NCLEX 2026 · VISUAL REFERENCE SYSTEM: SENSORY · PHARMACOLOGY · SKILLS

Ophthalmic & Otic *Drops*

A side-by-side clinical reference for nursing care, administration technique, and patient teaching for eye and ear medications — including drug classes, NCLEX traps, and a full NCJMM scenario.

SKILLS · PHARM · PATIENT ED | 17 TASKS · 12 DRUGS · 6 TRAPS | REFERENCE: SAUNDERS · ATI · LIPPINCOTT

01 · Overview

What & Why

TOPICAL SENSORY MEDICATIONS — LOCAL ACTION WITH SYSTEMIC RISK

OPHTHALMIC

Eye Drops / Ointments

Delivered into the **lower conjunctival sac** to treat glaucoma, infection, allergy, inflammation, or dilate/constrict the pupil. Despite being "topical," drugs can be absorbed systemically through the nasolacrimal duct — pressure on the inner canthus blocks this.

OTIC

Ear Drops

Delivered into the **ear canal** to treat infection, soften cerumen, or relieve pain. Solutions must be warmed to **room temperature** to prevent vestibular stimulation that causes dizziness, vertigo, and nausea.

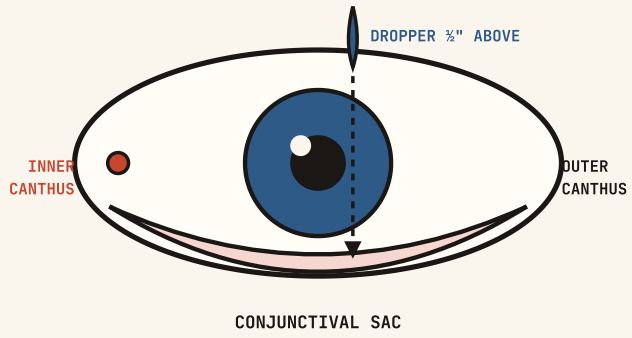
½"	10 sec	5 min	I → O
DROPPER HEIGHT	NASOLACRIMAL PRESS	SIDE-LYING POST-OTIC	EYE IRRIGATION

02 · Anatomy & Mechanism

Where the Drop Goes

VISUALIZE THE STRUCTURES — THE RIGHT ANATOMY = THE RIGHT TECHNIQUE

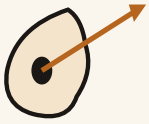
Eye — Lower Conjunctival Sac



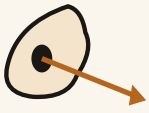
PULL LOWER LID DOWN → DROP INTO SAC → CLOSE EYE → PRESS INNER CANTHUS 10 SEC

Ear — Canal Direction by Age

ADULT: UP & BACK ↗



CHILD <3: DOWN & BACK ↘



STRAIGHTENING THE CANAL LETS THE DROP REACH THE EARDRUM CLEANLY

03 · Administration Steps

How to Give the Drop

SEQUENTIAL TECHNIQUE THAT THE NCLEX LOVES TO TEST

Eye Drops & Ointments

1 Position the Client
Have the client tilt the head back and look up toward the ceiling.

2 Expose the Sac
Gently pull the lower lid down with a gauze pad to expose the **conjunctival sac**.

3 Hold Dropper Correctly
Hold dropper **½ inch above the eye** — never touch the cornea, lid, or lashes (contamination).

4 Instill the Drop
Drop into the **lower conjunctival sac** — NEVER directly onto the cornea (it stings + risks injury).

5 Apply Pressure
Press the **nasolacrimal sac (inner canthus) for 10 seconds** to prevent systemic absorption.

6 Ointment? Inner Lid + Close
Apply ointment along the **lower inner eyelid**, then have the client gently close eyes and roll them.

Ear Drops

1 Warm the Solution
Bring drops to **room temperature** (roll bottle in hands). Cold or hot = vertigo, dizziness, nausea.

2 Position Side-Lying
Affected ear up. Adult: pull pinna **UP and BACK**. Child < 3 yrs: pull pinna **DOWN and BACK**.

3 Hold Dropper Correctly
Hold dropper **½ inch above the canal** — do not touch the ear with the dropper tip.

4 Stay Side-Lying 5 min
Keep client on their side for **5 minutes** — gravity carries the drops to the tympanic membrane.

