NGN NCLEX 2026 • RENAL / GENITOURINARY SYSTEM

POLYCYSTIC KIDNEY DISEASE

A genetic disorder where fluid-filled cysts steadily replace functioning kidney tissue

GENETIC / INHERITED | PROGRESSIVE → CKD / ESRD | HIGH-YIELD: HTN + PAIN + HEMATURIA

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1 Definition / Overview

WHAT IT IS & WHY IT MATTERS

- An **inherited disorder** in which multiple fluid-filled cysts develop in both kidneys, enlarging them and crushing normal nephrons over time.
- As cysts grow, functioning tissue is lost → kidneys progress toward **chronic kidney disease (CKD)** and eventually **end-stage renal disease (ESRD)** needing dialysis or transplant.
- It is a **systemic** disease: cysts and complications also appear in the liver, and clients are at risk for **cerebral (berry) aneurysms** — a tested, life-threatening association.

ADPKD — ADULT TYPE

AUTOSOMAL DOMINANT • MOST COMMON

- Symptoms usually appear in the **30s–40s**.
- 50% chance of passing it to each child.
- Associated with **berry aneurysms** and **liver cysts**.

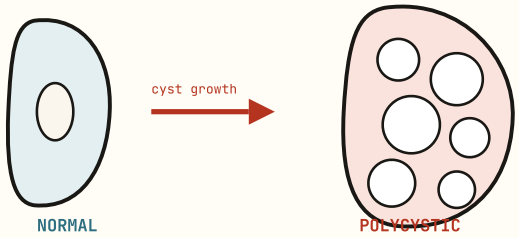
ARPKD — CHILDHOOD TYPE

AUTOSOMAL RECESSIVE • RARE

- Presents in **infancy / childhood**; far more severe.
- Both parents must carry the gene.
- Linked to **liver fibrosis** and poor prognosis.

2 Pathophysiology (Simplified)

GENE DEFECT → CYSTS → KIDNEY FAILURE



1. Inherited gene mutation (PKD1/PKD2) disrupts normal tubule cell function.
2. Fluid-filled **cysts form and multiply** throughout both kidneys.
3. Cysts enlarge → kidneys grow huge and **compress healthy nephrons**.
4. Reduced perfusion activates **renin-angiotensin → hypertension** (early, key sign).
5. Progressive nephron loss → **declining GFR → CKD → ESRD** (dialysis / transplant).

3 Signs & Symptoms

EARLY VS LATE • WATCH THE RED FLAGS

EARLY

- **Hypertension** (often the first finding)
- **Flank / abdominal pain** or fullness
- **Hematuria** (blood in urine)
- Nocturia, frequent UTIs / kidney stones
- Palpable abdominal masses (enlarged kidneys)

LATE

- Rising BUN / creatinine, **declining GFR**
- Edema, weight gain, fluid overload
- Anemia, fatigue, pruritus
- Proteinuria, oliguria → progression to ESRD
- Hepatic (liver) cysts → RUQ discomfort

RED FLAGS — REPORT / ACT IMMEDIATELY

- **Sudden severe headache, vision changes, neck stiffness** → possible **ruptured cerebral (berry) aneurysm** — neurologic emergency.
- **Gross bloody urine with severe flank pain** → cyst rupture or hemorrhage.
- **Uncontrolled hypertension** → accelerates kidney damage and aneurysm rupture risk.

4 Priority Nursing Interventions

ABC FRAMEWORK + SAFETY + PRIORITIZATION

A · B — Airway / Breathing

- Assess for **fluid overload**: monitor lung sounds for crackles and watch respiratory effort in worsening kidney function.
- For a suspected ruptured aneurysm, **protect airway** and prepare for neuro emergency.

C — Circulation

- **Monitor & control blood pressure** — the single most important intervention to slow progression and reduce aneurysm risk.
- Track **daily weight, strict I&O, edema**, and electrolytes; report rising BUN/creatinine.
- Assess urine for **hematuria**; monitor for signs of cyst hemorrhage.

SAFETY — Prevent harm

- Manage **pain** (warm compresses, prescribed analgesics — avoid nephrotoxic NSAIDs).
- Prevent & promptly treat **UTIs**; teach early infection reporting.
- Neuro checks for headache / vision changes given **berry aneurysm** risk.

SUPPORT — Teach / refer

- Provide **genetic counseling** referral (especially ADPKD — 50% to each child).
- Administer prescribed antihypertensives and reinforce **sodium / fluid limits** per orders.
- Emotional support — chronic, progressive, inherited disease.

