

Ophthalmologic Drug Guide

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*To my lovely wife Tina, for your continual patience and encouragement.
To my father and mother, Dennis and Serena Rhee, for your support and
guidance.*

*To Susan Rhee for your understanding, and
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Douglas J. Rhee

To my daughters, Amelia and Lillian, who fill my life with joy.

Kathryn A. Colby

*To my wonderful wife and best friend, Sara, and
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You keep me sane and constantly remind me of what is important in life.*

Christopher J. Rapuano

To my husband and my parents.

Lucia Sobrin

Preface

This pocket reference is designed to assist the eye care professional by providing current information on the ever-increasing number of ocular pharmacotherapeutics. Many different classes of medications are listed, oftentimes with pertinent facts. This book presents the usual recommended dose for the medications listed. Clinical judgment should always be used, as all therapy should be tailored to the individual patient. The intent of this manual is to provide therapeutic suggestions once the diagnosis is known. We recommend its use in conjunction with an ophthalmologic reference text, such as the *Massachusetts Eye & Ear Infirmary Illustrated Manual of Ophthalmology* (Saunders) or the *The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease* (Lippincott Williams & Wilkins). A more complete listing of all mechanisms, side effects, and drug interactions can be found in the product insert, the *Physicians' Desk Reference*, and the *Physicians' Desk Reference for Ophthalmology*, and these should be consulted.

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Abbreviations

Abbreviation	Meaning
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Dosing

Qx	Every x hours
QOD	Every other day
QD	Once per day
BID	Twice per day
TID	Three times per day
QID	Four times per day
IV	Intravenous Administration
PO	Take by mouth

Weights and Measures

mg	Milligram
gm	Gram
kg	Kilogram
m ²	Meters mathematically squared (refers to body surface area)
ml	Milliliter
U	International unit

Formulation

Soln	Solution
Susp	Suspension
Oint	Ointment
Tab	Tablet

1. Antibacterial Agents

A. TOPICAL ANTIBIOTICS¹

Drug	Trade	Preparation	Dose	Notes
bacitracin	N/A	Soln, 10,000 U/ml	Q1hr	Fortified ²
cefazolin	AK-Tracin	Oint, 500 U/gm	QD-QID	BC
chloramphenicol	Ancef	Soln, 5%	Q1hr	Fortified ²
	Chloromycetin, Chloroptic, Ocu-Chlor	Soln, 0.5%	Q3-6hr	BS, except BC against <i>H. influenzae</i> , <i>N meningitidis</i> , <i>N. gonorrhoea</i> , <i>C. trachomatis</i> . Has been reported to be associated with aplastic anemia.
ciprofloxacin	Chloromycetin, Chloroptic, Ocu-Chlor Ciloxan	Oint, 1%	QHS-Q3hr	
		Soln, 0.3%	QID-Q1/2hr	Fluoroquinolone-BC; active against <i>P. Aeruginosa</i> and <i>Neisseria</i> species
erythromycin	AK-mycin, Ilotycin	Oint, 0.3%	QHS-QID	
		Oint, 0.5%	QD-QID	BS; active against <i>N. gonorrhoea</i> and <i>C. trachomatis</i>
gatifloxacin	Zymar	Soln, 0.3%	QID-Q1hr	Fluoroquinolone-BC
gentamicin	Garamycin, Genoptic, Gentacidin, Gentak, Ocu-mycin	Soln, 0.3%	Q1-6hr	Aminoglycoside-BC; active against <i>P.</i> <i>Aeruginosa</i> and <i>N. gonorrhoea</i>
	Garamycin, Genoptic, Gentacidin, Gentak, Ocu-mycin	Oint, 0.3%	QD-TID	
	N/A	Soln, 1.5%	Q1hr	Fortified ²

levofloxacin	Quixin	Soln, 0.5%	QID-QI/2 hr	Fluoroquinolone-BC; active against <i>P. Aeruginosa</i> and <i>Neisseria</i> species
metronidazole	MetroGel	Gel, 0.75%	BID	Periocular use for rosacea
moxifloxacin	Vigamox	Soln, 0.5%	TID-QI hr	Not for use in the eye Fluoroquinolone-BC; self-preserved; pH 6.8
neomycin	only available in combination medications (see below)			
norfloxacin	Chibroxin	Soln, 0.3%	QID-QI hr	Fluoroquinolone-BC
ofloxacin	Ocuflax	Soln, 0.3%	QID-QI hr	Fluoroquinolone-BC; active against <i>P. Aeruginosa</i> and <i>Neisseria</i> species;
oxytetracycline/ polymyxin B	AK-tetra, Terramycin, Terak	Oint, 0.5%/10,000 U	QD-QID	BC
polymyxin B/ bacitracin	AK-poly-bac, Polysporin, Polytracin	Oint, 10,000 U/ml/ 500 U/ml	QD-QID	BC
polymyxin B/ neomycin	AK-trol, Statrol	Soln, 16,250 U/ml/ 0.35%	QID	BC
	AK-trol, Statrol	Oint, 10,000 U/ml/ 0.35%	QD-QID	
polymyxin B /neomycin/ bacitracin	Neotal	Oint, 5,000 U/ml/ 0.5%/400 U/ml	QD-QID	BC
	AK-spore, Neosporin, Ocu-spor B	Oint, 10,000 U/ml/ 0.35%/400 U	QD-QID	

(continued)

