UNSW AUSTRALIA | Medical Sciences Medicine

DEPARTMENT OF PHARMACOLOGY

PHAR 3306

PHARMACOLOGY FOR OPTOMETRY

COURSE OUTLINE

Session 2, 2015

CRICOS Provider Code 00098G

TABLE OF CONTENTS

Also see the **SoMS Course Outline Supplement**, available from
http://medicalsciences.med.unsw.edu.au/students/undergraduate/science

PHAR3306 COURSE INFORMATION

UNITS OF CREDIT (UOC)

Pharmacology for Optometry is a 3rd year Science Course with 6 Units of Credit (UOC).

PREREQUISITES

VISN2111 Vision Science 2A

PHSL2101 Physiology 1A

PHSL2201 Physiology 1B

VISN2231 Introduction to Ocular Disease

OBJECTIVES OF THE COURSE

The aims of the course are to provide optometry students with

- a strong knowledge base in pharmacology and therapeutics that will benefit you in your future optometry practice
- the essential knowledge of the mechanisms of action of pharmacological agents and their therapeutic use in the treatment of systemic and ocular diseases, with emphasis on the agents that optometrists are licensed to prescribe (see Appendix I)
- basic principles of drug action, pharmacokinetics, pharmacodynamics, autonomic pharmacology, major drugs used in the management of cardiovascular, central nervous system, endocrine and inflammatory disorders and infection, drugs for eye diseases, side effects and contraindications of commonly used therapeutic agents

COURSE COORDINATORS

Course Coordinator:

Dr Greg Smith
Room 326, Wallace Wurth Building East
Phone: 9385 8075
Email: g.smith@unsw.edu.au
Consultation times: by email arrangement

Co-coordinator:

A/Prof Renate Griffith
Room 324, Wallace Wurth Building East
Email: r.griffith@unsw.edu.au
Consultation times: by email arrangement

LECTURERS IN THIS COURSE

Dr T. Binder	w.binder@unsw.edu.au
A. Delmadoros	a.delmadoros@unsw.edu.au
A/Prof N. Di Girolamo	n.digirolamo@unsw.edu.au
Dr R. Grant	r.grant@unsw.edu.au
A/Prof R. Griffith	r.griffith@unsw.edu.au

Dr Lu. Liu	lu.liu@unsw.edu.au
Dr M. Markoulli	m.markoulli@unsw.edu.au
Prof M. Morris	m.morris@unsw.edu.au
Dr G. Smith	g.smith@unsw.edu.au
A/Prof L. Wakelin	l.wakelin@unsw.edu.au

COURSE STRUCTURE AND TEACHING STRATEGIES

This 6 UOC course consists of

- 3 lectures per week
- tutorials and practical classes at alternative weeks, up to 3 hours

Lectures: Monday 2-3 pm; Wednesday 4-5 pm and Wednesday 5-6 pm Friday (weeks 1-12)

Tutorials: Thursday 2-3 pm (Group A) or 3-4 pm (Group B) or 4-5 pm (Group C) (weeks 2, 4, 6, 10)

Practicals: Thursday 2-5 pm (all together). Weeks 3, 5, 8, 9, 11

You are expected to attend all scheduled activities for the full duration. You are reminded that UNSW recommends that a 6 units-of-credit course should involve about 125-150 hrs of study and learning activities. Apart from the formal learning activities, you are strongly encouraged to do your own studies throughout the semester.

Lectures will provide you with the concepts and theory essential for understanding basic pharmacology. To assist in the development of research and analytical skills, practical classes and tutorials will be held. These classes and tutorials allow you to engage in a more interactive form of learning than is possible in the lectures. The skills you will learn in practical classes are relevant to your professional development.

APPROACH TO LEARNING AND TEACHING

The learning and teaching philosophy underpinning this course is centred on student learning and aims to create an environment which interests, challenges, and enthuses students. The teaching is designed to be relevant and engaging in order to prepare students for future careers.

The primary source of information for this course is the lecture material, and the tutorials and practical classes will be directly related to the lectures. Nevertheless, effective learning can also be enhanced through self-directed use of other resources such as textbooks, literature references and web based sources. Your practical classes will be directly related to the lectures and you are advised to prepare for practical classes before attendance. It is up to you to ensure you perform well in each part of the course: preparing for classes; studying for exams and seeking assistance to clarify your understanding.

