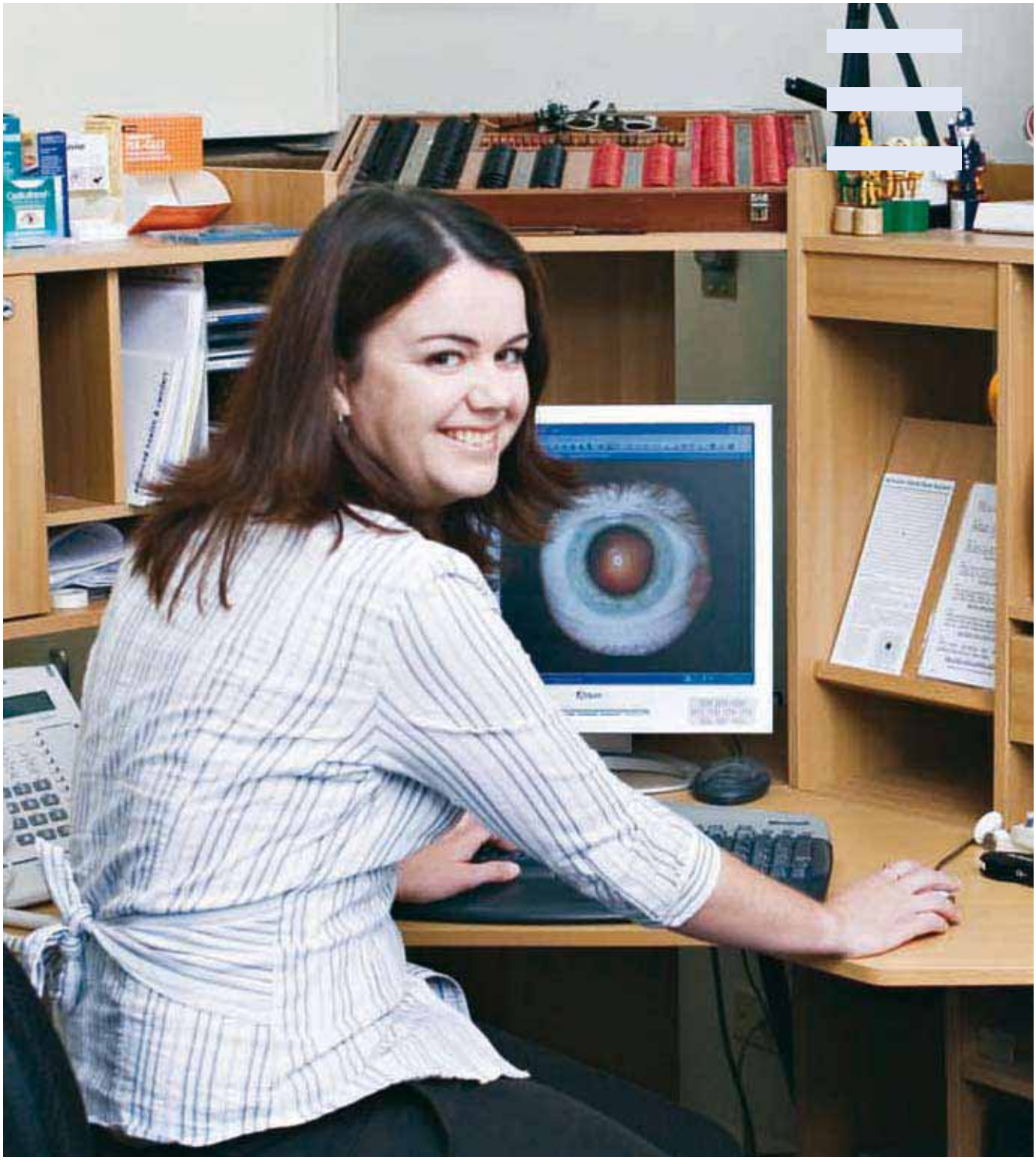
OPTOMETRY
pharma
SUPPLEMENT TO AUSTRALIAN OPTOMETRY MARCH 2008

- Medicines in pregnancy
- Contact lens complications
- Clinical training at Royal Hobart Hospital
- Prescribing antibiotics
- Lists of medicines



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PBS Information: Restricted benefit. Severe dry eye including Sjöegren's Syndrome.

Further product information is available on request.

References: 1. US FDA 21CFR349 - Ophthalmic drug products for over-the-counter human use. 1 April 2006. **2.** Tauber J. Efficacy, tolerability and comfort of a 0.3 % hypromellose gel ophthalmic lubricant in the treatment of patients with moderate to severe dry eye syndrome. Curr Med Res and Opin 2007; 23: 2629-2636. **3.** Chalmers RL. A Review of the Metabolism of Hydrogen Peroxide by External Ocular Structures. *ICLC*. 1995; 22:143-147. **Novartis Pharmaceuticals Australia Pty Limited.** 54 Waterloo Road, North Ryde, NSW 2113, Australia Phone (02) 9805 3555 Fax (02) 9805 0609 Medical Infomation and Communication 1800 671 203 ABN 18 004 244 160. NVO_Gen46_01/08 NOVGEN043

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Our first issue

Andrew Harris
National President

Optometry is gaining momentum in an exciting new era. With the passage of legislation permitting optometrists to use and prescribe therapeutic medicines in every state and territory apart from one, and the inclusion of optometrists' scripts in the Pharmaceutical Benefits Scheme, it became apparent that there was a need for a publication dedicated to optometric use of pharmaceutical preparations.

Optometry Pharma fills that void for our members. The magazine aims to keep you informed and educated. In coming issues it will cover drug trials and studies, new products, and the clinical application of your knowledge and skills. It will track changes in legislation and regulations, cover drugs courses around the country, and report on the various workforce and business issues that have arisen as a spin-off from therapeutic practice.

If you are not therapeutically qualified, we want to encourage you to gain endorsement. ***Optometry Pharma*** will explain what is involved in undertaking a TPA course and how it will affect your scope of practice. If you have gained endorsement, ***Optometry Pharma*** will foster your enthusiasm for therapeutic practice.

Every optometrist uses dozens of pharmaceutical preparations every day. Apart from the anti-infectives, decongestants, anti-glaucomas and anti-inflammatories, there are the diagnostics, lubricants, contact lens solutions, stains and solutions for sterilising equipment. All will be covered in ***Optometry Pharma***.

There are many milestones that mark optometrists' shift in the way they deliver eye care. The most recent was in January 2008 when our patients started to claim some of their medications prescribed on the PBS. It is a reflection of reality–even if it is a frustratingly imperfect reflection at this stage–the genesis of which has everything to do with the way we see ourselves as optometrists; how we choose to utilise our skills, knowledge and equipment to best provide primary eye care for our patients.

Optometric practice continues to work closely and become more integrated with general medical practice, ophthalmology and pharmacy. A co-ordinated care approach enables the best use of finite resources and reflects the professionals' common concern for patient welfare and the public good.

It makes sense for a GP to refer their diabetic patients to optometrists for dilated fundus examinations. That's why they do. A corneal foreign body removal is best performed with a slitlamp. The local pharmacist knows this and an optometrist's rooms are more appealing and appropriate than the accident and emergency department in a public hospital. Ophthalmologists use optometrists' expertise in contact lens fitting and benefit from accurate and timely referrals.

The use of ocular therapeutics within optometric practice serves to deliver better patient care and will result in an even closer working relationship within the health delivery team. Therapeutic prescriptions require pharmacists, and patients' prescriptions require reports to their GPs. Red eyes require slitlamps, tonometers, ophthalmoscopes and corrected acuity–then a diagnosis.

Optometry Pharma will help to highlight issues and activities and the broader context of therapeutic practice in optometry. I trust this publication will be a helpful adjunct for our members.

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Help from Royal Hobart

Essential practical experience and support from ophthalmologists makes the trip to Tasmania worthwhile for UNSW ocular therapeutics students. **Emily Webb** reports.

Twenty-two students undertaking the University of New South Wales Graduate Certificate in Ocular Therapeutics are required to travel to Tasmania between January and April to complete their clinical practice at Royal Hobart Hospital.

Optometrists Association New South Wales Division executive director Andrew McKinnon said it was regrettable that the students could not complete their clinical placements in NSW.

'None of the ophthalmology departments in Sydney hospitals was able to assist us with providing placements and training for our students,' Mr McKinnon said.

Hobart optometrist Micheal Knipe, who participates in clinics at the Royal Hobart Hospital Eye Clinic, acted as an intermediary between RHH eye clinic and UNSW to facilitate the training agreement. Ophthalmologists Drs Paul McCartney, Nitin Verma, Tom Bonnelame and Guy Bylsma are supervising the students at the RHH.

Mr Knipe said that the idea for the UNSW ocular therapeutics students to complete their public hospital hours in Tasmania was raised with him by Professor Fiona Stapleton, head of UNSW's School of Optometry and Vision Science.

'I am part of the public hospital system at the RHH and responsible for many of the new structural features of optometry's involvement there,' Mr Knipe said.

'The RHH is a teaching hospital, and teaching and hosting students, including interstate students, is common. The RHH personnel have been fantastic in welcoming the students.

'The nursing staff and ophthalmologists, led by the head of the RHH Eye Clinic, Dr Paul McCartney, have been very generous in giving their time and sharing their experience.'

Michael Mangraviti (circled), University of New South Wales first ocular therapeutics training course, July 1991

Leichardt, NSW, optometrist Michael Mangraviti completed the very first ocular therapeutics course for Australian optometrists in 1991 and said he had been waiting a very long time for the opportunity to do his clinical practice.

'Having to travel to Hobart was only a minor frustration. More frustrating has been the time required for progress in the course, especially the delay in finalising hospital placement, which had to be done before the grading of our case reports and the oral exam,' Mangraviti said.

In his inner-west Sydney practice, Mangraviti said he had a good variety of consultations every week with their share of ocular problems, including red, irritated eyes, corneal foreign bodies and lacrimal lavage.

'I want therapeutic endorsement for the satisfaction of being able to provide complete primary eye care, especially to my patients who entrust the care of their ocular health to me, not just their vision problems,' he said.

Sydney optometrist Mi Ja Choi was one of the optometrists who completed their clinical practice in Tasmania.

Choi, who has been practising since 1999, said the clinical experience at the hospital was enjoyable and very interesting.

'The ophthalmologists we worked with were great. The sense of working collaboratively with a whole medical team was very satisfying. It is why I studied therapeutics in the first place.'

ACT optometrist Dr Mark Feltham said that having completed his clinical placement at RHH, he was most looking forward to solving the minor eye problems that frustrated his patients and clogged the waiting rooms of GPs and ophthalmologists.

'The therapeutics qualification is a natural extension of my ongoing optometric studies where I completed a PhD with a thesis on refractive surgery. I have spent many years working with GPs and ophthalmology and have conducted thousands of pre- and post-operative examinations,' Feltham said.

'The training at RHH was excellent. A highlight of the training was the outstanding ophthalmologists who supervised us.'

Feltham said that in future patients would expect therapeutics to be a standard optometric service.

'The $100,000 I have invested in slit-lamps, fundus camera, visual field analyser and a binocular indirect ophthalmoscope can now be optimally used,' he said.

Professor Stapleton said the comments from all of the students who had attended so far had been overwhelmingly positive.

'We look forward to students who have completed all the course requirements and examinations graduating in the near future. Micheal Knipe has done a wonderful job in facilitating this process and we are enormously grateful.'