A. TOPICAL ANTIBIOTICS (continued)

Drug	Trade	Preparation	Dose	Notes
polymyxin B/ neomycin/ gramicidin	AK-Spore, Neosporin, Ocu-spor G, Polymycin	Soln, 10,000 U/ml/ 0.35%/0.025%	QID	BC, gramicidin makes cell membrane more permeable
polymyxin B/ trimethoprim sulfacetamide	Polytrim AK-sulf, Bleph-10, Ophthacet, Ocusulf, Sulf-10	Soln, 10,000 U/ml/ 0.1% Soln, 10%	QID QID-Q1 hr	BC BS
sulfacetamide/ phenylephrine sulfisoxazole	AK-sulf Vasosulf Gantrisin Gantrisin	Oint, 10% Soln, 15%/0.125% Soln, 4% Oint, 4%	QD-QID QD-QID QID-Q1 hr QD-QID	BS; antibiotic with an alpha agonist BS
tetracycline tobramycin	Achromycin AKTOB, Defy, Tobrex AKTOB, Defy, Tobrex	Soln, 1% Soln, 0.3% Oint, 0.3% Soln, 1.5% Soln, 5%	QID-Q1/2 hr QID-Q1 hr QD-TID Q1 hr Q1 hr	BS Aminoglycoside, BC; active against <i>P. Aeruginosa</i> and <i>N. gonorrhoea</i> Fortified ² BS, fortified ² not for Gram negative coverage; reserve use for PCN-allergic patients and resistant organisms
vancomycin				

¹For antibiotic spectrum of topical agents, refer to Appendix 1.²Fortified medications not commercially available; refer to Appendix 2 for preparation instructions. BC = bacteriocidal; BS = bacteriostatic; N/A = not available.

B. ORAL ANTIBIOTICS

Drug	Trade	Dose	Notes
amoxicillin	Amoxil, Polymox	250–500 mg PO TID	Adult dose
amoxicillin/clavulanate	Augmentin	25–50 mg/kg/day PO in 3 divided doses 250–500 mg PO TID or 875 mg PO BID	Pediatric dose Adult dose
azithromycin	Zithromax	20–40 mg/kg/day PO in 3 divided doses 500 mg PO day 1, then 250 mg QD × 4 days 20 mg/kg × 1 (pediatric dose) 1000 mg PO × 1 (adult dose)	Pediatric dose Adult dose Dose for <i>Chlamydia conjunctivitis</i> ¹
cephalexin	Keflex	5–12 mg/kg/day PO in one dose for 5 days 250–500 mg PO QID	Pediatric dose Adult dose
cefuroxime axetil	Ceftin	25–50 mg/kg/day PO in 4 divided doses 250–500 mg PO BID	Pediatric dose Adult dose
ciprofloxacin	Cipro	20–30 mg/kg/day PO divided BID 250–750 mg PO BID	Pediatric dose Not for children or pregnancy Do not take with antacids; must modify dosage in renal failure Extended release formula
clarithromycin	Cipro XE Biaxin	500 mg PO QD 250–500 mg PO BID 15 mg/kg/day PO divided BID	Adult dose Pediatric dose

(continued)

B. ORAL ANTIBIOTICS (continued)

Drug	Trade	Dose	Notes
doxycycline	Vibramycin	100 mg BID	Can be used for ocular rosacea Not for children or pregnancy
erythromycin	E-mycin	250–500 mg PO QID	Adult dose
gatifloxacin	Avelox	30–50 mg/kg/day in 3–4 divided doses	Pediatric dose
levofloxacin	Levaquin	400 mg PO QD 500 mg PO QD	Not for children or pregnancy; must modify dosage in renal failure
minocycline	Minocin	100–200 mg PO BID	Not for children or pregnancy
ofloxacin	Floxin	200–400 mg PO BID	Not for children or pregnancy; must modify dosage in renal failure
	Achromycin	250–500 mg PO QID	Can be used for ocular rosacea Not for children or pregnancy Do not take with food, milk products, or antacids

¹From *Arch Ophthalmol* 1998;116:1625–1628; *Ophthalmology* 1998;105:658–661.

C. ANTIBIOTICS FOR SUBCONJUNCTIVAL/INTRAVITREAL INJECTION

	Subconjunctival injection ¹	Intravitreal injection ²	Notes
(1) Aminoglycosides³			
amikacin	25 mg	0.2–0.4 mg	
gentamicin	10–20 mg	0.2–0.4 mg	
kanamycin	30 mg	N/A	
neomycin	125–250 mg	N/A	Rarely used
tobramycin	10–20 mg	0.1–0.4 mg	
(2) Penicillins			
ampicillin	50–150 mg	0.5 mg	
carbenicillin	100 mg	0.25–2.0 mg	Rarely used
methicillin	50–100 mg	1.0–2.0 mg	
penicillin G	0.5–1.0 million units	N/A	
ticarcillin	100 mg	N/A	
(3) Cephalosporins			
cefazolin	100 mg	2.0–2.25 mg	First generation, rarely used
ceftazidime	200 mg	2.25 mg	Third generation

(continued)

C. ANTIBIOTICS FOR SUBCONJUNCTIVAL/INTRAVITREAL INJECTION (continued)

	Subconjunctival injection ¹	Intravitreal injection ²	Notes
(4) Others			
bacitracin	5,000 U	N/A	
chloramphenicol	N/A	1.0 mg	Rarely used
clindamycin	15–50 mg	1.0 mg	
erythromycin	100 mg	0.5 mg	almost never used
polymyxin B sulfate	100,000 U	N/A	almost never used
vancomycin	2.5 mg	1.0 mg	

¹Subconjunctival dose should be in a volume of 0.5 ml.

²Intravitreal dose should be in a volume of 0.1 ml.

³All intravitreal injections of aminoglycosides have potential for macular necrosis.

N/A = not available

D. REGIMENS FOR SPECIFIC ORGANISMS

(1) Syphilis^{1,2}

Note: Both patient and sexual partners must be evaluated for other sexually transmitted diseases, including HIV.