PHARMACOLOGY · REPRODUCTIVE HEALTH · WOMEN'S HEALTH

Hormonal Contraceptives

NCLEX-RN HIGH-YIELD

2026 NGN

1 Definition / Overview

- **Synthetic estrogen and/or progestin** used to prevent pregnancy by suppressing ovulation, thickening cervical mucus, and thinning the endometrium.
- **Most common reversible contraceptive method** — available as pills, patches, rings, injections, implants, and IUDs.
- **Effectiveness depends on adherence:** long-acting reversible contraceptives (LARCs) are most reliable; daily pills require strict timing.

COC PILL	PATCH	RING	DEPO INJ	IMPLANT	IUD
91% typical	91% typical	91% typical	94% typical	>99%	>99%

2 Mechanism of Action (Pathophysiology)

STEP 1 · HYPOTHALAMUS
Hormones suppress GnRH → ↓ **FSH & LH** from anterior pituitary

→

STEP 2 · OVARY
No **LH surge → ovulation inhibited** (no egg released)

→

STEP 3 · CERVIX
Progestin **thickens cervical mucus** → blocks sperm penetration

→

STEP 4 · UTERUS
Endometrium **thins/atrophies** → implantation prevented

KEY: Estrogen primarily suppresses ovulation (FSH); progestin handles cervical mucus + endometrial changes + slows tubal motility. Combined methods = both. Progestin-only methods rely mostly on mucus + endometrial effects (ovulation suppression is variable).

3 Side Effects & Adverse Reactions

Mild / Common (Usually Resolve in 2–3 Months)

- Nausea, breast tenderness
- Breakthrough bleeding / spotting
- Headache, mood changes
- Weight changes, bloating
- ↓ Libido, acne fluctuations
- Amenorrhea (esp. Depo & IUDs)

RED FLAG · Stop & Report Immediately

- **VTE / DVT / PE** — leg pain, swelling, dyspnea
- **Stroke / MI** — chest pain, weakness, numbness
- **Severe HTN** — BP elevation
- **Liver injury** — jaundice, RUQ pain
- **Vision loss** — papilledema, retinal thrombosis

ACHES — Teach EVERY Patient on Estrogen-Containing Contraceptives

A	**Abdominal pain**	Severe / RUQ → think liver tumor, gallbladder, mesenteric thrombosis
C	**Chest pain / SOB**	Pulmonary embolism or MI — call 911 immediately
H	**Headache (severe)**	New-onset, sudden, migraine with aura → possible stroke
E	**Eye problems**	Vision loss, blurring, diplopia → retinal thrombosis or stroke
S	**Severe leg pain**	Unilateral calf pain, swelling, redness → DVT

4 Priority Nursing Interventions

Before Initiation — ASSESS

- **Pregnancy status** — confirm not pregnant (HCG)
- **VTE risk:** personal/family hx of clots, Factor V Leiden, immobility
- **Smoking status** + age (>35 + smoker = NO estrogen)
- **Baseline BP** — must be controlled (<140/90)
- **Migraine with aura** — absolute contraindication for estrogen
- **Breast/cervical/liver disease** hx; current meds (interactions)

Ongoing Care — MONITOR & ADMINISTER

- **Monitor BP** at every visit (most q3–6 mo)
- **Assess for ACHES** at each encounter
- **Reinforce adherence** — same time daily for pills
- **Administer Depo IM** q11–13 weeks (deltoid or gluteal)
- **Stop estrogen 4 weeks before** major surgery (VTE risk)
- **Annual** well-woman exam, cervical screening per guidelines

ABSOLUTE CONTRAINDICATIONS to ESTROGEN: Pregnancy · Hx VTE/PE/stroke/MI · Smoker ≥35 yrs (≥15 cig/day) · Migraine with aura · Uncontrolled HTN (≥160/100) · Breast cancer (current/recent) · Active liver disease · Major surgery with immobilization · <21 days postpartum · <6 weeks postpartum if breastfeeding

5 Pharmacology — Methods at a Glance

COMBINED ORAL CONTRACEPTIVE (COC)

Ethinyl Estradiol + Progestin

USE	Daily oral pill — same time each day
SE	VTE, HTN, nausea, mood changes
CI	Smoker ≥35, VTE hx, migraine w/ aura
TEACH	Backup × 7 days; ACHES; missed dose protocol

PROGESTIN-ONLY PILL (POP / "MINI-PILL")

Norethindrone

USE	SAFE during breastfeeding & for estrogen-CI patients
SE	Irregular bleeding, HA, breast tender
WINDOW	Strict 3-hr window — late = use backup × 48 hr
TEACH	Take exactly same time daily; less forgiving than COC

INJECTABLE

Medroxyprogesterone (Depo-Provera)