Every problem has a solution

A study comparing the effects of four commercially available multipurpose solutions (MPS) on the structure and barrier function of corneal epithelial tight junctions has found that the frequent use of a MPS with high cytotoxicity may lead to the breakdown of epithelial barrier functions and increase the risk of associated microbial infections in hydrogel contact lens wearers.

In the study, Effects of multipurpose solutions on corneal epithelial tight junctions (published in *Eye & Contact Lens: Science & Clinical Practice* 2008; 34: 1: 50-55), human corneal epithelial cells were cultured on collagen-coated slides and then exposed to the MPS samples for 60 minutes.

Four MPS samples were used: MPS A (polyhexamethylene biguanide, macrogolglycerol hydroxystearate), MPS B (polyhexamethylene biguanide, poloxamine), MPS C (Alexidine, poloxamine), and MPS D (POLYQUAD, poloxamine).

Tight junction integrity of the corneal epithelial cells was evaluated with ZO-1 (tight junction-related protein) labelling under laser confocal microscopy. To investigate the changes of ultrastructure in tight junctions of human corneal epithelial cells, an ultrathin cross-section of the cell on collagen membrane was also observed by transmission electron microscopy.

For quantitative evaluation of barrier functions, transepithelial electrical resistance of the epithelial cell was measured 30, 60, and 120 minutes after MPS exposure by using a volt ohmmeter.

The authors, Masaki Imayasu and colleagues, found that the control and MPS A-treated epithelial cells showed a normal, continuous linear pattern in ZO-1 staining along with cell-cell junctions. However, epithelial cells treated with MPS B, C or D showed discontinuous, disrupted line structures at cell-cell borders.

The report in *Eye & Contact Lens* said these results could correspond to a partial breakdown of epithelial tight junctions. The study also found that treatment of epithelial monolayers with MPS B, C or D caused a time-dependent decrease in transepithelial electrical resistance. The report has found that there was no significant difference between the MPS A-treated group and the control group.

Use websites to keep current

Understand and implement the Quality Use of Medicine principles and you will help ensure that new generation antibiotics keep a step ahead of evolving strains of resistant bacteria.

Philip Anderton
Adjunct Senior Research Fellow, UNSW

At the first sign of a bacterial disease, it is common practice to prescribe a suitable antibiotic to control the infection. We take for granted the availability of modern, effective antibiotics. It was not always the case.

Before the 1940s, there were few antibiotic substances available and their clinical effectiveness was marginal. For example, the anti-syphilitic drug Salvarsan (arsphenamine), was discovered by Sahachiro Hata in Paul Erlich's laboratory in 1908. It was expensive, caused painful side-effects and many patients relapsed some time after the initial treatment.

The development of penicillin by Chain and Florey in the 1940s changed all this. Initially many patients with debilitating infections were cured rapidly and completely by the new drug. It became known as a 'miracle cure' and before long anyone with an infection of any kind was keen to try the new treatment. Once problems with mass production were solved, the drug became generally available to the public through prescription, starting a popular culture of romance with new readily-available chemotherapies.

Over the intervening decades it was not unusual for a visit to the general practitioner to result in a prescription for an antibiotic, even if this treatment was unsuitable for the primary infection, for example, a viral upper respiratory tract infection. With continued exposure to penicillin, susceptible bacteria have mutated to gain new biochemical pathways to circumvent the biochemical pathway that was initially poisoned by the drug. Unnecessary use of this antibiotic would have been poor practice, as it would have accelerated the development of bacterial resistance without bringing any benefit to patients.

Penicillin can no longer be used against most of the bacteria for which it was initially effective. Fortunately, pharmacologists and the pharmaceutical industry continue to create and produce new generations of antibiotics that, so far, have been able to keep ahead of bacterial evolution. It is in our interest to ensure that the way we use antibiotics minimises the likelihood of the evolution of new strains of resistant bacteria—and this is an issue that concerns the quality of our practice with drugs. Our prescribing habits need to conform to the requirements of Quality Use of Medicines (QUM).

Principles of QUM have been developed by the National Prescribing Service[1] (NPS) an independent non-profit body whose purpose is to '... support the best use of medicines to improve health and well-being ...'. This federally-funded initiative is member-based and works with associations and colleges of health professionals, the pharmaceutical industry, consumers and health promotion foundations to produce resources to support its aims. Optometrists Association Australia is one of the member bodies.

Optometrists with a therapeutic authority would be well-advised to familiarise themselves with the National Prescribing Service and to visit its useful website.[2] The website reveals a link to the monthly *Australian Prescriber* magazine, which is useful for keeping up to date with new developments in drug therapy issues in Australia.

There is also a page for health professionals where we can peruse issues related to chronic disease and the side-effects or important drug interactions of new medicines. Ophthalmic articles are rare. There is one on topical drug instillation from ophthalmologist Dr Michael Steiner in the February 2008 issue.[3]

The modern informed primary care optometrist needs to develop a clinical radar that extends beyond the eyes and vision, looking for signs for cardiovascular or general signs that could indicate systemic side-effects or adverse interactions from a newly prescribed drug, and referring back to the patient's physician as required. This general 'look-out' role, which really is the responsibility of all primary care health professionals, will be aided by use of NPS resources available through its website.

Probably the most important issue for therapeutic primary care optometrists is that they understand and implement the principles of QUM. A visit to the Federal Department of Health and Ageing website,[4] which is currently under post-election review, and some determined searching will find a link to a PDF document[5] that outlines in plain language what QUM is trying to achieve.

Therapeutic optometrists can download, print and read this document, and think about how the principles outlined might best be applied in their own practices.

Some patient-based questions that could be raised include:

- Is the planned medication the best choice for this patient? Are there suitable alternatives?
- Have I chosen the most appropriate dosage?

Continued page 14

Register in other states

Michael Hare is a Queensland optometrist with therapeutic endorsement who practises on the New South Wales and Queensland border. He is also applying for therapeutic endorsement in NSW.

Hare practices in Southport, QLD, and in Tweed Heads, NSW, where the border of the two states literally runs down the main street. He wants to provide the best care possible for his patients in both states by being able to prescribe therapeutically.

'I completed my therapeutics course at QUT in 2006 and because I also practise in Tweed Heads, I wanted to make sure I could actually prescribe therapeutics in both states,' Hare said.

'I only practise in Tweed Heads about once a month and I haven't had a situation where I have needed to prescribe therapeutically, but the time will come and I want to be able to do it,' he said.

Optometrists Association New South Wales Division executive director Andrew McKinnon said other optometrists in a similar situation should call the Optometrists Registration Board of NSW and provide a copy of their other endorsed registration to gain therapeutic endorsement in NSW.

'I have been informed that I can prescribe only what is allowed in each particular state for my Queensland and New South Wales patients, respectively,' Hare said.

'If I have a Queensland patient come to see me at the Tweed Heads practice, I can only prescribe what I am legally allowed to in New South Wales.'

Optometrists Association professional services manager Shirley Loh said that for optometrists who already had an endorsed registration, gaining an authority to prescribe in NSW was easy.

'Not only will you be making history by being one of the first to obtain an authority in New South Wales, you will also be helping the cause of gaining nationally uniform prescribing rights,' Loh said.

Depending on the state in which an optometrist seeks a second registration, there may not be a cost involved in applying for multiple registrations at this time.

Photo clinic

Battery acid

Mr DS presented for emergency attention following the explosion of his car battery with resultant acid spray to his eyes. Contact lenses were removed by the patient immediately following the accident and seen two hours later. No significant corneal damage was noted but each soft contact lens was heavily coated with fine droplets of spray.

Acute chemical injuries are an ocular emergency. First aid measures consist of immediate, copious irrigation with sterile saline if available but the closest water supply may be a better option in an emergency. This patient's eyes were protected from more significant trauma due to the protective aspect of the contact lenses. The management of this patient was to continue lubrication with non-preserved eye lubricants and covering antibiotic drops four times per day to minimise the risk of infection.

Photo: Michael Hare

Corneal denudation

Mr CVS slept overnight with his daily-wear soft contact lenses. The resultant epithelial denudation was observed four hours after removal. The management of this patient was to follow the path of profuse, non-preserved eye lubricants and a covering antibiotic ointment four times per day to minimise the risk of infection.

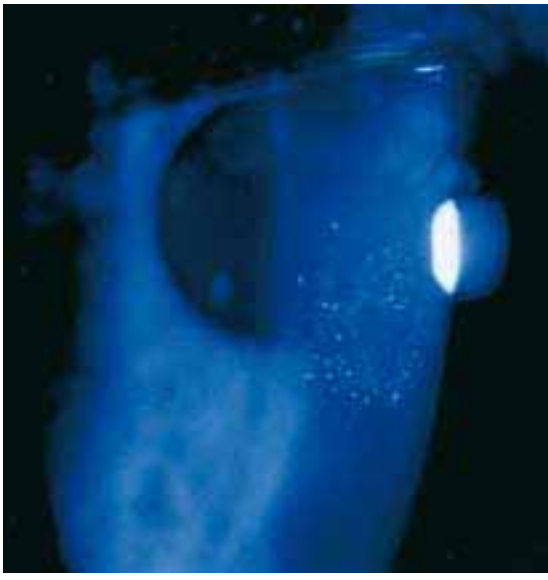


Photo: Michael Hare

Medicines in pregnancy

Optometrists managing patients who are pregnant or planning a pregnancy should refer to recommended therapeutic doses but with due regard for an individual patient's specific circumstances.

About four per cent of babies born in Australia have a birth defect but very few are due to medications taken by the mother during her pregnancy.

Harmful exposure to drugs can occur accidentally or unintentionally from overdose or occupational hazards. In these cases, expert opinion should be sought. Obstetric Drug Information Services are available in each state (list below).

MIMS Annual has published the categorisation of risk of drug use in pregnancy (right). It takes into account the known harmful effects of medicines on the developing baby. These include the potential to cause birth defects, unwanted pharmacological effects near the time of birth and serious problems in later life.

Depending on the time of exposure, a medicine may have different harmful effects on the developing baby. Between the third and 10th week following conception, an embryo's organ systems are considered to be the most vulnerable to medicines causing birth defects.

After this period major birth defects due to medicines are not likely to occur but some medicines may put the foetus at risk in the second and third trimesters. In particular, the central nervous system may be affected by exposure to harmful doses of medicines throughout the entire term of the pregnancy.

Obstetric Drug Information Services

Australian Capital Territory
ACT Drug Information Service
Woden Valley Hospital, Garran ACT 2605
Ph 02 6244 3333, Fax 02 6244 3334

New South Wales
Mothersafe
Medications in Pregnancy and Lactation Service
Royal Hospital for Women
Randwick NSW 2031
Ph 02 9382 6539, 1800 647 848

Victoria
Royal Women's Hospital
Obstetric Drug Information Centre
132 Grattan Street
Carlton VIC 3053
Ph 03 9344 2277, Fax 03 9349 2756
Monash Medical Centre
Obstetric Drug Information
246 Clayton Road, Clayton VIC 3168
Ph 03 9594 2361
Fax 03 9594 2595

South Australia
Drugs in Pregnancy and Lactation Information Service
Women's and Children's Hospital
72 King William Road, North Adelaide SA 5006
Ph 08 8161 7222, Fax 08 8161 6049

Western Australia
Obstetric Drug Information Service
King Edward Memorial Hospital for Women
374 Bagot Road
Subiaco WA 6008
Ph 08 9340 2723, Fax 08 9340 2713

Queensland
Royal Women's Hospital
Obstetric Drug Information Service
Brisbane QLD
Ph 07 3253 7300, Fax 07 3253 3544
Queensland Drug Information Centre
Royal Brisbane Hospital
E Floor, Block 7, Herston Road, Herston QLD 4029
Ph 07 3253 7098, 07 3253 7599
Fax 07 3253 1393

Tasmania
Drug Information Centre
Pharmacy Department
Royal Hobart Hospital
GPO Box 1061L, Hobart TAS 7001
Ph 03 6238 8737
Fax 03 6222 8029, 03 6231 2905

Northern Territory
Northern Territory Drug Information Centre
Royal Darwin Hospital
PO Box 41326, Casuarina NT 0811
Ph 08 8922 8424, Fax 08 8922 8499

Source: Department of Health and Ageing, Therapeutic Goods Administration website, December 2007.

