✧ NCLEX-RN · 2026 TEST PLAN

ANTIHYPERLIPIDEMICS · CARDIOVASCULAR RX

Statins & Fibrates

HMG-CoA Reductase Inhibitors · Fibric Acid Derivatives

System · Cardiovascular / Metabolic Target · Dyslipidemia Goal · Prevent ASCVD

⚠ RHABDOMYOLYSIS RISK | ⚠ HEPATOTOXICITY | PREGNANCY CATEGORY X (STATINS) | HIGH-YIELD NGN

1 Drug Overview — Why We Give It

◆ STATINS (HMG-COA REDUCTASE INHIBITORS)

- **Primary target:** ↓ LDL ("bad" cholesterol) 30–50%
- **ASCVD prevention** — primary & secondary (post-MI, post-CABG, stroke)
- **Hyperlipidemia / familial hypercholesterolemia**
- **Diabetics age 40–75** with ↑ CV risk (guideline standard)
- Also: modest ↑ HDL, modest ↓ triglycerides, plaque stabilization

◆ FIBRATES (FIBRIC ACID DERIVATIVES)

- **Primary target:** ↓ Triglycerides 30–50%
- **Severe hypertriglyceridemia** (TG > 500 mg/dL) → **prevents pancreatitis**
- **Mixed dyslipidemia** — adjunct when statin alone inadequate
- Modest ↑ HDL; **minimal LDL effect**
- Used when diet + statins insufficient for TGs

2 Mechanism of Action — Visualized

STATINS

1. **Block HMG-CoA reductase** — the rate-limiting enzyme of hepatic cholesterol synthesis
2. Liver senses **low intracellular cholesterol** → upregulates **LDL receptors** on hepatocyte surface
3. More LDL pulled **out of bloodstream** → serum LDL drops 30–50%
4. **Pleiotropic effects:** anti-inflammatory, plaque stabilization, improved endothelial function

FIBRATES

1. **Activate PPAR-α** (peroxisome proliferator-activated receptor alpha) in liver
2. ↑ **Lipoprotein lipase** activity → faster breakdown of triglyceride-rich VLDL particles
3. ↓ Serum **triglycerides** and ↓ VLDL; modest ↑ HDL via ↑ ApoA-I synthesis

3 Therapeutic Effects — Is It Working? ✓

- **Statin lab targets** (check at 4–12 weeks, then every 3–12 months): **LDL ↓ 30–50%**, total cholesterol ↓, HDL slight ↑
- **Fibrate lab targets: Triglycerides ↓ 30–50%**, especially TG < 500 mg/dL to avoid pancreatitis
- **Clinical success:** ↓ rate of MI, stroke, revascularization (statins); ↓ pancreatitis episodes (fibrates)
- **NOT immediate** — lipid panel improvement typically seen by **4–6 weeks**; CV risk reduction over months–years
- **Lifestyle remains essential:** diet, exercise, smoking cessation — medication is adjunct, not replacement

4 Side Effects & Adverse Reactions

COMMON — USUALLY TOLERATED

- **Statins:** myalgia (mild muscle ache), HA, GI upset, constipation, mild ↑ LFTs
- **Fibrates:** dyspepsia, nausea, diarrhea, HA, rash
- Statin-associated **new-onset diabetes** (small but real risk; benefit still outweighs)
- Photosensitivity (mostly fibrates)

SERIOUS — REPORT IMMEDIATELY

- **RHABDOMYOLYSIS** → severe muscle pain/weakness + **dark/tea-colored urine** → AKI
- **HEPATOTOXICITY** → jaundice, RUQ pain, fatigue, ↑ AST/ALT > 3× ULN
- **CHOLELITHIASIS** (fibrates) → gallstones, cholecystitis
- Peripheral neuropathy (numbness, tingling) — rare, statin class
- Severe hypersensitivity: angioedema, SJS/TEN (rare)

RHABDO TRIAD TO MEMORIZE: severe muscle pain + weakness + dark urine (myoglobinuria). Combining a **STATIN** + **GEMFIBROZIL** = highest rhabdo risk — this combination is **CONTRAINDICATED**. If combo is necessary, **FENOFIBRATE IS PREFERRED**.

