1. **Purpose**

The purpose of this policy is to establish the criteria for when surgical spinal fusion (arthrodesis and arthroplasty) may be considered medically necessary.

2. **Definitions**

2.1. Surgical spinal fusion (arthrodesis) involves a surgical procedure which attempts to fuse one or more vertebral segments by inserting bone grafts or bone graft substitutes (with or without instrumentation).

2.2. Surgical spinal arthroplasty (artificial disc replacement) involves a surgical procedure which attempts to replace one or more of the intervertebral discs with an artificial disc (prosthesis).

2.3. eXtreme Lateral Interbody Fusion (XLIF®) procedure (developed by Nuvasive, San Diego, CA) is an approach used to access the anterior spine that is performed from the side of the body passing through the retroperitoneal fat and psoas muscle. This minimally invasive approach avoids disrupting the muscles of the abdomen and back in an attempt to decrease healing time, blood loss and hospital length of stay.

2.4. The *AMA Guides to the Evaluation of Permanent Impairment* defines segmental instability (loss of motion segment integrity) as an "anteroposterior motion of one vertebra over another that is greater than 3.5 mm in the cervical spine, greater than 2.5 mm in the thoracic spine, and greater than 4.5 mm in the lumbar spine."[1]

2.5. Radiculopathy is defined as "significant alteration in the function of a nerve root;" The most important clinical components required to support the diagnosis of radiculopathy include:

- Subjective complaint of pain, numbness, and/or paresthesias in a spinal nerve distribution; and
- Associated clinical findings such as loss of related reflexes, muscle weakness and/or atrophy of muscle groups in the related myotome, altered sensation in the corresponding dermatome(s) or positive nerve root tension signs (straight leg raise,

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femoral nerve stretch tests, brachial plexus tension tests) resulting in provocation of radicular pain.

Radiculopathy must be documented by physical examination and in the case of surgery, must be corroborated with advanced diagnostic imaging studies. In cases of questionable findings, electrodiagnostic testing may be considered to further document the presence of radiculopathy. In cases with clearly evident radicular symptoms, correlating neurological findings on examination and advanced diagnostic imaging studies, electrodiagnostic testing is not necessary to clinically document a radiculopathy. The presence of leg pain or arm pain and possible findings on an advanced diagnostic imaging study in and of itself does not substantiate the diagnosis of radiculopathy. There must also be clinical evidence as described above.

2.6. Myelopathy is any neurological deficit related to the spinal cord itself. Myelopathy may be due to compression of the spinal cord by a space occupying lesion such as an osteophyte or extruded disc material in the cervical spine or thoracic spine or due to neoplastic/metastatic disease, infection, inflammation or trauma. Symptoms vary depending upon the location however will include both "upper motor neuron" findings (e.g., spasticity, hyper-reflexia, clonus, Babinski and Hoffman signs, and bowel and bladder dysfunction) as well as "lower motor neuron" findings (e.g., hypo-reflexia, weakness and atrophy). The upper motor neuron signs predominate typically below the level of the clinically expressed lesion.

3. Statement of Policy

3.1. Lumbar Fusion

3.1.1. The determination of medical necessity for the use of lumbar spinal fusion (arthrodesis) with or without instrumentation is always made on a case-by-case basis.

3.1.2. Lumbar fusion (arthrodesis) is considered medically necessary in patients who demonstrate unstable vertebral fractures, spinal dislocations or where surgery is being performed for tumor, spinal infection, or other disease processes that have led to or will lead to lumbar segmental instability as defined above.

3.1.3. Lumbar fusion (arthrodesis) may be considered medically necessary in patients with severe chronic (at least one year in duration) low back pain with
or without associated neurological findings (i.e., radiculopathy, neurogenic claudication) which is aggravated by activity and demonstrate:

- Isthmic spondylolisthesis; or
- Degenerative spondylolisthesis or degenerative scoliosis with evidence of spinal stenosis with associated neurological findings (i.e., radicular pain with or without findings of neurogenic claudication); or
- A pseudoarthrosis (non-union) from a prior spinal fusion; or
- The clinical need for a repeat lumbar discectomy at the same level in the presence of post discectomy spondylosis; or
- Spinal stenosis which requires decompressive surgery that produces lumbar segmental instability; or
- Scoliosis or kyphosis resulting in severe skeletal deformity which compromises the patient’s visceral function, severely interferes with the patient’s ability to carry out their activities of daily living, produces severe pain or documented progression.