An Australian categorisation of risk of drug use in pregnancy

The following information on categories was published in *MIMS Annual*, June 2007, General Medical and Scientific Information, Medicines in Pregnancy, and adapted from the Introduction to *Prescribing Medicines in Pregnancy*, 4th edition.

Examples are provided by ***Optometry Pharma***.

Category A

Drugs which have been taken by a large number of pregnant women and women of childbearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the foetus having been observed.

Examples: chloramphenicol, cromoglycate

Category B1

Drugs which have been taken by only a limited number of pregnant women and women of childbearing age without an increase in the frequency of malformation or other direct or indirect harmful effects on the human foetus having been observed. Studies in animals have not shown evidence of an increased occurrence of foetal damage.

Examples: brimonidine, lodoxamide

Category B2

Drugs which have been taken by only a limited number of pregnant women and women of childbearing age without an increase in the frequency of malformation or other direct or indirect harmful effects on the human foetus having been observed. Studies in animals are inadequate or may be lacking, but available data show no evidence of an increased occurrence of foetal damage.

Examples: cyclopentalate, tropicamide

Category B3

Drugs which have been taken by only a limited number of pregnant women and women of childbearing age without an increase in the frequency of malformation or other direct or indirect harmful effects on the human foetus having been observed. Studies in animals have shown evidence of an increased occurrence of foetal damage, the significance of which is considered uncertain in humans.

Examples: aciclovir, fluorometholone

Category C

Drugs which, owing to their pharmacological effects, have caused or may be suspected of causing harmful effects on the human foetus or neonate without causing malformations. These effects may be reversible. Accompanying texts within product monographs appearing in MIMS Annual should be consulted for further details.

Examples: sulfacetamide, timolol

Category D

Drugs which have caused, are suspected to have caused or may be expected to cause an increased incidence of human foetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects. Accompanying tests within product monographs appearing in *MIMS Annual* should be consulted for further details.

Examples: gentamicin, neomycin

Category X

Drugs which have such a high risk of causing permanent damage to the foetus that they should not be used in pregnancy or when there is a possibility of pregnancy.

Note

For drugs in categories B1, B2 and B3, human data are lacking or inadequate and subcategorisation is therefore based on available animal data. The allocation of a B category does not imply greater safety than the C category. Drugs in category D are not absolutely contraindicated in pregnancy (e.g. anticonvulsants). In some cases the D category has been assigned on the basis of 'suspicion'.

Due to legal considerations in this country, sponsor companies have, in some cases, applied a more restrictive category than can be justified on the basis of available data. In some cases there may be discrepancies between the official product information appearing in *MIMS Annual* and the information in Prescribing Medicines in Pregnancy due to ongoing document revision.

The material was reproduced in *MIMS Annual* June 2007 with the kind permission of the Australian Drug Evaluation Committee.

PBS **FAQs**

Know all the rules and stay current with PBS issues by checking regularly the Optometrists Association website (www.optometrists.asn.au) and the PBS website (www.pbs.gov.au).

What is the Pharmaceutical Benefits Scheme?

The PBS is a government-subsidised medicines scheme, allowing greater access to a wide range of medicines by making them affordable to individuals and the community.

Medicines under the PBS must be essential, cost-effective and comparable to the best available treatment for the condition or conditions for which they are prescribed.

In 2006 the total expenditure on the PBS was more than $6.4 billion for more than 600 medicines. In January 2008, optometrists were added alongside doctors and dentists as health professionals who can prescribe under the PBS.

Can I prescribe any drugs under PBS?

There is a defined list of drugs that optometrists can prescribe under the PBS. It includes:

- anti-infectives
- anti-inflammatories–steroidal and non-steroidal
- an anti-allergy agent
- topical ocular lubricants.

The complete list can be found at: www.pbs.gov.au/html/healthpro/browseby/optometrist-list

How do I prescribe under the PBS?

Therapeutically endorsed optometrists must apply to Medicare Australia for approval before PBS prescriptions can be written. State regulations and poisons laws override any PBS prescribing protocols.

On approval, a notifying letter will be forwarded together with a unique prescriber number. You need only one prescriber number, even if you work in more than one practice. If you work in more than one state, make sure your registration is endorsed in each of the states in which you practise.

Application forms for a PBS prescriber number are available from:

www.medicare.gov.au/provider/pbs/supplier/optometrist.shtml

Who is eligible to receive PBS medicines?

- Australian residents who hold a current Medicare card.
- People from Italy, New Zealand, the Republic of Ireland, Finland, Norway, Malta, the Netherlands, Sweden and the United Kingdom. Australia has reciprocal health care agreements with these countries.

The Repatriation Pharmaceutical Benefits Scheme (RPBS) is similar to the PBS. It operates as a separate scheme for people who are eligible for subsidy through the Department of Veterans' Affairs.

What are the restrictions when prescribing under the PBS?

Optometrists should be aware of whether the drug they are prescribing is classified as unrestricted, restricted or authority required. Detailed information can be found on the PBS website but in summary, the following restrictions apply when prescribing under the PBS:

- Aciclovir–patient must have Herpes simplex keratitis.
- Sodium cromoglycate–patient must have Vernal keratoconjunctivitis.
- Topical ocular lubricants in dropper bottles–patient must have clinically diagnosed severe dry eye including Sjögren's syndrome.
- Topical ocular lubricants in unit dose form–the above criteria must apply and the patient must also have sensitivity to preservatives in multi-dose eye drops. Authority is required. One way to obtain an authority approval is to ring the Authority freecall service 1800 888 333.

What are the protocols for writing PBS prescriptions?

Only PBS-approved forms can be used to write PBS prescriptions. These forms are available from Medicare Australia.

When ordering stationery, you need to place only one order at a time as you can nominate several practice addresses to appear on your prescription forms. You can choose to order 10 prescription pads or a carton of 1,000 computer prescription forms.

Computer prescription forms are very similar to the manually written forms but they are A4-size and perforated down the middle so that a duplicate and an original can be printed side by side. Any computer program that is able to print the required prescription information in the appropriate fields is acceptable.

You can use your PBS stationery for non-PBS or private scripts, provided you strike out 'PBS/RPBS' and write 'non-PBS' on the form.

What happens if I make a mistake or do not follow PBS regulations?

By not prescribing under PBS regulations, you will be subject to the same investigation and procedures that apply to anyone suspected of fraud against Medicare Australia. Offences may be considered accidental, opportunistic or criminal, and dealt with accordingly.

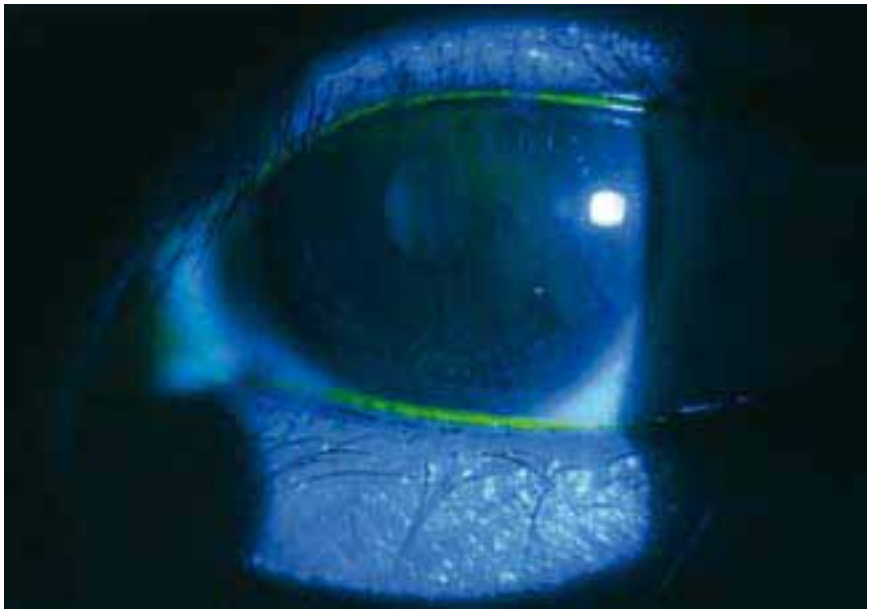
Cocktail to dye for

A mixture of dyes could replace the use of individual dyes for ocular staining and contact lens practice, a study has found.

An evaluation of the efficacy of fluorescein, rose bengal, lissamine green, and a new dye mixture for ocular surface staining (published in *Eye & Contact Lens: Science & Clinical Practice* 2008; 34; 1: 61-64) set out to review the clinical staining characteristics of these dyes and determine whether optimal staining of the cornea and bulbar conjunctiva was possible by using dye mixtures.

> **A mixture of one per cent fluorescein and one per cent rose bengal has been reported as advantageous in daily practice.**

The report said that currently fluorescein was considered the best dye for corneal staining, and rose bengal for conjunctival staining. A mixture of one per cent fluorescein and one per cent rose bengal has been reported as advantageous in daily practice.



The authors, Donald Korb and colleagues, used 16 10-µL solutions of fluorescein, rose bengal and lissamine green, and their mixtures were evaluated. Fourteen subjects with a diagnosis of dry eye were tested for staining with various combinations of the dyes and examination of staining was made by using standard clinical practices.

Eye & Contact Lens reported that the study found that a mixture of two per cent fluorescein and one per cent rose bengal was the most efficacious staining mixture for the cornea and conjunctiva, but moderate to marked discomfort was reported.

The mixture of two per cent fluorescein and one per cent lissamine green did not result in discomfort and provided optimal corneal and conjunctival staining with only slightly less efficacy than two per cent fluorescein and one per cent rose bengal.

Two per cent and three per cent lissamine green produced burning and discomfort.

The fluorescent characteristics of fluorescein were not significantly altered by the addition of one per cent lissamine green. The preferred mixture for simultaneous and efficacious staining of the cornea and conjunctiva without an adverse sensation was two per cent fluorescein and one per cent lissamine green.

The study concluded that a mixture of two per cent fluorescein and one per cent lissamine green offers excellent simultaneous corneal and bulbar conjunctival staining and could replace the use of individual dyes for ocular staining and contact lens practice.

Mental gymnastics

Emily Webb

Applying diagnostic skills from a therapeutic endorsement is not only rewarding for the optometrist, it is appreciated by patients and valued by GPs.

Riki Gibson says that being able to prescribe ocular therapeutics gives her brain an extra workout each day.

'I find being able to prescribe adds a mental challenge to my working day,' she said. 'I found it a little daunting for the first few patients I treated but the more I use it, the more confident I am in my skills and knowledge.'

