Aetna considers magnetic resonance imaging (MRI) medically necessary for appropriate indications without regard to the field strength or configuration of the MRI unit. Aetna considers intermediate and low field strength MRI units to be an acceptable alternative to standard full strength MRI units.

Aetna considers "open" MRI units of any configuration, including MRI units that allow imaging when standing (Stand-Up MRI) or when sitting, to be an acceptable alternative to standard "closed" MRI units.

Aetna considers repeat MRI scans in different positions (such as flexion, extension, rotation and lateral bending) and when done with and without weight-bearing to be experimental and investigational for all indications (including evaluation of Ehlers-Danlos syndrome, suspected craniovertebral or cervical spine abnormalities) because of insufficient evidence of this approach.
See also:

CPB 0094 - Magnetic Resonance Angiography (MRA) and Magnetic Resonance Venography (MRV) (0094.html)

CPB 0105 - Magnetic Resonance Imaging (MRI) of the Breast (../100_199/0105.html)

CPB 0171 - Magnetic Resonance Imaging (MRI) of the Extremities (../100_199/0171.html)

CPB 0236 - Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) of the Spine (../200_299/0236.html)

CPB 0384 - Magnetic Resonance Cholangiopancreatography (../300_399/0384.html)

CPB 0387 - Magnetic Resonance Neurography (../300_399/0387.html)

; and

CPB 0520 - Magnetic Resonance Imaging of the Cardiovascular System - Cardiac MRI (../500_599/0520.html)

Background

Dynamic (kinematic) or upright magnetic resonance imaging (MRI) purportedly provides images of the spine under daily living or weight-bearing conditions. A vertically open configuration MRI enables sitting or standing during image capture. Position changes, such as flexion and extension of the neck or back can also be viewed.

Standing MRIs (e.g., The Stand-Up™ MRI, FONAR, Melville, NY) allows patients to walk in and be scanned while standing.
Standing MRIs are equipped with a system that positions the patient in the magnet and places the anatomy of interest at the center of the magnet gap. The standing MRI can also rotate a patient from the vertical to the horizontal position so the patient can be scanned lying down. MRIs have also been developed that can scan patients in a sitting position [Position MRI™ (pMRI™)].

The standing MRI and sitting MRI may be an alternative to open MRI for imaging someone with claustrophobia.

Standing MRIs allows the spine, joints and other parts of the body to be imaged in the weight bearing state. In theory, if one can scan the patient in a load-bearing position, one can more accurately identify the precise source of pain. The standing MRI can also image someone in various positions (e.g., flexion, extension, rotation, and lateral bending) (e.g., "flexion-extension MRI"). Currently, standing radiographs are used to examine patients in the standing position or other positions.

The clinical value of standing MRI or position MRI imaging in various positions (e.g., flexion, extension, rotation and lateral bending) has not been systematically evaluated in clinical studies. It has not been demonstrated in published prospective clinical studies that performing MRIs in these various positions can consistently detect problems that can not be detected with a standard MRI.

An assessment of standing, weight-bearing, positional, and upright MRIs by the Washington State Department of Labor and Industries (2006) concluded: "There is limited scientific data available on the accuracy and diagnostic utility of standing, upright, weight-bearing or positional MRI. Well-designed clinical trials are necessary to effectively determine the potential benefits and value of this diagnostic imaging method .......Due to the lack of evidence addressing diagnostic
accuracy or diagnostic utility, standing, weight-bearing, positional magnetic resonance imaging is considered investigational and experimental”.

Supported by findings of a technology assessment of upright, positional and weight-bearing MRIs (Skelly et al, 2007), the Washington State Health Care Authority found that “there was insufficient scientific evidence to make any conclusions about uMRI’s effectiveness, including whether uMRI: accurately identifies an appropriate diagnosis; can safely and effectively replace other tests; or results in equivalent or better diagnostic or therapeutic outcomes”.

