



<b>National Imaging Associates, Inc.*</b>	
<b>Clinical guidelines PLAIN FILM X-RAYS</b>	<b>Original Date:            Adopted 2016</b>
<b>Physical Medicine – Clinical Decision Making</b>	<b>Last Revised Date:    October 2020</b>
<b>Guideline Number: NIA_CG_610</b>	<b>Implementation Date: July 2021</b>

**Policy Statement**

The use of plain films is medically necessary when clinical findings dictate their utilization. Films are not indicated to identify unsuspected contraindications to chiropractic manipulation, view postural changes and biomechanics, or identify subluxations. Insufficient scientific evidence exists to support the use of routine plain film radiographs as a means for improved clinical outcomes in spinal disorders. There is insufficient clinical research to support improved clinical outcomes when radiographs are a part of a routine component of the initial evaluation or ongoing treatment. This organization has adopted the Diagnostic Imaging Practice Guidelines for Musculoskeletal Complaints in Adults. These guidelines represent the official position of the Council on Chiropractic Guidelines and Practice Parameters in matters relating to the use of diagnostic imaging in the chiropractic profession.

The use of full spine radiographs, except for the clinical investigation and diagnosis of scoliosis, is not supported by clinical research.

Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.

**Purpose**

This policy will be used to support the medical necessity of plain film radiographs by chiropractic providers within the first 30 days of care.

**Scope**

This policy will apply to all participating network chiropractic practitioners.

**Definition**

Plain films:

Spinal or extremity radiographs used as a diagnostic tool by chiropractors.

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**Guidelines:**

- An appropriate history and examination are required to identify if plain films are clinically indicated.
- Utilization of radiographs by chiropractors will not be reimbursed unless sufficient medical record documentation is submitted with claims to support the medical necessity of the film. The clinical record must clearly document the rationale for the x-rays, any suspected pathology, or what condition the chiropractor hopes to rule out. The use of plain films to rule out an unsuspected pathology is not clinically indicated.
- Routine use of radiographs as part of the initial evaluation or part of an ongoing treatment plan will not be reimbursed.
- The use of full spine radiographs for any diagnosis other than scoliosis is not considered medically necessary and will not be reimbursed.
- Contraindications to plain film x-rays include:
  - Infants (0 - 36 months)
  - Pregnancy or possible pregnancy
  - Obesity, if size precludes good radiographic resolution
  - Patient has positioning difficulty due to mental status or physical restrictions, which precludes good radiographic resolution
  - Children 3 to 18 years of age, except for investigation of suspected acute fracture, dislocation, infection, scoliosis, developmental defects, or a suspected pathology.

**Requirements:**

- The clinical record must contain a written x-ray report within 5 business days from the date of service.
- The clinic must have all of the following:
  - A documented Quality Control Program inclusive of both imaging equipment and film processors
  - A documented Radiation Safety and As Low As Reasonably Achievable (ALARA) Program
  - Documented emergency policies, procedures, and equipment on site (i.e. automated external defibrillator (AED))
  - Documentation of current Basic Life Support (BLS) certification
  - Records of formal preventative maintenance program per original equipment specifications
  - A current (within 3 years) letter of state inspection, calibration report, or physicist's report

- At a minimum, an automatic processor must be used to develop all analog plain films.