Gibson, who gained therapeutic endorsement in 2006, works with her parents Tony and Anne in the family-owned practice in Mitcham, in Melbourne's outer east. All are therapeutically endorsed.

The practice sees a wide range of patients, including a large cohort of contact lens wearers, and the practice averages one to two scripts per optometrist each week. The practice predominantly prescribes antibiotic and anti-inflammatory preparations.

'Of the antibiotic preparations, we use chloramphenicol the most, for treating minor infections and as prophylaxis against infection following removal of foreign bodies,' Gibson said.

'We were surprised to find how often we prescribe steroidal anti-inflammatories. We have many patients who suffer from chronic iritis and related inflammatory conditions that require our assistance, often several times a year.

'The other main use of steroidal anti-inflammatories is in the post-operative care of the cataract patients, whom we comanage from the first week following surgery. The treating ophthalmologists generally provide these prescriptions, so they don't appear in our statistics.

'The amount of glaucoma prescriptions are underestimated in our practice statistics, as we are not able to provide scripts to our patients using the PBS. In most circumstances, our local GP or ophthalmologist provides the patient with PBS-subsidised scripts and we supply them with regular reports on the patient's progress.'

Gibson finds that therapeutic endorsement allows her to fully apply the diagnostic skills she gained as an undergraduate.

'It's very rewarding to be able to treat patients from start to finish rather than handballing the problem to someone else,' she said.

'We have found that patients who have been treated in the clinic are generally very grateful for the prompt and personalised care, particularly if they have an acute problem.

'Our reception staff is particularly important in ensuring these patients are seen as soon as possible, generally on the same day, and juggle our appointment schedule to keep the day running smoothly.

'Seeing the acute cases sometimes means optometrists stay for after hours and weekend appointments, but we share the responsibility and find the reward outweighs the small imposition on time.'

The practice has a strong relationship with doctors in the area and Gibson says she has seen a change in the conditions that local GPs perceive optometrists can treat.

'We are often referred patients with both anterior and posterior eye disease. GPs find it easier to send patients to us for assessment as it is often difficult to get an emergency appointment with ophthalmologists,' she said.

'We also have a good relationship with our local ophthalmologists and comanage many different eye diseases with them. The level of comanagement with ophthalmology has increased since gaining therapeutic endorsement, as have the number of GP-referred patients.

'We have found that we are often the first place they refer acute problems and rely on us to refer on to an ophthalmologist if required.

'The local GPs know we will see the patient the same day. We often give them a phone call and always send them a report to let them know our diagnosis and treatment plan. Our local ophthalmologists are also very willing to give us advice or to see any patients we are not comfortable caring for.'

> **Seeing the acute cases sometimes means optometrists stay for after hours and weekend appointments**

LEFT: Riki Gibson

Stepping stones to

Mi Ja Choi shares her thoughts and experiences as she tackles an ocular therapeutics course

13 July 2006
Andrew McKinnon (executive director, New South Wales Division) has announced that the UNSW Graduate Certificate in Ocular Therapeutics will start in October.

18 September 2006
I have applied and enrolled in the course and deposited the tuition fee of $3,732 (12 units x $311 per unit). It makes a big dint in my bank account!

October/November 2006
Thirty optometrists have enrolled in the course. Many of us naively thought the course was only a four-week commitment in total. We didn't know that there was a clinical component that hasn't been organised yet. It feels like I am going into the great unknown. I am attending lectures over four consecutive weekends.

13-15 October (Friday-Sunday)
The first series of lectures is being held over three days, covering biomedical foundation, biochemistry, physiology, pathology and the lists of drugs in different states.

My first reaction is: how am I going to learn all of this? Facing the reality of what the course entails is stressful. Some of the optometrists on the course are older and haven't studied for a long while so they are finding it daunting, especially as some of the topics were not covered when they did their training to become an optometrist.

Everyone is silent in the lectures because we are concentrating so hard; it is an information overload. This first week is a real killer. We go to the pub to relax.

10-12 November (Friday-Sunday)
Our lectures are on Advanced Techniques like usage of different tools (OCT, HRT, GDx, Pachymetry, A and B scans), punctal dilation and irrigation and St John Ambulance CPR training. Much of this is reinforcing things we already do. It isn't as stressful as the other lectures.

16-19 November (Thursday-Sunday)
We had a tutorial on glaucoma with Dr Murray Fingeret (clinical professor at SUNY College of Optometry and Chief of the Optometry Section, Brooklyn/St. Albans Campus, Department of Veterans Administration New York Harbor Health Care System). Dr Fingeret has a great New York accent and it is like listening to someone from the movies. Dr Fingeret is very approachable and said we can email him our questions.

23-26 November (Thursday-Sunday)
Our tutorial on ocular disorders and their management are given by Dr Linda Casser (director of Clinical Examinations, National Board of Examiners in Optometry, North Carolina, USA) and Dr Leo Semes (Associate Professor of Optometry and director of Continuing Education at the University of Alabama).

Their presentations are spotless and professional. These US speakers are organised to the very last minute and they are brilliant. Linda gave out chocolates for correct answers, which made really serious topics a lot of fun.

All the lecturers are very knowledgeable and keen to teach us. When we are stressed about the amount of material we need to study—three large folders—they are kind and encourage us all the way.

15 December 2006
I sat the three-hour exam, which consisted of 120 multiple-choice questions and six written questions. I had to take time off to study for it. As I am working as a locum it is easier for me but my bank balance is suffering. It is really hard for the people who are working and have practices; I don't know how they are coping. One of my colleagues has been working every day and still managed to get a distinction in the course.

6 February 2007
The results are out. I passed. Over 65 per cent of the students have met the mark required to proceed to the next step.

20 February to 29 March 2007
The Government now recognises this Graduate Certificate in Ocular Therapeutics qualification and is subsidising the course. It costs $1,423.20 for the ocular therapy component of the course (OPTM 7117).

2 April 2007
Professor Fiona Stapleton (Head of the School of Optometry and Vision Science, UNSW) has outlined the session and a list of ophthalmologists has been given to us, based on each student's preferences. Professor Stapleton has sent a letter to the doctors for their involvement in our private practice placement.

There are four components in this second section of the course:

1. private practice placement with ophthalmologists—a minimum of 35 hours
2. three case reports after the private practice placement, which should include one corneal/anterior segment disease, one glaucoma and one primary eye care involvement
3. hospital placement—15 hours
4. oral interview—30 minutes in front of a three-person panel.

endorsement

24 May 2007
The Optometry Council of Australia and New Zealand has approved the course and the registration board has been informed.

15 June 2007
The list of ophthalmologists has been revised. RANZCO has sent a letter to its members, requesting that they not get involved in the program.

27 July to 21 Dec 2007
I am completing my private practice placement, which works out to be a few hours each week. During this placement I observe and the ophthalmologist asks me questions. We have been advised to do our placements with from two to six doctors, and for the first couple of months to do two or three days each week for a couple of hours a day. Later on we aimed for one full day each week.

I ended up doing more than 35 hours because I was learning so much from observing the ophthals.

14-19 January 2008
I am the third student to go to Royal Hobart Hospital in Tasmania to complete my clinical placement. I am so glad I did not have to go overseas for this, and that UNSW and RHH came to an arrangement to help us fulfil our clinical placement requirements.

I am shy so I am a bit anxious about the unknown but excited to be actually going forward with my therapeutics training.

I met Micheal Knipe in his practice, Total Eye Care, and he took me to RHH. Dr Tom Bonnelame is the consultant. Tom came to Hobart from Seychelles. He was educated in Scotland and has been in RHH for three years. He chose Hobart as he likes cold weather.

(L-R) Dr Mark Feltham, Dr Tom Bonnelame, Mi Ja Choi and Dr Guy Bylsma at the RHH Clinic

I met Dr Mark Feltham at the reception in the Old Woolstore Apartment Hotel. Mark practises in the ACT and is also doing his clinical placement in Hobart. As there was no clinic that day at RHH, we went to Hobart Eye Surgeons, where we attended consultations with Dr Paul McCartney and Tom.

It was then back to RHH with Tom and Dr Guy Bylsma. The hospital placement is fascinating because I am able to see eye diseases involved with systematic conditions. All the doctors are so helpful and I have learned so much from all the ophthalmologists because they are like walking dictionaries. I can get any answer from them in a simple form with a logical reason behind it, which I cannot find in the medical books. Most of all, I am so grateful that they volunteered to teach me and my colleagues.

News briefs

TGA approval

The Therapeutics Goods Administration has approved sitagliptin (Januvia), the first in a new class of class of oral type 2 diabetes therapies. Sitagliptin is a dipeptidyl peptidase-4 inhibitor (DP-4 inhibitor), which acts on the gastrointestinal incretin system to regulate blood glucose levels. It is indicated for the treatment of type 2 diabetes in people aged 18 years and older who have failed dietary measures and exercise as dual combination therapy with drugs including metformin.

FDA recall in USA

Eye-drops and eye-wash products manufactured by NuCel Labs are the subject of a voluntary national recall in the USA by the United States Food and Drug Administration. FDA testing of the products revealed the presence of bacteria and particulate matter that posed an unacceptable risk for eye infections. The recall affects 500 units that have been distributed through retail outlets and the internet, and the plastic bottle packaging has no lot number or expiration dates.

Bilberry Boost

Health supplement Comvita Bilberry 7500, now available in Australia, contains anthocyanosides, the active compound found in bilberries, which are a smaller, tarter version of the American blueberry. Anthocyanosides provide antioxidant support for eye health. Bilberries have traditionally been used in Europe to support eye health and promote overall health benefits.

Visine Professional

Visine Professional (Tamarindus indica seed polysaccharide) has been added to the list of medicines available for optometrists to prescribe on the Pharmaceutical Benefits Scheme.

Orals, injectables

Optometrists in Alaska have been granted the right to prescribe oral therapeutics and to train to prescribe injectables. A bill signed in January this year authorises Alaskan optometrists to prescribe all oral drugs, including some controlled narcotics. Optometrists in the state have been able to prescribe topical therapies since 1992. The legal requirements for optometrists to prescribe injectables in Alaska are that the injectable therapeutics must be for the treatment of ocular diseases or conditions, ocular adnexal disease or anaphylaxis; are not injected into the ocular globe of the eye; and are not derived from Clostridium botulinum.

Self-medicating

More Australians are choosing to self-medicate or ask their pharmacist about treatment rather than seek advice from a GP, according to a new a survey reported in *Medical Observer*, 14 September. The report sourced a survey conducted by the Neilson Company in which 37 per cent of the 500 Australians surveyed said they purchased their usual medication from a pharmacy without consulting their GP or having asked the pharmacist for advice. Only 26 per cent said they sought the advice from their doctor and 28 per cent said they asked a pharmacist.

Pharmacy sick notes

Australian pharmacists can now issue sick leave certificates to patients under guidelines from The Pharmaceutical Society of Australia and the Pharmacy Guild of Australia. The guidelines advise that pharmacists should issue the certificates for a short period of time only. Pharmacists can charge for the service.

Use websites to keep current

From page 4

- How should I monitor this patient and what are my choices if there is no improvement or if side-effects are evident?
- Is this the most cost-effective option for my patient, taking into account their overall situation?
- Is the patient able to comply with my prescription instructions?

Some practice-based questions might include:

- In my practice, are drugs stored safely and in an appropriate environment?
- Do I have adequate records of diagnostic drug and therapeutic drug samples stored in the practice?
- What is the planned practice response to an adverse event from a topical drug instillation, for example, a mydriatic-related closed angle or an anaphylactic response?

