

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Unilateral Ribs**

<b>Routine:</b>	AP/ PA and AP/ PA Oblique
<b>Position/ Projection:</b>	<b>Erect or Recumbent (AP/PA)</b>
<b>Patient Prep:</b>	Remove everything from the waist up, including bra and jewelry.
<b>Technique:</b>	<b>Upper 81 kVp <math>\text{\textcircled{O}}\text{\textcircled{O}}</math>; non AEC 10 mAs (Bucky)</b> <b>Lower 85 kVp <math>\text{\textcircled{O}}\text{\textcircled{O}}</math>: non AEC 12.5 mAs (Bucky)</b>
<b>SID:</b>	40" SID
<b>Collimation:</b>	14 x 17 Portrait (lengthwise) for initial image- must collimate in side to side unless body habitus does not allow If lower (overlap) image required, collimate to maximum of 14 x 11 Landscape (crosswise)
<b>Patient Position:</b>	Patient is erect either AP or PA (supine or prone if patient unable to stand) depending on area of interest. <b>Anterior rib pain = PA      Posterior rib pain = AP</b> <ul style="list-style-type: none"><li>• Arms at sides slightly abducted so not superimposing anatomy. Shoulders relaxed.</li></ul>
<b>Central Ray:</b>	Perpendicular to the IR. Place the IR 1.5" above the upper border of shoulders. (This should put the CR entering around T7). Central ray should be halfway between MSP and lateral aspect of ribs. <ul style="list-style-type: none"><li>• View image. If image does not include the lower ribs then take another exposure, ensuring overlap.</li></ul> <p><i>*If doing PA and a lower image is needed, you must also place a 10-15 ° caudal angle on the tube. This places lower ribs below diaphragm.</i></p>
<b>Marker Placement:</b>	Appropriate right or left marker should be placed on the image as well as "ERECT" annotation- RH Protocol.
<b>Shielding:</b>	Gonadal shielding not required at RH
<b>Breathing Instructions:</b>	Upper image taken on full inspiration. Lower image taken on full expiration.

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Purpose/ Structures:** All 12 ribs on affected side in their entirety. PA projection will show anterior ribs in greater detail, and AP projection will show posterior ribs in greater detail.

**Evaluation Criteria:**

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- First through approximately ninth ribs visible above the diaphragm for upper ribs
- Eighth through twelfth ribs visible below the diaphragm for lower ribs
- Ribs visible through the lungs or abdomen according to the region examined
- No rotation

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Unilateral Ribs**

<b>Routine:</b>	AP/ PA and AP/ PA Oblique
<b>Projection:</b>	<b>AP or PA Oblique (RPO/ LPO or RAO/ LAO)</b>
<b>Technique:</b>	<b>Upper 81 kVp <math>\overset{\circ}{\bullet}\overset{\circ}{\bullet}</math>; non AEC 16 mAs (Bucky)</b> <b>Lower 85 kVp <math>\overset{\circ}{\bullet}\overset{\circ}{\bullet}</math> : non AEC 16 mAs (Bucky)</b>
<b>SID:</b>	40” SID
<b>Collimation:</b>	14 x 17 Portrait (lengthwise) for initial image- collimate in side to side if possible If lower (overlap) image required, collimate to maximum of 14 x 11 Landscape (crosswise)
<b>Patient Position:</b>	<b><i>If initial image was PA (anterior rib pain)</i></b> <ul style="list-style-type: none"><li>• Rotate body 45 degrees with affected side <b>AWAY</b> from IR. (RAO or LAO)</li><li>• Shoulders relaxed, arm of affected side up and out of way to carry the scapula away from the rib cage</li></ul> <b><i>If initial image was AP (posterior rib pain)</i></b> <ul style="list-style-type: none"><li>• Rotate body 45 degrees with affected side <b>TOWARDS</b> the IR. (RPO or LPO)</li><li>• Shoulders relaxed, arm of affected side up and out of way to carry to the scapula away from the rib cage</li></ul>
<b>Central Ray:</b>	Perpendicular to the IR. Place the IR 1.5” above the upper border of shoulders. (This should put the CR entering around T7). Central ray should be halfway between MSP and lateral aspect of ribs. <ul style="list-style-type: none"><li>• View image. If image does not include the lower ribs then take another exposure, ensuring overlap.</li></ul>
<b>Marker Placement:</b>	Appropriate right or left marker should be placed on the image as well as “ERECT” annotation- RH Protocol.
<b>Shielding:</b>	Gonadal shielding not required at RH
<b>Breathing Instructions:</b>	Upper image taken on full inspiration. Lower image taken on full expiration.

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Purpose/ Structures:** On RPO/LPO the axillary portion of the ribs closest to the IR is projected free from superimposition of the thoracic spine and posterior ribs are well shown.  
On RAO/ LAO the axillary portion of the ribs farthest from the IR is projected free from superimposition of the thoracic spine and anterior ribs are well shown.

