**Medical Policy**

**MP 7.01.146**
**Discectomy**

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**Last Review:** 06/25/2020  
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**Section:** Surgery

**Related Policies**
- 7.01.18 Automated Percutaneous and Endoscopic Discectomy
- 7.01.72 Percutaneous Intradiscal Electrothermal Annuloplasty, Radiofrequency Annuloplasty, and Biacuplasty
- 7.01.87 Artificial Intervertebral Disc: Lumbar Spine
- 7.01.93 Decompression of the Intervertebral Disc Using Laser Energy (Laser Discectomy) or Radiofrequency Coblation (Nucleoplasty)
- 7.01.108 Artificial Intervertebral Disc: Cervical Spine
- 8.03.09 Vertebral Axial Decompression

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**POLICY**

Lumbar discectomy (see Policy Guidelines section) may be considered **medically necessary** for the treatment of lumbar herniated disc when the following criteria are met:

- Signs and symptoms of radiculopathy on history and physical exam (see Policy Guidelines section).
- One of the following clinical presentations is present:
  - Rapidly progressing neurologic deficits; OR
  - Persistent debilitating back or leg pain that is refractory to at least 6 weeks of conservative therapy (see Policy Guidelines section).
- Documentation of nerve root compression on imaging (magnetic resonance imaging or computed tomography) at a level that corresponds with the patient’s symptoms (see Policy Guidelines section).

Lumbar discectomy is considered **not medically necessary** for the treatment of lumbar herniated disc when the above criteria are not met.
Cervical discectomy (see Policy Guidelines section) may be considered medically necessary for the treatment of cervical herniated disc when the following criteria are present:

- Signs and symptoms of radiculopathy and/or myelopathy on history and physical exam (see Policy Guidelines section).
- One of the following clinical presentations is present:
  - Rapidly progressing neurologic deficits; OR
  - Persistent debilitating neck, back, or arm pain that is refractory to at least 6 weeks of conservative therapy (see Policy Guidelines section); OR
  - Persistent or progressive symptoms of myelopathy that are refractory to at least 6 weeks of conservative therapy (see Policy Guidelines section).
- Documentation of nerve root compression on imaging (magnetic resonance imaging or computed tomography) at a level that corresponds with the patient’s symptoms (see Policy Guidelines section).

Cervical discectomy is considered not medically necessary for the treatment of cervical herniated disc when the above criteria are not met.

Discectomy is considered investigational for all other indications.

**POLICY GUIDELINES**

**Lumbar Discectomy**

Lumbar discectomy refers to standard open discectomy or minimally invasive microdiscectomy. Microdiscectomy will be defined for the purpose of this evidence review as having the following features: (1) uses a small surgical incision (as opposed to an endoscopic “port”), (2) uses a specially designed microscope to achieve direct visualization of the vertebral column (as opposed to indirect visualization with an endoscope or other type of cameras), and (3) removes disc and other surgical products by direct visualization through the surgical incision. Microdiscectomy may be done with adjunctive devices, such as tubular retractors to improve visualization, or endoscopy to localize the correct areas to operate. However, removal of the disc itself must be done under direct visualization to be considered microdiscectomy.

**Cervical Discectomy**

Cervical discectomy refers to open anterior cervical discectomy (with or without fusion) or minimally invasive posterior cervical discectomy/foraminotomy.

There are numerous alternative procedures for performing discectomy, with uncertain efficacy compared with standard procedures. For this evidence review, the following procedures, most of which are discussed in other policies, are considered investigational:

- Laser discectomy (evidence review 7.01.93)
- Radiofrequency coblation (nucleoplasty) (evidence review 7.01.93)
- Automated percutaneous discectomy (evidence review 7.01.18)
- Endoscopic discectomy (evidence review 7.01.18)
- Intradiscal electrothermal annuloplasty (evidence review 7.01.72)
- Intradiscal radiofrequency therapy (evidence review 7.01.72)
- Chemonucleolysis

**Radiculopathy**

Radiculopathy presents with a characteristic set of signs and symptoms based on history and physical exam.
History:
- Pain that radiates down the back of the leg to below the knee
- Numbness and tingling in a dermatomal distribution
- Muscular weakness in a pattern associated with spinal nerve root compression.

Physical exam:
- Positive straight leg raise test
- Loss of deep tendon reflexes corresponding to affected nerve root level
- Loss of sensation in a dermatomal pattern.

Conservative nonsurgical therapy for the duration specified should include the following:
- Use of prescription-strength analgesics for several weeks at a dose sufficient to induce a therapeutic response
  - Analgesics should include anti-inflammatory medications with or without adjunctive medications, such as nerve membrane stabilizers or muscle relaxants, AND
- Participation in at least 6 weeks of physical therapy (including active exercise) or documentation of why the patient could not tolerate physical therapy, AND
- Evaluation and appropriate management of associated cognitive, behavioral, or addiction issues AND
- Documentation of patient compliance with the preceding criteria.
- Persistent debilitating pain is defined as:
  - Significant level of pain on a daily basis, defined on a visual analog scale score as greater than 4; AND
  - Pain on a daily basis that has a documented impact on activities of daily living despite optimal conservative nonsurgical therapy, as outlined above, and appropriate for the patient.