STUDENT LEARNING OUTCOMES

PHAR 3306 will develop those attributes that the Faculty of Science has identified as important for a Science Graduate to attain. These include skills, qualities, understanding and attitudes that promote lifelong learning that you should acquire during your university experience.

Graduate Attributes

A. Research, inquiry and analytical thinking abilities
B. The capability and motivation for intellectual development
C. Ethical, social and professional understanding
D. Effective communication
E. Teamwork, collaborative and management skills
F. Information Literacy – the skills to locate, evaluate and use relevant information

On completion of this course you should

1. have developed an understanding of the concepts of pharmacology
2. be able to apply pharmacological approaches to problem solving
3. be able to identify areas in the knowledge of pharmacology that could be improved, and carry out the research necessary to "fill the gaps"
4. be able to organise scientific information into a clear report
5. be able to demonstrate ability to work in teams and communicate scientific information effectively

ASSESSMENT PROCEDURES

	% total mark
Midsession Exam (2 hours duration)	**40%**
Practical assessment (2 short reports, 5% each)	**10%**
Group Assignment	**10%**
Final exam (2 hours duration)	**40%**

Practicals and tutorials

The practicals and tutorials are provided to support lecture material and practise analytical skills. The practical classes and tutorials help you to develop graduate attributes A, C, D, E & F. During the practical course, students will be required to submit written reports for two of the practical sessions. Reports must be legible and as concise as possible. The electronic version of the report must be submitted via Moodle **on the same day the practical session is scheduled**. No hardcopy is required. There will be a "10% mark deduction per day penalty" for late submission unless illness or family emergency is documented.

Group Assignment

You will work in teams to research new approaches/developments in ocular pharmacology and a written report to summarise your findings is required. This assessment task will allow you to develop your research, information literacy, communication and time management skills, as well as allowing you to demonstrate the ability to work in a team and collaborate successfully (Graduate attributes A, C, D, E & F). The electronic version of the assignment must be submitted **via Moodle through Turnitin**, **before 10 am, Monday 5th October**. There will be a "10% mark deduction per day penalty" for late submission unless illness or family emergency is documented. The topics, instructions, and marking criteria for the group assignment will be handed to you during the first tutorial session in week 2.

Midsession exam and final exam

The midsession exam will be held during the laboratory session on Friday the **10th of September at 2 pm**. The format is 15 MCQ's and 9 short 10 min questions (from 11 questions). The end of session examination will be held during the official examination period, and the format will be 15 MCQs and 9 short 10 min questions (from 11 questions). The exam questions will mainly be based on the material covered in the lectures; however, material covered in the tutorials and practical classes will also be examinable.

The mid and end of session examinations will address graduate attributes A, B and F and give you feedback on how you are succeeding in the course.

TEXTBOOKS

Prescribed textbook:

- Rang and Dale's pharmacology. 7th ed., Churchill Livingstone/Elsevier.

Recommended textbooks:

- Goodman and Gilman's the pharmacological basis of therapeutics. 12th ed. McGraw-Hill Companies. (The e-book is available through UNSW Library).
- Clinical Ocular Pharmacology. 5th ed., Oxford: Butterworth-Heinemann.

Copies of these textbooks are available in the library.

National Prescribing Service (NPS) is a member-based organisation providing accurate, balanced, evidence-based information and services to health professionals and the community on Quality Use of Medicines (QUM). You are strongly encouraged to use this service: http://www.nps.org.au/

GENERAL INFORMATION

The Department of Pharmacology is part of the School of Medical Sciences and is within the Faculty of Medicine. It is located in the Wallace Wurth building, east wing, level 3. General inquiries can be made at the BABS.SOMS.BEES (B.S.B.) Student Office, located on the Ground Floor Room G27, of the Biosciences Building. Office hours are 9.00 am - 5:00pm.

Professor Margaret Morris is Head of Department and appointments may be made through her Administrative Officer Chris Riordan (c.riordan@unsw.edu.au).