5 Priority Nursing Considerations

→ ASSESS & MONITOR

- **Assess** for muscle pain, weakness, tenderness — **every visit**
- **Monitor** baseline + follow-up LFTs (AST, ALT)
- **Monitor** lipid panel at 4–12 wks, then q3–12 months
- **Monitor** CK only if symptoms present (not routine)
- **Monitor** renal function — fenofibrate requires dose reduction in CKD
- **Assess** for pregnancy status before initiating statin

→ HOLD & NOTIFY

- **HOLD** if unexplained muscle pain + CK > 10× ULN → rhabdo workup
- **HOLD** if AST/ALT > 3× ULN or jaundice appears
- **HOLD** if patient becomes pregnant (statins) — **Category X**
- **HOLD** before major surgery per protocol; restart post-op
- **Contraindicated:** active liver disease, pregnancy/lactation (statins); severe renal/hepatic dz, gallbladder dz (fibrates)
- **Avoid combo:** gemfibrozil + statin (use fenofibrate if must combine)

⚠ KEY DRUG INTERACTIONS

- **Grapefruit juice** ↑ levels of **simvastatin, lovastatin, atorvastatin** via CYP3A4 inhibition → rhabdo risk. **Pravastatin, rosuvastatin, pitavastatin** are safer.
- **Macrolides** (erythromycin, clarithromycin), **azole antifungals**, **cyclosporine**, **protease inhibitors** → ↑ statin levels
- **Warfarin** + fibrate → ↑ INR → **bleeding risk**; reduce warfarin dose
- **Sulfonylureas** + fibrate → ↑ hypoglycemia risk
- **Red yeast rice** (contains natural lovastatin) — avoid stacking with statin

6 Labs & Diagnostics

LAB	NORMAL / GOAL	WHAT ABNORMAL MEANS
LDL cholesterol	< 100 mg/dL (< 70 high-risk)	Target for statin therapy; ↓ 30–50% expected
HDL cholesterol	> 40 M / > 50 F	Low HDL = added CV risk factor
Triglycerides	< 150 mg/dL	**> 500 = pancreatitis risk** → fibrate indicated
Total cholesterol	< 200 mg/dL	Trend down = therapy working
AST / ALT	< 40 U/L (baseline + PRN)	**> 3× ULN = HOLD drug, hepatotoxicity**
Creatine Kinase (CK)	< 200 U/L	**> 10× ULN + sx = rhabdomyolysis**
BUN / Creatinine	WNL	↑ Cr + myoglobinuria = AKI from rhabdo
Urinalysis	No blood / myoglobin	Tea-colored urine + (+) blood, no RBCs = myoglobinuria
HbA1c	< 5.7%	Monitor — statins can modestly ↑ glucose

7 Administration & Safety

STATINS — TIMING MATTERS

- **Simvastatin, lovastatin, fluvastatin** → take **at bedtime** (short half-life, matches nocturnal cholesterol synthesis)
- **Atorvastatin, rosuvastatin, pitavastatin** → **any time of day** (long half-life)
- Oral, with or without food (lovastatin **WITH** food)
- Swallow whole if extended-release
- Start low, titrate to lipid goals

FIBRATES — TIMING MATTERS

- **Gemfibrozil** → 30 min **before breakfast & dinner** (BID)
- **Fenofibrate** → once daily; some forms **with food** to ↑ absorption (check label)
- Oral only
- Do **not** crush extended-release tablets
- Adjust dose in renal impairment (fenofibrate)

8 Patient Education — Must-Know Points

- **Report immediately:** unexplained **muscle pain, tenderness, weakness**, or **dark/cola-colored urine** → rhabdo
- **Report:** yellowing of skin/eyes, RUQ pain, clay-colored stools, dark urine → liver issues
- **Avoid grapefruit juice** with simvastatin, lovastatin, atorvastatin
- **No alcohol excess** — compounds hepatotoxicity
- **Lifelong therapy** usually — don't stop abruptly without provider
- **Pregnancy:** use reliable contraception on statins; discontinue if pregnancy planned (Category X)
- **Lifestyle:** low-saturated-fat diet, exercise, smoking cessation, weight management
- **Don't double doses** if missed; skip and resume schedule
- Fibrates: report **RUQ pain, fever, nausea** → possible gallstones

