| *Evolent | |
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| **Clinical guidelines**<br>**PLAIN FILM X-RAYS** | **Original Date: April 2016** |
| **Physical Medicine – Clinical Decision Making** | **Last Revised Date: December 2023** |
| **Guideline Number: Evolent_CG_610** | **Implementation Date: July 2024** |

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# General Information

*It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable, all prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*

# Statement

**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.

All recommendations in this guideline reflect practices that are evidence-based and/or supported by broadly accepted clinical specialty standards.

**Scope**
This policy will apply to all participating network chiropractic practitioners. This organization has adopted the Diagnostic Imaging Practice Guidelines for Musculoskeletal Complaints in Adults. [1, 2, 3, 4]. These guidelines represent the official position of the Council on Chiropractic Guidelines and Practice Parameters in matters related to the use of diagnostic imaging in the chiropractic profession.

**Clinical Reasoning**
The use of plain film radiographs (X-rays) is medically necessary when clinical findings dictate their utilization.

X-rays are not indicated [5, 6, 7, 8]:

- To view postural changes or biomechanics
- To identify subluxations
- As a routine component of initial evaluation if specific clinical findings do not dictate their utility
- As ongoing treatment

X-rays are not indicated for the following patients [9, 10]:

- Infants (0 - 36 months)
- Pregnant or possible pregnant people
- Patients for whom obesity, mental status, physical restrictions, or other conditions preclude positioning for 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

X-rays may be appropriate but are usually not sufficient for diagnosis without advanced imaging (MR and/or CT) in the presence of other red flags including:

- 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 (including when unrelated to movement)
- Pain at multiple sites
- Pain at rest
- Fever
- Structural deformity
- Systemic unwellness
- Unexplained weight loss

X-rays are unreliable for assessment of bone mass changes before at least 30% - 50% loss. In healthy peri- and early menopausal women (age 45-64), consider using the Osteoporosis Self-Assessment Tool (OST score). The OST score considers only 2 variables: (1. weight in kg 2. age)/5. The cut-off for a positive test is <2, indicating the female patient should be referred for dual-energy X-ray absorptiometry DXA [3].

## Documentation and Facility 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 the following documented:
    - A Quality Control Program inclusive of both imaging equipment and film processors
    - A Radiation Safety and As Low As Reasonably Achievable (ALARA) Program
    - Emergency policies, procedures, and equipment on site (i.e., automated external defibrillator (AED))
    - 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 X-rays

# Applications

**X-Ray Exam of Spine [3]**

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

**Examples**

- Fractures
  - Investigation of suspected acute fracture
  - Follow-up radiographs to monitor a healing fracture
  - Significant history of recent trauma sufficient to cause fracture
  - Significant history of repetitive stress to cause stress fracture
  - Suspected stress (insufficiency) fracture [11]
- Suspected (patient history, pain characteristics and/or physical examination):
  - Malignancy
  - Infection
  - Systemic disease
  - Inflammatory spondyloarthropathology [12]
  - Lumbar degenerative spinal stenosis/spondylolisthesis if individual is greater than 50 years of age and/or has progressive neurological deficit.
  - Bony dislocation
- Evaluation of prior surgical site where manual based treatment may be applied (where no previous films are available for review
- Persistent (same or worse pain) after first month of treatment
- Absence of expected treatment response or worsening after 4 weeks of conservative treatment
- Significant history of drug or alcohol abuse (e.g., such as IV drugs, chronic alcoholism, or chronic use of steroids)
- Scoliosis
  - Precise quantification of clinically suspected active child or juvenile scoliosis[‡]
  - Adult with painful or progressive scoliosis
- Adult with complicated (i.e., "red flag") low back pain (LBP), thoracic pain, or neck pain **and** indicators of contraindication to spinal manipulative therapy (SMT) (relative/absolute)
- Trauma
  - Adult with acute neck injury and positive Canadian Cervical Spine Rule (CCSR) for Radiography in Alert and Stable Trauma Patients [13]
  - Acute neck pain with recent unimaged dangerous trauma
  - Adult with thoracolumbar, lumbar, or thoracic spine blunt trauma or acute injuries (falls, motor vehicle accidents [MVAs], motorcycle, pedestrian, cyclists, etc.)
- Neck pain with:

- Acute neck pain with paresthesia in extremities
- Age greater than 65 years
- Non-traumatic neck pain with radicular symptoms