Student Advisor: The School Student Advisor Ms Carmen Robinson is able to provide additional information on any courses offered by the School.
BABS.SOMS.BEES (B.S.B.) Student Office, G27 Biosciences Building.
Ph: 9385 2464
Email: carmen.robinson@unsw.edu.au

ATTENDANCE REQUIREMENTS

Attendance at practical classes is compulsory, and must be recorded in the class roll ON THE DAY OF THE CLASS. It is your responsibility to ensure that the demonstrator records your attendance and no discussions will be entered into after the completion of the class. Satisfactory completion of the work set for each class is essential. It should be noted that non-attendance for other than documented medical or other serious reasons, or unsatisfactory performance, **for more than 1 practical class during the session,** may result in ineligibility to pass the course.

BEHAVIOUR AND SAFETY IN PRACTICAL CLASSES

The practical class is an opportunity for students to develop graduate attribute C by behaving in an ethical, socially responsible and professional manner within the practical class.

- **Punctual arrival is expected**.
- Turn off mobile phones before entering the class.
- Lab coat and enclosed shoes are compulsory for the Human Pharmacology practical class in week 8.

Information on relevant Occupational Health and Safety policies and expectations will be provided in the practical notes.

Students must take due care with biological and hazardous material and make sure all equipment is left clean and functional. Those who don't adhere to these basic laboratory rules will be marked absent. Special attention should be paid to any precautionary measures recommended in the notes. If any accidents or incidents occur they should be reported immediately to the demonstrator in charge of the class who will record the incident and recommend what further action is required.

TEACHING RESOURCES

The Department of Pharmacology has chosen to use the University's central Moodle service to provide teaching materials for all of its courses.

- Moodle can be accessed directly from the UNSW homepage.
- Log in using your zPass (zStudentNo. and password).
- After logging on to Moodle, look for the course PHAR3306. You should have access to it if you are properly enrolled.

You can make use of recordings taken of the lectures that are available on Moodle. Lecture notes will also be made available on Moodle before each lecture. It is recommended that students print these out and bring them to the lecture, so they can annotate them and make their additional own notes during the lecture.

HANDWRITING

Students whose writing is difficult to understand will disadvantage themselves in their written assessment. Make every effort to write clearly and legibly. Do not use your own abbreviations.

MISSED ASSESSMENT ITEMS

If you unavoidably miss the final exam, midsession test, or cannot hand in an assessment task on time, **you must inform the course coordinator and you must lodge a special consideration request**, supported by a medical certificate or other documentation to Student Central (see web address above) within **3 DAYS**.

Your request for consideration will be assessed and a deferred exam may be granted. You cannot assume you will be granted supplementary assessment.

For supplementary exam dates, for the School of Medical Sciences in Semester 2, 2015, please refer to http://medicalsciences.med.unsw.edu.au/students/undergraduate/science

Normally, if you miss an exam (without valid reasons) you will be given an absent fail. If you arrive late for an exam, no time extension will be granted. It is your responsibility to check timetables and ensure that you arrive sufficiently early to start on time.

MISSED PRACTICAL CLASSES

Students who miss practical classes due to illness or for other reasons must submit a copy of medical certificates or other acceptable documentation to the course co-ordinator by email. **Certificates should be lodged no more than 7 days after an absence. Certificates lodged after 7 days will not be accepted**. The following details must be attached: Name, Course number, Date of the class, Name of class missed.

REPEATING STUDENTS

Practical class exemptions may be granted to repeat students but students **must** check with the course co-ordinator whether they have exemption **prior** to their first practical class. All students must be familiar with the material covered in the practical classes.

LECTURE OUTLINES

The course **timetable** can also be found on Moodle.

Pharmacodynamics - Sites of drug action
This lecture provides an introduction to pharmacodynamics – what the drug does to the body; topics include: receptors, affinity and efficacy, side effects, desensitisation, up and down regulation, quantitation of drug-receptor interactions, dose-response curves, ED_{50}, and spare receptors.

Pharmacodynamics - Agonist and antagonist activity
Competitive antagonism, irreversible antagonism, functional (physiological) antagonism, chemical antagonism, concept of tone, potentiation, partial agonists, quantitative response, quantal response, therapeutic ratio, indirectly acting drugs.

