

## Radiography Protocols – Adult

For pediatric protocols, refer to Page 4 “Radiography Protocols – Pediatric”.

For Bone Survey examinations, refer to Pages 5-6 “Radiography Protocols – Bone Survey”.

If you have a question regarding a radiography protocol, consult the radiologist on duty.

Page numbers are for Bontrager KL and Lampignano JP, *Bontrager’s Handbook of Radiographic Positioning*, 8<sup>th</sup> Edition, Elsevier, 2014.

| Examination              | Views (as listed in Bontrager’s Handbook, 8 <sup>th</sup> Ed)   | Page |
|--------------------------|---|------|
| Abdomen Series           | AP Abdomen (KUB)  | 272  |
|                          | and Erect AP Abdomen  | 273  |
| AC joints                | Acromioclavicular (AC) joints   | 97   |
| Ankle                    | AP Ankle  | 118  |
|                          | and Lateral Ankle   | 122  |
|                          | and AP Mortise  | 120  |
| Arm (Humerus) - routine  | AP Humerus  | 67   |
|                          | and Rotational Lateral Humerus  | 69   |
| Arm (Humerus) - trauma   | AP Humerus  | 67   |
|                          | and Trauma Lateral Humerus  | 71   |
| Bone Age                 | PA Hand (Left)  | 33   |
| Cervical Spine – routine | AP for C1-C2 (Odontoid)   | 174  |
|                          | and AP Axial for Cervical Spine   | 177  |
|                          | and Lateral Cervical Spine  | 180  |
|                          | and Obliques, Cervical Spine  | 178  |
| Cervical Spine – Trauma  | Patient in hard collar & on backboard for Lateral, AP, and Odontoid; once hard collar is removed complete series taking Obliques, upright Lateral and Odontoid (if not obtained earlier). |      |
| Chest                    | PA Chest  | 4    |
|                          | and Lateral Chest   | 5    |
| Clavicle                 | AP and AP Axial Clavicle  | 92   |
| Coccyx                   | AP Coccyx   | 202  |
|                          | Lateral Coccyx  | 205  |
| Elbow                    | AP Elbow  | 54   |
|                          | and Oblique Elbow (Internal and External)   | 57   |
|                          | Lateral Elbow   | 59   |
| Facial Bones             | Facial Bones – PA (Caldwell)  | 242  |
|                          | and Parietoacanthial (Waters)   | 240  |
|                          | and Submentovertex (SMV) Skull  | 232  |
|                          | and Facial Bones – Lateral  | 238  |
| Femur                    | AP Femur  | 150  |
|                          | Lateral Femur   | 151  |
| Finger – Digits 2 - 5    | PA Hand   | 33   |
|                          | and PA Oblique Finger   | 24   |
|                          | and Lateral Finger  | 26   |
| Finger - Thumb           | PA Hand   | 33   |
|                          | and AP Thumb  | 27   |

|                             |  |     |
|-----------------------------|--|-----|
|                             | and Lateral Thumb                                    | 30  |
| Foot                        | AP Foot  | 108 |
|                             | and AP Oblique Foot                                  | 109 |
|                             | and Lateral Foot                                     | 111 |
| Forearm                     | AP Forearm   | 51  |
|                             | Lateral Forearm                                      | 52  |
| Hand                        | PA Hand  | 33  |
|                             | and PA Oblique Hand                                  | 35  |
|                             | and Lateral Hand (“fan” fingers)                     | 36  |
| Hands – rheumatoid          | PA Hand (Bilateral)                                  | 33  |
|                             | and Bilateral Oblique (Norgaard Method)              | 38  |
| Hip - routine               | AP Pelvis  | 162 |
|                             | and Lateral Hip (Nontrauma)                          | 157 |
| Hip - trauma                | AP Pelvis  | 162 |
|                             | and Lateral Hip (Trauma method)                      | 160 |
| Knee – routine              | AP Knee  | 128 |
|                             | and Lateral Knee                                     | 131 |
| Knee - Trauma               | AP Knee  | 128 |
|                             | and Lateral Knee (Cross-table) (Rotate in PACS)      |     |
|                             | and AP Oblique Knee (Medial and Lateral)             | 129 |
| Leg (Tib/Fib)               | AP Leg (Tibia-Fibula)                                | 125 |
|                             | and Lateral Leg (Tibia-Fibula)                       | 126 |
| Lumbar                      | AP (PA) Lumbar Spine                                 | 190 |
|                             | and Lateral Lumbar Spine                             | 192 |
|                             | and Lateral L5-S1 Lumbar Spine                       | 193 |
| Mandible                    | Mandible – PA  | 253 |
|                             | and AP Towne (include mandible)                      | 226 |
|                             | and Mandible – axiolateral obliques                  | 255 |
|                             | OR Panorex only (if available)                       |     |
| Mastoids                    | No routine radiographs (perform CT)                  |     |
| Nasal Bones                 | Facial Bones – Parietoacanthial (Waters)             | 240 |
|                             | and Nasal Bones - Lateral                            | 250 |
| Orbits<br>(Sinuses + Rhese) | PA Paranasal Sinuses (Caldwell)                      | 263 |
|                             | and Paranasal Sinuses (Waters)                       | 264 |
|                             | and Lateral Paranasal Sinuses                        | 261 |
|                             | and Optic Foramina (Rhese)                           | 245 |
| Pelvis                      | AP Pelvis  | 162 |
| Patella                     | PA Patella   | 137 |
|                             | Lateral Patella                                      | 138 |
|                             | Patella – Tangential Projection (Settegast)          | 141 |
| Ribs                        | AP or PA Ribs – Above Diaphragm                      | 217 |
|                             | and AP Ribs – Below Diaphragm                        | 218 |
|                             | and Anterior Oblique Ribs – PA                       | 220 |
|                             | and Posterior Oblique Ribs - AP                      | 221 |
| Sacroiliac (SI) Joints      | Sacroiliac Joints AP Axial                           | 207 |
|                             | and Sacroiliac Joints Posterior Obliques (Bilateral) | 208 |
| Sacrum                      | AP Sacrum  | 201 |