04 · Eye vs Ear at a Glance

Side-by-Side Compare

IF YOU MIX THESE UP ON THE NCLEX, YOU'LL LOSE EASY POINTS

EYE

- Drop into **lower conjunctival sac**
- Dropper **½ inch above** the eye
- Irrigation: **inner → outer** canthus ("I to O")
- Press **inner canthus 10 sec** after
- Ointment: lower inner lid, then close eyes
- Multiple drops: wait **5 min** between
- Drops before ointment if both ordered

vs

EAR

- Drop into **ear canal**
- Dropper **½ inch above** the canal
- Adult: pinna **UP & BACK**
- Child < 3: pinna **DOWN & BACK**
- Solution must be **room temp**
- Stay **side-lying 5 min** after
- Cotton ball at canal opening (loose, not packed)

05 · Pharmacology

Eye Drug Classes

ACTION ON PUPIL + IOP — THE FOUR CLASSES THAT SHOW UP MOST OFTEN

CLASS	EXAMPLES	ACTION	KEY EFFECTS / SIDE EFFECTS
Carbonic Anhydrase Inhibitors	Acetazolamide (Diamox)	↓ aqueous humor production → ↓ IOP (glaucoma)	**Diuresis** (most common SE); monitor K^+
Mydriatics	Phenylephrine (Neo-Synephrine), Atropine	**D**ilate the pupil — "**M-D**" = My-D = Dilate	Tachycardia, photophobia, blurred vision
Anticholinergics	Atropine, Cyclopentolate	Dilate pupil + cycloplegia (paralyze iris/accommodation)	Tachycardia, photophobia, dry mouth
Miotics	Pilocarpine, Timolol (any "–olol")	**C**onstrict the pupil → open trabecular meshwork → ↓ IOP	Contact dermatitis; bronchospasm/bradycardia with beta-blockers

GLAUCOMA RULE

Constrict to ↓ pressure. Miotics (Pilocarpine, Timolol) and carbonic anhydrase inhibitors (Diamox) *lower* IOP — these are the glaucoma drugs. Mydriatics and anticholinergics **raise IOP** and are **contraindicated** in closed-angle glaucoma.

EAR DROPS

Common otic agents: antibiotic/steroid combos (**Ciprodex, Cortisporin Otic**), cerumenolytics (**carbamide peroxide / Debrox**), and antifungals. **Do NOT use if tympanic membrane is perforated** unless specifically ordered — risk of ototoxicity.

06 · Red Flags

Stop & Reassess

FINDINGS THAT WARRANT IMMEDIATE ACTION OR HCP NOTIFICATION

Eye Pain or Sudden Vision Loss ⚠

After mydriatic in undiagnosed client — suspect **acute angle-closure glaucoma**. Hold drug, notify HCP STAT.

Tachycardia / Palpitations ⚠

Systemic absorption of mydriatic or anticholinergic — confirms inadequate nasolacrimal pressure. Reinforce technique.

Bradycardia / Wheezing ⚠

Systemic beta-blockade from Timolol — assess HR & lung sounds. Hold for HR < 60 or bronchospasm.

Vertigo / Severe Dizziness ⚠

Ear drops given **cold** stimulate the vestibular system. Warm next dose; reassess balance & fall risk.

Drainage or Bleeding from Ear ⚠

Possible **perforated TM** — do not instill drops unless specifically ordered. Notify HCP.

Eye Drop Onto Cornea Directly ⚠

Causes stinging, blink reflex, abrasion risk. Reposition and re-instill into the **conjunctival sac**.

07 · NCLEX Test Traps

What Students Get Wrong

COMMON DISTRACTOR LOGIC — AND THE CORRECT ANSWER

✗ WRONG CHOICE	✓ CORRECT
"Place the drop directly onto the cornea for fastest absorption."	Place into the **lower conjunctival sac**. The cornea is highly innervated — drops on the cornea sting, trigger blinking, and risk abrasion.
"For a 2-year-old with otitis media, pull the pinna up and back."	Children **under 3**: pull pinna **DOWN and BACK**. The auditory canal is shorter and angled differently than in adults.
"Refrigerate ear drops to soothe the inflamed canal."	Ear drops must be at **room temperature**. Cold solution stimulates the vestibular apparatus → vertigo, nausea, vomiting.
"Irrigate the eye from the outer canthus toward the inner canthus."	Flow is **INNER → OUTER** ("I to O" alphabetically). This prevents flushing contaminants into the nasolacrimal duct.
"Atropine eye drops are safe for a client with closed-angle glaucoma if used short-term."	Atropine (mydriatic/anticholinergic) **dilates the pupil → blocks trabecular outflow → raises IOP**. It is **contraindicated** in closed-angle glaucoma.
"Give the ophthalmic ointment first, then the eye drop."	**Drops before ointment.** Ointment creates an oily film that would block subsequent drops from absorbing. Wait 5 min between drops if multiple are ordered.