Autonomic nervous system - Cholinergic mechanisms
Introduction to the autonomic nervous system (ANS) and the parasympathetic nervous system (PNS). Synaptic release of acetylcholine and cholinergic transmission. Cholinergic receptor classifications and distributions.

Introduction to 3 classes of cholinergic agents: Muscarinics, Nicotinics and Anticholinesterases. Representative agents of each class, mechanisms of action, clinical uses, side effects and contraindications.

Autonomic nervous system - Adrenergic mechanisms
Catecholamines. synthesis and metabolism of catecholamines. Adrenergic receptors. α_1 adrenergic agonists and antagonists. α_2 adrenergic agonists and antagonists. β adrenergic agonists and antagonists. Indirectly acting sympathomimetic amines. Examples of use of these classes of drugs in the eye will be given throughout the lectures.

Pharmacokinetics - Drug absorption and distribution
Pharmacokinetic parameters, half-life, volume of distribution and clearance. Relationship between lipid solubility and drug absorption, distribution, excretion, drug dosage forms, advantages and disadvantages. Renal filtration, reabsorption and secretion. Renal dysfunction and elimination.

Pharmacokinetics - Drug metabolism
Pathways of metabolism of drugs including phase I and phase II metabolism. Hepatic and extrarenal metabolism, genetic polymorphisms and their effects on duration of drug action. Important pathways of ocular drug metabolism. Pharmacokinetic formulae and calculations.

Antihypertensives
Rationale for treating hypertension, the place of drug therapy, major classes of antihypertensive drugs - ACE inhibitors, calcium antagonists, diuretics, beta-blockers, alpha blockers; commonly used examples from each class; review of basic pharmacology/mechanisms of action; adverse effects and contraindications.

Autonomic control of the eye and autonomic ocular drugs
Commonly used autonomic drugs as cycloplegics, miotics, mydriatics, including parasympathomimetics: carbachol and pilocarpine; parasympatholytics: atropine, tropicamide and cyclopentolate; sympathomimetics: phenylephrine and dipivefrine; Sympatholytics: brimonidine and timolol. Mechanisms of action, side effects and contraindications.

Diuretic agents
Brief review of renal physiology. Diuretic drugs: acetazolamide, furosemide (frusemide) and loop diuretics, chlorothiazide and distal tubule acting diuretics. Potassium sparing diuretics, amiloride, triamterene and spironolactone. Actions, interactions and side effects of the diuretics will be covered, and their clinical uses.

Drugs to treat thrombosis
Review of the mechanism of thrombosis formation. The mechanism of actions of (i) anti-platelet drugs, (ii) anti-coagulation drugs and (iii) thrombolytic drugs. By the end of the lecture students should be able to (i) describe how aspirin prevents platelet activation; (ii) identify drugs which prevent thrombosis formation versus drugs which remove thrombosis (iii) describe the mechanisms of action of warfarin and heparin.

Anaesthetics
Definition of local anaesthesia. Structure activity relationships. Mode of action, metabolism. Commonly used agents. Therapeutic applications. Toxicity.

VEGF and angiogenesis in eye disease
Vascular endothelial growth factor A (VEGF-A) is a central mediator in blood vessel growth (angiogenesis) in the eye. “Wet AMD” is a particular form of age-related macular degeneration caused by abnormal growth of blood vessels under the macula. Currently available antiangiogenesis drugs for the treatment of wet AMD will be presented.

Endocrine drugs- antidiabetic drugs
Improving glycaemic control using orally active agents, incorporating mechanism of action, clinical use, side effects of the following drugs: sulphonylureas; metformin, tolbutamide, chlorpropamide, glibenclamide. Insulin sensitising agents.

Antiepileptic drugs/sedatives/hypnotics
Different types of epilepsy. Anticonvulsant drugs and how they work: clonazepam, valproate, vigabatrin, phenobarbitone, primidone, phenytoin, carbamazepine, ethosuximide, trimethadione; adverse effects on CNS, blood and other tissues. Desirable properties of sedatives and hypnotics. Mechanism of action of benzodiazepines and barbiturates. Pharmacology of benzodiazepines. Advantages of benzodiazepines over barbiturates. Zopiclone, a new hypnosedative. Indications for use.