#### **CLINICAL EXAMPLES of MEDICALLY NECESSARY X-RAYS:**

- Investigation of suspected acute fracture
- Follow up radiographs to monitor a healing fracture
- Investigation of suspected bony dislocation
- Evaluation of prior surgical site where manual based treatment may be applied (where no previous films are available for review)
- Suspect (patient history, pain characteristics and/or physical examination) malignancy, infection, systemic disease, or inflammatory spondyloarthropathy
- Precise quantification of clinically suspected active child or juvenile scoliosis
- Persistent (same or worse pain) after first month of treatment
- Significant history of drug or alcohol abuse such as IV drugs or chronic alcoholism or chronic use of steroids
- Adult patient with thoracolumbar, lumbar, or thoracic spine blunt trauma or acute injuries (falls, motor vehicle accidents [MVs], motorcycle, pedestrian, cyclists, etc)
- Adults with complicated (i.e., “red flag”) LBP, thoracic pain, or neck pain & indicators of contraindication to SMT (relative/absolute)
- Suspected inflammatory spondyloarthropathies, neoplasia, or infection
- Adult patient: in the absence of expected treatment response or worsening after 4 weeks of conservative treatment
- Adult patient with acute neck injury and positive CCSR (Canadian Cervical Spine Rule for Radiography in Alert and Stable Trauma Patients.)
- Suspected lumbar degenerative spinal stenosis or spondylolisthesis if patient is greater than 50 years of age and/or has progressive neurological deficit – AP (or PA) and lateral lumbar views
- Adult with recent unimaged blunt trauma to pelvis and unable to bear weight – AP pelvis and lateral hip “frog leg” views
- Acute neck pain with recent unimaged dangerous trauma, paresthesia in extremities or age greater than 65 or non-traumatic neck pain with radicular symptoms – APOM, AP lower cervical and lateral neutral views
- Adult with painful or progressive scoliosis – Erect standing full spine (14x36) PA and lateral views in the absence of recent films. Plain film x-rays may be appropriate when red flags suggest further screening for cancer, infection, or fracture. They may also be sufficient for the initial evaluation of patients with the following red flags: age >70 years, a history of recent significant trauma, or risk of osteoporosis. Plain film x-rays may be appropriate, but are usually not sufficient for clinical decision making without advanced imaging, in the presence of other red flags. Radiographs are unreliable for assessment of bone mass changes before at least a 30%-50% loss. In healthy peri- and early postmenopausal women (45-64 yoa), consider using the OST score (Osteoporosis Self Assessment Tool.) OST score

considers only 2 variables:  $(\text{weight in kg} - \text{age})/5$ . The cut-off for a positive test is  $<2$ , indicating this woman should be referred for DXA.

- Current x-ray recommendations/guidelines for spinal and extremity disorders emphasize a focused history and physical examination, reassurance, initial pain management medications if necessary (acetaminophen or nonsteroidal anti-inflammatory drugs), and consideration of nonpharmacologic therapies (e.g., manipulation, exercise, etc.) without routine imaging in patients with nonspecific neck and/or low back pain (Bussières, 2007, 2008; Dagenais, 2010; Koes, 2010; Pillastrini, 2011). Imaging is considered for those without improvement after 6 weeks and for those with clinical indicators of serious pathologies (red flags) (Bach, 2009; Bussières, 2007, 2008; Chou, 2011, 2007).

Plain film x-rays of the extremities may be indicated in the following circumstances:

- Significant history of recent trauma sufficient to cause fracture
- Significant history of repetitive stress to cause stress fracture
- History or clinical findings of malignancy
- Previous surgery or fracture
- Suspicion of or confirmed inflammatory arthritis
- Evaluation of gross deformities
- Bruising, swelling, redness heat, indicating infection
- Lymphadenopathy
- Evaluation of developmental hip dysplasia in the pediatric population
- Evaluation of Leg-Calve-Perthes disease
- Evaluation of slipped capital femoral epiphysis in the pediatric population

Plain film radiographs may be appropriate but are usually not sufficient for clinical decision making without advanced imaging (MR and/or CT) in the presence of other red flags including [Davis, Dagenais (2012)]:

- Age  $< 20$  years or  $> 50$  years
- Failure to improve with care, no prior films
- Personal history of intravenous drug abuse
- History of malignancy
- Immune suppression
- Night pain
- Night pain (unrelated to movement)
- Pain at multiple sites
- Pain at rest
- Fever
- Structural deformity
- Systemic unwellness
- Unexplained weight loss

Spinal radiographs also have a role in evaluation of scoliosis and in postoperative evaluation of instrumentation and fusion (Davis, 2011). For the evaluation of scoliosis in children, radiographic decision-making and examinations should be performed in accordance with guidance published by the American College of Radiology (ACR) and the Society for Pediatric Radiology (SPR) (Faerber, 2009, 2012). Radiographic examination is indicated for pediatric patients at high risk for cervical spine instability – especially those with Down syndrome (Faerber, 2012).

