Reformatting Planes

- All Knee CTs get reformatted in 3 orthogonal planes using the BonePlus source images.
  - Reformatted images should be stored using a “Bone” window (1500/300).
  - Unless specifically requested, it is not necessary to make “Standard” reformats.
- In most cases, make the reformats 3mm thick at 3mm intervals (no gap) in all 3 planes.
  - If the request is for “OCD” (Osteochondral Defect, Osteochondritis Desicca) make the Coronal and Sagittal reformats 1mm thick at 1mm intervals (no gap).
- Coronal & Sagittal reformats are made off an Axial reference image.
  - Parallel & Perpendicular to a line through the back of the femoral condyles.

Axial reformats are made off a mid-coronal reference image.
- Parallel to the top if the tibial plateau.
- Annotate as to “Right” or “Left”.

3D Reformats
- Occasionally 3D reformats will be requested.
  - This should be ordered with a separate requisition, separate accession number.
- Use the standard algorithm source images (NOT BonePlus) for 3D reformatting.
- Create 2 models: One with all the bones, the other with the non-fractured bones removed.
  - e.g. for Tibial fractures, create the second model with the patella and femur removed.
- Rotate each model along the Vertical and Horizontal axes:
  - 36 images, 10° apart.

Sending to the PACS (ALI)
- Send the source images only to the “Source Folder”.
  - Do Not Send the Source Images to the “CT Folder”.
- Send all the sets of reformatted images to the “CT Folder”.
  - Also send the AP and Lateral Scout images to the “CT Folder”.
- Confirm the images have passed to the transmission queue.
- Once all images are sent to the PACS, end the requisition.
  - A green copy of the requisition should then print in the reading room.
University of Wisconsin CT Protocol Sheet

Knee

SCANNING TECHNIQUE

Positioning

- Patient Supine.
- Gantry straight up (0°).
- Slide patient over so that knee being imaged is centered in scanner.
- Tapping the toes together helps stabilize knees.
  - In most cases it is fine to leave the other knee straight and within the scanning field.
  - If the other knee is metal, try to bend it so it is NOT in the scanning field.
- Plaster casts are not a problem.
- Scout in 2 planes

Scanning Field Of View (FOV)

- The primary indication for a knee CT is to assess the alignment and degree of displacement of fracture fragments, particularly at the articular surfaces.
  - For this reason, the FOV must include:
    - The entire patella
    - Both femoral condyles in their entirety
    - The proximal tibia through the level of the fibular head
  - Unless specified, it is not necessary to image fractures along entire length of the femoral/tibial shafts
  - If scanning a metal knee prosthesis, it IS necessary to cover the entire length of both the femoral and tibial components!

Scanning Parameters

- Helical (as with most UW bone CTs).
- Thin, overlapping slices (as with most UW bone CTs).
  - For Knee (as well as wrist, ankle, feet) the helical slices should be:
    - 0.625 mm thick, at
    - 0.3 mm intervals
- “Small” Scanning Field of View
- If there is no metal use 200 mA; 120 kV
  - If scanning a metal knee prosthesis, USE MAXIMUM mA
    - Use 140 kV if CT tube will still yield max mA, otherwise use 120 kV
- Reconstruct use “BonePlus” (edge-enhanced) and “Standard” Algorithms.
- Send these images to the “source folder” on the PACS.