9 ⚠ NCLEX Test Traps

- **TRAP:** "Take statin in morning." ✗ — **simvastatin/lovastatin go at BEDTIME**; atorvastatin & rosuvastatin are flexible.
- **TRAP:** "All statins interact with grapefruit." ✗ — only **CYP3A4-metabolized** ones (simva-, lova-, atorva-). Pravastatin/rosuvastatin/pitavastatin are safe.
- **TRAP:** Muscle aches = "just normal." ✗ — **any unexplained muscle pain = assess for rhabdo**, check CK, hold drug.
- **TRAP:** Routine CK monitoring. ✗ — **only draw CK if symptomatic**. LFTs are the baseline lab.
- **TRAP:** "Statin is safe in pregnancy for borderline cholesterol." ✗ — **Category X, always discontinue.**
- **TRAP:** "Gemfibrozil + statin is fine if LDL is still high." ✗ — **contraindicated combo** (rhabdo). Choose **fenofibrate** if combo needed.
- **TRAP:** Mixing up targets — **statins for LDL, fibrates for triglycerides**. Don't reverse them on NGN matrix items.
- **TRAP:** "Stop taking once cholesterol is normal." ✗ — it's **maintenance therapy**; lipids rebound if stopped.
- **TRAP:** Red yeast rice as "natural alternative." ✗ — **contains lovastatin**; same risks + unregulated dose.

10 Memory Boosters

- **"-STATIN" suffix** → HMG-CoA reductase inhibitor → ↓ LDL
- **"-FIBRATE / gemFIBROZIL"** → PPAR-α agonist → ↓ Triglycerides
- **"M-D-L"** rhabdo red-flag triad: **M**uscle pain → **D**ark urine → **L**ab CK ↑
- **"L-L-S"** statins that need BEDTIME dosing: **L**ovastatin, **L**ovastatin's short-acting cousin fluvastatin, **S**imvastatin
- **"GAL"** — drugs that interact with grapefruit: **G**eneric statins ending in: Simva-, Lova-, Atorva- (short: **SLA**)
- **"Fibrates = Four letter TG"** → TG = Triglycerides target
- **"LFTs before, CK when sick"** — baseline AST/ALT always; CK only if muscle symptoms
- **"Gems are the problem"** → **GEM**fibrozil + statin = worst rhabdo combo

★ MOST-TESTED DRUGS IN THIS CLASS

STATINS

Atorvastatin
LIPITOR

Most prescribed. Long half-life → any time of day. Potent LDL ↓. Metabolized by CYP3A4 — watch grapefruit.

HIGH YIELD

Rosuvastatin
CRESTOR

Most potent LDL ↓ per mg. Minimal CYP3A4 metabolism → **safer w/ grapefruit**. Preferred in renal concerns (no adjustment needed at low doses).

HIGH YIELD

Simvastatin
ZOCOR

BEDTIME dosing (short half-life). Strong CYP3A4 interaction — avoid grapefruit. Classic NCLEX example.

HIGH YIELD

Pravastatin
PRAVACHOL

Not CYP3A4 metabolized → **grapefruit-safe**. Lower rhabdo risk. Preferred in polypharmacy / liver caution.

FIBRATES

Gemfibrozil
LOPID

BID, 30 min before meals. Do NOT combine with statins — high rhabdo risk. Strong warfarin interaction.

Fenofibrate
TRICOR · TRILIPIX

Once daily. **Preferred fibrate if statin combo needed**. Requires renal dose adjustment. Watch for gallstones.

HIGH YIELD

HIGH YIELD

⚖ KEY DIFFERENCES — STATINS VS FIBRATES

- **Target lipid:** Statin → **LDL** · Fibrate → **Triglycerides**
- **Mechanism:** Statin → blocks synthesis · Fibrate → ↑ breakdown via PPAR-α
- **Biggest danger:** Statin → **rhabdo + hepatotox** · Fibrate → **gallstones + rhabdo (combined)**
- **Pregnancy:** Statin = **Category X** · Fibrate = avoid, reproductive toxicity
- **Timing trap:** Simvastatin at **bedtime** · Gemfibrozil **BID before meals**

CLINICAL JUDGMENT SNAPSHOT

NGN / NCJMM · THINK LIKE THE NCLEX

#1 PRIORITY RISK

Rhabdomyolysis → myoglobinuria → acute kidney injury. Risk spikes with statin + fibrate (esp. gemfibrozil) or CYP3A4 inhibitors.

WHAT HARMS FIRST

Muscle breakdown releases myoglobin → clogs renal tubules → AKI. Liver injury is 2nd threat. Dark urine + muscle pain = emergency.

FIRST NURSING ACTION

HOLD the drug. Draw CK, BUN/Cr, urinalysis. Notify provider. Start IV fluids to protect kidneys. Do NOT resume without orders.