08 · Patient Education

What to Teach the Client

SELF-ADMINISTRATION SAFETY + ADHERENCE

👁 Eye Drop Teaching

- ✓ Wash hands before and after every dose
- ✓ Tilt head back, look up, pull lower lid down
- ✓ Drop into the pocket — not the eyeball itself
- ✓ Press the inner corner of the eye for **10 seconds** after instilling
- ✓ Wait **5 minutes** between different eye drops
- ✓ Drops before ointment — ointment goes last
- ✓ Don't touch dropper tip to eye or any surface
- ✓ Remove **contact lenses** before drops (re-insert 15 min after, unless contraindicated)
- ✓ Report eye pain, vision changes, or persistent redness

👂 Ear Drop Teaching

- ✓ Wash hands before and after every dose
- ✓ Warm drops by rolling bottle in your hands — **never microwave**
- ✓ Lie on your side, affected ear up
- ✓ Adult: pull ear **UP and BACK**; young child: **DOWN and BACK**
- ✓ Stay on your side **5 minutes** after instilling
- ✓ Place a loose cotton ball at the opening — don't pack it
- ✓ Don't put anything (Q-tip, finger) deep in the canal
- ✓ Report drainage, severe pain, fever, or hearing loss
- ✓ Finish the full antibiotic course even if symptoms improve

09 · Memory Boosters

Mnemonics & Patterns

ANCHOR THE TRICKIEST PIECES

I → O
EYE IRRIGATION

Flow goes from **I**nner canthus to **O**uter canthus — alphabetical order.

My-D
MYDRIATIC = DILATE

MyD**r**iatic — the "**D**" tells you it **D**ilates the pupil.

UB · DB
EAR CANAL BY AGE

Up & **B**ack (adult — older = "up"); **D**own & **B**ack (child < 3).

SAC
WHERE THE DROP GOES

See the **A**perture (lower lid pulled) → drop in the **C**onjunctival sac, not the cornea.

10 / 5
TIME RULES

10 sec inner canthus pressure (eye); **5** min side-lying after ear drops; **5** min between eye drops.

C-LOL
MIOTICS FOR GLAUCOMA

Constricts pupil → "–**LOL**" drugs (Timolol) + Pilocarpine lower IOP.

NCJMM · STEP-BY-STEP

Clinical Judgment Scenario

NEXT GENERATION CLINICAL JUDGMENT MEASUREMENT MODEL — FULL 6-STEP WALKTHROUGH

Scenario: *A 68-year-old client with* ***open-angle glaucoma*** *is admitted for cataract surgery prep. The client takes* ***Timolol 0.5% ophthalmic 1 gtt OU BID*** *and* ***Latanoprost 1 gtt OU at bedtime*** *at home. The nurse observes the client self-instill the morning Timolol dose: the client drips both drops directly onto the cornea, immediately blinks and tears stream down the cheek, then wipes the eye and walks to the bathroom. Vital signs: HR 54, BP 108/62, SpO_2 96%, RR 18. The client reports occasional wheezing "when I'm out walking."*

1 RECOGNIZE CUES

Drops onto cornea (not sac), no nasolacrimal pressure, tearing (drug lost via nasolacrimal duct), HR 54, history of wheezing, two glaucoma drops without timed spacing.

2 ANALYZE CUES

Improper technique → systemic absorption of Timolol (beta-blocker) → bradycardia + bronchospasm risk. Drops washed out before therapeutic effect. Two drops given simultaneously = second one diluted/displaced.

3 PRIORITIZE HYPOTHESES

Priority 1: systemic beta-blocker effect (HR 54, wheezing history). **Priority 2:** ineffective dose → uncontrolled IOP → vision loss risk. **Priority 3:** knowledge deficit in technique.

4 GENERATE SOLUTIONS

Assess apical HR + lung sounds; hold next Timolol if HR < 60 or wheezing; teach correct technique (sac, ½" above, 10-sec inner canthus press, drops 5 min apart); demonstrate; have client teach-back.

5 TAKE ACTION

(1) Assess HR & lungs now. (2) Notify HCP of HR 54 + wheezing on beta-blocker. (3) Re-instill missed dose into conjunctival sac with proper technique. (4) Provide written + return-demo teaching. (5) Document.

6 EVALUATE OUTCOMES

HR returns to ≥ 60, no wheezing post-dose, client demonstrates correct technique (sac placement, ½" height, 10-sec press, 5-min spacing), IOP within goal at follow-up.

Source Transparency

Reference Notes

WHERE THE CONTENT CAME FROM

DIANE'S UPLOADED NOTES: Eye Drugs #2 (carbonic anhydrase inhibitors, mydriatics, anticholinergics, miotics, administration technique, irrigation direction) and Medication Administration (cards 39–47: eye/ear administration, nasolacrimal pressure, pinna direction, post-instillation positioning, dropper height).
SUPPLEMENTARY CLINICAL REFERENCES: Saunders Comprehensive Review for the NCLEX-RN Exam · ATI RN Pharmacology Made Easy · Lippincott Illustrated Reviews: Pharmacology · American Academy of Ophthalmology patient education guidelines · current product labeling for Timolol, Pilocarpine, Atropine ophthalmic, and Ciprodex otic.
NOTE: NCJMM scenario is original, constructed for this study reference and not drawn from Diane's notes.