Experity Teleradiology

X-Ray Protocols

ABDOMEN

Abdomen 1 View – KUB

- AP Supine Abdomen/pelvis to include kidneys and urinary bladder

Flat and Upright Abdomen (Two views)

- AP Supine
- AP Upright (include diaphragm)
- *Replace upright with left lateral decubitus (right side up) if patient is unable to stand*

Abdomen Flat/Upright With PA Chest (Acute Abdominal Series)

- AP Supine Abdomen
- AP Upright Abdomen
- PA Upright Chest (replace with left lateral decubitus if unable to stand)

Ingested Foreign Body in a Child

- Include AP soft tissue neck, PA or AP chest, full AP abdomen and pelvis
- Depending on child's size/age, images may be combined if all anatomy from top of pharynx through pubic symphysis is visible

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ACETABULUM

- AP Pelvis
- Bilateral Obliques (Judet Views)

ACROMIO-CLAVICULAR JOINTS

- AP with weights (bilateral AC joints)
- AP without weights (bilateral AC joints) – Must be seated or standing ERECT. Supine can give false results.

ANKLE

Routine

- AP
- Oblique (mortise view – align fifth toe with calcaneus or fifth metatarsal with central collimator line)
- Lateral (true lateral should display subtalar joints)

Ankle Limited

- AP and Lateral only

BONE AGE

- PA of Left Hand and Wrist

BONE SURVEY (ADULT)

Follow this order:

1. PA Chest
2. AP Bilateral Ribs
3. AP Abdomen (include full pelvis)
4. Skull (AP and Lateral)
5. Lateral C Spine (add swimmers if needed)
6. AP Right Humerus
7. AP Right Forearm
8. AP Left Humerus
9. AP Left Forearm
10. AP Right Femur
11. AP Right Tib/Fib
12. AP Left Tib/Fib
13. AP Left Femur
14. Lateral L Spine (add L5-S1 spot if needed)
15. Lateral T Spine

For extremities, include entire limb on 1 IR if possible; otherwise separate exposures to capture full anatomy.

CERVICAL SPINE

- 5-View: AP, Open Mouth Odontoid, Lateral, Bilateral Obliques, Swimmers (if needed)
- 3-View: AP/Odontoid, Lateral (erect if possible)
- 2-View: AP and Lateral
- Lateral Orientation: Patient facing your left

CHEST

Routine

- PA erect on inspiration
- Left Lateral (unless otherwise indicated)

Other Views

- Apical Lordotic when ordered
- Lateral Orientation: Patient facing your left

CLAVICLE

- AP (CR perpendicular)
- AP Axial (25–30° cephalic)

ELBOW

3-View

- AP, AP Internal Rotation (medial oblique), Lateral

5-View

- AP, Lateral, Bilateral Obliques, Radial Head view

2-View Limited

- AP and Lateral only

Orientation:

- Right Lateral – forearm points right
- Left Lateral – forearm points left

FACIAL BONES

4-View

- Waters, Caldwell, Submental Vertex, Lateral

3-View

- Waters, Caldwell, Lateral

2-View Limited

- Caldwell and Lateral

FEMUR

Routine

- AP (include both joints)
- Lateral (include both joints)

FINGER

3-View Routine

- PA, Oblique, Lateral (with separation of other digits)

Thumb

- AP, Oblique, Lateral

2-View Limited

- PA and Lateral only (separate from other fingers)

Image Orientation

- Fingers at the top of the image
- **Important Note**: History should state **named finger** (index, middle, etc.) **not** the numbered digit – numbered references often cause confusion/errors.

FOOT

Routine

- AP
- Oblique – Medial Rotation (eversion)

- Lateral – true lateral showing subtalar joint

  Limited
- AP and Lateral only

  Image Orientation
- AP & Oblique: Toes at top of image
- Lateral: Toes to the side
- Right foot: Great toe toward **left**
- Left foot: Great toe toward **right**

FOREARM

- AP
- Lateral

  Image Orientation
- Wrist/fingers at the top of the image

FOREIGN BODY IMAGING (Soft Tissue)

- Specify entry site and suspected foreign body
- Use tangential views
- Place BB marker at area of concern

HAND

Routine

- PA
- Oblique
- Lateral (fingers fanned, wrist true lateral)