Diefenbach et al (2013) examined if an upright positional MRI protocol could produce reliable spinal curvature images and measurements compared with traditional radiograph. A total of 25 consecutive patients (16 females; 9 males; average age of 14.6 yrs; range of 12 to 18) with a diagnosis of adolescent idiopathic scoliosis (AIS) were enrolled in this study. Average major curve magnitude was 30° (range of 6 to 70). Subjects received anterior-posterior as well as lateral plain radiographical scoliosis imaging followed within 1 week by uMRI; MRI data acquisition was performed in less than 7 mins. Two independent observers performed all Cobb angle, T5-T12 kyphosis, and vertebral rotation measurements for comparison. The Pearson correlation method was performed to compare radiograph to uMRI measurements, while inter-rater and intra-rater correlations were performed to assess reliability. These investigators found outstanding correlation between all plain film radiography and uMRI measurements (p = 0.01); major Cobb angles (R = 0.901), minor Cobb angles (R = 0.838), and kyphosis (R = 0.943). Inter-rater reliability for both radiographical and MRI measurements of major Cobb angles (R = 0.959, 0.896, respectively), minor Cobb angles (R = 0.951, 0.857, respectively), and vertebral rotation (R = 0.945) were outstanding. Intra-rater reliability for both radiographical and MRI measurements of major Cobb angles (R = 0.966, 0.966, respectively) and minor Cobb angles (R =
0.945, 0.943, respectively) were also outstanding. The authors concluded that these results showed that uMRI is capable of producing coronal and sagittal plane measurements that highly correlate with traditional plain film radiographical measurements. This, in addition to reliable vertebral rotation measurements, makes uMRI a valuable, radiation-free alternative/substitute for diagnostic evaluation in AIS.

Positional MRI for Ehlers-Danlos Syndrome / Suspected Cranio-Vertebral or Cervical Spine Abnormalities

Health Quality Ontario’s evidence-based analysis on “Positional magnetic resonance imaging for people with Ehlers-Danlos syndrome or suspected craniovertebral or cervical spine abnormalities” (2015) noted that Ehlers-Danlos syndrome (EDS) is an inherited disorder affecting the connective tissue. Ehlers-Danlos syndrome can manifest with symptoms attributable to the spine or cranio-vertebral junction (CVJ). In addition to EDS, numerous congenital, developmental, or acquired disorders can increase ligamentous laxity in the CVJ and cervical spine. Resulting abnormalities can lead to morbidity and serious neurologic complications. Appropriate imaging and diagnosis is needed to determine patient management and need for complex surgery. Some spinal abnormalities cause symptoms or are more pronounced while patients sit, stand, or perform specific movements. Positional MRI (pMRI) allows imaging of the spine or CVJ with patients in upright, weight-bearing positions and can be combined with dynamic maneuvers, such as flexion, extension, or rotation. Imaging in these positions could allow diagnosticians to better detect spinal or CVJ abnormalities than recumbent MRI or even a combination of other available imaging modalities might allow. These investigators determined the diagnostic impact and clinical utility of pMRI for the assessment of; (i) cranio-vertebral or spinal abnormalities among individuals with EDS and (ii) major cranio-vertebral or cervical spine abnormalities.
among symptomatic persons. A literature search was performed using Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, Ovid Embase, and EBM Reviews, for studies published from January 1, 1998, to September 28, 2014. Studies comparing pMRI to recumbent MRI or other available imaging modalities for diagnosis and management of spinal or CVJ abnormalities were reviewed. All studies of spinal or CVJ imaging in persons with EDS were included as well as studies among individuals with suspected major CVJ or cervical spine abnormalities (cervical or cranio-vertebral spine instability, basilar invagination, cranial settling, cervical stenosis, spinal cord compression, Chiari malformation). No studies were identified that met the inclusion criteria. The authors did not identify any evidence that assessed the diagnostic impact or clinical utility of pMRI for: (i) cranio-vertebral or spinal abnormalities among individuals with EDS, or (ii) major cranio-vertebral or cervical spine abnormalities among symptomatic persons relative to currently available diagnostic modalities.