The role of the NPS and its Principles of QUM is to make us aware of the need to implement practice that improves the health and well-being of our patients in all circumstances. While the final decisions in any situation rest entirely with the individual practitioner, the NPS and QUM provide relevant high-quality resources to aid in these decisions, and we need to make the effort to put them to best use in daily practice.

References

1. National Prescribing Service, Annual report, 2007.
2. www.nps.org.au/.
3. www.australianprescriber.com/magazine/31/1/16/17/.
4. www.health.gov.au/internet/wcms/publishing.nsf/Content/nmp-quality.htm.
5. www.health.gov.au/internet/wcms/publishing.nsf/Content/CA777524C860DFF2CA256F1800468B61/$File/natstrateng.pdf.

Philip Anderton initiated the UNSW course in therapeutic drug use in optometry, and ran it from 1995 to his retirement from UNSW in 2004. He now practises as a locum and consulting optometrist in North-Western NSW and is the Optometrist Board of Registration nominee on the NSW Optometrist Drug Authority Committee.

Clinical QUIZ

History

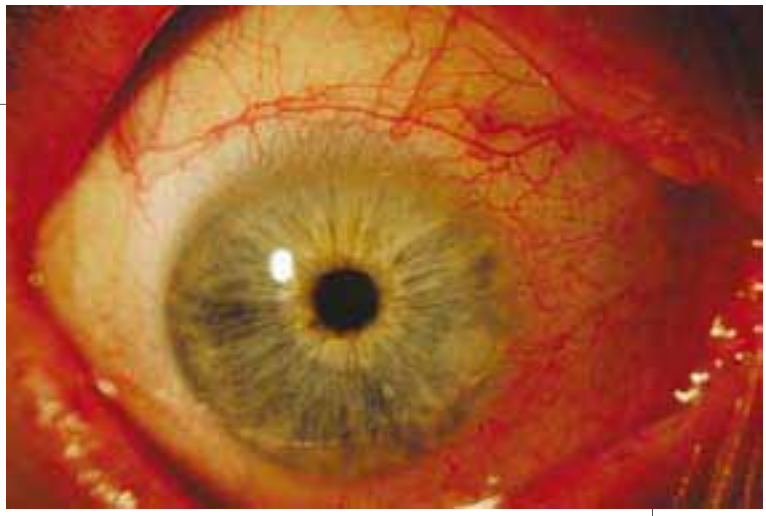
A 58-year-old male presents complaining of right eye soreness, grittiness, burning and tearing. His vision in that eye seems satisfactory but is sometimes affected by tearing.

He had noticed these symptoms for a few weeks but they had been worse in recent days. His wife had noticed a tiny spot 'on his eye' for some months and encouraged him to get it examined but he did not think it necessary.

There is no significant discharge noted and the fellow eye seems OK. He is not using eye-drops; he had used Bleph-10 eye-drops a few weeks previously 'but that only made the eye very red'.

He wears six-year-old bifocals for moderate astigmatism. General health is reported as 'up and down', with medications that include Lasix, Cartia, Avapro, Lipitor, Nexium, slow K and Lanoxin. There is no relevant family history to note.

Relevant examination findings show normal pupil reactions and motility. Corrected vision is recorded as R 6/7.5 R & L.



The anterior chamber is quiet. There are no significant discharge, papillae or follicles noted in either eye. In the right eye slitlamp shows mild nasal conjunctival injection.

On the cornea there is a small, superficial, greyish, elevated lesion at 4 o'clock, about one millimetre from the limbus. The lesion does not stain but the surrounding area has patches of staining, particularly in the region between the lesion and the limbus. Corneal sensitivity is similar in both eyes. The left eye is unremarkable.

What is your diagnosis?

The answer is on page 22

It is fitting that our first Letter from the USA is from **Dr Jim Thimons**. Jim was introduced to Australia by Dr Algis Vingrys, a University of Melbourne professor, after the two met at the Ohio University in the late 1980s. Jim became a regular visitor to Australia, lecturing at many therapeutic courses and conferences. His help and expertise were major influences on developing a vision for Australian optometric prescribing rights.

Letter from the **USA**

When the ball dropped in Times Square on 1 January 2000, the world started a new millennium. Our profession had spent the last 25 years of the previous millennium in pursuit of the Holy Grail of therapeutics and in hindsight was very successful. We achieved a nationwide patchwork of therapeutic laws that has served as the springboard for what has become a true evolution of optometry.

Unfortunately, the lack of a uniform or universal practice act has to some degree impacted on our recent success and I see a renewed effort on the part of the American Optometric Asssociation and its affiliates to correct this issue and create a uniform definition of optometry that will become the public's perception of the profession.

Nonetheless, over the past two decades, individual clinicians in remarkable numbers have integrated themselves into the medical community while maintaining the very best aspects of what has made our profession great since its inception. This integration has allowed us to embark on the expansion of scope and services that is essential to maintain our competitive stature in an increasingly competitive health-care world.

When I was in Melbourne I had the good luck to see the beginnings of your efforts. I was as thrilled to be a part of that process as I have been to be involved in ours in the USA.

I remember vividly the many students who led the charge over the years and came to the USA to spend six or eight weeks immersed in therapeutic care before your first law was passed.

I also remember how they all slept in the same bedroom at my house each Summer. I never had the courage to ask how six people shared one bed but suffice to say that each and every one of them made my home a better place and gave my children a view of the world that was priceless.

I remember they endured the train ride with me every day to the city to take on New York and the tired and nodding heads on the way home after a long day spent treating a seemingly endless stream of patients.

Most importantly, I remember each of them devouring every moment of their time, filling each second with a commitment and enthusiasm that made me know, even then, optometry in Australia was going to be in very good hands.

Our house always felt a little empty when they left and the train ride was not nearly as much fun without their youthful enthusiasm and seemingly unquenchable thirst for laughter and American beer. New York has not been the same since their visits ended.

While there are many things that are different between our versions of the profession, practised at opposite ends of the world, there are also many similarities. Probably the most important of them is the common thread of ordinary clinicians doing extraordinary things to obtain therapeutic endorsement to better serve their patients.

Recently I learned that you had achieved therapeutic rights in nearly every state and PBS status for your patients. Congratulations on this remarkable achievement and the rapidity in which your leadership was able to make this occur.

Knowing how hard fought our battles with medicine and government were here, I am certain that your success occurred because of the incredible commitment of your leaders over the past decade and the passion they shared for the advancement of optometry.

What do you have left to do once you achieve therapeutic rights? Many of us in the USA thought initially that the war was over and we could retire to our farms and watch the grandchildren grow. That was a flawed perspective.

Having just been an integral part of Connecticut's third TPA enactment (a primary and two updates), it is clear that the profession has to continue to evolve in order to continue to succeed. While traditional opponents such as medicine have become, to a large degree, a given in the equation of opposition to our progress, new challenges have arisen that in some ways speak to how successful we have been in the legislative process.

The majority of current concerns in the USA exist only because the profession has expanded so successfully. Before therapeutics, we were not even on the radar screen and now we are required to render opinions, fight for turf and defend our long-standing gains against competing interests in areas that once did not even know the word optometry.

With therapeutics, concerns like access to government plans and health insurance providers to allow us the ability to care for our patients became critical factors. Singularly the most important element of optometry's success in the USA in the arena of therapeutics was the inclusion into our national health scheme, Medicare.

While in the beginning many clinicians questioned the wisdom of going from an open market system to a government controlled process, there is not a day that goes by in my practice or any successful office that Medicare patients do not play an important role. Their willingness to create equality in provision of services and reimbursement has been the cornerstone for US optometry's march into the 21st Century.

Alvin Toffler once said that predicting is risky business, especially when it involves the future. In 1978 when I graduated from Ohio State, I could not have possibly predicted what the profession would be like today. Looking at what therapeutics has created for me and my colleagues in the USA in 2008, I cannot imagine how we ever practised without them.

A significant part of the remarkable enjoyment I get from the practice of our profession every day has been the opportunity to be a part of one of the greatest movements in the history of health-care, here in the USA, in Australia and worldwide.

To think that we have taken a profession and in the short span of 30 years completely re-engineered it from the ground up is an accomplishment that is worthy of acknowledgement and celebration. I cannot wait to see what the next 30 years holds for us all.

I will be joining you in November at your conference in Adelaide and am very much looking forward to getting together with dear friends as well as meeting the next generation of great leaders who will take Australian optometry into the future.

Warmest regards from a very cold, wintery USA.

Jim

Complications

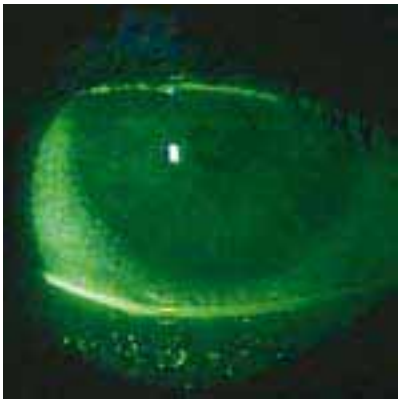


Figure 1. Right eye superficial punctate keratitis

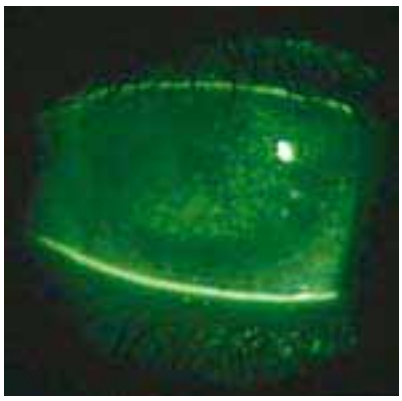


Figure 2. Left eye superficial punctate keratitis

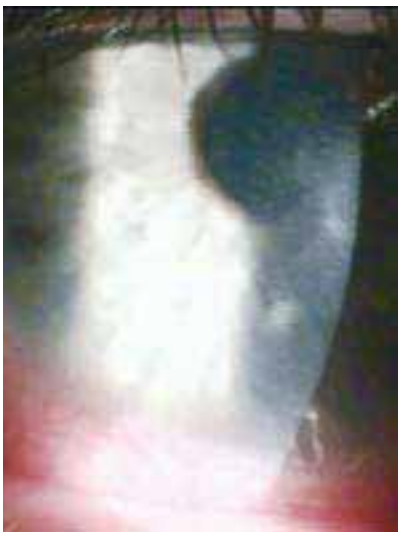


Figure 3. Left eye mid-peripheral infiltrate

Case report

A slitlamp examination of a patient complaining of sore, red eyes and variable vision uncovered multiple contact lens related conditions. Although overwear of contact lenses is a contributing factor in this case, it is not a diagnosis in itself.

A 35-year-old male presented on referral from a local optometrist. He reported sore, red eyes and variable vision for the previous two months and was wearing hydrogel contact lenses that had been prescribed in the United Kingdom about one year before. He was wearing the contact lenses all waking hours but denied sleeping in them.

The referring optometrist had advised the patient to discontinue contact lens wear but the patient continued wearing them part time and had noticed some improvement in his symptoms over the past week. The patient reported being in good health.