  Limited
- PA and Lateral only

Image Orientation

- Left lateral: thumb points **right**
- Right lateral: thumb points **left**
- Fingers at top of image on all views

HIP

Hip and Pelvis

- AP Pelvis
- Coned AP of affected hip
- Oblique Lateral (Frog leg) *or* Cross-Table Lateral (Danelius Miller Method)
- For children: Frog Lateral

  Bilateral Hips & Pelvis
- AP Pelvis, Frog Lateral of each hip

  Hip Only

- AP Coned
- Frog Leg Lateral
  Concern for Acetabular Fracture
- Add Judet Views (Bilateral Obliques)

HUMERUS

- AP
- Lateral (internal rotation, include both joints)
- For trauma: Add Transthoracic Lateral View of proximal humerus

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IVP (Intravenous Pyelogram – Contrast)

Routine

- Scout AP (include kidneys & bladder)
- Tomo Scout if ordered
- 0 Min AP
- 5 Min AP
- 10 Min AP
- 10 Min Obliques (RPO, LPO)
- 15 Min PA
- Pre-Void Bladder AP (if bladder not seen on 15-min)
- Post-Void Bladder (ERECT)

KNEE

Routine 4-View

- AP
- Bilateral Obliques
- True Lateral

Routine 3-View

- AP
- True Lateral
- Internal Oblique

Limited

- AP and True Lateral only

Standing Knees

- AP Bilateral
- Lateral of each knee

Complete 6-View

- AP
- Bilateral Obliques (Internal & External rotation)
- True Lateral
- Notch View

- Sunrise View

3-View for Joint Spaces

- AP, Lateral, Sunrise
- Image Orientation: Patella up for Sunrise

LOWER LEG

- AP
- Lateral

LUMBAR SPINE

Routine

- AP
- Bilateral Obliques
- Lateral
- L5-S1 Lateral Spot

Limited

- AP, Lateral, L5-S1 Spot only

Flexion/Extension (All ERECT when possible)

- Lateral Neutral
- Lateral Flexion
- Lateral Extension
- *Ensure actual spine movement—not just forward bending at waist*

Bending Views (All ERECT when possible)

- AP Bending Right
- AP Bending Left

MANDIBLE

- PA
- Both Axio-Lateral Obliques
- AP Axial Towne (for condyles)
- Panorex if available

NASAL BONES

- Bilateral Laterals
- Modified Waters

ORBITS

Routine

- Modified Waters
- Caldwell
- Lateral

- Bilateral Rhese Views

Pre-MRI Orbits

- Modified Waters

OS CALCIS (HEEL)

Routine

- Lateral (coned to heel)
- Axial (40° cephalic angle toward plantar surface of foot)

Image Orientation:

- Axial view: Toes up, heel down

PATELLA

Routine

- Sunrise (Tangential)
- AP
- Lateral

Image Orientation

- Sunrise: Patella facing up
- Lateral: Toes directed to side

PEDIATRIC AGES FOR X-RAYS

- **C-spine**: AP, Lateral, Odontoid
- **Extremities (AP/OBL/LAT)**: ≤12 years
- **Spines (AP/LAT)**: ≤12 years
- **Sinuses**: All 3 views
- **Skull**: All 4 views
- **Facial Bones**: Waters, Lateral, PA (≤12 years)
- **Abdomen Series**: Cross-table lateral rectum for crawling age or younger
- **Foreign Body**: Soft tissue AP neck, Chest + Abdomen (combine if anatomy fits)
- **Upper/Lower Extremity (single order)**: ≤11 months; at 12 months, order humerus/forearm or femur/tib-fib separately
- **Soft Tissue Neck**: Cross-table Lateral and AP or PA

PELVIS

Routine

- AP
- Inlet/Outlet Projections

RIBS

General

- BB placed at tenderness site

- Image upper/lower ribs separately due to exposure differences
- Match chest orientation for rib views

Routine (Unilateral)

- PA Chest
- AP or PA
- AP or PA Oblique

Bilateral

- PA Chest
- AP or PA
- AP or PA Oblique

Note

- Right Anterior Ribs → LAO
- Left Anterior Ribs → RAO
- Right Posterior Ribs → RPO
- Left Posterior Ribs → LPO

SACRUM/COCCYX

Routine

- AP Axial Sacrum
- AP Axial Coccyx
- Lateral (include both sacrum and coccyx)

