



General Guidelines for Plain Film Spinal Radiography

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Policy Statement

Spinal plain film radiography may be an appropriate diagnostic testing option when red flags are identified that suggest the further screening for cancer, infection and/or fracture is warranted. Plain film radiography may be sufficient for the initial evaluation of patients who present with these red flags: age >70 years, a history of recent significant trauma, and/or risk of osteoporosis. 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. Spinal plain film radiography may also be appropriate for the evaluation of scoliosis or in the postoperative evaluation of instrumentation and fusion.

The clinical appropriateness of spinal plain film radiography has not been established as a routine diagnostic and/or biomechanical analysis procedure for patients being evaluated for spine-related disorders.

Purpose

This policy describes a summary of the indications and limitations for utilization of spinal plain view radiographs. The policy is intended to promote patient safety, to inform health care provider decision making, and as the criterion used by support clinicians in the evaluation of clinical appropriateness. The final determination of clinical justification depends upon correlation of the patient's presenting clinical evaluation.

Scope

This policy serves as a resource for peer-to-peer interactions in describing the position of Optum* by OptumHealth Care Solutions, LLC on the general guidelines for the use of spinal plain-film radiography in clinical settings.

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Background

Overview:

Spine-related disorders (SRD) – low back and neck pain – are among the most common physical conditions requiring health care services, and affecting an individual’s ability to work and manage daily activities [United States Bone and Joint Decade]. The lifetime prevalence of LBP is approximately 85% (probably closer to 100% of adults) [Dagenais (2012)]. “Neck pain causes significant impairment, second only to low back pain” [Gross]. About 85% to 90% of individuals seeking care are assessed as having nonspecific or ordinary low back pain [Waddell (2004)]. Similarly, mechanical (nonspecific) is the most common designation for neck pain [Smith]. “The challenge for the clinician, therefore, is to distinguish the small segment within this large patient population that should be evaluated further because of suspicion of a more serious problem” [Davis].

The standard patient management recommendations synthesized from clinical practice guidelines for SRD 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 [Australian Guidelines, Bussi eres, Dagenais (2010), Koes, Pillastrini]. Imaging is considered for those without improvement after 6 weeks and for those with clinical indicators of serious pathologies (red flags) [Bach, Bussi eres, Chou (2011), Chou (2007)].

Despite guideline recommendations, a substantial proportion of patients with acute low back pain receive imaging. The clinician-level decision making has been shown to account for 25% of the variance in the use of imaging for older patients presenting with acute low back pain [Tan]. Clinical evidence suggests that spine imaging in low-risk situations is more likely to result in harm from irrelevant findings than to a benefit from discovering unsuspected disease [Deyo].

Indications for Spinal Radiography:

Clinical practice guidelines (CPG) recommend that clinicians assess patients for potentially serious spinal pathology [Dagenais (2012)]. *Red flags* are signs, symptoms and patient characteristics that may indicate the need for further screening to rule out the possibility of underlying health conditions [Waddell]. While individual red flags are usually not informative, combinations of these factors according to their clinical implication (e.g., risk of malignancy or fracture) improves their accuracy and utility [Henschke, Rubinstein, Williams]. CPG have suggested the appropriate diagnostic testing for the different red flags. Spinal plain film radiography may be an appropriate diagnostic testing option when red flags are identified that suggest the further screening for cancer, infection and/or fracture is warranted [Dagenais (2012)]. Plain film radiography may be sufficient for the initial evaluation of patients presenting with the following red flags [Davis]:

- Age >70 years
- Recent significant trauma
- Osteoporosis

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)]:

1. Age <20 years or >50 years
2. Failure to improve under treatment without prior radiographs
3. Fever
4. History of malignancy
5. Immune suppression
6. Night pain
7. Night pain (unrelated to movement)
8. Pain at multiple sites
9. Pain at rest
10. Personal history of intravenous drug abuse
11. Structural deformity
12. Systemic unwellness
13. Unexplained weight loss

Spinal radiographs also have a role in evaluation of scoliosis and in postoperative evaluation of instrumentation and fusion [Davis]. 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), Faerber (2012)]. Radiographic examination is indicated for pediatric patients at high risk for cervical spine instability – especially those with Down syndrome [Faerber (2012)].

Limitations of Spinal Radiography:

In addition to circumstances where plain film radiographs may be insufficient for clinical decision making without advanced imaging, there are limitations in the utility of radiography in clinical settings. These include contraindications and applications, where the clinical justification (i.e., the results are likely to influence the management and outcomes) have not been established [Peterson].

Pregnancy and the weight of patient, when body type and/or size preclude good radiographic resolution or exceed the limits of the x-ray table, are contraindications to receiving spinal plain film radiography [O’Sullivan].

The clinical appropriateness of spinal plain film radiography has not been established as a routine diagnostic procedure for patients being evaluated for SRD. “Strong evidence shows that routine back imaging does not improve patient outcomes, exposes patients to unnecessary harms, and increases costs” [Chou (2012)]. “Available 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].

The routine use of spinal radiographs for structural and biomechanical analysis has not been substantiated to improve patient outcomes [Peterson]. The clinical evidence is insufficient to support an association between sagittal (lordosis, kyphosis) spinal curves and health outcomes including spine-related pain [Christensen]. The utility of plain film radiography for the detection of spinal ‘subluxations’, or to guide the specifics of spinal manipulative therapy, is controversial [Petersen]. “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]. Adding to this controversy is the fact that nonspecific spinal abnormalities are common in asymptomatic patients [Davis].

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Utilization Management Policy

Policy History/Revision Information

Date	Action/Description
1/1997	Original effective date
3/24/1998	Annual review completed
1/28/1999	Annual review completed
2/23/2000	Annual review completed
3/07/2001	Annual review completed
9/04/2001	Updated approval - policy references updated
9/20/2002	Annual review completed
11/11/2003	Annual review completed
3/30/2004	Updated approval - policy references updated
11/18/2004	Annual review completed
2/14/2006	Annual review completed
12/04/2006	Annual review completed
4/10/2008	Annual review completed
11/11/2008	Policy header rebranded, "OptumHealth Care Solutions – Physical Health
1/15/2009	Policy placed into new format
4/30/2009	Annual review completed
4/08/2010	Annual review and approval completed
10/26/2010	Policy rebranded to "OptumHealth Care Solutions, Inc. (OptumHealth)"
4/07/2011	Annual review completed
4/19/2012	Annual review completed
4/18/2013	Policy revised using more recent sources. Annual review completed
4/17/2014	Annual review completed; Policy rebranded "Optum* by OptumHealth Care Solutions, Inc."
4/16/2015	Annual review completed
4/21/2016	Updated <i>Background</i> section; Annual review completed
4/20/2017	Annual review and approval completed; Legal entity name changed from "OptumHealth Care Solutions, Inc." to "OptumHealth Care Solutions, LLC."
4/26/2018	Annual review completed
4/25/2019	Annual review completed
4/23/2020	Annual review completed; No new information that would change the policy statement

Contact Information

Please forward any commentary or feedback on Optum utilization management policies to: policy.inquiry@optumhealth.com with the word "Policy" in the subject line.

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