At presentation, unaided vision was R 6/19- L 6/24. The patient's current spectacles were R -0.25/-2.75x85 L -0.75/-1.50x80 giving visual acuity of R 6/9.5 L 6/15. Pupils were equal and reactive with no afferent pupil defect noted. Ocular motility was full and visual fields were full to confrontation. Colour vision was intact in each eye to Ishihara plates. Subjective refraction was R -0.25/-3.00x95 (6/9.5) L -1.50/-4.00x85 (6/12-). Pinhole visual acuity was R 6/7.5- L 6/6-.

Slitlamp examination found severe superficial punctate keratitis left more so than right (Figures 1 and 2). The left cornea had a mid-peripheral infiltrate (Figure 3). Anterior chambers were quiet in each eye. There was extensive corneal limbal neovascularisation and bulbar conjunctival injection in both eyes (Figures 4 and 5). Inferior fornices and upper lid eversion found papillary conjunctivitis (Figures 6 and 7).

Although overwear of contact lenses is a contributing factor in this case, 'contact lens overwear' is not a diagnosis in itself. This patient had multiple conditions: contact lens induced papillary conjunctivitis, severe punctate keratitis (possibly infective) corneal infiltrate and corneal hypoxia.

Contact lens induced papillary conjunctivitis is thought to be an immunological response to denatured tear film protein that deposits onto the lens surface during wear. Infective punctate keratitis can be subdivided into two types: limbal and paracentral/central. It is important in the limbal subtype to carefully examine the corneal limbus for small infiltrates and this will aid the diagnosis. They often appear in between the injected limbal vessels.

The paracentral/central subtype (as in this patient) is potentially vision threatening if it progresses to a corneal ulcer. The distinction between a pure inflammatory reaction to surface bacteria and infective keratitis can be difficult to distinguish clinically. There is a high ocular surface bacterial load as indicated by the corneal infiltrate.

# of contact lens wear

Paul Brand
BAppSc(Optom)
GradCertOcTher

In a contact lens patient with a compromised cornea it was important to treat this condition appropriately with a fluoroquinolone to prevent possible progression to a corneal ulcer. This is not to treat the infiltrate itself, but to remove the stimulus (high bacterial load and/or infected epithelium) causing the infiltrate.

Once the ocular surface bacterial load has been decreased, topical anti-inflammatory treatment will be needed to suppress the corneal and conjunctival immunological response. Contaminated contact lenses, solutions and cases are often the source of the bacterial infection and the patient should be advised to discard these.

The patient was prescribed gtt. ofloxacin 0.3% (Ocuflox) q6d, told to discontinue all contact lens wear and scheduled for review in five days due to it being the day before the practice closed for Christmas. He was given an emergency mobile telephone number to contact if symptoms increased.

At review the patient reported good compliance with the prescribed treatment. He reported his eyes felt much better. Visual acuity with his glasses was R 6/7.5+ L 6/7.5-. Slitlamp examination found improvement in the superficial punctate keratitis and conjunctival injection (Figures 8 and 9). The papillary conjunctivitis and corneal infiltrate appeared unchanged.

Figure 4. Right eye

Figure 5. Left eye

Figure 6. Right upper lid eversion

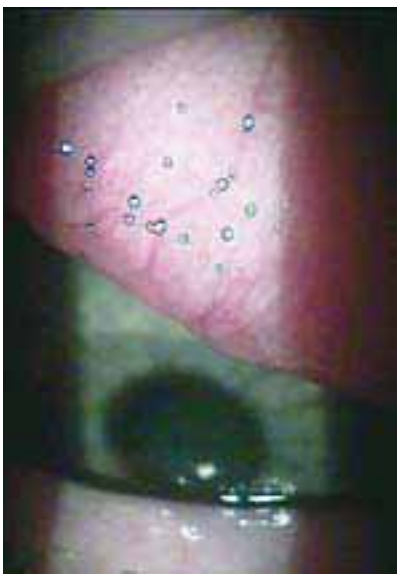


Figure 7. Left upper lid eversion

Complications of contact lens wear

The patient was told to alter the dosage of gtt. ofloxacin 0.3% (Ocuflox) to qid and prescribed gtt. fluorometholone acetate (Flarex) qid. Fluorometholone acetate is indicated to treat the corneal infiltrate and contact lens papillary conjunctivitis. Ofloxacin is continued to give antibiotic cover while the patient is on topical immunosuppressant treatment. Review was scheduled for six days.

At the next review the patient reported his eyes were feeling much better and his vision was less variable. Visual acuity with his spectacles was R 6/7.5+ L 6/4.8-. Slitlamp examination found only trace superficial punctate keratitis in the right eye and more significant but improving superficial punctate keratitis in the left eye (Figures 10 and 11). The limbal injection had resolved (Figure 12) and the papillary conjunctivitis was improving (Figure 13 and 14). Intraocular pressures were R 14 L 14.

The patient was told to continue gtt. ofloxacin 0.3% (Ocuflox) qid and gtt. fluorometholone acetate (Flarex) qid and prescribed unit dose gtt. ketotifen (Zaditen) bid. The ketotifen is added here to address the more chronic nature of contact lens induced papillary conjunctivitis as the fluorometholone acetate was to be discontinued shortly. Due to the multiple topical medications prescribed, the non-preserved unit form of ketotifen was preferred to reduce corneal toxicity. Review was scheduled for seven days.

The next review was now 18 days after the first presentation. The patient had finished the gtt. ofloxacin 0.3% (Ocuflox) two days earlier. He reported his eyes felt normal. Visual acuity with spectacles was R 6/6- L 6/6-. Intraocular pressures were R 14 L 14. Dilated fundus examination was unremarkable.

Slitlamp examination found no corneal fluorescein staining, a small mid-peripheral cornea scar at the site of the original infiltrate, ghosted limbal neovascularisation