|                         |   |     |
|-------------------------|---|-----|
|                         | and Lateral Sacrum (and Coccyx)                   | 204 |
| Scapula                 | AP Scapula  | 94  |
|                         | and Lateral Scapula                               | 95  |
| Scoliosis               | Scoliosis Series AP Ferguson                      | 197 |
| Shoulder - routine      | AP Shoulder [external rotation]                   | 73  |
|                         | and Posterior Oblique (Grashey)                   | 81  |
|                         | and Inferosuperior Axial                          | 75  |
| Shoulder - trauma       | AP Shoulder [internal rotation]                   | 73  |
|                         | and Posterior Oblique (Grashey)                   | 81  |
|                         | and Lateral Shoulder Trauma Projection            | 88  |
| Shunt Series            | AP Towne (Skull)                                  | 226 |
|                         | and Lateral Skull                                 | 228 |
|                         | and PA Chest (overlap exposure with skull)        | 4   |
|                         | and AP Abdomen (overlap exposure with chest)      | 272 |
| Sinuses                 | PA Paranasal Sinuses (Caldwell)                   | 263 |
|                         | and Parietoacanthial (Waters)                     | 264 |
|                         | and Lateral Paranasal Sinuses                     | 261 |
| Skull                   | AP Towne  | 226 |
|                         | and Lateral Skull (bilateral)                     | 228 |
|                         | and PA Skull (Caldwell)                           | 230 |
|                         | and Parietoacanthial (Waters)                     | 240 |
| Soft Tissue Neck        | AP Neck<br>and Lateral Neck                       |     |
| Stent Graft Series      | AP Abdomen (KUB)                                  | 272 |
|                         | and Abdomen Dorsal Decubitus (Lateral)            | 276 |
|                         | and Bilateral 30 Oblique Abdomen                  |     |
| Sternoclavicular joints | No routine radiographs (perform CT)               |     |
| Sternum                 | Oblique Sternum                                   | 212 |
|                         | and Lateral Sternum                               | 213 |
| Thigh (femur)           | AP thigh  | 150 |
|                         | Lateral thigh                                     | 151 |
| TMJ                     | Bilateral tomographs with mouth open & closed     |     |
| Thoracic/Dorsal Spine   | AP Thoracic Spine                                 | 186 |
|                         | and Lateral Thoracic Spine                        | 187 |
|                         | and Lateral Cervicothoracic Spine (Swimmer's)     | 181 |
| Toes                    | AP Toes   | 102 |
|                         | and AP Oblique Toes                               | 103 |
|                         | and Lateral Toes                                  | 105 |
| Wrist - routine         | PA Wrist  | 40  |
|                         | and PA Oblique Wrist                              | 41  |
|                         | and Lateral Wrist                                 | 43  |
|                         | and [for trauma] PA Wrist – Ulnar Deviation       | 45  |
| Wrist – Scaphoid        | PA Axial Scaphoid (15° and 25° CR Angles)         | 46  |
| Zygomatic Arches        | Facial Bones – PA (Caldwell)                      | 242 |
|                         | and Facial Bones – Parietoacanthial (Waters)      | 240 |
|                         | and Bilateral Zygomatic Arches – AP Axial         | 249 |
|                         | and Zygomatic Arches – Bilateral (SMV projection) | 246 |

## Radiography Protocols – Pediatric

For any exams not listed here, refer to Pages 1-3 “Radiography Protocols – Adult”.

