Sale to Support GNZ

Well known, Taupo based, artist Sally-Ann Davies is putting her artwork up for sale in support of Glaucoma NZ.

Sally-Ann's eye sight has never been perfect but it has not stopped her from pursuing her passion for art. She is one of triplets and got her first pair of glasses at the age of 3, moving on to contact lenses at the age of 6 (after her Mum finally got fed up of continually having to replace or fix lost or broken glasses on a regular basis). At age 12 Sally-Ann had an eye operation for a detached retina, at Birmingham Eye Hospital in England.

This meant staying quiet and still for about four months in total. It was during this less active period of her life that Sally-Ann's love of art developed, by copying get well cards or just drawing things around the farm she lived on.

Cataracts also affected Sally-Ann's eyesight, and having immigrated to New Zealand, she finally had her cataracts removed here in 2009. This was a major turning point in her life and artistic career. "I was amazed in what I had not been able to see for ages, words can't really describe how I felt. The detail and intensity of colours and tones was amazing."

Following this Sally-Ann held her first solo

exhibition in New Zealand "First Impressions". She has a BA Honours in Fine Art from Liverpool John Moores University.

"My inspiration comes from the natural environment, from growing up on a dairy farm, skiing down mountain slopes, sailing and kayaking on our lakes and rivers or tramping through the bush.

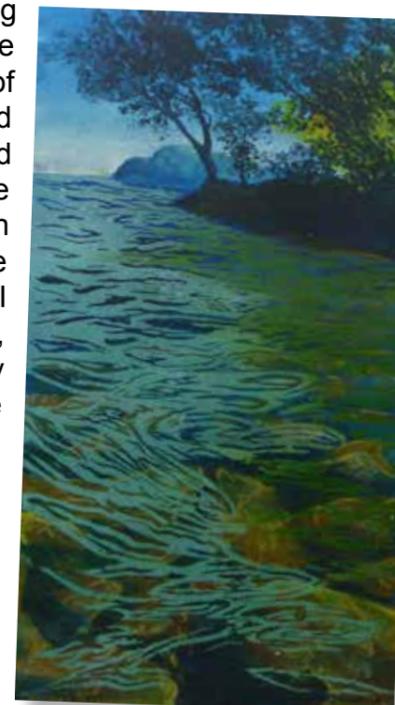
Colourful sunsets, threatening storms, or billowing clouds, the vastness of the lakes and oceans and the magnitude of mountain ranges. These are things I am drawn to, that fuel my desire to be creative."

Thanks to the care and skill of her New Zealand eye specialists, Sally-Ann is now pursuing her passion for visual arts with renewed intensity. She has a high risk of getting glaucoma and is regularly monitored so she will be able to get treatment at the early stages if necessary.

Sally-Ann wants to show her appreciation for the outstanding treatment and support she has received by sharing her art with Glaucoma NZ members.

For every piece of artwork sold through her website, Sally-Ann will donate 20% of the proceeds to Glaucoma NZ. To learn more about Sally-Ann and to view her work please visit www.sallyanndavies.com.

To make a purchase click on "Contact" and send a message to Sally-Ann with your selection and details, quoting "Glaucoma NZ Art Sale" as a reference.



Public Meetings 2013

Once again the Glaucoma NZ nationwide Public Meeting Programme has been well attended at many venues throughout the year.

These meetings are an invaluable way of raising awareness of this potentially blinding disease amongst the wider community, whilst conveying vital information to those with glaucoma and those with an interest in glaucoma.

The meetings are hosted by a Glaucoma NZ representative together with an ophthalmologist who gives an in-depth hour long presentation. An opportunity for the audience to ask questions is given, followed by refreshments.

In 2013 meetings have been held in East Auckland, Whakatane, Queenstown, Blenheim, Takapuna, Thames, Auckland Central, Pukekohe, Kapiti Coast, Snells Beach, Kerikeri, Dunedin, and Tauranga. The last meeting for the year will be held in New Plymouth on 23rd November at Quality Hotel Plymouth International, corner of Courtenay & Leach Streets commencing at 10am.

Meetings for 2014 are being planned in Christchurch, Invercargill, Nelson, Havelock North, Auckland and more.

Please visit www.glaucoma.org.nz to keep up to date with our Public Meeting itinerary. Glaucoma NZ members will receive personal invitations for meetings in their area.

A big thank you to the following ophthalmologists who have given up their time to present at this year's Public Meetings:

Doctors Sonya Bennett, Andrew Thompson, Rod Keillor, Graeme French, Dean Corbett, Jim Stewart, Mark Donaldson, Justin Mora, Nina Ashraff, Brian Kent-Smith, Mary Jane Sime, and Kevin Taylor.

Christmas Research Appeal Finding a Cure

PLEASE support us in our efforts to fund research into new and improved treatments for the 68,000 New Zealanders living with glaucoma.

Ongoing research and development play a vital role in the treatment of glaucoma and ultimately finding a cure. Our goal is to raise \$50,000 each year to specifically dedicate to worthwhile New Zealand based research projects.

Please help us invest in a future without blindness from glaucoma.

THANK YOU - every donation counts!



YES! I would like to make a donation to support research.

\$200 \$100 \$50 \$20 \$_____ (other)

Name _____

Address _____

Postcode _____

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I enclose my cheque made payable to Glaucoma NZ

Please debit my credit card Visa Mastercard

Name on Card _____

Card No _____ / _____ / _____

Expiry Date ____ / ____ Signature _____

Donations of \$5.00 or more are tax deductible and will be receipted.

YES! I would like to receive more information about:

Donating on a regular basis by Automatic Payment

Leaving a bequest in my Will to Glaucoma NZ

I have already included Glaucoma NZ in my Will

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