3.1.4. Lumbar spinal fusion may be considered not medically necessary if the following criteria have not been met:

- Lumbar segmental instability has been documented at the level(s) being considered for fusion as defined above; and
- The patient has received an adequate diagnostic evaluation to rule out all other potential causes of pain; and
- The patient has undergone an MRI or a CT scan with or without myelography within the past six (6) months which demonstrates severe disc pathology; and
- The patient has participated in a minimum of three (3) months up to six (6) months of a supervised active rehabilitation exercise program with appropriate adjunctive care. When comparing the long-term outcomes of spinal fusion versus an aggressive rehabilitative exercise program combined with a cognitive behavioral approach, the scientific literature demonstrates comparable outcomes with respect to pain and function.
Spinal fusion, however, carries increased risks of serious complications as compared to rehabilitative exercises; and

- The patient does not have an active psychological diagnosis or disturbance or psychosocial issues that would substantially reduce the possibility of a successful outcome; and

- The patient does not have clinically significant co-morbid factors such as morbid obesity, smoking, diabetes, renal disease, osteoporosis, or other co-morbid factors which could increase the likelihood of a negative outcome of the surgical procedure while dramatically increasing patient risk; and

- If the patient has undergone a discogram, it must be positive for concordant pain at the proposed level to be fused with an adjacent normal control level documented.

3.1.5. Lumbar spinal fusion may be considered medically necessary in a carefully selected group of patients with severe single level degenerative disc disease who fulfill the following criteria:

- The patient has received an adequate diagnostic evaluation to rule out all other potential causes of pain; and

- The patient has undergone an MRI or a CT scan with or without myelography within the past six (6) months which demonstrates severe single level disc pathology; and

- If the patient has undergone a discogram by an independent examiner and it must be positive for concordant pain at the proposed single level to be fused with an adjacent normal control level documented; and

- The patient has participated in a minimum of six (6) months of an active supervised rehabilitative exercise program with appropriate adjunctive care. When comparing the long term outcomes of spinal fusion versus an aggressive rehabilitative exercise program combined with a cognitive behavioral approach, the scientific literature demonstrates comparable outcomes with respect to pain and function. Spinal fusion, however, carries increased risks of serious complications as compared to rehabilitative exercises; and
The patient does not have an active psychological diagnosis or disturbance or psychosocial issues that would substantially reduce the possibility of a successful outcome; and

The patient does not have clinically significant co-morbid factors such as morbid obesity, smoking, diabetes, renal disease, osteoporosis, or other co-morbid factors which could increase the likelihood of a negative outcome of the surgical procedure while dramatically increasing patient risk.

3.2. **Extreme Lateral Interbody Fusion (XLIF®)**

3.2.1. Extreme lateral interbody fusion (XLIF®) may be considered medically necessary in patients who meet the lumbar spinal fusion criteria listed above and the following criteria:

- L1–L2, L2-L3, L3-L4 to L4-L5 pathology; and
- When used as an approach to perform an interbody fusion; and
- Lumbar deformities with less than 30 degrees rotation; and
- Degenerative spondylolisthesis less than or equal to grade 2; and
- Bilateral retroperitoneal scarring is not present; and
- There is no need for direct posterior decompression through the same approach.

3.2.2. Axial lumbar interbody fusion (AxiaLIF® or AxiaLIF II®) or Interlaminar Lumbar Instrumented Fusion (ILIF™) is considered investigational based on the lack of published scientific literature.

3.3. **Lumbar Artificial Disc Replacement**

3.3.1. Based on the lack of long term efficacy and safety in comparison to standard spinal fusion techniques, lumbar artificial disc replacement (arthroplasty) is considered investigational.

3.4. **Cervical Fusion**
3.4.1. The determination of medical necessity for the use of cervical spinal fusion (arthrodesis) with or without instrumentation is always made on a case-by-case basis.

3.4.2. Cervical fusion (arthrodesis) is considered medically necessary in patients who demonstrate unstable vertebral fractures, spinal dislocations, segmental instability secondary to traumatic injury, or where surgery is being performed for tumor, infection, or other disease processes that have led to cervical segmental instability.