Medical Necessity

Medical necessity is established by documentation of medical history, physical findings, and diagnostic imaging results that demonstrate spinal nerve compression and support the surgical treatment intervention. Documentation in the medical record must clearly support the medical necessity of the surgery and include medical history, physical examination, and diagnostic testing.

Medical History
- Assessment of comorbid physical and psychological health conditions (e.g., morbid obesity, current smoking, diabetes, renal disease, osteoporosis, and severe physical deconditioning)
- History of back surgery, including minimally invasive back procedures
- Prior trial, failure, or contraindication to conservative medical/nonoperative interventions that may include but are not limited to the following:
  - Activity modification for at least 6 weeks
  - Oral analgesics and/or anti-inflammatory medications
  - Physical therapy
  - Chiropractic manipulation
  - Epidural steroid injections.
Physical Examination
- Clinical findings including the patient’s stated symptoms and duration.

Diagnostic Testing
- Radiologically confirmed lumbar spine abnormality based on a magnetic resonance image or computerized tomography scan with myelogram of the lumbar spine within the past 6 months
- Report of the selective nerve root injection results, if applicable to the patient’s diagnostic workup.

Coding
Please see the Codes table for details.

BENEFIT APPLICATION

BlueCard/National Account Issues
None.

BACKGROUND

Disc Herniation
Extrusion of an intervertebral disc beyond the intervertebral space can compress the spinal nerves and result in symptoms of pain, numbness, and weakness.

The natural history of untreated disc herniations is not well-characterized, but most herniations will decrease in size over time due to shrinking and/or regression of the disc. Clinical symptoms will also tend to improve over time in conjunction with shrinkage or regression of the herniation.

Treatment
Because most disc herniations improve over time, initial care is conservative, consisting of analgesics and a prescribed activity program tailored to patient considerations. Other potential nonsurgical interventions include opioid analgesics and chiropractic manipulation. Epidural steroid injections can also be used as a second-line intervention and are associated with short-term relief of symptoms.

However, some disc herniations will not improve over time with conservative care. A small proportion of patients will have rapidly progressive signs and symptoms, thus putting them at risk for irreversible neurologic deficits. These patients are considered to be surgical emergencies, and expedient surgery is intended to prevent further neurologic deterioration and allow for nerve recovery.

Other patients will not progress but will have the persistence of symptoms that require further intervention. It is estimated that up to 30% of patients with sciatica will continue to have pain for more than 1 year. For these patients, there is a high degree of morbidity and functional disability associated with chronic back pain, and there is a tendency for recurrent pain despite treatment. Therefore, treatments that have more uniform efficacy for patients with a herniated disc and chronic back pain are needed. In particular, decreased chronic pain and decreased disability are the goals of treatment of chronic low back pain due to a herniated disc.

Surgical Treatment
Discectomy is a surgical procedure in which one or more intervertebral discs are removed. The primary indication for discectomy is herniation (extrusion) of an intervertebral disc. Discectomy is intended to treat symptoms by relieving pressure on the affected nerve(s).
Lumbar Discectomy

Lumbar discectomy can be performed by a variety of surgical approaches. Open discectomy is the traditional approach. In open discectomy, a 2- to 3-cm incision is made over the area to be repaired. The spinal muscles are dissected, and a portion of the lamina may be removed to allow access to the vertebral space. The extruded disc is removed either entirely or partially using direct visualization. Osteophytes that are protruding into the vertebral space can also be removed if deemed necessary.

The main alternative to open discectomy is microdiscectomy, which has gained popularity. Microdiscectomy is a minimally invasive procedure that involves a smaller incision, visualization of the disc through a special camera, and removal of disc fragments using special instruments. Because less resection can be performed in a microdiscectomy, it is usually reserved for smaller herniations, in which a smaller amount of tissue needs to be removed. A few controlled trials comparing open discectomy with microdiscectomy have been published and reported that neither procedure is clearly superior to the other, but that microdiscectomy is associated with more rapid recovery. Systematic reviews and meta-analyses have also concluded that the evidence does not support the superiority of 1 procedure over another.

Cervical Discectomy

The most common procedure for cervical discectomy is anterior cervical discectomy. This is an open procedure in which the cervical spine is approached through an incision in the anterior neck. Soft tissues and muscles are separated to expose the spine. The disc is removed using direct visualization. This procedure can be done with or without spinal fusion, but most commonly it is performed with fusion.

A less invasive procedure for cervical discectomy is posterior cervical discectomy and foraminotomy. They are performed through a small incision in the back of the neck. The nerves and muscles are separated using a small retractor. The spine is visualized with microscopic guidance, and a portion of the spine the foramen is removed to expose the spinal canal. Special instruments are used to remove a portion of the disc or the entire disc.