Antidepressants
Monoamine theory of depression; pharmacology of antidepressant drugs. Tricyclic antidepressants, possible modes of action, side effects, overdose. MAO inhibitors: side effects including food interactions (hypertensive crisis) of non-specific MAO inhibitors. Specific MAO inhibitors (moclobemide). SSRI’s (fluoxetine as prototype). Li^+ for bipolar depression.

Endocrine drugs- thyroid drugs
Drugs used to treat deficiencies or overactivity in thyroid secretion: thyroxine, triiodothyronine, propylthiouracil, carbimazole, radioactive iodine, high dose iodine, ß blockers.

Drugs used to treat asthma
Treatments for asthma and associated pharmacology. Bronchial asthma, inflammatory cells and mediators, commonly used anti-asthmatic drugs [ß-adrenergic agonists, xanthines, glucocorticoids, oral steroids]. Asthma management, treatment of severe acute asthma, viral infections, novel treatments for asthma**.**

Adverse drug effects
Epidemiology, severity, most common drugs; type A reactions, dose dependent, related to usual actions of drug; type B reactions, not dose dependent, not related to usual actions of

drug. Adverse ocular and systemic effects of drugs administered in eye drops. Adverse ocular effects of drugs administered orally or by injection.

Antiglaucoma drugs
Brief introduction to the pathology of glaucoma and ocular hypertension. Rationale for the use of directly acting cholinomimetics, acetylcholine esterase inhibitors, adrenergics, carbonic anhydride inhibitors, etc, in treatment. Comparison of pharmacokinetics, routes of administration, contraindications and side effects.

Anti-inflammatory drugs-NSAIDs
Gross effects, therapeutic uses (including ocular) and side effects of non-steroidal anti-inflammatory drugs. Relationships of effects of NSAIDs to inhibition of cyclooxygenase, analgesia, anti-inflammatory, antipyresis, anti-platelet effects, effects on uterus, gastrointestinal tract. Selective COX-2 inhibitors.

Anti-inflammatory drugs-steroids
Inappropriate inflammatory or immune reactions are involved in many disease processes. Antiinflammatory drugs have been either glucocorticosteroids (GCS), or non-steroidal agents (NSAIDs). The pathway of synthesis of the prostaglandins and their major actions. The gross effects (including the anti-inflammatory effects) of the GCS. Dose forms of eye drops and ointments. Additives to eye drops of GCS.

Antihistamine and mast cell stabilizers
History. Synthesis & storage. Histamine release. Metabolism. Effects of histamine with focus on allergic reaction and gastric acid secretion. The “triple response”. Histamine H_1 and H_2 receptors. Anti-histamines: actions & clinical uses. Commonly used mast cell stabilizers and how mast cell stabilizers work to prevent or control allergic disorders.

Antibiotics
Mechanisms of action of antibiotics and antimicrobial agents, including inhibitors of DNA synthesis (inhibitors of DNA gyrase and folic acid biochemistry), cell wall synthesis (inhibitors of peptido-glycan synthesis), and the various steps in protein synthesis.

Dry eyes and treatment
The tear film, functions of the tear film and tear secretion; causes and pathophysiology of dry eye; management and pharmacological treatment of dry eye.

Antiviral and antifungal agents
Pathogenic viruses, viral life cycles, virus-specific targets, DNA polymerase inhibitors, reverse transcriptase inhibitors, protease inhibitors, inhibitors of virus attachment. Pathogenic fungi, sites for chemotherapeutic intervention, antifungal antibiotics including amphoteracin and nystatin, antifungal drugs including flucytosine, azoles such as ketoconazole and clotrimazole.

Diseases of the human ocular surface
This lecture will cover the pathogenesis of common and rare diseases of the human ocular surface with particular focus on the impact of ultraviolet radiation exposure. Other topics covered will include ocular surface stem cells and techniques used to treat patients with stem cell failure.

Opioid analgesics
Historical introduction. The opioid receptors. The chemistry of the opioids: naturally occurring, semisynthetic, synthetic. Commonly used agents: morphine, codeine, pethidine, methadone, dextropropoxyphene, fentanyl, oxycodone, naloxone, bupremorphine. The assessment of analgesic activity and pain management. Adverse effects of the opioids.