**INITIAL PLAIN FILM X-RAYS ARE NOT INDICATED in the FOLLOWING CASES:**

- Adult patient with acute uncomplicated LBP (<4 week duration). Uncomplicated definition: nontraumatic pain without neurologic deficits or indicators of potentially serious pathologies
- Adult patient with uncomplicated subacute (4-12 week duration) or persistent LBP (>12 wks' duration) AND no previous treatment trial
- Adult patient with nontraumatic acute LBP (<4 week duration) AND sciatica and no red flags
- Sciatica, unless patient is age >50 or has progressive neurological deficits
- Suspected lumbar disc herniation
- Suspected degenerative spondylolithesis/lateral stenosis, unless patient is age >50 or has progressive neurological deficits
- Suspected lumbar degenerative spinal stenosis, unless patient is age >50 or has progressive neurological deficits
- Adult patient with uncomplicated acute (<4 week duration) thoracic spine pain
- Adult patient with uncomplicated subacute (4 - 12 week duration) or persistent (> 12 week duration) thoracic spine pain and no previous treatment trial
- Adult patient with nonpainful and nonprogressive scoliosis
- Adult patient with acute uncomplicated neck pain (<4 week duration)
- Adult patient with uncomplicated subacute neck pain (4-12 week duration) with or without arm pain
- Adult patient with persistent neck pain (> 12 week) with or without arm pain
- Adult patient with acute neck injury and negative CCSR (Canadian Cervical Spine Rule for Radiography in Alert and Stable Trauma Patients) (Stiell, 2011) <http://jama.jamanetwork.com/article.aspx?articleid=194296>.
- In headache complaints, vital signs (to R/O severe hypertension or fever) and testing of the cranial nerves (to R/O vascular events, space occupying lesions, etc) should be an integral part of initial examination. Significant positive findings mandate further evaluation. Without red flags or significant findings, no initial films are indicated.
- Coccyx trauma and coccydynia
- The routine use of spinal radiographs for structural and biomechanical analysis has not been substantiated to improve patient outcomes (Peterson, 2005). The clinical evidence is insufficient to support an association between sagittal (lordosis, kyphosis) spinal

curves and health outcomes including spine-related pain (Christensen, 2008). The utility of plain film radiography for the detection of spinal ‘subluxations’, or to guide the specifics of spinal manipulative therapy, is controversial (Petersen, 2005). “The validity of the various systems of roentgenometric analysis has not been proven and their underlying premise of bilateral symmetry within the body does not take into account natural structural anomalies” (Petersen, 2005). Adding to this controversy is the fact that nonspecific spinal abnormalities are common in asymptomatic patients (Davis, 2011).

- Chou et al state that “[s]trong evidence shows that routine back imaging does not improve patient outcomes, exposes patients to unnecessary harms, and increases costs” (Chou, 2012). Further, Andersen notes that “[a]vailable evidence indicates that immediate, routine lumbar spine imaging in patients with LBP and without features indicating a serious underlying condition, did not improve outcomes compared with usual clinical care without immediate imaging. Clinical care without immediate imaging seems to result in no increased odds of failure in identifying serious underlying conditions in patients without risk factors for these conditions. In addition to lacking clinical benefit, routine lumbar imaging is associated with radiation exposure (radiography and CT) and increased direct expenses for patients and may lead to unnecessary procedures. This evidence confirms that clinicians should refrain from routine, immediate lumbar imaging in primary care patients with nonspecific, acute or subacute LBP and no indications of underlying serious conditions” (Andersen, 2011).

#### **POLICY HISTORY SUMMARIES:**

July 23, 2019

- Format updated for improved readability

January 2020

- No edits made to guideline in response to the review of the evidence base

October 2020

- No content changes

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