Adverse Events

Complications of discectomy generally include bleeding, infections, and inadvertent nerve injuries. Dural puncture occurs in a small percentage of patients, leading to leakage of cerebrospinal fluid that can be accompanied by headaches and/or neck stiffness. In a small percentage of cases, worsening of neurologic symptoms can occur post-surgery.

Other Surgical Alternatives

Other variations on discectomy include the following. These procedures do not have high-quality comparative trials vs standard discectomy, and will therefore not be considered as true alternatives to discectomy for this evidence review:

- Laser discectomy
- Radiofrequency coblation (nucleoplasty)
- Automated percutaneous discectomy
- Automated endoscopic discectomy
- Intradiscal electrothermal annuloplasty
- Intradiscal radiofrequency therapy
- Vertebral axial decompression
- Chemonucleolysis.
Discectomy

Regulatory Status

Discectomy is a surgical procedure and, as such, is not subject to regulation by the U.S. Food and Drug Administration. Some instrumentation used during laminectomy may be subject to Food and Drug Administration approval.

RATIONALE

This evidence review was created in October 2014 and has been updated regularly with searches of the PubMed database. The most recent literature update was performed through May 5, 2020.

Evidence reviews assess the clinical evidence to determine whether the use of a technology improves the net health outcome. Broadly defined, health outcomes are length of life, quality of life, and ability to function. Every clinical condition has specific outcomes that are important to patients and to managing the course of the condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of the change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of a technology, 2 domains are examined: the relevance and the quality and credibility. To be relevant, studies must represent one or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. Randomized controlled trials are rarely large or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

Lumbar Discectomy

Clinical Context and Therapy Purpose

The purpose of lumbar discectomy in patients who have lumbar herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The question addressed in this evidence review is: Does lumbar discectomy improve the net health outcome in patients with lumbar herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care?

The following PICO was used to select literature to inform this review.

Patients

The relevant population of interest is patients who have lumbar herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care.

Extrusion of an intervertebral disc beyond the intervertebral space can compress the spinal nerves and result in symptoms of pain, numbness, and weakness.

Interventions

The therapy being considered is lumbar discectomy.
Lumbar discectomy can be performed by a variety of surgical approaches. Open discectomy is the traditional approach. In open discectomy, a 2- to 3-cm incision is made over the area to be repaired. The spinal muscles are dissected, and a portion of the lamina may be removed to allow access to the vertebral space. The extruded disc is removed either entirely or partially using direct visualization. Osteophytes that are protruding into the vertebral space can also be removed if deemed necessary.

**Comparators**

The following therapies and practices are currently being used to make decisions about lumbar discectomy.

Because most disc herniations improve over time, initial care is conservative, consisting of analgesics and a prescribed activity program tailored to patient considerations. Other potential nonsurgical interventions include opioid analgesics and chiropractic manipulation. Epidural steroid injections can also be used as a second-line intervention and are associated with short-term relief of symptoms.

**Outcomes**

The general outcomes of interest are symptoms, functional outcomes, health status measures, quality of life, treatment-related mortality, and treatment-related morbidity.

Outcome measures for back surgery are relatively well-established (see Table 1). Most studies used back and leg visual analog scores (VAS) or the Zurich Claudication Questionnaire to assess pain and the Oswestry Disability Score (ODI) to assess functional limitations related to back pain. Most studies also use a broader functional status index such as the Short Form (SF)-12 or SF-36, particularly the physical function subscale of SF-36. Throughout this report, we refer to a combination of pain and function measures as “Back and Leg Pain Measures.” Determining the minimal clinically important differences (MCID) for these measures is complex. The MCID for a given measure can depend on the baseline score or severity of illness, the method used to calculate MCID, and the times at which the scores are measured.\(^9\) For these reasons, some investigators prefer to calculate a minimum detectable difference (MDD).\(^10\)

Both short- and long-term outcomes are important in evaluating back treatments.\(^11\) For example, for definitive back surgery, net benefit should take into account immediate (perioperative) adverse events; improvements in pain, neurological status, and function at 12 to 24 months as measured by the ODI, SF-36, Zurich Claudication Questionnaire, or visual analog scale measures; and 5-year secondary surgery rates, which reflect longer-term complications, recurrences, and treatment failures. On the other hand, epidural injections are intended to provide quick, short-term relief from pain. The net benefit of epidural injections should emphasize effectiveness in relieving symptoms for weeks to months. Less important, but still relevant outcomes are the frequency of sustained response and the eventual need for surgery.

Patient preferences are important in decision-making about elective back surgery. In particular, to avoid the morbidity and risk of complications of the surgery, some patients may choose to prolong conservative treatments even if it means they have additional pain and functional limitation. Conversely, some patients will accept long-term outcomes of surgery similar to those of conservative therapy to get faster relief of symptoms and improvement in function.