INFORMATION ABOUT GROUP ASSIGNMENTS

Graduate Attributes which will be assessed in this group project are:

- Research, inquiry and analytical thinking abilities
- Effective communication
- Teamwork, collaborative and management skills
- Information literacy – the skills to locate, evaluate and use relevant information

Aims:

The aims of the group project are:

- To develop your basic and clinical science skills by researching a topic related to eye diseases
- To update your knowledge of recent developments in the treatment of eye diseases
- To develop your skill in collaborative learning (teamwork)

Number of students per group: 4 – to be allocated by the course coordinator
Each group will be allocated a topic to research and present the information in the form of an assignment.

Task description:

- Research recent advances in the treatment (or potential new therapeutics) of your assigned eye disease
- All members should be allotted a fair share of tasks. The group should produce an integrated assignment with a word limit of 3000 words (excluding tables, figures, figure legends and references)
- A hard copy of the assignment must be accompanied by a signed plagiarism form (signed by each member of the group) and placed in the assignment box to the right of the door of BSB G27 Bioscience building. An electronic version must also be submitted *via* Moodle.
- The assignment is to be submitted via turnitin in moodle by **10 am on the 6th of October 2015**. A penalty will apply for late submissions.
- Each member should use the "Group Members – Evaluation Form" (see attached) to evaluate the members of the group, including yourself. The form should be submitted individually *via* Moodle. If no satisfactory evaluation is received, you will lose 10% of the assignment mark.

Assessment:

- The assignment will be worth 10% of your total marks.
- The assignment will be assessed by one of the members of the PHAR 3306 lecturing or tutoring staff.

Group Assignment Topics:

Novel therapeutic approaches to treat eye diseases:

1. Infection
2. Inflammation
3. Glaucoma
4. Allergic eye disease
5. Age-related macular degeneration
6. AIDS-related vision impairment
7. Eye cancer
8. Dry eyes
9. Diabetes-related eye disease
10. Corneal angiogenesis

Group Assignment Marking Criteria

PHAR 3306 S2, 2015

Student names:

Assignment Topic:

SECTION	COMPONENT PARTS	*COMMENTS*
Preliminaries	**Title page** Assignment title, students' names and numbers; course name & number, date **1**	
Introduction		
The introduction gives an overview of the whole paper	Introduce the topic area; state clearly the purpose of the assignment report; give the reader an indication of what to expect **5**	
Body of Essay		
Background information	Clearly discuss and introduce the pathophysiological and pharmacological issues related to your topic; outline your main argument **30**	
Evaluation of the issues identified from the sources	**Critical evaluation** of the issues identified and supported by your chosen sources. A balanced and logical presentation that explores the strengths and weaknesses of your issue **30**	
End of Essay		
Conclusion	**Re-state key findings** and state position/argument about the identified issue **4**	

Writing Checklist	Writing Conventions	Comments
	Overall readability-Sentence structure-correct grammar and word usage. Sentences and paragraphs well connected. Question clearly answered. Topic sentences, supporting and concluding sentences **5**	
	Appropriate written expression - Discipline specific – appropriate vocabulary-use of formal not oral language. Has been proof read. **4**	
	Support –sources-evidence *BJP** **– in-text citations** (4) **and reference list** (4**) follow conventions. Relevant information selected.** **8**	
	Word Limit- 3000 words **1**	
	Assignment Presentation -Neat, margins, 1.5 spacing, 12 point font. Simple staple. Page numbering **2**	

**: References follow the style of the British Journal of Pharmacology*

Content & structure: /70

Writing Conventions: /20

Peer/Self evaluations: /10*

*Marks will be allocated based on the effort made to make a fair evaluation of how the group worked. Marks are not related to the scores you give, just giving everybody a score of 9 will not give you many marks for the evaluation. Not providing any comments will not give you many marks, either.

Total: /100 FINAL /10%

Additional comments:

Group Members - Evaluation Form

Topic _____ **Student name:** _____

Instructions: Use this form to evaluate the members of your group. Write the name of each group member, including yourself, on top of one of the columns, then assign a score of 0 to 10 (0 being the lowest grade, 10 the highest) to each group member for each criterion. Because each group member has different strengths and weaknesses, the scores you assign will differ. At the bottom of this sheet, write down any comments you wish to make.

