Bibliography

This bibliography contains the full literature search results for each question (see Step 7 in the Guideline Development Process). Work group members reviewed all abstracts yielded from the literature search and identified the literature to review in order to address the clinical questions (see Step 8 in the Guideline Development Process). The references that were ultimately used to answer each clinical question can be found in the main text of the Evidence-Based Clinical Guidelines for Multidisciplinary Spine Care: Diagnosis and Treatment of Low Back Pain.

- Diagnosis
- Imaging
- Medical and Psychological Treatment
- Physical Medicine & Rehabilitation
- Interventional
- Surgical
- Cost Utility

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<td>ii. Physical agents (eg, heat, cold, ultrasound, electrical stimulation, laser, dry needling, traction, TENS)</td>
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b. Is there a threshold for the magnitude of relief from diagnostic facet nerve blocks that predict outcomes to neurotomy?  
c. Does duration of pain, intensity of pain, functional outcomes and return to work status vary when candidates for neurotomy are determined by diagnostic facet nerve blocks vs. intra-articular facet joint injections?  
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b. Is there a benefit to performing lateral branch blocks as compared with intra-articular diagnostic injections as a predictor to response to lateral branch neurotomy?  
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<td>a. Posterolateral fusion without internal fixation vs. b. Posterolateral transverse fusion with internal fixation vs. c. Stand-alone (anterior) interbody fusion vs. d. Transforaminal lumbar interbody fusion (TLIF) or posterior lumbar interbody fusion (PLIF) vs. e. Circumferential fusion (anterior interbody, lateral techniques)</td>
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<td>c. Primary Care Provider (including non-physician providers) vs.</td>
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<td>d. Neurologist vs.</td>
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<td>e. Physiatrist vs.</td>
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<td>g. Anesthesiologists/Pain medicine Physician vs.</td>
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<td>h. Radiologist</td>
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**DIAGNOSIS**

**Diagnosis Question 1.** In patients with low back pain, are there specific history or physical examination findings that would indicate the structure causing pain and, therefore, guide treatment?

- a. Vertebral body
- b. Intervertebral disc
- c. Zygopophyseal joint
- d. Posterior elements
- e. Sacroiliac joint
- f. Muscle/tendon
- g. Central sensitization

**Diagnosis Question 2.** In patients with low-back pain, are there history or physical examination findings that would serve as predictors for the recurrence of low-back pain?

**Diagnosis Question 3.** In patients with acute low-back pain, are there history or physical examination findings that would predict that an episode will resolve within one month?

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Med/Psych Question 2: In patients with low back pain, is pharmacological treatment effective in decreasing duration of pain, decreasing intensity of pain, increasing functional outcomes of treatment and improving the return to work rate?

Versus:

a) No treatment
   o Risks
   o Complications
b) Cognitive behavioral therapy (CBT) and/or psychosocial intervention alone
c) Patient education alone

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PHYSICAL MEDICINE & REHABILITATION

Literature search for questions 1 and 2 was combined

1. In patients undergoing treatment for low back pain, what is the effectiveness of the following in decreasing the duration of pain, decreasing intensity of pain, increasing functional outcomes and improving return to work status, as compared with natural history plus or minus medication:

2. In patients undergoing treatment for low back pain, what is the appropriate timing, frequency and duration of treatment with:
   a. Acute versus subacute versus chronic
      i. Patient education and self-directed exercise program
      ii. Physical agents (eg, heat, cold, ultrasound, electrical stimulation, laser, dry needling, traction, TENS)
      iii. Acupuncture
      iv. Bracing
         ▪ Lumbosacral brace
         ▪ Sacroiliac brace
      v. Spinal manipulative therapy (SMT)
      vi. Exercise/physical therapy versus or plus massage
      vii. Active stabilization exercise
      viii. McKenzie exercise (includes directional preference, centralization, and mechanical diagnosis and therapy (MDT)
   ix. Yoga
   x. Aerobic exercise
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**PM&R Q4: In patients undergoing treatment for low back pain, what are outcomes, including duration of pain, intensity of pain, functional outcomes and return to work status, for exercise therapy alone versus exercise with cognitive behavioral therapy (CBT)?**


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Interventional Question 3: In patients with low-back pain, do medial branch blocks have a role in defining treatment for low-back pain?

a. Does duration of pain, intensity of pain, functional outcomes and return to work status vary when candidates for neurotomy are determined by single vs comparative medial branch blocks?

b. Is there a threshold for the magnitude of relief from diagnostic facet nerve blocks that predict outcomes to neurotomy?

c. Does duration of pain, intensity of pain, functional outcomes and return to work status vary when candidates for neurotomy are determined by diagnostic facet nerve blocks vs. intra-articular facet joint injections?

d. Is there a therapeutic utility of medial branch blocks?

e. Does technical accuracy of medial branch blocks (e.g. contrast use) affects its validity and effectiveness of subsequent neurotomy?


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Interventional Question 4: In patients with low-back pain due to lumbar facet joint arthropathy, does fluoroscopically guided neurotomy decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate?


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Interventional Question 5: In patients with low-back pain, do fluoroscopically guided sacroiliac joint injections (SIJI) decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate?

a. Does duration of pain, intensity of pain, functional outcomes and return to work status vary when candidates for neurotomy are determined by single vs. comparative SIJI?
b. Is there a benefit to performing lateral branch blocks as compared with intra-articular diagnostic injections as a predictor to response to lateral branch neurotomy?
c. Is there a threshold for the magnitude of relief from diagnostic SIJI that predict improvement in duration of pain, intensity of pain, functional outcomes and return to work status from SIJ neurotomy?


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Interventional Question 6: In patients with pelvic posterior girdle pain relieved temporarily by image guided SIJ injections or lateral branch blocks, does lateral branch neurotomy decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate?


Interventional Question 7: In patients with low-back pain, does spinal cord stimulation decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate?


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**Interventional Question 8:** In patients with low-back pain, does continuous delivery of intrathecal opioids decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate and are there risks associated with its use?

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**Interventional Question 11:** In patients with low-back pain, does intradiscal injection decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate?


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Additional records identified through other sources
SURGICAL TREATMENT

Surgical Question 1: In patients with low back pain, does surgical treatment vs. medical/interventional treatment alone decrease the duration of pain, decrease the intensity of pain, increase the functional outcomes of treatment and improve the return to work rate?

Surgical Question 2: In patients with low back pain, are there predictive factors which determine the benefit of initial treatment with surgical intervention versus initial medical/interventional treatment?


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a. Posterolateral fusion without internal fixation vs.
b. Posterolateral transverse fusion with internal fixation vs.
c. Stand-alone (anterior) interbody fusion vs.
d. Transforaminal lumbar interbody fusion (TLIF) or posterior lumbar interbody fusion (PLIF) vs.
e. Circumferential fusion (anterior interbody, lateral techniques

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- **a.** Discectomy
- **b.** Discectomy plus rhizotomy
- **c.** Decompression alone

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**COST UTILITY**

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b. Physical Therapist vs.
c. Primary Care Provider (including non-physician providers) vs.
d. Neurologist vs.
e. Physiatrist vs.
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6. *Is physical therapy in the management of patients with low back pain more cost effective than other medical/interventional treatments?*

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9. *Is acupuncture based therapy in the management of patients with low back pain more cost effective than other medical/interventional treatments?*

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