In some trials, the epidural injection has been considered an event indicative of treatment failure. This is usually not appropriate. Instead, patient-reported outcomes should be measured at prespecified time intervals in all patients, whether or not they undergo injections or secondary procedures. When possible, trials should use explicit criteria for secondary surgeries or measure patient-reported
outcomes just prior to secondary procedures so those implicit criteria for reoperation can be compared across studies.

Table 1. Patient-reported Outcome Measures for Back and Leg Pain

<table>
<thead>
<tr>
<th>Measure</th>
<th>Outcome Evaluated</th>
<th>Description</th>
<th>MDD and MCID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oswestry Disability Score (ODI)</td>
<td>Functional disability and pain related to back conditions.</td>
<td>Ten 5-point items; scores 0 (no disability) to 50 (totally disabled) or 0-100% of maximum score</td>
<td>MDD: 8-10 points MCID varies; often 15 points (30 percentage points).</td>
</tr>
<tr>
<td>Zurich Claudication Questionnaire (ZCQ)</td>
<td>Pain, numbness, weakness, walking tolerance, and (if applicable) satisfaction with treatment results.</td>
<td>18 items; 3 subscales. Total score is expressed in points or as a percentage of maximum score (higher scores are worse)</td>
<td>MDD: 5 points. MCID: Varies; sometimes defined as a detectable improvement on 2 of 3 subscales.</td>
</tr>
<tr>
<td>RMDQ</td>
<td>Disability from back problems.</td>
<td>24 items; scored 0-24 (higher scores are worse).</td>
<td>MCID: 30% reduction</td>
</tr>
<tr>
<td>Visual analog scale for leg pain</td>
<td>Degree of leg pain.</td>
<td>Patients indicate the degree of pain on a 0-100 scale.</td>
<td>MDD: 5 points</td>
</tr>
<tr>
<td>Visual analog scale for back pain</td>
<td>Degree of back pain.</td>
<td>Patients indicate the degree of pain on a 0-100 scale.</td>
<td>MDD: 2 points</td>
</tr>
</tbody>
</table>

MDD: minimal detectable difference; MCID: minimal clinically important difference; RMDQ: Roland and Morris Disability Questionnaire.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:
- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs and systematic review of RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies;
- To assess longer term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought.

Review of Evidence

Systematic Reviews

Recent systematic reviews confirm that discectomy improves patient-reported outcomes but disagree about the duration of the effect.

A very comprehensive systematic review and meta-analysis of 7 RCTs published between 1983 and 2017 concluded that, at 6 months, surgery reduced mean VAS-leg pain scores by 6 to 26 points more than conservative interventions; the evidence was mixed for ODI scores, the Roland and Morris Disability Questionnaire, and the SF-36 Physical Functioning subscale. Surgery and nonsurgical interventions produced similar improvements in quality of life, neurologic symptoms, and return to work. No between-group differences were observed at 1 year or later. A limitation of this review is that it considered only the intention-to-treat analyses of the Spine Patient Outcomes Research Trial (SPORT) trial and similar trials. The as-treated analysis of the SPORT trial found persistently better outcomes for surgery in up to 8 years of follow-up.

Clark et al (2020) published a systematic review assessing the efficacy, safety, and cost of surgical versus nonsurgical management of lumbar radiculopathy. The systematic review included 7 RCTs (N=1158)
published between January 2007 and April 2019; 5 of these RCTs utilized discectomy and/or microdiscectomy as the surgical intervention for lumbar radiculopathy. Percutaneous disc decompression with or without coblation technology was the surgical intervention performed in the remaining 2 RCTs. Results were similar to the Washington State Health Care Authority review\(^{12}\) and revealed that surgery reduced VAS-leg pain scores as compared to nonsurgical management at up to week 26; however, the differences in these scores did not persist at 1 year or later. Regarding function and disability, the evidence was mixed with minimal differences between surgical and nonsurgical management at 2 years. Comparable improvements in quality of life, neurologic symptoms, and return to work were seen with no surgical deaths and infrequent surgical morbidity reported. The authors of the systematic review rated 5 included RCTs as having a high risk of bias due to inadequate methods of randomization or allocation concealment, lack of blinding, crossover, and attrition.