**Contraindications**

- Pain[†] [7]
  - Adult with acute uncomplicated pain (< 4 weeks duration) in any of the following:
    - LBP (uncomplicated definition: nontraumatic pain without neurologic deficits or indicators of potentially serious pathologies)
    - Thoracic spine pain
    - Uncomplicated neck pain
  - Adult with uncomplicated subacute pain (4-12 weeks duration) in any of the following:
    - LBP and no previous treatment trial
    - Thoracic spine pain and no previous treatment trial
    - Subacute neck pain with or without arm pain
  - Adult with persistent pain (>12 weeks) in any of the following:
    - LBP and no previous treatment trial
    - Thoracic spine pain and no previous treatment trial
    - Persistent neck pain with or without arm pain
- Sciatica
  - Adult with nontraumatic acute LBP (<4 weeks duration) **AND** sciatica and no red flags
  - Unless individual is age >50 or has progressive neurological deficits
- Suspected (patient history, pain characteristics and/or physical examination):
  - Lumbar disc herniation (LDH)
  - Degenerative spondylolisthesis/lateral stenosis, unless individual is age >50 or has progressive neurological deficits
  - Lumbar degenerative spinal stenosis, unless individual is age >50 or has progressive neurological deficits
- Scoliosis
  - Adult with nonpainful and nonprogressive scoliosis
- Adult with acute neck injury and negative CCSR [13]
- In headache complaints without red flags or significant findings[¥]

**X-Ray Exam of Pelvis**

- Note: all guidance is cited from Bussières et al [3] unless otherwise noted.

**Examples**

- Adult with recent (within 4 weeks) unimaged blunt trauma to pelvis and unable to bear weight

**Contraindications**

- Coccyx trauma and coccydynia

**X-Ray Exam of Extremities**

- Note: all guidance is cited from Bussières et al [1, 2] unless otherwise noted.

**Examples**

- Fractures
    - Significant history of repetitive stress to cause stress fracture
    - Significant history of recent trauma sufficient to cause fracture
    - Previous fracture
- History of:
    - Malignancy
    - Previous surgery
- Evaluation of:
    - Gross deformities
    - Legg-Calve-Perthes disease
    - Chronic hip pain (initial imaging)
    - Pediatric Patient
        - Developmental hip dysplasia
        - Slipped capital femoral epiphysis
- Suspicion of or confirmed inflammatory arthritis
- Bruising, swelling, redness, and/or heat (indicating infection)
- Lymphadenopathy

# Background

**Definitions**

**Plain films** are spine or extremity radiographs used as a diagnostic tool. They may be indicated to diagnose conditions related to acute injury, degenerative disorders, nontraumatic pain, complicated pain, blunt trauma, or absence of expected treatment response or worsening after 4 weeks.

**Spinal Manipulative Therapy** is manual manipulation of the joints of the spine to relieve pressure, reduce inflammation, and restore nerve function.

**Additional Information**

‡Spinal radiographs have a role in evaluation of scoliosis and in postoperative evaluation of instrumentation and fusion. 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). Radiographic examination is indicated for pediatric patients at high risk for cervical spine instability – especially those with Down syndrome. [14]

†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 individuals with nonspecific neck and/or low back pain. Imaging is considered for those without improvement after 6 weeks and for those with clinical indicators of serious pathologies (red flags). Immediate and/or routine lumbar spine imaging has not been found to improve outcomes for patients with LBP and no serious underlying condition when compared to usual clinical care without immediate imaging. [15, 8]

¥In headache complaints, vital signs (to rule out severe hypertension or fever) and testing of the cranial nerves (to rule out vascular events, space occupying lesions, etc.) should be an integral part of initial examination. Significant positive findings mandate further evaluation. [3]

**POLICY HISTORY**

| Date | Summary |
|---|---|
| December 2023 | • Removed quotes from literature.<br>• Added definitions of “plain film radiograph” and “spinal manipulative therapy” |
| August 2022 | • Rearranged criteria under “Initial Plain Film X-rays Are Not Indicated in the Following Cases”- content was not changed<br>• Added under plain film x-rays of the extremities<br>o Evaluation of chronic hip pain – initial imaging<br>o Suspected stress (insufficiency) fracture |

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**Reviewed / Approved by Clinical Guideline Committee**

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