THE STUDY VAULT

Clinical Chaos

Arterial Line Monitoring

SKILL SNAPSHOT

Purpose
- Provides continuous arterial blood pressure and access for arterial blood sampling.

When to use
- Hemodynamic instability, vasoactive titration, major surgery, frequent ABGs, or unreliable cuff pressure.

Supplies needed
- Arterial catheter system; transducer/monitor; pressure bag/flush; sterile caps; arm board; Doppler; sampling supplies.

PREP + PATIENT SETUP
- Verify site, indication, target MAP, alarms, sampling system, and limb-specific risks.
- Assess waveform, insertion site, dressing, securement, distal perfusion, and compare cuff pressure.

VAULT TIP
- Trace and label the line every shift—an arterial line must never be mistaken for venous access.

STEP-BY-STEP
1. Hand hygiene; identify patient; inspect site for bleeding, hematoma, drainage, redness, swelling, leakage, and catheter migration.
2. Assess distal pulse, color, temperature, cap refill, sensation, movement, and pain; compare opposite limb.
3. Confirm pressure bag is inflated per device standard and flush solution is adequate.
4. Level transducer at phlebostatic axis and zero to atmosphere. Relevel after position changes.
5. Perform fast-flush/square-wave test; correct air, clot, kinks, compliant tubing, or loose connections causing damping.
6. Verify arterial waveform and correlate MAP with patient exam and noninvasive BP. Keep alarms active.
7. Secure stopcocks/connections and use closed sampling system when available. Maintain aseptic technique.
8. For a sample, stop infusions nowhere—arterial lines are not infusion lines. Withdraw discard/clear dead space per system, collect sample, then return/flush as directed.
9. Remove all air from sample, cap, label at bedside, document oxygen/ventilator settings, and send promptly.
10. After sampling, ensure waveform returns, connections are closed, and no bleeding/air remains.
11. Never administer medication or routine IV fluid through arterial line.
12. Report absent distal pulse, cool/pale limb, severe pain, expanding hematoma, uncontrolled bleeding, waveform loss, or disconnection urgently.

SAFETY REMINDERS
- Accidental disconnection can cause rapid blood loss.
- No medications through arterial line.
- Distal ischemia requires urgent response.
- Air bubbles and damping distort readings.

COMMON MISTAKES
- Accepting poor waveform.
- Unlabeled line.
- No distal perfusion checks.
- Leaving stopcock open after sample.

DOCUMENTATION
- Site/dressing and distal neurovascular status.
- Level/zero/waveform and MAP trend.
- Pressure system checks.
- Samples and ventilator/oxygen settings.
- Complications/interventions.