Another comprehensive systematic review and meta-analysis of 8 RCTs and 6 prospective cohort studies found that over 1 to 5 years of follow-up, compared with conservative treatment, lumbar discectomy reduced leg pain by 10 points on the VAS-leg pain scale and back pain by 7 points on the VAS-back pain scale.\(^{7}\)

**Randomized Controlled Trials**

Following the systematic reviews noted above, Bailey et al (2020) published a prospective RCT from a single Canadian site involving 128 patients with persistent sciatica lasting 4 to 12 months and lumbar disc herniation.\(^{14}\) Enrolled patients were randomly assigned to undergo microdiscectomy or receipt of 6 months of standardized nonoperative care (education regarding day-to-day functioning, activity and exercise, oral analgesics, active physiotherapy, epidural glucocorticoid injections) followed by surgery if necessary. Follow-up was performed at 6 weeks, 3 months, 6 months, and 1 year after enrollment. Results revealed that the surgical group experienced a significant reduction in the VAS-leg pain intensity score at 6 months as compared to the nonsurgical group. At 1 year, a continued reduction in leg-pain intensity, as well as ODI score and pain, was observed in the surgical group. There was a potential impact on external validity with this trial as both surgeons and patients may have been less inclined to undertake nonsurgical care if severe sciatica was present. Additionally, the generalizability of this study may be diminished due to its single-center nature and up to 20% of the data for the primary outcome were absent, leading to the use of multiple imputation. Of note, 22 patients from the nonsurgical group ultimately crossed over to surgery due to intractable sciatic pain.

**Section Summary: Lumbar Discectomy**

For individuals who have lumbar herniated disc(s) and symptoms of radiculopathy refractory to conservative care who receive lumbar discectomy, the evidence includes a recent RCT and systematic reviews. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related mortality and morbidity. In patients with lumbar radiculopathy with disc herniation who receive discectomy, there is sufficient evidence to support the use of discectomy in patients who have not responded to “usual care” for 6 weeks, but the net benefit is uncertain because of the lack of a robust RCT comparing discectomy with a comprehensive conservative treatment program. The evidence is limited by a lack of high-quality trials. In most trials, a high percentage of patients in the conservative care group crossed over to surgery. This high degree of crossover reduced the power to detect differences when assessed by intention-to-treat analysis. Analysis by treatment received was also flawed because of the potential noncomparability of groups resulting from the high crossover rate. Despite the methodologic limitations, the evidence has consistently demonstrated a probable short-term benefit for surgery and a more rapid resolution of pain and disability. The evidence
is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

Cervical Discectomy

Clinical Context and Therapy Purpose
The purpose of cervical discectomy in patients who have cervical herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The question addressed in this evidence review is: Does cervical discectomy improve the net health outcome in patients with cervical herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care?

The following PICO was used to select literature to inform this review.

Patients
The relevant population of interest is patients who have cervical herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care.

Extrusion of an intervertebral disc beyond the intervertebral space can compress the spinal nerves and result in symptoms of pain, numbness, and weakness.

Interventions
The therapy being considered is cervical discectomy.

The most common procedure for cervical discectomy is anterior cervical discectomy. This is an open procedure in which the cervical spine is approached through an incision in the anterior neck. Soft tissues and muscles are separated to expose the spine. The disc is removed using direct visualization. This procedure can be done with or without spinal fusion, but most commonly it is performed with fusion.

A less invasive procedure for cervical discectomy is posterior cervical discectomy and foraminotomy. This is performed through a small incision in the back of the neck. The nerves and muscles are separated using a small retractor. The spine is visualized with microscopic guidance, and a portion of the spine-the foramen-is removed to expose the spinal canal. Special instruments are used to remove a portion of the disc or the entire disc.

Comparators
The following therapies and practices are currently being used to make decisions about cervical discectomy.

Because most disc herniations improve over time, initial care is conservative, consisting of analgesics and a prescribed activity program tailored to patient considerations. Other potential nonsurgical interventions include opioid analgesics and chiropractic manipulation. Epidural steroid injections can also be used as a second-line intervention and are associated with short-term relief of symptoms.

Outcomes
The general outcomes of interest are symptoms, functional outcomes, health status measures, quality of life, treatment-related mortality, and treatment-related morbidity.

Both short-term and long-term outcomes are important in evaluating discectomy. Net benefit should take into account immediate (perioperative) adverse events; improvements in pain, neurological status,
and function at 12 to 24 months as measured by the ODI, SF-36, Zurich Claudication Questionnaire, or VAS measures; and 5-year secondary surgery rates, which reflect longer-term complications, recurrences, and treatment failures.

**Study Selection Criteria**

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs and systematic review of RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies.
- To assess longer term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought.

**Review of Evidence**

**Systematic Reviews**

A Cochrane systematic review by Nikolaidis et al (2010) included 2 RCTs. Only one of the trials specifically recruited patients with cervical radiculopathy; this RCT is discussed more fully below. Reviewers judged both trials in the Cochrane review to have a significant risk of bias due to inadequate allocation concealment and unclear blinding of outcomes assessment. Reviewers concluded that there was low-quality evidence for a short-term benefit of surgery, with an uncertain risk-benefit ratio for surgery. The reviewers also found no evidence for a long-term benefit of surgery.

**Randomized Controlled Trials**

Persson et al (1997), compared surgery with conservative care in 81 patients who had longstanding cervical radiculopathy. Patients were randomized to surgery or 1 of 2 control groups: an active exercise program or use of a cervical collar. Outcome measures included a VAS for pain (range, 0-100), muscle strength in the upper extremities, and sensation in the upper extremities. Follow-up time points were at 4 and 12 months. Three patients in the surgery group declined surgery because of improvement in symptoms, and there were no crossovers from conservative care to surgery. At the 4-month follow-up, the surgery group had less sensory loss and better muscle strength. By 1-year, there were no group differences on any of the main outcomes.

