SOP Template: Procedure-Specific Imaging Technique Instructions

This SOP provides detailed **procedure-specific imaging technique instructions** to ensure consistent and accurate imaging practices across various medical examinations. It covers the preparation steps, equipment settings, patient positioning, imaging protocols, quality control measures, and safety precautions tailored to specific imaging procedures. The goal is to enhance diagnostic image quality, optimize patient safety, and standardize operation workflows within imaging departments.

1. Scope

This standard operating procedure (SOP) applies to all diagnostic imaging personnel involved in carrying out imaging examinations (e.g., X-ray, MRI, CT, Ultrasound) within the department.

2. Responsibilities

- Imaging technologists: Accurate implementation of procedure-specific protocols.
- Radiologists: Oversight and protocol customization as required.
- Quality assurance personnel: Conducting periodic audits and equipment checks.

3. Procedure Instructions

3.1 Preparation Steps

1. Verify patient identity and obtain informed consent.
2. Review examination request and relevant clinical information.
3. Check for patient-specific contraindications (e.g., allergies to contrast, implants, pregnancy).
4. Ensure the procedure room is clean and all necessary supplies are available.
5. Calibrate and prepare equipment as per manufacturer recommendations.

3.2 Equipment Settings

- Adjust equipment settings according to the specific protocol (e.g., kVp, mA, slice thickness, frequency, gain).
- Utilize preset protocols where available but modify as needed for patient-specific factors.
- Document any deviations from standard settings and provide rationale.

3.3 Patient Positioning

- Position patient according to the anatomical area being imaged:
  - **X-ray:** Use appropriate immobilization devices as needed.
  - **MRI/CT:** Ensure patient comfort while maintaining precise alignment.
  - **Ultrasound:** Optimize probe placement and angle for region of interest.
- Apply radiation shields or safety pads as necessary.
- Confirm positioning with initial scout images or scans.

3.4 Imaging Protocols

Procedure	Key Protocol Steps	Parameters & Notes
Chest X-ray	• PA and lateral views • Deep inspiration	kVp: 110â€“125, mAs: 2â€“4, Grid use for adults
Abdomen CT	• Non-contrast and contrast phases • Breath-hold instructions	Slice thickness: 3mm, Contrast: 100ml IV, Window: Soft tissue
Brain MRI	• T1, T2, FLAIR sequences • Pre/post-contrast if indicated	Field strength: 1.5T or 3T, Slices: 5mm, FOV: 220mm

Procedure	Key Protocol Steps	Parameters & Notes
Pelvic Ultrasound	• Transabdominal and transvaginal (if appropriate) • Full bladder prep	Probe: 3â€“5 MHz (TA), 5â€“9 MHz (TV), Gain/Depth adjusted

4. Quality Control Measures

- Daily/weekly equipment performance testing and documentation.
- Peer review of imaging studies for adherence to protocols.
- Immediate corrective action for identified deviations.

5. Safety Precautions

- Confirm patient eligibility for procedure (e.g., screening MRI safety forms).
- Limit patient and staff radiation exposure following ALARA principles.
- Use personal protective equipment when indicated.
- Monitor patient during and after the procedure for adverse reactions.

6. Documentation

- Record all procedure details, settings, and patient responses in the medical record.
- Log any protocol deviations with justification.

7. References

- ACR Imaging Protocols
- Manufacturer equipment user manuals