DOSE	150 mg IM q11–13 weeks (deep IM)
SE	↓ **Bone density** (BBW), weight gain, amenorrhea
RETURN	Fertility return delayed 6–12 mo after stopping
TEACH	Calcium 1200 mg + Vit D + weight-bearing exercise

SUBDERMAL IMPLANT

Etonogestrel (Nexplanon)

USE	Inserted upper inner arm — lasts 3 yrs
SE	Irregular bleeding (most common reason for removal)
PROS	>99% effective; user-independent (LARC)
TEACH	Palpate site to confirm; report migration/pain

INTRAUTERINE DEVICE (IUD)

Levonorgestrel IUD (Mirena · Kyleena · Liletta) Copper IUD (ParaGard) — non-hormonal

DURATION	Hormonal: 3–8 yr · Copper: up to 10 yr
SE	Cramping, expulsion, perforation (rare)
WATCH	PID risk in first 20 days; **check strings** monthly
REPORT	PAINS — Period late, Abd pain, Infection, Not feeling strings, Strings longer/missing

TRANSDERMAL PATCH

Norelgestromin/Ethinyl Estradiol (Xulane)

USE	Apply to clean dry skin (NOT breast); change weekly × 3, then 1 patch-free wk
SE	Higher estrogen exposure → ↑ VTE vs pill
LIMIT	Less effective if >90 kg (198 lb)
TEACH	Rotate sites; avoid lotions on site

VAGINAL RING

Etonogestrel/Ethinyl Estradiol (NuvaRing · Annovera)

USE	NuvaRing in × 3 wk, out × 1 wk
SE	Vaginitis, leukorrhea, HA, VTE
IF OUT	>3 hr → backup contraception × 7 days
TEACH	Refrigerate spare; insert any depth — works systemically

EMERGENCY CONTRACEPTION (EC)

Levonorgestrel (Plan B) · Ulipristal (Ella) · Cu-IUD

PLAN B	OTC; effective ≤72 hr (best ASAP)
ELLA	Rx only; effective ≤120 hr; more effective if BMI >25
CU-IUD	Most effective EC; insert ≤5 days post-coitus
TEACH	**NOT abortifacient** — prevents/delays ovulation; does NOT protect against STIs

6 NCLEX Test Traps ⚠️

TRAP 1 · SMOKER + ESTROGEN
✗ **WRONG:** "Patient is 38, smokes a pack a day, wants COCs" → giving estrogen.
✓ **RIGHT:** Smokers ≥35 with ≥15 cig/day = **absolute contraindication** to estrogen → offer progestin-only, IUD, or implant.

TRAP 2 · ANTIBIOTICS & PILL FAILURE
✗ **WRONG:** Telling every patient on antibiotics to use backup contraception.
✓ **RIGHT:** Only **rifampin/rifabutin**, certain anticonvulsants (phenytoin, carbamazepine, topiramate), and **St. John's Wort** reliably ↓ COC efficacy. Most antibiotics do NOT — but counsel anyway if vomiting/diarrhea occurs.

TRAP 3 · POSTPARTUM & BREASTFEEDING
✗ **WRONG:** Starting COCs immediately postpartum.
✓ **RIGHT:** Estrogen is contraindicated <21 days postpartum (VTE risk) and <6 wk if breastfeeding (↓ milk supply). **POPs, implants, or IUDs are first-line** for breastfeeding moms.

TRAP 4 · MISSED PILL LOGIC (COC)
1 missed pill (<24 hr late): take ASAP, continue pack as scheduled — no backup needed.
2+ missed pills (or >48 hr late): take most recent pill ASAP, continue pack, **use backup × 7 days**; consider EC if unprotected sex in past 5 days.

TRAP 5 · DEPO & BONE HEALTH
✗ **WRONG:** Reassuring patient on Depo for 5+ years that there's "nothing to worry about."
✓ **RIGHT:** Depo carries a **Black Box Warning** for ↓ bone mineral density. Reassess use after 2 years. Push **calcium, vitamin D, weight-bearing exercise**.

TRAP 6 · SUDDEN CALF PAIN ON COCS — PRIORITY!
✗ **WRONG:** Apply warm compress and reassess in 1 hour.
✓ **RIGHT:** **Hold the pill, notify provider IMMEDIATELY, prepare for D-dimer/Doppler.** Unilateral calf pain = DVT until proven otherwise. ABCs & safety win.

TRAP 7 · IUD STRING SELF-CHECK
✗ **WRONG:** Tugging on the strings to "make sure it's in place."
✓ **RIGHT:** Feel for the strings monthly after menses — do not pull. Report missing, longer, or shorter strings (suggests expulsion or migration).

TRAP 8 · PLAN B MISCONCEPTIONS
✗ **WRONG:** Telling patient Plan B "ends a pregnancy."
✓ **RIGHT:** Plan B (levonorgestrel) **prevents or delays ovulation** — it is NOT an abortifacient and will NOT harm an established pregnancy. Most effective within 72 hr; sooner is better.