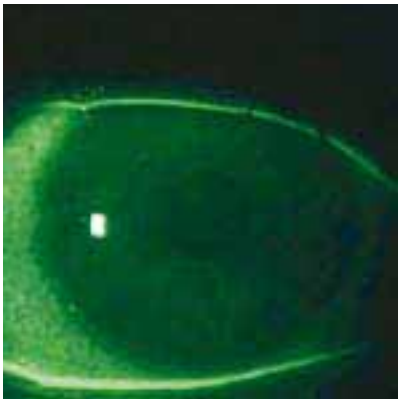


Figure 8. Right eye superficial punctate keratitis

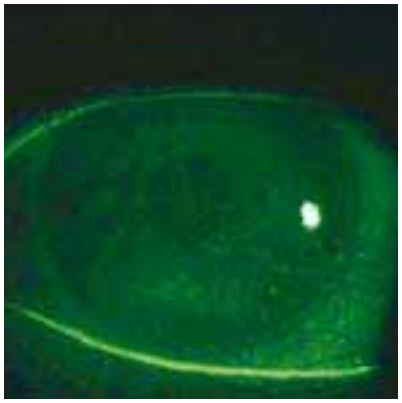


Figure 9. Left eye superficial punctate keratitis

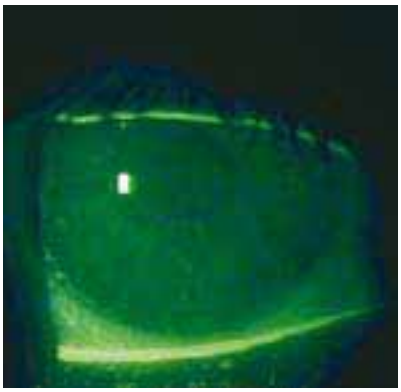


Figure 10. Right eye superficial punctate keratitis

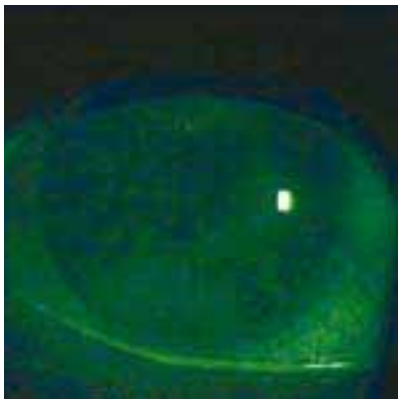


Figure 11. Left eye superficial punctate keratitis

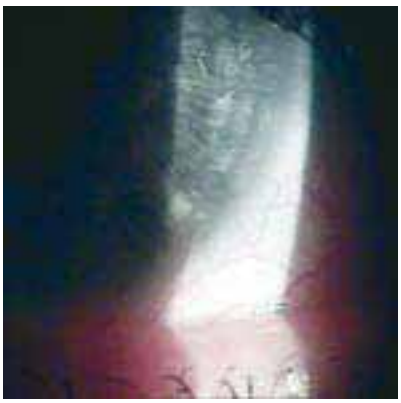


Figure 12. No limbal injection

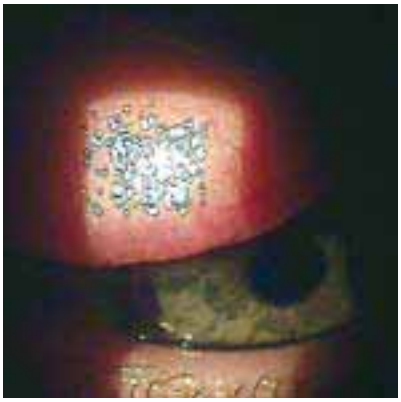


Figure 13. Right upper lid eversion

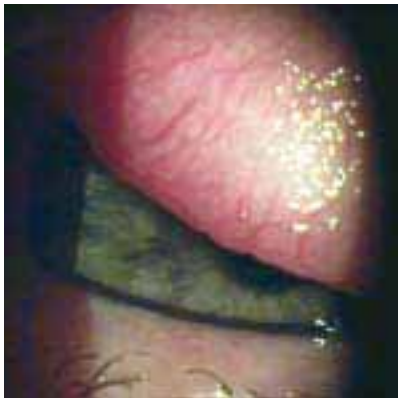


Figure 14. Left upper lid eversion

Figure 15. Right upper lid eversion

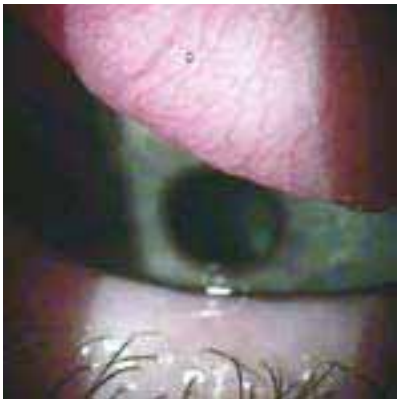


Figure 16. Left upper lid eversion

Figure 17. Left residual corneal scarring

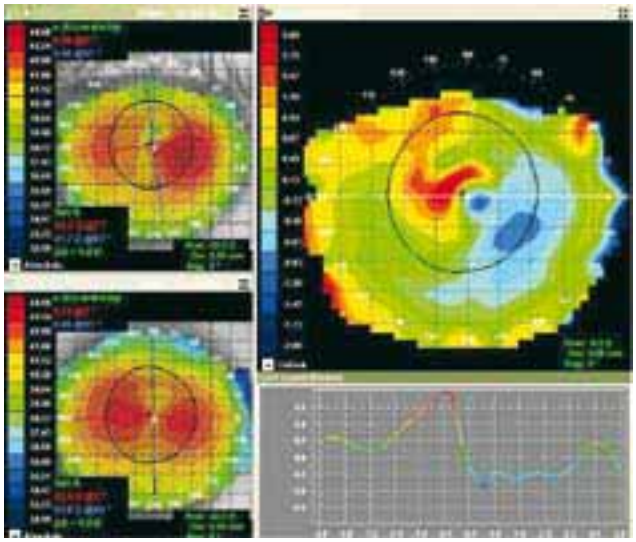


Figure 18. Right corneal topography subtractive maps

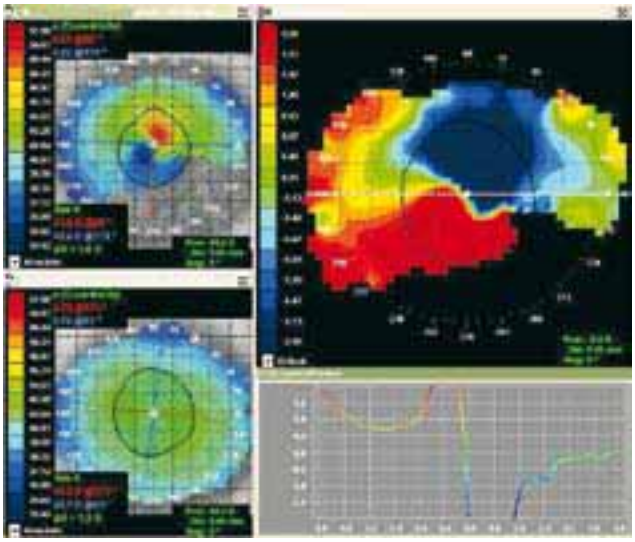


Figure 19. Left corneal topography subtractive maps

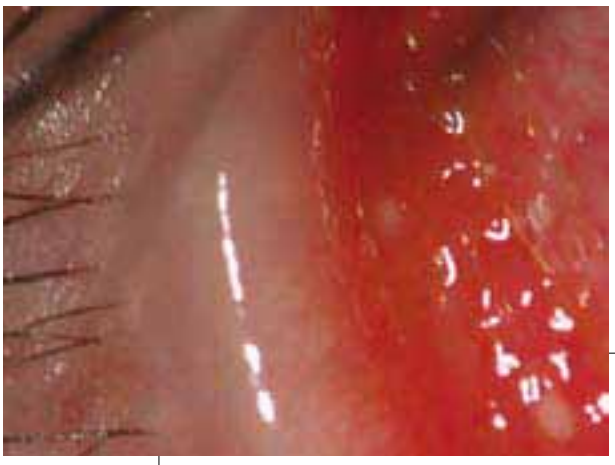
vessels and only minor papillary conjunctivitis (Figures 15-17). A fast taper of the gtt. fluorometholone acetate (Flarex) was started and gtt. ketotifen (Zaditen) bid was continued. Review was scheduled for seven days.

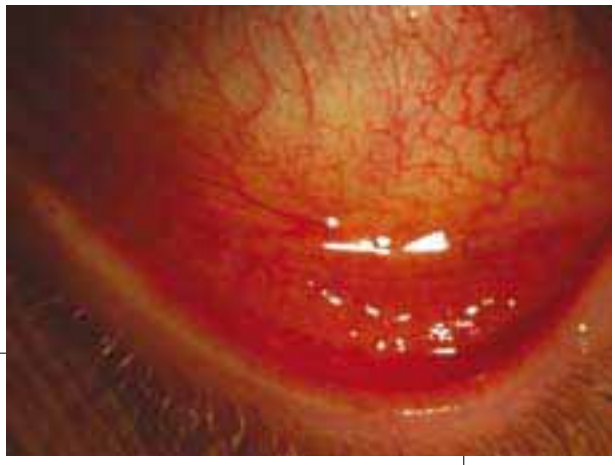
At the next review the patient reported his eyes felt good. Visual acuity with spectacles was R 6/7.5 L 6/6. Slitlamp examination found no corneal fluorescein staining, a small almost faded mid-peripheral cornea scar at the site of the original infiltrate, ghosted limbal neovascularisation vessels and only minor papillary conjunctivitis. Corneal topography demonstrated marked changes from the initial presentation back to baseline (Figures 18 and 19). The patient was advised to continue gtt. ketotifen (Zaditen) bid for three months and not to wear contact lenses for three months.

The patient was referred back to the original optometrist for ongoing care with the recommendation of changing to silicone hydrogel contact lenses to address corneal hypoxia and a review of care and maintenance procedures if contact lens wear was recommenced.

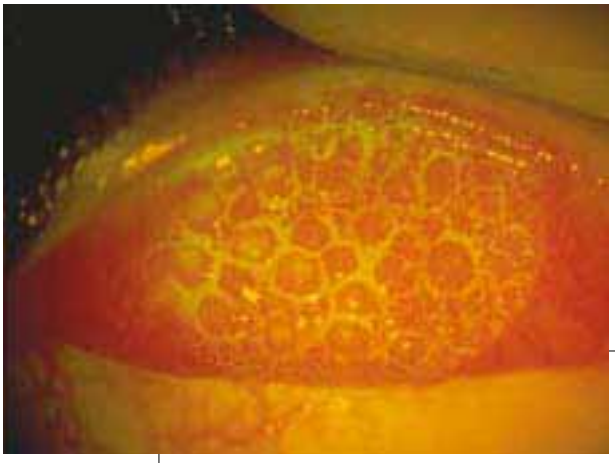
The author thanks Dr Erwin Groeneveld for his advice in preparation of this article.

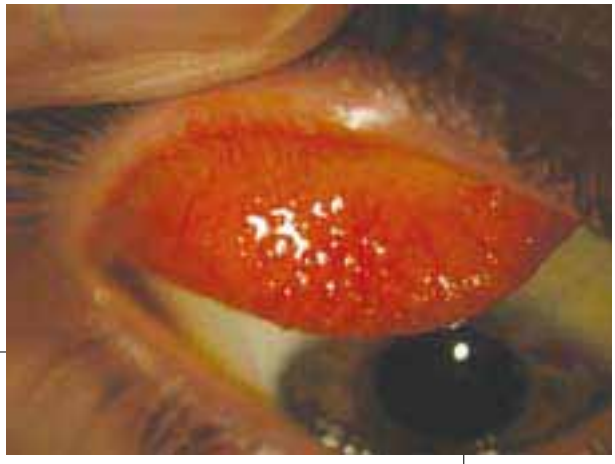
Clinical tip





Follicles are lymphoid in nature. They appear as multiple avascular elevated lesions approximately 0.1-2 mm in diameter. At times they are yellowish but are predominantly translucent white. Examples: chlamydial conjunctivitis, adenoviral conjunctivitis





Papillae usually represent new blood vessel formation with surrounding accumulations of inflammatory cells. Papillae are usually greater than 0.3 mm in size, elevated, and may appear more 'cobblestone' in appearance. Examples: giant papillary conjunctivitis, allergy

Clinical QUIZ

Answer

Salzmann's nodular degeneration

Most cases present asymptomatically but at times patients with associated corneal staining complain of recurrent erosion or dry-eye type symptoms that may be associated with limbal injection. The nodule or nodules represent a mass of collagen fibrils anterior to Bowman's membrane.

Salzmann's nodular degeneration is an anterior corneal condition usually seen secondary to previous ocular inflammatory conditions such as chronic keratitis. Common precipitating causes of this condition are phlyctenulosis, trachoma, vernal keratoconjunctivitis and classically childhood infectious diseases such as measles and scarlet fever.[1] Differential diagnosis includes conditions such as phlyctenulosis, band keratopathy, spheroid degeneration (climate droplet keratopathy) and corneal keloids. The condition is non-inflammatory and can be managed with appropriate ocular lubricants; if symptoms are severe the lesion may require superficial keratectomy.

1. *Anterior Eye Disease and Therapeutics*. Bruce and Loughnan. Available from OAA Bookshop, $138.00; email n.bortone@optometrists.asn.au, facsimile (03) 9663 9555.

PBS List of Medicines for Optometrists 1 February 2008

	Product	Restriction	Max qty	Repeats	Code
Anti-viral eye preparations					
Aciclovir eye ointment 30 mg per g (3%), 4.5 g	Zoviraz	Herpes simplex keratitis	1	0	5501M
Antibiotics					
Chloramphenicol eye drops 5 mg/mL, 10 mL	Chlorsig	Unrestricted	1	2	5512D
	Chloromycentin	Unrestricted	1	2	5512D
Chloramphenicol eye ointment 10 mg/g, 4 g	Chlorsig	Unrestricted	1	0	5511C
	Chloromycentin	Unrestricted	1	0	5511C
Sulfacetamide Sodium eye drops 100 mg per mL (10%), 15 mL	Bleph-10	Unrestricted	1	2	5530C
Anti-inflammatory agents					
Fluorometholone eye drops 1mg/mL, 5mL	Flucon	Unrestricted	1	0	5513E
	FML Liquifilm	Unrestricted	1	0	5513E
Flurbiprofen Sodium eye drops 300 µg per mL (0.03%) single dose units 0.4 mL, 5	Ocufen	Unrestricted	1	0	5514F
Hydrocortisone Acetate eye ointment 5 mg per g (0.5%), 5 g	Hycor	Unrestricted	1	0	5515G
Hydrocortisone Acetate eye ointment 10 mg per g (1%), 5 g	Hycor	Unrestricted	1	0	5516H
Anti-allergy agents					
Sodium cromoglycate eye drops 20 mg per mL (2%), 10 mL	Cromolux	Vernal kerato-conjunctivitis	1	5	5529B
	Opticrom	Vernal kerato-conjunctivitis	1	5	5529B
Topical ocular lubricants					
Carbomer 980 ocular lubricating gel 2 mg per g (0.2%), 10 g	Geltears	Severe dry eye inc Sjogren's synd	1	5	5503P
	PAA	Severe dry eye inc Sjogren's synd	1	5	5503P
	Viscotears Liquid Gel	Severe dry eye inc Sjogren's synd	1	5	5503P
Carmellose sodium eye drops 10 mg per mL (1%), 15 mL	Refresh Liquigel	Severe dry eye inc Sjogren's synd	1	5	5508X
Carmellose sodium eye drops 5 mg per mL (0.5%), 15 ml	Refresh Tears plus	Severe dry eye inc Sjogren's synd	1	5	5507W
Hypromellose eye drops 3 mg per mL (0.3%), 15 mL (contains sodium perborate)	In a Wink Moist'ing	Severe dry eye inc Sjogren's synd	1	5	5518K
	Genteal	Severe dry eye inc Sjogren's synd	1	5	5518K
Hypromellose eye drops 5 mg per mL (0.5%), 15 mL	Isopto Tears	Severe dry eye inc Sjogren's synd	1	5	5517J
	Methopt	Severe dry eye inc Sjogren's synd	1	5	5517J
Hypromellose with Carbomer 980 ocular lubricating gel 3 mg-2 mg/g (0.3-0.2%), 10 g	HPMC PAA	Severe dry eye inc Sjogren's synd	1	5	5519L
	Genteal gel	Severe dry eye inc Sjogren's synd	1	5	5519L
Hypromellose with Dextran eye drops 3 mg-1 mg/mL (0.3%-0.1%), 15 mL	Poly-Tears	Severe dry eye inc Sjogren's synd	1	5	5520M
	Tears Naturale	Severe dry eye inc Sjogren's synd	1	5	5520M
Polyethylene glycol 400 with Propylene glycol drops 4 mg-3 mg/mL (0.4-0.3%); 15 mL	Systane	Severe dry eye inc Sjogren's synd	1	5	5524R
Polyvinyl alcohol eye drops 14 mg per mL (1.4%), 15 mL	PVA Tears	Severe dry eye inc Sjogren's synd	1	5	5526W
Polyvinyl alcohol eye drops 30 mg per mL (3%), 15 mL	PVA Forte	Severe dry eye inc Sjogren's synd	1	5	5525T
Polyvinyl alcohol eye drops 14 mg per mL (1.4%), 15 mL	Liquifilm Tears	Severe dry eye inc Sjogren's synd	1	5	5526W
Polyvinyl alcohol eye drops 30 mg per mL (3%), 15 mL	Liquifilm Forte	Severe dry eye inc Sjogren's synd	1	5	5525T
Polyvinyl alcohol eye drops 14 mg per mL (1.4%), 15 mL (contains sodium chorite/hydrogen peroxide as preservative)	Vistil	Severe dry eye inc Sjogren's synd	1	5	5527X
Polyvinyl alcohol eye drops 30 mg per mL (3%), 15 mL (contains sodium chorite/hydrogen peroxide as preservative)	Vistil Forte	Severe dry eye inc Sjogren's synd	1	5	5528Y
Tamarindus indica seed polysaccharide eye drops 10 mg per mL, 0.5 mL, 20	Visine Professional	TBA	3	5	TBA
Unpreserved unit dose					
Carbomer 974 ocular lubricating gel 3 mg per g (0.3%), single dose units 0.5 g, 30	Poly Gel	Authority required: Severe dry eye syndrome	3	5	5502N
Carbomer 980 eye drops 2 mg per (0.2%) , single dose units 0.6 mL, 30i	Viscotears	in patients sensitive to preservatives in multi-dose	3	5	5504Q
Carmellose sodium eye drops 5 mg per mL (0.5%), single dose units 0.4 mL, 30	Cellufresh	eye drops	3	5	5506T
Carmellose sodium eye drops 10 mg per mL (1%) , single dose unit 0.4 mL, 30	Celluvisc		3	5	5505R
Carmellose sodium eye drops 2.5 mg per mL (0.25%), single dose units, 0.6 mL, 24	TheraTears		4	5	5509Y
Carmellose sodium ocular lubricating gel 10 mg per mL (1%), single dose 0.6 mL, 28	TheraTears		3	5	5510B
Hypromellose with Dextran eyedrops 3-1 mg per mL (0.3-0.1%), single 0.4 mL, 28i	Bion Tears		3	5	5521N
Topical ocular lubricant ointments					
Paraffin compound eye ointment 3.5 g	Polyvisc	Unrestricted	2	5	5523Q
Paraffin pack containing 2 tubes compound eye ointment 3.5 g	Polyvisc (2 pack)	Unrestricted	1	5	5522P
Paraffin compound eye ointment 3.5 g	Duratears	Unrestricted	2	5	5523Q
Paraffin pack containing 2 tubes compound eye ointment 3.5 g	Ircal (2 pack)	Unrestricted	1	5	5522P
	Lacri-Lube (2 pack)	Unrestricted	1	5	5522P