3.4.3. Cervical fusion (arthrodesis) may be considered medically necessary in patients with severe chronic neck pain with or without radiculopathy/myelopathy which is aggravated by activity and fulfill the following criteria:

- Is performed as part of a cervical decompressive procedure that results in vertebral instability; and
- Patient has received an adequate diagnostic evaluation to rule out all other potential causes of pain; and
- Patient has undergone an MRI or CT scan with or without myelography within the past six (6) months which indicates spinal stenosis (central and/or lateral recess) with clear evidence of a neural compressive lesion/nerve root compromise and/or spinal cord compression which correlates with the clinical examination findings; and
- Patient has participated in a reasonable trial of an active rehabilitative exercise program with appropriate adjunctive care; and
- Patient does not have clinically significant co-morbid factors which could potentially increase the likelihood of a negative outcome of the surgical procedure while dramatically increasing patient risk; and
- Patient does not have an active psychological diagnosis or disturbance or psychosocial issues that would substantially reduce the possibility of a successful outcome.

3.4.4. Cervical fusion (arthrodesis) may be considered medically necessary in patients who demonstrate a pseudoarthrosis (non-union) from a prior fusion.
3.4.5. Cervical fusion (arthrodesis) using both an anterior and posterior approach (360° fusion) **may be considered medically necessary** in patients as an adjunct to an extensive anterior approach procedure or in certain cases of severe instability.

3.5. Cervical Artificial Disc Replacement

3.5.1. Based on the lack of long term efficacy and safety in comparison to standard spinal fusion techniques, cervical artificial disc replacement (arthroplasty) **is considered investigational**.

3.6. Computer-Assisted Navigation used adjunctively during orthopedic surgery of the pelvis and appendicular skeleton **is considered investigational**.

4. References

4.1. Scientific:

The following scientific references were utilized in the formulation of this medical policy. Triad Healthcare, Inc. will continue to review clinical evidence surrounding spinal fusion (arthrodesis) and artificial disc replacement (arthroplasty) and may modify this policy at a later date based upon the evolution of the published clinical evidence. Should additional scientific studies become available and they are not included in the list, please forward the reference(s) to Triad Healthcare, Inc. so the information can be reviewed by the Academic Advisory Committee (AAC) and the Medical Quality Improvement Committee (MQIC) to determine if a modification of the policy is in order.

**References for Spinal Fusion (Arthrodesis):**


Policy Library: Medical

Title/Subject: TMMP 302 - Spinal Fusion


• Nguyen T, Randolph D. Functional outcomes of lumbar fusion among the Ohio workers’ compensation subjects. *Primary Care Forum VIII,* Amsterdam, Netherlands. 2007.


- Rodgers W. Complications in 575 XLIF surgeries. Abstract Accepted for Podium Presentation at the 16th International Meeting on Advanced Spine Techniques (IMAST), Vienna, Austria, July 15-18, 2009.


• Wright I, Eisenstein S. Anterior cervical discectomy and fusion without instrumentation. *Spine*. 2007 Apr 1;32(7):772-4; discussion 775.


**References for Artificial Disc Replacement (Arthroplasty):**


• Centers for Medicare & Medicaid Services (CMS). Lumbar Artificial Disc Replacement (LADR), May 16, 2006.

• Centers for Medicare and Medicaid Services (CMS). Decision Memo for Lumbar Artificial DISC Replacement (CAG-00292N), May 16, 2006.


### 4.2. Related Triad Medical Policies:

- **TMMP 18 - Medical Necessity**

- **TMMP 403 – Discography**

### CPT Codes

This policy relates to the use of the following CPT Codes:

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description (AMA CPT Guide)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20985</td>
<td>Computer-assisted surgical navigational procedures for musculoskeletal procedures, image-less (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22532</td>
<td>Arthrodesis, lateral extracavitary technique, including minimal discectomy to prepare interspace (other than for decompression); thoracic</td>
</tr>
<tr>
<td>22533</td>
<td>Arthrodesis, lateral extracavitary technique, including minimal discectomy to prepare interspace (other than for decompression); lumbar</td>
</tr>
<tr>
<td>22534</td>
<td>Arthrodesis, lateral extracavitary technique, including minimal discectomy to prepare interspace (other than for decompression); thoracic or lumbar, each additional vertebral segment (list separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22548</td>
<td>Arthrodesis, anterior transoral or extraoral technique, clivus-C1-C2 (atlas-axis), with or without excision of odontoid process</td>
</tr>
<tr>
<td>CPT Codes</td>
<td>Description (AMA CPT Guide)</td>
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<tr>
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</tr>
<tr>
<td>22551</td>
<td>Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophytectomy and decompression of spinal cord and/or nerve roots; cervical below C2</td>
</tr>
<tr>
<td>22552</td>
<td>Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophytectomy and decompression of spinal cord and/or nerve roots; cervical below C2, each additional interspace (List separately in addition to code for separate procedure)</td>
</tr>
<tr>
<td>22554</td>
<td>Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than decompression); cervical below C2</td>
</tr>
<tr>
<td>22556</td>
<td>Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than decompression); thoracic</td>
</tr>
<tr>
<td>22558</td>
<td>Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than decompression); lumbar</td>
</tr>
<tr>
<td>22585</td>
<td>Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than decompression); each additional interspace (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22586</td>
<td>Arthrodesis, pre-sacral interbody technique, including disc space preparation, discectomy, with posterior instrumentation, with image guidance, includes bone graft when performed, L5-S1 interspace</td>
</tr>
<tr>
<td>22590</td>
<td>Arthrodesis, posterior technique, craniocervical (occiput-C2)</td>
</tr>
<tr>
<td>22595</td>
<td>Arthrodesis, posterior technique, atlas-axis (C1-C2)</td>
</tr>
<tr>
<td>22600</td>
<td>Arthrodesis, posterior or posterolateral technique, single level; cervical below C2 segment</td>
</tr>
<tr>
<td>22610</td>
<td>Arthrodesis, posterior or posterolateral technique, single level; thoracic (with lateral transverse technique, when performed)</td>
</tr>
<tr>
<td>22612</td>
<td>Arthrodesis, posterior or posterolateral technique, single level; lumbar (with lateral transverse technique, when performed)</td>
</tr>
<tr>
<td>22614</td>
<td>Arthrodesis, posterior or posterolateral technique, single level; each additional vertebral segment (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22630</td>
<td>Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single interspace; lumbar</td>
</tr>
</tbody>
</table>
| 22632    | Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single
<table>
<thead>
<tr>
<th>CPT Codes</th>
<th>Description (AMA CPT Guide)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22633</td>
<td>Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace and segment; lumbar</td>
</tr>
<tr>
<td>22634</td>
<td>Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace and segment; each additional interspace and segment (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>22800</td>
<td>Arthrodesis, posterior, for spinal deformity, with or without cast; up to 6 vertebral segments</td>
</tr>
<tr>
<td>22802</td>
<td>Arthrodesis, posterior, for spinal deformity, with or without cast; 7 to 12 vertebral segments</td>
</tr>
<tr>
<td>22804</td>
<td>Arthrodesis, posterior, for spinal deformity, with or without cast; 13 or more vertebral segments</td>
</tr>
<tr>
<td>22808</td>
<td>Arthrodesis, anterior, for spinal deformity, with or without cast; 2 to 3 vertebral segments</td>
</tr>
<tr>
<td>22810</td>
<td>Arthrodesis, anterior, for spinal deformity, with or without cast; 4 to 7 vertebral segments</td>
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<tr>
<td>22812</td>
<td>Arthrodesis, anterior, for spinal deformity, with or without cast; 8 or more vertebral segments</td>
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<tr>
<td>22818</td>
<td>Kyphectomy, circumferential exposure of spine and resection of vertebral segment(s) including body and posterior element(s); single or 2 segments</td>
</tr>
<tr>
<td>22819</td>
<td>Kyphectomy, circumferential exposure of spine and resection of vertebral segment(s) including body and posterior element(s); 3 or more segments</td>
</tr>
<tr>
<td>22830</td>
<td>Exploration of spinal fusion</td>
</tr>
<tr>
<td>22857</td>
<td>Total disc arthroplasty (artificial disc), anterior approach, including discectomy to prepare interspace (other than for decompression), single interspace, lumbar</td>
</tr>
<tr>
<td>22862</td>
<td>Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, single interspace; lumbar</td>
</tr>
<tr>
<td>22865</td>
<td>Removal of total disc arthroplasty (artificial disc), anterior approach, single interspace; lumbar</td>
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## Table of CPT Codes