7 Patient Education

ADHERENCE
Take pill **at the same time daily** — set phone alarm. Use backup contraception × 7 days when starting any new method.

STI PROTECTION
Hormonal contraceptives DO NOT prevent HIV/STIs — **use condoms** for protection.

SMOKING
Encourage cessation; estrogen + smoking + age ≥35 = high risk for stroke, MI, VTE.

PRE-OP COUNSELING
Stop estrogen 4 weeks before major surgery; resume 2 wk after ambulating.

RECOGNIZE ACHES
Know the 5 warning signs — call 911 or seek emergency care immediately.

DRUG INTERACTIONS
Tell provider/pharmacist about **rifampin, anticonvulsants, St. John's Wort**, HIV meds — may ↓ effectiveness.

GI UPSET
Vomiting or diarrhea within 2 hr of pill = treat as missed dose. Use backup × 7 days.

FOLLOW-UP
BP check at 3 mo, then annually. Annual cervical screening per guidelines. Report missed periods (rule out pregnancy).

8 Memory Boosters

ACHES — Estrogen Warning Signs

- **A** Abdominal pain (severe)
- **C** Chest pain / SOB
- **H** Headache (sudden, severe)
- **E** Eye problems (vision loss)
- **S** Severe leg pain (DVT)

PAINS — IUD Warning Signs

- **P** Period late, abnormal spotting
- **A** Abdominal pain, pain w/ intercourse
- **I** Infection (abnormal discharge)
- **N** Not feeling well, fever, chills
- **S** String missing, shorter, or longer

"Smoke + Estrogen + 35 = STROKE"

Any patient ≥35 who smokes ≥15 cig/day should NEVER be on estrogen-containing contraception. Pivot to progestin-only methods, IUD, or implant.

"Mini-Pill for Mama"

Progestin-Only Pills are SAFE in breastfeeding (don't suppress milk). COCs are NOT — wait until ≥6 wk postpartum and milk is well established.

"Depo Drops Density"

Depo-Provera = bone loss (Black Box Warning). Push **C**alcium, vitamin **D**, **E**xercise (weight-bearing). Reassess after 2 years.

3 Mechanisms — The "3 M's"

- **M** **Mute** ovulation (suppress LH/FSH)
- **M** **Mucus** thickens (block sperm)
- **M** **Membrane** thins (no implantation)

Quick Decision Reference — Choose by Patient Profile

Patient Scenario	First-Line Choice	Why	Avoid
Smoker ≥35 yrs	POPs · Implant · IUD · Depo	Estrogen ↑ stroke/MI risk	COCs · Patch · Ring
Breastfeeding (< 6 wk PP)	POPs · Implant · IUD	Estrogen ↓ milk supply	COCs · Patch · Ring
History of VTE / Clotting	Cu-IUD · Levonorgestrel IUD	Non-hormonal or progestin-only safest	ALL estrogen methods
Migraine WITH aura	POPs · Implant · IUD	Estrogen ↑ ischemic stroke	COCs · Patch · Ring
Wants long-acting / "set & forget"	IUD (3–10 yr) · Implant (3 yr)	LARC; >99% effective	Daily pill if poor adherence
Heavy menstrual bleeding	Levonorgestrel IUD	↓ Bleeding 90% by 1 yr	Cu-IUD (↑ bleeding)
Adolescent	IUD or Implant (LARC)	Best efficacy, no daily action	Methods requiring high adherence
Unprotected sex within 72 hr	Plan B (LNG) · Ella (UPA) · Cu-IUD	Cu-IUD = most effective EC	Delaying — sooner = better
BMI >30 / weight >90 kg	Cu-IUD · Levonorgestrel IUD · Ella for EC	Patch & Plan B less effective at high BMI	Patch (>198 lb)
Pre-op (major surgery)	Hold estrogen × 4 wk pre-op	Reduce VTE perioperatively	Continuing COCs into surgery

Top 5 NCLEX Pearls — Memorize These

1. **ACHES = STOP estrogen.** If a patient on COCs presents with any ACHES symptom, the priority action is to **hold the medication and notify the provider immediately** — never reassess later, never apply heat to a possible DVT.
2. **Smoker ≥35 + Estrogen = absolute contraindication.** This is a recurring NCLEX distractor in select-all-that-apply questions.
3. **Plan B prevents/delays ovulation; it does NOT cause abortion** and will not harm an established pregnancy. Counsel patients accurately to relieve guilt/stigma.
4. **Depo-Provera** requires **calcium, vitamin D, and weight-bearing exercise** teaching due to BBW for bone density loss. Reassess at 2 years.
5. **Postpartum & breastfeeding moms** should receive POPs, implants, or IUDs — NOT estrogen-containing methods until milk is established and VTE risk has resolved.