# Topic Brief: Disseminating information about Arachnoiditis

**Date:** 5/15/2020
**Nomination Number:** 897

**Purpose:** This document summarizes the information addressing a nomination submitted on 2/10/2020 through the Effective Health Care Website. This information was used to inform the Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and if so, what type of evidence report would be most suitable.

**Issue:** The nominator is concerned that a steroid injection may have led to the development of arachnoiditis. He asks for FDA information about steroid epidural injections and would like information about the causes and treatments for arachnoiditis be disseminated to healthcare providers so that other patients might avoid this problem.

**Program Decision:** While an important issue, development and dissemination of guidance is outside the purview of the EPC Program.

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## Background

- Arachnoiditis is caused by the inflammation of the arachnoid, one of the membranes that surround and protect the nerves of the spinal cord. It can cause a number of symptoms, including chronic and persistent pain, numbness, tingling, and a characteristic stinging and burning pain in the lower back or legs. [1]
- The arachnoid can become inflamed because of an irritation from chemicals, infection from bacteria or viruses, as the result of direct injury to the spine, chronic compression of spinal nerves, or complications from spinal surgery or other invasive spinal procedures. Inflammation can sometimes lead to the formation of scar tissue and adhesions.[2]
- Theorized causes include various types of injections, such as an epidural injection to treat chronic back pain, into the subarachnoid or subdural space where they may contain various possibly neurotoxic substances; accidental trauma or surgical interventions; and various bacterial or viral infections such as tuberculosis and HIV.[2]
- Animal studies have shown that the carrier used in some steroid preparations might be directly toxic to the central nervous system, resulting in injury. This can include the preservatives polyethylene glycol and myristyl-gamma-picolinium chloride. Animal studies have shown that harm occurs with 2 to 10 times the concentrations typically found in commercial drug preparations.[3]
- Its true incidence or frequency is hard to determine as it is a rare, difficult-to-diagnose condition[3]
- Most treatments for arachnoiditis are focused on chronic pain relief and the improvement of symptoms that impair daily function.[2]

- In 2014, Food and Drug Administration (FDA) issued a warning that injection of corticosteroids into the epidural space of the spine may result in rare but serious adverse events, including loss of vision, stroke, paralysis, and death.[4]
- Under FDA's Safe Use Initiative, a workgroup developed and published recommendations to minimize the risks associated with epidural steroid injections in 2015.[3, 5]

## Assessment Methods

We assessed nomination for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

## Summary of Selection Criteria Assessment

The nomination is focused on a serious and uncommon condition, with the potential to cause serious and disabling symptoms in those afflicted, including chronic pain, decreased function, and even paralysis. The nominator is requesting dissemination of information to healthcare providers. However development of guidance and dissemination is outside the purview of the EPC Program.

## Related Resources

We identified four systematic reviews and a literature review about arachnoiditis or low back pain that might be useful.

- Nisson et al. Arachnoid web of the spine: a systematic literature review. 2019. [6]
- Eisenberg et al. Adhesive arachnoiditis following lumbar epidural steroid injections: a report of two cases and review of the literature. 2019.[7]
- McDonagh et al. Nonopioid Pharmacologic Treatments for Chronic Pain. 2020. [8]
    - This systematic review includes chronic low back pain, but does not specifically mention arachnoiditis.
- Skelly et al. Noninvasive Nonpharmacological Treatment for Chronic Pain: A Systematic Review Update. 2020.[9]
    - This systematic review includes chronic low back pain, but does not specifically mention arachnoiditis.
- Chou et al. Pain Management Injection Therapies for Low Back Pain: Technology Assessment. 2015.[10]
    - The report noted that serious harms from injections were rare in randomized trials and observational studies, but harms reporting was suboptimal.

We also identified relevant clinical guidance about this topic.

- NICE Therapeutic endoscopic division of epidural adhesions https://www.nice.org.uk/guidance/ipg333/chapter/1-Guidance

- Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians.[11] This guideline focuses on low back pain, but does not address arachnoiditis specifically.

## References


1. Arachnoiditis Information Page. Bethesda, MD: National Institute of Neurological Disorders and Stroke. https://www.ninds.nih.gov/Disorders/All-Disorders/Arachnoiditis-Information-Page. Accessed on 15 May 2020.
2. peng h, Conermann T. Arachnoiditis. StatPearls. Treasure Island (FL); 2020.
3. Rathmell JP, Benzon HT, Dreyfuss P, et al. Safeguards to prevent neurologic complications after epidural steroid injections: consensus opinions from a multidisciplinary working group and national organizations. Anesthesiology. 2015 May;122(5):974-84. doi: 10.1097/ALN.0000000000000614. PMID: 25668411. https://www.ncbi.nlm.nih.gov/pubmed/25668411
4. FDA Drug Safety Communication: FDA requires label changes to warn of rare but serious neurologic problems after epidural corticosteroid injections for pain. Silver Spring, MD: Food and Drug Administration. https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-requires-label-changes-warn-rare-serious-neurologic-problems-after. Accessed on 15 May 2020.
5. Safe Use Initiative - Completed Projects. Silver Spring, MD: Food and Drug Administration. https://www.fda.gov/drugs/safe-use-initiative/safe-use-initiative-completed-projects#esi. Accessed on 15 May 2020.
6. Nisson PL, Hussain I, Hartl R, et al. Arachnoid web of the spine: a systematic literature review. J Neurosurg Spine. 2019 Apr 19:1-10. doi: 10.3171/2019.1.SPINE181371. PMID: 31003220. https://www.ncbi.nlm.nih.gov/pubmed/31003220
7. Eisenberg E, Goldman R, Schlag-Eisenberg D, et al. Adhesive arachnoiditis following lumbar epidural steroid injections: a report of two cases and review of the literature. J Pain Res. 2019;12:513-8. doi: 10.2147/JPR.S192706. PMID: 30774420. https://www.ncbi.nlm.nih.gov/pubmed/30774420
8. McDonagh MS, Selph SS, Buckley DI, et al. Nonopioid Pharmacologic Treatments for Chronic Pain. Rockville (MD); 2020.
9. Skelly AC, Chou R, Dettori JR, et al. Noninvasive Nonpharmacological Treatment for Chronic Pain: A Systematic Review Update. Rockville (MD); 2020.
10. Chou R, Hashimoto R, Friedly J, et al. Pain Management Injection Therapies for Low Back Pain. Rockville (MD); 2015.
11. Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians. Ann Intern Med. 2017 Apr 4;166(7):514-30. doi: 10.7326/M16-2367. PMID: 28192789. https://www.ncbi.nlm.nih.gov/pubmed/28192789


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**Conflict of Interest:** None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.


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