<table>
<thead>
<tr>
<th>CPT Codes</th>
<th>Description (AMA CPT Guide)</th>
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<tbody>
<tr>
<td>22899</td>
<td>Unlisted procedure, spine</td>
</tr>
<tr>
<td>0054T</td>
<td>Computer-assisted musculoskeletal surgical navigational orthopedic procedure, with image-guidance based on fluoroscopic images (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>0055T</td>
<td>Computer-assisted musculoskeletal surgical navigational orthopedic procedure, with image-guidance on fCT/MRI (List separately in addition to code for primary procedure)</td>
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<td>0163T</td>
<td>Total disc arthroplasty (artificial disc), anterior approach, including discectomy to prepare interspace (other than for decompression), each additional interspace, lumbar (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>0164T</td>
<td>Removal of total disc arthroplasty, (artificial disc), anterior approach, each additional interspace, lumbar (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>0165T</td>
<td>Revision including replacement of total disc arthroplasty (artificial disc), anterior approach, each additional interspace, lumbar (List separately in addition to code for primary procedure)</td>
</tr>
<tr>
<td>0195T</td>
<td>Arthrodesis, pre-sacral interbody technique, disc space preparation, discectomy, without instrumentation, with image guidance, includes bone graft when performed; L5-S1 interspace</td>
</tr>
<tr>
<td>0196T</td>
<td>Arthrodesis, pre-sacral interbody technique, disc space preparation, discectomy, without instrumentation, with image guidance, includes bone graft when performed; L4-L5 interspace (List separately in addition to code for primary procedure)</td>
</tr>
</tbody>
</table>

This list may not be all inclusive and is not intended to be used for coding/billing purposes.

### Table of Revisions

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Modified By</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>06/23/2014</td>
<td>Level 1, 2, 3</td>
<td>CPT Codes &amp; Descriptions updated. §3.6. added.</td>
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</tbody>
</table>
| 12/09/2013    | Level 1, 2, 3 | Annual Review. New §2.5., definition of radiculopathy. New §2.6., definition of myelopathy. Previous §3.1. reference to Centers for Medicare & Medicaid Services (CMS) removed. §3.2.2. 4th bullet changed from “the clinical need for a third lumbar discectomy at the same level” to “the clinical need for a repeat lumbar discectomy at the same level in the presence of post discectomy spondylosis.” §3.2.2. 5th bullet changed from “spinal stenosis which requires decompressive surgery with concomitant lumbar segmental instability” to “spinal stenosis which requires decompressive surgery that produces lumbar segmental instability.” §3.2.4. 7th bullet changed from “…to be fused with at least one normal control…” to “…to be fused with an adjacent...
<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Modified By</th>
<th>Description</th>
</tr>
</thead>
</table>
| 11/16/2012     | Level 1, 2, 3 | Removed §2.5. and §3.6. regarding BMP §3.1.3. removed radiculopathy; added “…without associated neurologic findings (i.e., radiculopathy, neurogenic claudication) which is…”.
| 07/25/2011     | Level 1, 2, 3 | New §2.3. to define XLIF. New §2.5. to define BMP. §3. added information for Medicare & Medicaid NCD/LCD. New §3.2., 3.2.1. & §3.2.2. regarding XKIL. §3.3.1. added the following text ‘lumbar artificial disc replacement is considered investigational’. §3.5.1. deleted ‘cervical artificial disc replacement (arthroplasty) is considered not medically necessary based on the lack of long term efficacy and safety in comparison to standard spinal fusion techniques and is therefore considered investigational’. Now reads ‘based on the lack of long term efficacy and safety in comparison to standard spinal fusion techniques, cervical artificial disc replacement (arthroplasty) is considered investigational’ §3.6.1. added regarding BMP. Added 17 references to the scientific literature section for spinal fusion. |
| 05/20/2011     | Level 1, 2, 3 | Annual Review. No changes.                                                                                                                    |
| 05/07/2010     | Level 1, 2, 3 | Annual Review.                                                                                                                              |
| 03/14/2009     | Level 1, 2, 3 | New medical policy.                                                                                                                         |

Triad’s Medical Policies are not recommendations for treatment and providers are expected to exercise their clinical judgment in providing the most appropriate care. Health care providers and patients should not rely on these Medical Policies in making health care decisions. These Medical Policies are guidelines and do not constitute an authorization, certification, explanation of benefits or guarantee of payment. Applications of Triad’s Medical Policies are determined by the enrollee’s benefit documents and contracts and as such individual benefits must be verified. Determinations of medical necessity apply only if the benefit exists and no contract exclusions are applicable. In the event of a conflict, a participant’s benefit plan document shall supersede the information contained in Triad’s Medical Policies.