Peolsson et al (2013) published a multicenter RCT from Sweden after publication of the 2010 systematic review in which 63 patients with cervical disc disease (verified by magnetic resonance imaging) were randomized to structured exercise alone or structured exercise with cervical discectomy. The surgical procedure consisted of anterior cervical decompression with fusion. Follow-up was at 3, 6, 12, and 24 months. During the trial, there were 2 crossovers from the exercise group to surgery. At the 2-year follow-up, there were no significant differences on any of the main outcomes. There were improvements in both groups on multiple measures of functional status over time, but these improvements do not differ significantly between groups. This trial did not assess any outcomes for pain or disability.

**Observational Studies**

Faught et al (2016) published results from a telephone interview evaluating the long-term outcomes among a cohort of patients (N=338) who underwent posterior cervical foraminotomies. Each interview collected information on symptomatic and functional improvements post-surgery. The EuroQol-5D, a standardized instrument to measure health-related quality of life, was also administered. Mean follow-up was 10 years. Ninety-three percent of patients who could not work before surgery were able to...
Section Summary: Cervical Discectomy

For individuals who have cervical herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care who receive cervical discectomy, the evidence includes 2 RCTs, a long-term observational study, and a systematic review. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related mortality and morbidity. There is considerably less evidence on cervical discectomy than on lumbar discectomy. The best evidence on the efficacy of cervical discectomy consists of 2 small RCTs comparing discectomy with conservative care, and a systematic review of these trials. Although there is less evidence for this indication, it does not differ substantially from lumbar herniated disc, showing that patient-reported symptoms and disability favor surgery in the short-term, and that long-term outcomes do not differ. Because cervical discectomy closely parallels lumbar discectomy, with close similarities in anatomy and surgical procedure, it can be inferred that the benefit reported for lumbar discectomy supports a benefit for cervical discectomy. Based on the available evidence and extrapolation from studies of lumbar herniated disc, it is likely that use of discectomy for cervical herniated disc improves short-term symptoms and disability. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

Summary of Evidence

For individuals who have lumbar herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care who receive lumbar discectomy, the evidence includes randomized controlled trials (RCT) and systematic reviews. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related mortality and morbidity. In patients with lumbar radiculopathy with disc herniation who receive discectomy, there is sufficient evidence to support the use of discectomy in patients who have not responded to “usual care” for 6 weeks. The evidence is limited by a lack of high-quality trials. In most trials, a high percentage of patients in the conservative care group crossed over to surgery. This high degree of crossover reduced the power to detect differences when assessed by intention-to-treat analysis. Analysis by treatment received was also flawed because of the potential noncomparability of groups resulting from the high crossover rate. Despite the methodologic limitations, the evidence has consistently demonstrated a probable short-term benefit for surgery and a more rapid resolution of pain and disability. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome. For individuals who have cervical herniated disc(s) and symptoms of radiculopathy rapidly progressing or refractory to conservative care who receive cervical discectomy, the evidence includes 2 RCTs, a long-term observational study, and a systematic review. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related mortality and morbidity. There is considerably less evidence on cervical discectomy than on lumbar discectomy. The best evidence on the efficacy of cervical discectomy consists of 2 small RCTs comparing discectomy with conservative care, and a systematic review of these trials. Although there is less evidence for this indication, it does not differ substantially from lumbar herniated disc, showing that patient-reported symptoms and disability favor surgery in the short-term, and that long-term outcomes do not differ. Because cervical discectomy closely parallels lumbar discectomy, with close similarities in anatomy and surgical procedure, it can be inferred that the benefit reported for lumbar discectomy supports a benefit for cervical discectomy. Based on the available evidence and extrapolation from studies of lumbar herniated disc, it is likely that use of discectomy for cervical herniated disc improves short-term

return to work. As measured by the EuroQol-5D, patients reported: "no problems" in mobility (65%), self-care (90%), usual activities (60%), pain (41%), and anxiety/depression (77%).
symptoms and disability. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

SUPPLEMENTAL INFORMATION

Practice Guidelines and Position Statements

North American Spine Society

In 2014, the North American Spine Society published evidence-based clinical guidelines on the diagnosis and treatment of lumbar disc herniation with radiculopathy.\(^1\) Table 2 summarizes the recommendations specific to open discectomy or microdiscectomy.