5 Pharmacology

SLOW PROGRESSION • CONTROL BP • MANAGE SYMPTOMS

DRUG / CLASS	SIMPLE MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
ACE inhibitors / ARBs (e.g., lisinopril, losartan)	Block renin-angiotensin system → lower BP & protect kidneys	Hyperkalemia, dry cough (ACE), hypotension, dizziness	**First-line for BP control.** Monitor K^+ and creatinine; rise slowly from sitting/lying.
Diuretics (thiazide / loop)	Increase fluid excretion → reduce volume overload & BP	Hypokalemia (loop/thiazide), dehydration, dizziness	Daily weight & I&O; monitor electrolytes; give earlier in the day.
Tolvaptan (vasopressin V2 antagonist)	Slows cyst growth in rapidly progressing ADPKD	Excessive thirst, polyuria, **liver toxicity**	Monitor **LFTs**; ensure fluid access; teach about thirst/urination.
Antibiotics	Treat cyst infections / UTIs	Vary by agent; GI upset, allergy	Obtain cultures first; complete full course; choose agents that penetrate cysts.
Analgesics (acetaminophen preferred)	Relieve chronic flank/abdominal pain	Acetaminophen: hepatotoxicity at high doses	**AVOID nephrotoxic NSAIDs**; use acetaminophen as preferred OTC option.

6 NCLEX Test Traps ⚠

WHAT STUDENTS CONFUSE • PRIORITY VS NON-PRIORITY

✗ TRAP
"PKD is curable if treated early."

✓ CORRECT
There is **no cure**; care focuses on slowing progression and managing complications.

✗ TRAP
Treating the headache as a simple symptom.

✓ CORRECT
Sudden severe headache may signal a **ruptured berry aneurysm** — assess neuro status immediately.

✗ TRAP
Giving **NSAIDs** for the flank pain.

✓ CORRECT
NSAIDs are **nephrotoxic** — avoid them; acetaminophen is preferred.

✗ TRAP
Confusing ADPKD (adult, dominant) with ARPKD (child, recessive).

✓ CORRECT
Dominant = adult onset, common; Recessive = infant/child, rare & severe.

✗ TRAP
Ignoring blood pressure because BUN/creatinine "look okay."

✓ CORRECT
BP control is the top priority intervention from the start to protect kidneys.

✗ TRAP
Telling the client cysts are only in the kidneys.

✓ CORRECT
PKD is **systemic** — also affects the **liver** and risk of **cerebral aneurysms**.

7 Patient / Family Education

SELF-MANAGEMENT & PREVENTION

BLOOD PRESSURE & DIET

- Take antihypertensives **exactly as prescribed** — even when feeling well.
- Limit **sodium**; follow fluid and protein guidance per provider.
- Monitor BP at home and report sustained high readings.

KIDNEY PROTECTION

- **Avoid NSAIDs** and other nephrotoxic agents.
- Report **UTI signs** early (burning, fever, cloudy urine).
- Stay hydrated unless fluids are restricted.

WARNING SIGNS TO REPORT

- **Sudden severe headache or vision changes** (aneurysm).
- Bloody urine, severe flank pain, or fever.
- Swelling, rapid weight gain, decreased urine output.

GENETICS & SUPPORT

- Discuss **genetic counseling** — first-degree relatives may be screened.
- Keep regular nephrology follow-up & labs.
- Plan ahead for possible dialysis or transplant.

8 Memory Boosters

MNEMONICS & PATTERN RECOGNITION

PKD

P — Pressure up (Hypertension, the early hallmark)
K — Kidney cysts + flank pain & hematuria
D — Dominant in adults / Decline to ESRD

"CHAB"

The 4 classic clues:
C — Cysts (bilateral, enlarging)
H — Hypertension & Hematuria
A — Aneurysm (cerebral berry) risk
B — Bilateral flank pain + Big palpable kidneys

PATTERN RECOGNITION

`Dominant = aDult` (both start with "D") → common, shows up in 30s–40s.
`Recessive` → **R**eally early & **R**are (infants/children), more severe.
See **`HTN + flank pain + hematuria + family history`** together → think PKD.
Worst headache of their life in a PKD client = **`think aneurysm, assess neuro NOW.`**

NGN • NCJMM CLINICAL JUDGMENT SCENARIO

Bow-Tie: Recognize → Act → Evaluate

> A 38-year-old client with autosomal dominant polycystic kidney disease reports the "worst headache of my life," blurred vision, and new neck stiffness. BP is 198/112 mm Hg. The client also has bilateral flank tenderness and gross hematuria.

CONDITION

MOST LIKELY
RUPTURED CEREBRAL (BERRY) ANEURYSM

ACTIONS TO TAKE

- Perform immediate **neurologic assessment**; notify provider STAT.
- Initiate **seizure / aneurysm precautions**; keep environment calm & quiet.
- Prepare for **BP-lowering therapy** & emergency imaging (CT).

PARAMETERS TO MONITOR

- LOC & neuro status (Glasgow Coma Scale)
- Blood pressure trend
- Pupil response & motor function

WHY / RATIONALE

- PKD carries a **high risk of cerebral aneurysms**; sudden severe headache + neuro signs suggest rupture.
- **Severe HTN** raises rupture risk and must be controlled carefully.
- Early recognition is **time-critical** to prevent permanent injury or death.

SAVE AS PDF (COLOR)

Open in **Chrome** or **Edge** → Print (`Ctrl/Cmd + P`) → Destination: **Save as PDF** → set **Scale 65–70%** → under **More settings**, enable **Background graphics** so colors and shadows print. Choose Letter or A4. The layout is print-optimized and will keep its color blocks and section badges.

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