Criteria	**Group Members**			
Regularly attends meetings				
Is prepared at meetings				
Meets deadlines				
Contributes good ideas				
Effort given to researching subject				
Submits high-quality work				
Listens to other members				
Gives constructive feedback				
Responds to feedback				
Overall assessment of this person's contribution				
Total (/100)				

Comments:

APPENDIX I. THE USE OF OCULAR THERAPEUTIC DRUGS IN AUSTRALIA[1]

Fact sheet

22 March 2013

Guidelines for use of scheduled medicines

The Optometry Board of Australia (the Board) has approved a revised version of its *Guidelines for use of scheduled medicines* (the Guidelines). The Guidelines are published under the *Policies, Codes and Guidelines* tab of the Board's website.

The amended Guidelines aim to increase quality care choices for patients living with chronic glaucoma or who are at high risk of developing the disease, particularly where access to specialist care is an issue.

Summary

The amendments to the Guidelines:

- enable optometrists whose registration is endorsed for scheduled medicines to initiate and implement management (in the form of eye drops) for patients diagnosed with chronic glaucoma, or who are at high risk of developing the disease, and
- support a multi-disciplinary team approach to managing eye conditions, including communication between other healthcare practitioners involved in the patient's care, in particular the general practitioner.

Optometrists whose registration is endorsed for scheduled medicines still have the options to either refer patients with chronic glaucoma to an ophthalmologist for ongoing care or enter into a shared care arrangement – and many optometrists are likely to continue to do so where access to specialist care is not an issue.

Optometrists are already authorised to prescribe topical glaucoma medications

Anti-glaucoma eye drops are currently an integral part of treatment for chronic glaucoma, and optometrists whose registration is endorsed for scheduled medicines are already authorised to prescribe these drugs in all states and territories.

The list of scheduled medicines that optometrists who have completed accredited training are qualified to prescribe is included in the Guidelines and in the Board's *Endorsement for scheduled medicines registration standard*. The standard is published under the *Registration Standard* tab of the Board's website.

[1] from http://www.optometryboard.gov.au/Policies-Codes-Guidelines.aspx

List of Schedule 4 medicines approved by the Optometry Board of Australia for administration by optometrists holding general registration

Under section 94 of the National Law, the Board may endorse the registration of eligible optometrists as qualified to obtain, possess, administer, prescribe or supply the scheduled medicines used in the treatment of conditions of the eye, included in the list below.

Table C1 lists the Schedule 4 medicines that have been approved for use by optometrists whose registration has been endorsed by the Board. This is a duplicate of the list published in the Board's Endorsement for scheduled medicines registration standard.

For an optometrist to possess, prescribe, supply or use these Schedule 4 medicines in a particular jurisdiction, the authorisation must be provided for by enactment of legislation in that jurisdiction. Registered optometrists should be familiar and comply with the current requirements in the jurisdictions in which they practise. The Board will publish on its website a list of authorities that apply in each state and territory.

Board-approved list of Schedule 4 poisons that optometrists with a scheduled medicines endorsement are qualified to obtain, possess, administer, prescribe or supply for topical use (reviewed by Greg Smith 2015)

Anti-infectives	**Anti-inflammatories**	**Decongestants/ anti-allergics**	**Anti-glaucomas**	**Miotics, mydriatics and cycloplegics**	**Local anaesthetics**
Aciclovir	Cyclosporin	Olopatadine	Apraclonidine	Atropine	Amethocaine
Azithromycin	Dexamethasone		Betaxolol	Cyclopentolate	Lignocaine
Bacitracin	Diclofenac		Bimatoprost	Homatropine	Oxybuprocaine
Cephazolin	Fluorometholone		Brimonidine	Pilocarpine	Proxymetacaine
Chloramphenicol	Flurbiprofen		Brinzolamide	Phenylephrine	
Ciprofloxacin	Hydrocortisone		Carbachol	Tropicamide	
Framycetin	Ketorolac		Diprivefrin		
Gentamicin	Prednisolone		Dorzolamide		
Gramicidin			Latanoprost		
Neomycin			Levobunolol		
Ofloxacin			Pilocarpine		
Polymyxin			Timolol		
Tetracycline			Travoprost		
Tobramycin					
Vidarabine					