For Bone Survey examinations, refer Pages 5-6 “Radiography Protocols – Bone Survey” below.

If you have a question regarding a pediatric protocol, consult with the radiologist on duty.

| <b>Radiographic Routines Name</b>  | <b>Follow Pediatric Protocol until age:</b> | <b>Bontrager’s Handbook Description</b>                        | <b>Page</b> |
|------------------------------------|---|--|-------------|
| Abdomen Series – routine survey    | 0 – 6 months                                | AP Pediatric Abdomen (KUB)                                     | 278         |
| Abdomen Series – acute abdomen     | 0-3 years                                   | AP Pediatric Abdomen (KUB) and Left Lateral Decubitus Abdomen  | 278<br>275  |
| Abdomen Series – patient can stand | 3 – 16 years                                | AP Pediatric Abdomen (KUB) and AP Erect Pediatric Abdomen      | 278<br>279  |
| Abdomen for imperforate anus       | Newborn                                     | Cross-table prone abdomen; mark anal dimple with nipple marker |             |
| Bone age                           | 6 months and over                           | PA Left Hand   | 33          |
|                                    | Less than 6 months                          | AP pediatric lower limb  | 144         |
| Cervical Spine                     | 13  | AP for C1-C2 (Odontoid)  | 174         |
|                                    |   | and AP Axial for Cervical Spine                                | 177         |
|                                    |   | and Lateral Cervical Spine                                     | 180         |
| Chest                              | 3 years                                     | AP Pediatric Chest   | 15          |
|                                    |   | and Lateral Pediatric Chest                                    | 17          |
| Elbow                              | 0-2 years                                   | Pediatric AP Upper Limb  | 63          |
|                                    |   | and Pediatric Lateral Upper Limb                               | 64          |
| Hips/Pelvis                        | 0 – 2 years                                 | Pediatric AP and Lateral Hips                                  | 170         |
| Knee                               | 0 – 2 years                                 | Pediatric AP Lower Limb  | 144         |
|                                    |   | and Pediatric Lateral Lower Limb                               | 145         |
| Lumbar spine                       | Add cone-down at age 13                     | AP (PA) Lumbar Spine   | 190         |
|                                    |   | and Lateral Lumbar Spine                                       | 192         |
|                                    |   | and Lateral L5-S1 Lumbar Spine                                 | 193         |
| Skull                              | 0-3 years                                   | PA Caldwell  | 230         |
|                                    |   | and Lateral Skull  | 228         |

## Radiography Protocols - Bone Surveys

| Examination  | Views (as listed in Bontrager's Handbook)  | Page   |
|--|--|--|
| Bone Survey - Adult  | Bilateral AP Ribs<br>Bilateral AP Shoulders<br>Bilateral AP Humeri<br>and Bilateral AP Femurs<br>and AP Pelvis<br>and AP Towne Skull<br>and Lateral Skull<br>and AP Thoracic Spine<br>and Lateral Thoracic Spine<br>and AP Lumbar Spine<br>and Lateral Lumbar Spine<br>and Lateral Cervical Spine  | 217<br>73<br>67<br>150<br>162<br>226<br>228<br>186<br>187<br>190<br>192<br>180 |
| Bone Survey – Pediatric<br>Non-Accidental<br>Trauma; each anatomic<br>region should be<br>imaged with a separate<br>radiographic exposure.<br>Each extremity should<br>be radiographed in at<br>least the frontal<br>projection. | Skull (frontal and lateral) to include<br>cervical spine (if not completely visualized<br>on the lateral skull)<br>Thorax (AP, lateral, right and left<br>obliques), to include sternum, ribs,<br>thoracic and upper lumbar spine<br>Abdomen, to include the pelvis (AP)<br>Lumbosacral spine (lateral)<br>Humeri (AP)<br>Forearms (AP)<br>Hands (PA)<br>Femurs (AP)<br>Lower legs (AP)<br>Feet (AP)               |  |
| Bone Survey – Pediatric<br>Skeletal dysplasia and<br>syndromes   | As above, but entire arms and legs can be<br>exposed on a single film when the size of<br>the child permits. In newborns and young<br>infants, whole-body AP and lateral<br>radiographs may be appropriate, but<br>separate views of the skull (frontal and<br>lateral), hands (posteroanterior (PA)), and<br>feet (AP) are advisable. Lateral views of<br>the feet and ankles may be useful in<br>selected cases. |  |