SCANOGRAM / LONG BONE MEASUREMENT

Lower Extremity Routine

- AP Legs (Hips to Ankles)

SCAPULA

Routine

- AP (arm abducted)
- Lateral (scapula in profile)

SCOLIOSIS SERIES

- Follow scoliosis protocol (not detailed in this document)

SHOULDER

Routine 3-View

- AP Internal Rotation
- AP External Rotation
- Y View
    - *Do NOT use tube angle method*
    - *If patient cannot rotate, do transthoracic lateral*

4-View (w/ Grashey)

- Add Grashey (45°)
    - *Grashey is preferred in ortho settings to detect posterior GH sublux/dislocation*

SHUNT SERIES

- AP Abdomen
- AP Chest (centered high to include neck)
- AP Skull
- Lateral Skull
- AP Cervical
- Lateral Cervical
- AP of dial (parallel to board if applicable)

SI JOINTS

- AP
- LPO
- RPO

SINUSES

Routine

- Caldwell
- Waters
- Lateral (affected side, erect if possible)

Limited

- Waters
- Lateral (affected side)

SKULL

Routine

- Towne
- PA
- Bilateral Laterals

Limited

- PA (or AP if applicable)
- Single Lateral

SOFT TISSUE NECK

- AP
- Lateral

STERNOCAVICULAR JOINTS

- PA (erect preferred)
- Bilateral Obliques
    - *RAO = Right SC joint*
    - *LAO = Left SC joint*
    - Use R/L markers to identify joint
    - Rotate body enough to prevent joint from superimposing spine

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STERNUM

- RAO
- Lateral

THORACIC SPINE

Routine

- AP
- Lateral
- Swimmers

Limited

- AP and Lateral
  Lateral Orientation: Patient facing **your left**

THORACOLUMBAR SPINE

- AP and Lateral of indicated area or fusion site
- *Confirm with ordering physician if unsure*

TMJ

- AP Towne
- Bilateral Open and Closed Mouth Laterals

TOE

Routine

- AP
- Oblique
- Lateral (separate from other toes)

Limited

- AP and Lateral only
  Orientation: Toes facing up

WEIGHT BEARING FEET

- Cross-Table Lateral (standing)

- AP of each foot (CR 10° toward heel)

WRIST

Routine 3-View

- PA
- Oblique
- Lateral

Limited

- PA and Lateral only

4-View (Scaphoid)

- PA
- Lateral
- Oblique
- PA w/ Ulnar Deviation (Scaphoid View – Trauma only)
  Orientation: Hand at top of image

ZYGOMATIC ARCHES

- Modified AP Axial Towne

IMAGE QUALITY CHECKLIST

Each facility is required to follow the "one body part per study" standard as outlined in our imaging protocols based on ACR Guidelines.

This means a separate study must be submitted for each individual body part—including initial, follow-up, and post-reduction images.

Adherence to this protocol promotes timely, accurate, and high-quality care by:

- Reducing delays and diagnostic confusion
- Improving coordination and communication across care teams
- Eliminating unnecessary rework, waste, and associated costs
- Enhancing the overall imaging experience for both patients and providers

Ultimately, this standard ensures imaging is not just compliant—but clinically effective, patient-centered, and operationally efficient.

The following items must be checked and verified prior to completion of the study:

1) Clinical indication for the exam must be provided, along with pertinent history (should be concise)
2) Proper anatomic position of all images- Medically appropriate and accurate image presentation is important for patient care. Haphazard (upside down and sideways) image presentation complicates radiologist evaluation, increasing risk of medical error.
3) Excess background light has been removed- Background around the images should be coned down and black **NOT** white. White background causes too much light to shine through and impairs the radiologist's visualization of the anatomy and jeopardizes patient care
4) Prior studies must be provided/loaded in PACS- Comparison to prior studies is necessary for proper patient care.
5) Check patient positioning- patients should be properly positioned for images per this protocol to ensure adequate visualization and patient care
6) Check for proper exposure -Too much or too little x-ray penetration will diminish accuracy of the exam. Also check for motion artifact and window -leveling.
7) Check image size and centering in PACS- Images should be sized to fit and centered in the monitor viewing area to provide optimal visualization for review and interpretation.
8) Check right versus left labeling- Assure accuracy and completeness of right versus left labels.