Controlled substances that may be used or prescribed by optometrists

Ocular Medicine	Vic	Tas	Qld	NSW & ACT	NT	SA	WA	PBS Optometry
Anti-infectives								
Bacitracin	✓	✓	✓	–	✓	✓	–	N/A
Chloramphenicol	✓	✓	✓	✓	✓	✓	–	✓
Ciprofloxacin	✓	✓	✓	–	◆	✓	–	☒
Framycetin	✓	✓	✓	✓	✓	✓	–	☒
Gentamicin sulfate	✓	✓	✓	–	✓	✓	–	☒
Gramicidin	✓	–	✓	✓	✓	✓	–	N/A
Neomycin	✓	✓	✓	✓	✓	✓	–	N/A
Ofloxacin	✓	✓	✓	–	◆	✓	–	☒
Polymyxin	✓	✓	✓	✓	✓	✓	–	N/A
Tetracycline	✓	✓	✓	✓	✓	✓	–	N/A
Tobramycin	✓	✓	✓	–	✓	✓	–	☒
Aciclovir	✓	✓	✓	–	✓	✓	–	✓
Anti-inflammatories								
Dexamethasone	✓	✓	◆	–	✓	✓	–	☒
Fluorometholone	✓	✓	✓	✓	✓	✓	–	✓
Hydrocortisone	✓	✓	✓	✓	✓	✓	–	✓
Prednisolone	✓	✓	◆	–	✓	✓	–	☒
Diclofenac	✓	✓	✓	✓	✓	✓	–	N/A
Flurbiprofen	✓	✓	✓	✓	✓	✓	–	✓
Ketorolac	✓	✓	✓	✓	✓	✓	–	N/A
Decongestants & anti-allergics								
Ketotifen	✓	✓	✓	✓	✓	✓	✓	☒
Levocabastine	✓	✓	✓	✓	✓	✓	–	N/A
Lodoxamide	✓	✓	✓	✓	✓	✓	–	N/A
Olopatadine	✓	✓	✓	✓	✓	✓	–	N/A
Sodium cromoglycate	✓	✓	✓	✓	✓	✓	✓	✓
Anti-glaucoma preparations								
Apraclonidine	✓	–	◆	❖	–	✓	–	☒
Betaxolol	✓	–	◆	❖	–	✓	–	☒
Bimatoprost	✓	–	◆	❖	–	✓	–	☒
Brimonidine	✓	–	◆	❖	–	✓	–	☒
Brinzolamide	✓	–	◆	❖	–	✓	–	☒
Carbachol	✓	–	◆	❖	–	✓	–	N/A
Dipivefrine	✓	–	◆	❖	–	✓	–	☒
Dorzolamide	✓	–	◆	❖	–	✓	–	☒
Latanoprost	✓	–	◆	❖	–	✓	–	☒
Levobunolol	✓	–	◆	❖	–	✓	–	☒
Pilocarpine	✓	–	◆	❖	–	✓	–	☒
Timolol	✓	–	◆	❖	–	✓	–	☒
Travoprost	✓	–	◆	❖	–	✓	–	☒
Mydriatics & cycloplegics								
Atropine	✓	✓	✓	✓	✓	–	–	☒
Cyclopentolate	✓	✓	✓	✓	✓	✓	✓	N/A
Homatropine	✓	✓	✓	✓	✓	–	–	☒
Pilocarpine	✓	✓	✓	–	✓	✓	–	☒
Phenylephrine	✓	✓	✓	✓	✓	✓	–	N/A
Tropicamide	✓	✓	✓	✓	✓	✓	✓	N/A
Physostigmine	–	–	–	–	–	✓	–	☒
Local anaesthetics								
Amethocaine	✓	✓	✓	✓	✓	–	–	N/A
Lignocaine	✓	✓	–	–	✓	–	–	N/A
Oxybuprocaine	✓	✓	✓	✓	✓	✓	✓	N/A
Proxymetacaine	✓	✓	✓	✓	✓	✓	✓	N/A

◆ The use of these medicines by optometrists is currently being considered

❖ Subject to the development of a shared care model by the NSW Optometrists Registration Board, the Royal Australian and New Zealand College of Ophthalmologists, and the School of Optometry and Vision Science, UNSW

☒ Topical ocular preparation is not available to optometrists but is available to doctors

N/A Substance is not available under the PBS

Over-the-counter medications used or prescribed in optometric practice

Ocular Medicines	Vic	Tas	Qld	NSW & ACT	NT	SA	WA	PBS
Ocular lubricants								
Carbomer	✓	✓	✓	✓	✓	✓	✓	✓
Carmellose	✓	✓	✓	✓	✓	✓	✓	✓
Hypromellose	✓	✓	✓	✓	✓	✓	✓	✓
Hypromellose with Carbomer	✓	✓	✓	✓	✓	✓	✓	✓
Hypromellose with Dextran	✓	✓	✓	✓	✓	✓	✓	✓
Polyethylene glycol with Propylene glycol	✓	✓	✓	✓	✓	✓	✓	✓
Polyvinyl	✓	✓	✓	✓	✓	✓	✓	✓
Paraffin	✓	✓	✓	✓	✓	✓	✓	✓
Visine Professional (tamarindus indica seed polysaccharide)	✓	✓	✓	✓	✓	✓	✓	✓
Antibiotic								
Sulfacetamide	✓	✓	✓	✓	✓	✓	✓	✓
Anti-allergics								
Ketotifen	✓	✓	✓	✓	✓	✓	✓	N/A

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*Refers to ocular hyperaemia compared to other prostaglandins and systemic adverse events compared to timolol.

PBS Information: This drug is listed on the PBS for the treatment of Open Angle Glaucoma and Ocular hypertension.

Before prescribing, please refer to Approved Product Information. Full Approved PI is available on request from Pfizer. MINIMUM PRODUCT INFORMATION. XALATAN® (Latanoprost 50 micrograms/mL) Eye Drops INDICATIONS Reduction of intraocular pressure (IOP) in patients with open-angle glaucoma or ocular hypertension. CONTRAINDICATIONS Hypersensitivity to ingredients. PRECAUTIONS Change in eye colour due to increased iris pigmentation, heterochromia; eyelid skin darkening; changes in eyelashes and vellus hair; macular oedema; other types of glaucoma; pseudophakia; aphakia; contact lenses. Severe or brittle asthma. Pregnancy category B3, lactation. Children. Interactions: other prostaglandins, thiomersal. Blurring of vision. ADVERSE EFFECTS Increased iris pigmentation; eye irritation (burning, grittiness, itching, stinging and foreign body sensation); eyelash and vellus hair changes (darkening, thickening, lengthening, increased number); mild to moderate conjunctival hyperaemia; transient punctate epithelial erosions; blepharitis; eye pain; conjunctivitis; vision blurred; eyelid oedema, macular oedema. Muscle/joint pain; dizziness; headache; localised skin reaction on the eyelids; skin rash. Uncommonly: keratitis; non-specific chest pain; Others, see full PI. DOSAGE AND ADMINISTRATION One eye drop in the affected eye(s) once daily. Other eye drops at least 5 minutes apart. REFER TO PRODUCT INFORMATION BEFORE PRESCRIBING The full disclosure Product Information is available on request from Pfizer Australia Pty Ltd. NAME AND ADDRESS OF THE SPONSOR Pfizer Australia Pty Ltd ABN 50 008 422 348, 38-42 Wharf Road West Ryde NSW 2114 Full PI approved by the TGA on 4 February 2003, last amended 20 November 2006. PBS dispensed price, September 2007: $36.65. References: 1. Parrish RK *et al. Am J Ophthalmol* 2003;135:688-703. 2. Gandolfi S *et al. Advances in Therapy* 2001;18(3):110-121. 3. Netland PA *et al. Am J Ophthalmol* 2001;132:472-484. 4. Hedman K *et al. Surv Ophthalmol* 2002;47(Suppl 1):S65-S76. 5. Reardon G *et al. Eur J of Ophthalmol* 2003;13(Suppl4):S44-S52. 6. Stewart WC *et al. Rev of Ophthalmol* 2002;9(4). Accessed via URL http://www.revophth.com/index.asp?page=1_83.htm. 7. Noecker RS *et al. Am J Ophthalmol* 2003;135:55-63. 8. Watson P *et al. Ophthalmology* 1996;103:126-137. 9. Konstas AGP *et al. Am J Ophthalmol* 1999;128:15-20. 10. Mishima HK *et al. Arch Ophthalmol* 1996;114:929-932. 11. Alm A *et al. Ophthalmology* 1995;102:1743-1752. Pfizer Medical Information 1800 675 229. 12/07 PFXXA7525-C

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