**Evaluation Criteria:**

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Axillary portion of the ribs free from superimposition with the thoracic spine
- First through approximately ninth ribs visible above the diaphragm for upper ribs
- Eighth through twelfth ribs visible below the diaphragm for lower ribs
- Ribs visible through the lungs or abdomen according to the region examined
- Ribs of interest will be elongated compared to AP/PA

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Bilateral Ribs**

<b>Routine:</b>	Bilateral AP/ PA and Bilateral AP/ PA Obliques
<b>Position/ Projection:</b>	<b>Erect or Recumbent (AP/PA)</b>
<b>Patient Prep:</b>	Remove everything from the waist up, including bra and jewelry.
<b>Technique:</b>	<b>Upper 81 kVp  ; non AEC 10 mAs (Bucky)</b> <b>Lower 85 kVp  : non AEC 12.5 mAs (Bucky)</b>
<b>SID:</b>	40" SID
<b>Collimation:</b>	17 x 14 Landscape (crosswise) for initial image (collimate side to side if you can) If lower (overlap) image required, collimate to maximum of 17 x 11 Landscape (crosswise)
<b>Patient Position:</b>	Patient is erect either AP or PA (supine or prone if patient unable to stand) depending on area of interest. <b>Anterior rib pain = PA          Posterior rib pain = AP</b> <ul style="list-style-type: none"><li>• Arms at sides slightly abducted so not superimposing anatomy. Shoulders relaxed.</li></ul>
<b>Central Ray:</b>	Perpendicular to the IR. Place the IR 1.5" above the upper border of shoulders. (This should put the CR entering around T7). Central ray should be centered down MSP. <ul style="list-style-type: none"><li>• View image. If image does not include the lower ribs then take another exposure, ensuring overlap.</li></ul> <p><i>*If doing PA and a lower image is needed, you must also place a 10-15 ° caudal angle on the tube. This places lower ribs below diaphragm.</i></p>
<b>Marker Placement:</b>	Appropriate right or left marker should be placed on the image as well as "ERECT" annotation- RH Protocol.
<b>Shielding:</b>	Gonadal shielding not required at RH
<b>Breathing Instructions:</b>	Upper image taken on full inspiration. Lower image taken on full expiration.
<b>Purpose/ Structures:</b>	All 12 ribs in their entirety. PA projection will show anterior ribs in greater detail, and AP projection will show posterior ribs in greater detail.

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Evaluation Criteria:**

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- First through approximately ninth ribs visible above the diaphragm for upper ribs
- Eighth through twelfth ribs visible below the diaphragm for lower ribs
- Ribs visible through the lungs or abdomen according to the region examined
- No rotation
- \* Special note – Using AEC for bilateral ribs: Use upper two cells for first exposure of superior ribs. Then use center cell only for lower ribs.

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Bilateral Ribs**

<b>Routine:</b>	Bilateral AP/ PA and Bilateral AP/ PA Obliques
<b>Position/ Projection:</b>	<b>AP or PA Oblique (RPO/ LPO or RAO/ LAO)-bilaterally</b>
<b>Patient Prep:</b>	Remove everything from the waist up, including bra and jewelry.
<b>Technique:</b>	Upper 81 kVp  ; non AEC 16 mAs (Bucky) Lower 85 kVp  : non AEC 16 mAs (Bucky)
<b>SID:</b>	40" SID
<b>Collimation:</b>	14 x 17 Portrait (lengthwise) for initial image- collimate in side to side if possible If lower (overlap) image required, collimate to maximum of 14 x 11 Landscape (crosswise)
<b>Patient Position:</b>	<b><i>If initial image was PA (anterior rib pain)</i></b> <ul style="list-style-type: none"><li>• Rotate body 45 degrees with affected side <b>AWAY</b> from IR. (RAO or LAO)</li><li>• Shoulders relaxed, arm of affected side up and out of way to carry the scapula away from the rib cage</li></ul> <b><i>If initial image was AP (posterior rib pain)</i></b> <ul style="list-style-type: none"><li>• Rotate body 45 degrees with affected side <b>TOWARDS</b> the IR. (RPO or LPO)</li><li>• Shoulders relaxed, arm of affected side up and out of way to carry to the scapula away from the rib cage</li></ul>
<b>Central Ray:</b>	Perpendicular to the IR. Place the IR 1.5" above the upper border of shoulders. (This should put the CR entering around T7). Central ray should be halfway between MSP and lateral aspect of ribs. <ul style="list-style-type: none"><li>• View image. If image does not include the lower ribs then take another exposure, ensuring overlap.</li></ul>
<b>Marker Placement:</b>	Appropriate right or left marker should be placed on the image as well as "ERECT" annotation- RH Protocol.
<b>Shielding:</b>	Gonadal shielding not required at RH
<b>Breathing Instructions:</b>	Upper image taken on full inspiration. Lower image taken on full expiration.

Reading Hospital School of Health Sciences  
Medical Imaging Program  
MI 243 Clinical Seminar IV  
2022

**Purpose/ Structures:** On RPO/LPO the axillary portion of the ribs closest to the IR is projected free from superimposition of the thoracic spine and posterior ribs are well shown.  
On RAO/ LAO the axillary portion of the ribs farthest from the IR is projected free from superimposition of the thoracic spine and anterior ribs are well shown.

**Evaluation Criteria:**

- Evidence of proper collimation and presence of side marker placed clear of anatomy of interest
- Axillary portion of the ribs free from superimposition with the thoracic spine
- First through approximately ninth ribs visible above the diaphragm for upper ribs
- Eighth through twelfth ribs visible below the diaphragm for lower ribs
- Ribs visible through the lungs or abdomen according to the region examined
- Ribs of interest will be elongated compared to AP/PA