Table 2. Recommendations for Treating Lumbar Disc Herniation with Radiculopathy

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>GOR(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endoscopic percutaneous discectomy is suggested for carefully selected patients to reduce early postoperative disability and reduce opioid use compared with open discectomy.</td>
<td>B</td>
</tr>
<tr>
<td>There is insufficient evidence to make a recommendation for or against the use of automated percutaneous discectomy compared with open discectomy.</td>
<td>I</td>
</tr>
<tr>
<td>Discectomy is suggested to provide more effective symptom relief than medical/interventional care for patients whose symptoms warrant surgical care. In patients with less severe symptoms, both surgery and medical/interventional care appear to be effective in short- and long-term relief.</td>
<td>B</td>
</tr>
<tr>
<td>Use of an operative microscope is suggested to obtain comparable outcomes to open discectomy for patients whose symptoms warrant surgery.</td>
<td>B</td>
</tr>
<tr>
<td>There is insufficient evidence to make a recommendation for or against the use of tubular discectomy compared with open discectomy.</td>
<td>I</td>
</tr>
</tbody>
</table>

GOR: grade of recommendation.

\(^a\) Grade B: fair evidence (level II or III studies with consistent findings); grade I: insufficient evidence.

In 2011, the North American Spine Society published evidence-based clinical guidelines on the diagnosis and treatment of cervical radiculopathy from degenerative disorders.\(^8\) The guidelines included evaluations of anterior cervical discectomy (ACD), ACD with fusion, ACD with instrumented fusion, ACD with fusion plus plate, and posterior laminoforaminotomy. Recommendations are listed in Table 3.

Table 3. Recommendations Treating Cervical Radiculopathy from Degenerative Disorders

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>GOR(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical intervention is suggested for the rapid relief of symptoms when compared to medical/interventional treatment.</td>
<td>B</td>
</tr>
<tr>
<td>Surgery is an option to produce and maintain favorable long-term (&gt;4 years) outcomes.</td>
<td>C</td>
</tr>
<tr>
<td>Both ACD and ACDF are suggested as comparable treatment strategies, producing similar clinical outcomes.</td>
<td>B</td>
</tr>
<tr>
<td>ACDF and total disc arthroplasty are suggested as comparable treatments, resulting in similarly successful short-term outcomes.</td>
<td>B</td>
</tr>
<tr>
<td>Both ACDF with and without a plate are suggested as comparable treatments, resulting in similar clinical outcomes and fusion rates.</td>
<td>B</td>
</tr>
<tr>
<td>Either ACDF or PLF are suggested for treatment of single level degenerative cervical radiculopathy secondary to foraminal soft disc herniation to achieve comparably successful clinical outcomes.</td>
<td>B</td>
</tr>
</tbody>
</table>

ACD: anterior cervical discectomy; ACDF: anterior cervical discectomy with fusion; GOR: grade of recommendation; PLF: posterior laminoforaminotomy.

\(^a\) Grade B: fair evidence (level II or III studies with consistent findings); grade C: poor quality evidence (level IV or V studies).
International Society for the Advancement of Spine Surgery

In 2019, the International Society for the Advancement of Spine Surgery published a policy on the surgical treatment of lumbar disc herniation with radiculopathy. This policy contained a review of available clinical evidence and concluded that discectomy (open, microtubular, or endoscopic) is a medically necessary procedure for the treatment of patients who do not respond to nonsurgical care or have severe and deteriorating symptoms. Per the policy, documentation requirements include confirmation of radiculopathy based on history/physical examination AND either the presence of disabling leg or back pain refractory to 6 weeks of conservative care or progressive neurologic deficit AND level appropriate documentation of nerve root compression on imaging and/or nerve conduction velocity/electromyogram.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

There is no national coverage determination. In the absence of a national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

Ongoing and Unpublished Clinical Trials

Some currently ongoing trials that might influence this review are listed in Table 4.

Table 4. Summary of Key Trials

<table>
<thead>
<tr>
<th>NCT No.</th>
<th>Trial Name</th>
<th>Planned Enrollment</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NCT03674619</td>
<td>Cervical radiculopathy trial (CRT)</td>
<td>200</td>
<td>Oct 2021</td>
</tr>
<tr>
<td>NCT02477176</td>
<td>A Prospective Multicenter Study Investigating Re-herniation Risk Factors and Associated Costs in Primary Lumbar Disc Herniation Patients</td>
<td>100</td>
<td>June 2020</td>
</tr>
</tbody>
</table>

NCT: national clinical trial.

ESSENTIAL HEALTH BENEFITS

The Affordable Care Act (ACA) requires fully insured non-grandfathered individual and small group benefit plans to provide coverage for ten categories of Essential Health Benefits (“EHBs”), whether the benefit plans are offered through an Exchange or not. States can define EHBs for their respective state.

States vary on how they define the term small group. In Idaho, a small group employer is defined as an employer with at least two but no more than fifty eligible employees on the first day of the plan or contract year, the majority of whom are employed in Idaho. Large group employers, whether they are self-funded or fully insured, are not required to offer EHBs, but may voluntarily offer them.

The ACA requires any benefit plan offering EHBs to remove all dollar limits for EHBs.

