

Imaging & Cardiac Diagnostics

Key Imaging Tests

- ➔ **X-ray:** fastest; bone/air well visualized; radiation; no contrast needed
- ➔ **CT scan:** detailed cross-section; iodine contrast possible — check allergy, creatinine, metformin hold
- ➔ **MRI:** soft tissue detail; no radiation; contraindicated with ferromagnetic implants, pacemakers
- ➔ **Ultrasound:** no radiation; real-time; good for soft tissue, vascular, obstetric

Cardiac Diagnostics

- ✔ **12-lead EKG:** baseline rhythm; ST changes → MI; QT prolongation → arrhythmia risk
- ✔ **Holter monitor:** continuous 24–48h EKG; for intermittent arrhythmias
- ✔ **Echocardiogram:** cardiac structure and function; EF normal >55%
- ✔ **Stress test:** evaluate coronary perfusion; hold beta-blockers before

Invasive Procedure Prep & Post-care

Lumbar Puncture

Pre: Consent; empty bladder; lateral fetal position; sterile field
 Post: **Flat 1–4h; hydrate; monitor for headache, neuro changes**

Thoracentesis

Pre: Consent; sitting forward; mark site by US; sterile
 Post: **CXR after; monitor for pneumothorax; check breath sounds**

Paracentesis

Pre: Empty bladder; consent; ultrasound guidance preferred
 Post: **Monitor BP (fluid shift); albumin may be given; I&O**

Bronchoscopy

Pre: NPO 4–8h; consent; remove dentures; IV access
 Post: **NPO until gag reflex returns; monitor O₂ and sputum**

Cardiac Catheterization

Pre: Contrast allergy check; hold metformin; access site check
 Post: **Pressure dressing; bedrest; monitor for bleeding, pulses**

EKG Interpretation & Maternal Diagnostics

EKG — Key Rhythms to Recognize

- ➔ **Normal sinus:** P before every QRS; HR 60–100; regular
- ➔ **A-fib:** no distinct P waves; irregularly irregular; stroke risk
- ✘ **V-fib:** chaotic; no cardiac output — CPR + defibrillate immediately
- ✘ **V-tach:** wide QRS >3 beats; with pulse = cardiovert; pulseless = defibrillate
- ✘ **Heart block (3rd degree):** P and QRS not related — pacemaker needed

Maternal & Fetal Diagnostics

- ✔ **Nonstress test (NST):** reactive (normal) = 2 accelerations in 20 min; nonreactive = further eval
- ✔ **Amniocentesis:** fetal lung maturity, genetic testing; Rh-negative mom needs RhoGAM
- ✔ **Biophysical profile:** 5 components (NST + US); score 8–10 normal; <6 delivery may be indicated

Diagnostic Tests in Practice — What the RN Does

A patient is scheduled for an abdominal CT with contrast. Their creatinine is 2.1 mg/dL
 → Hold contrast — elevated creatinine indicates renal impairment; contrast nephropathy risk; notify provider; IV hydration may be ordered

After a thoracentesis, the patient develops sudden dyspnea and decreased breath sounds on the left
 → Pneumothorax — notify provider immediately; anticipate chest X-ray; prepare for chest tube insertion; monitor O₂ saturation

A patient on an MRI table mentions they have a cochlear implant
 → Stop — remove patient from MRI suite; cochlear implants contain magnets; this is a contraindication to MRI; notify radiologist

A patient's NST shows no accelerations in 40 minutes (nonreactive). What does the nurse do?
 → Notify provider — nonreactive NST requires further evaluation; biophysical profile or contraction stress test may be ordered

A patient returns from cardiac catheterization via the femoral artery. They are restless and the groin dressing is saturated
 → Arterial bleeding — apply firm manual pressure to site immediately; notify provider stat; assess VS; prepare for intervention

💡 **Always verify informed consent is on the chart BEFORE invasive procedures — nurse role is to ensure it exists, not obtain it.**

Quick-Fire Scenarios & NCLEX Tips

Q A patient is monitored during a procedure and develops V-fib on the monitor. They have no pulse. What does the nurse do?
 → *Call code; begin CPR; defibrillate as soon as available (unsynchronized shock) — V-fib = no cardiac output*

Q Which position is correct for a lumbar puncture?
 → *Lateral recumbent (fetal position) OR sitting forward over pillow — both widen intervertebral spaces*

Q A Rh-negative mother undergoes amniocentesis. What medication does the nurse anticipate?
 → *RhoGAM (Rh immunoglobulin) within 72 hours — prevents sensitization if fetal blood mixes during procedure*

Q What is the nurse's priority after a patient returns from bronchoscopy?
 → *Assess for return of gag reflex before giving food or fluids — aspiration risk until airway reflexes are intact*

💡 **NCLEX: MRI + pacemaker = contraindicated. CT contrast + renal failure = hold metformin. LP post-care = flat.**