REFERENCES


**CODES**

<table>
<thead>
<tr>
<th>Codes</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPT</strong></td>
<td></td>
<td>Discectomy may be a component of other codes such as spine fusions but the codes provided here are specific to cervical or lumbar discectomy</td>
</tr>
<tr>
<td></td>
<td>63020</td>
<td>Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated disc; 1 interspace, cervical</td>
</tr>
<tr>
<td></td>
<td>63030</td>
<td>1 interspace, lumbar</td>
</tr>
<tr>
<td></td>
<td>63035</td>
<td>each additional interspace, cervical or lumbar (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td></td>
<td>63040</td>
<td>Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated disc, re-exploration, single interspace; cervical</td>
</tr>
<tr>
<td></td>
<td>63042</td>
<td>Lumbar</td>
</tr>
<tr>
<td></td>
<td>63043</td>
<td>each additional cervical interspace (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td></td>
<td>63044</td>
<td>each additional lumbar interspace (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td></td>
<td>63056</td>
<td>Transpedicular approach with decompression of spinal cord, equine and/or nerve root(s) (e.g., herniated intervertebral disc), single segment; lumbar (including transfacet, or lateral extraforaminal approach) (e.g., far lateral herniated intervertebral disc)</td>
</tr>
<tr>
<td></td>
<td>63057</td>
<td>each additional segment, thoracic or lumbar (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td></td>
<td>63075</td>
<td>Discectomy, anterior, with decompression of spinal cord and/or nerve root(s), including osteophytectomy; cervical, single interspace</td>
</tr>
<tr>
<td></td>
<td>63076</td>
<td>cervical, each additional interspace (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td><strong>HCPCS</strong></td>
<td>C2614</td>
<td>Probe, percutaneous lumbar discectomy</td>
</tr>
<tr>
<td></td>
<td>C9757</td>
<td>Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and excision of herniated intervertebral disc, and repair of annular defect with implantation of bone anchored annular closure device, including annular defect measurement, alignment and sizing assessment, and image guidance; 1 interspace, lumbar (eff 01/01/2020)</td>
</tr>
<tr>
<td><strong>ICD-10-CM</strong></td>
<td>M50.00-M50.13</td>
<td>Cervical disc disorder with myelopathy or radiculopathy code range</td>
</tr>
<tr>
<td></td>
<td>M50.20-M50.23</td>
<td>Other cervical disc displacement code range</td>
</tr>
<tr>
<td></td>
<td>M51.05; M51.06; M51.15; M51.16; M51.17</td>
<td>Lumbar intervertebral disc disorders with myelopathy or radiculopathy code list</td>
</tr>
<tr>
<td></td>
<td>M51.25-M51.27</td>
<td>Other lumbar intervertebral disc displacement code list</td>
</tr>
<tr>
<td><strong>ICD-10-PCS</strong></td>
<td>0RB30ZZ; 0RB33ZZ;</td>
<td>Medical and Surgical, upper joints, excision, cervical or thoracolumbar</td>
</tr>
</tbody>
</table>

**ICD-10-PCS codes are only used for inpatient services**
**Discectomy**

<table>
<thead>
<tr>
<th>Type of service</th>
<th>ORB34ZZ; ORBB0ZZ; ORBB3ZZ; ORBB4ZZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place of service</td>
<td>ORB20ZZ; OSB23ZZ; OSB24ZZ; OSB40ZZ; OSB43ZZ; OSB44ZZ</td>
</tr>
<tr>
<td>Medical and Surgical, lower joints, excision, lumbar or lumbosacral vertebral disc, open, percutaneous, or percutaneous endoscopic code list</td>
<td></td>
</tr>
</tbody>
</table>

**POLICY HISTORY**

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/2016</td>
<td>New Policy – Add to Surgery section</td>
<td>Policy created with literature review through September 14, 2014. Discectomy is medically necessary for the treatment of herniated disc when symptoms are refractory to conservative care and criteria are met.</td>
</tr>
<tr>
<td>04/25/17</td>
<td>Replace policy</td>
<td>Policy updated with literature review through February 23, 2017; references 8, 17, and 22-23 added. Policy statements unchanged.</td>
</tr>
<tr>
<td>04/30/18</td>
<td>Replace policy</td>
<td>Blue Cross of Idaho adopted changes as noted. Policy updated with literature review through March 8, 2018; references 14 and 17 added. Policy statements unchanged.</td>
</tr>
<tr>
<td>06/20/19</td>
<td>Replace policy</td>
<td>Blue Cross of Idaho adopted changes as noted, effective 06/20/2019. Policy updated with literature review through April 19, 2019, references added, and some previous references removed. Policy statements unchanged.</td>
</tr>
<tr>
<td>06/25/20</td>
<td>Replace policy</td>
<td>Blue Cross of Idaho adopted changes as noted, effective 06/25/2020. Policy updated with literature review through May 5, 2020; references added. Policy statements unchanged.</td>
</tr>
</tbody>
</table>