Positional MRI for the Diagnosis of Low Back Pain

In a systematic review, Panagopoulos and colleagues (2017) examined if MRI findings change over 1 year or less in people with low back pain (LBP) or sciatica. These investigators also examined if there was an association between any change in MRI findings and change in clinical outcomes. Medline, Embase, and CINAHL databases were searched. Included were cohort studies that performed repeat MRI scans within 12 months in patients with LBP and/or sciatica. Data on study characteristics and change in MRI findings were extracted from included studies. Any data describing associations between change in MRI findings and change in clinical outcomes were also extracted. A total of 12 studies met the inclusion criteria and were included in the review. Pooling was not possible due to heterogeneity of studies and findings; 7 studies reported on changes in disc herniation and reported 15% to 93% of herniation reduced or disappeared in size; 2
studies reported on changes in nerve root compression and reported 17% to 91% reduced or disappeared. Only 1 study reported on the association between change in MRI findings and change in clinical outcomes within 1 year, and found no association. The authors concluded that this review found moderate evidence that the natural course of herniation and nerve root compression is favorable over a 1-year period in people with sciatica or LBP. Moreover, there is a lack of evidence on whether other MRI findings change, and whether changes in MRI findings are associated with changes in clinical outcomes.

Hansen (2017) presented a PhD thesis that was based on 3 scientific papers. In 2011, the department of rheumatology of the Parker Institute introduced standing weight-bearing MRI (G-Scan, ESAOTE, Genova, Italy) in the diagnostic of LBP patients. Unfortunately, patients experienced a substantial risk of fainting during standing pMRI. In paper 1 (an observational study), the author reported that the risk of fainting (19%) during standing pMRI could almost be eliminated by the use of an external pneumatic compression device (2%). The lumbar lordosis in the standing position was a significant contributor to positional changes in the morphology in the lumbar spine. In paper 2 (an observational study), the author reported that changes in lumbar lordosis angle (ΔLA) between the conventional supine and standing position were independent of pain and the degenerative disc score. Before a full introduction of standing pMRI in clinical practice, it is important to know if the interpretation of positional changes in common degenerative findings has a sufficient reproducibility. In paper 3 (a reliability study), the author stated that pMRI evaluation had a fair to substantial reliability, although positional changes in the lumbar spine's morphology from the supine to the standing appeared a less reliable outcome. There are currently no international evidence-based recommendations for the use of standing pMRI, and the author had limited knowledge about how to interpret these positional changes in the lumbar spine into a clinical context. The author concluded...
that further research is needed to test the precision (sensitivity and specificity) in prospective longitudinal studies or RCTs. However, from a clinical perspective it appeared logical to scan patients with LBP in the position worsening their symptoms -- usually the upright position. The author noted that standing pMRI may provide a higher diagnostic specificity and additional benefit to LBP patients in the future.

Hansen and colleagues (2018) tested the reliability and absolute agreement of common degenerative findings in standing pMRI; LBP patients with and without sciatica were consecutively enrolled to undergo a supine and standing pMRI. Three readers independently evaluated the standing pMRI for herniation, spinal stenosis, spondylolisthesis, high intensity zones (HIZ) lesions and facet joint effusion. The evaluation included a semi-quantitative grading of spinal stenosis, foraminal stenosis and spinal nerve root compression. The standing pMRI images were evaluated with full access to supine MRI. In case lower grades or the degenerative findings were not present in the supine images, this was reported separately as position-dependent changes. A subsample of 20 pMRI examinations was reevaluated after 2 months. The reproducibility was assessed by inter- and intra-reader reliability (kappa statistic) and absolute agreement between readers. A total of 56 patients were included in this study. There was fair-to-substantial inter-reader reliability ($\kappa$ 0.47 to 0.82) and high absolute agreement (72.3 % to 99.1 %) for the pMRI findings. The intra-reader assessment showed similar reliability and agreement ($\kappa$ 0.36 to 0.85; absolute agreement: 62.5 % to 98.8 %). Positional changes between the supine and standing position showed a fair-to-moderate inter- and intra-reader reliability ($\kappa$ 0.25 to 0.52; absolute agreement: 97.0 % to 99.1 %). The authors concluded that evaluation of the lumbar spine for degenerative findings by standing pMRI has acceptable reproducibility; however, positional changes from the supine to the standing position as an independent outcome should be interpreted with caution because of lower reliability, which calls for further
standardization.

CPT Codes / HCPCS Codes / ICD-10 Codes

Information in the [brackets] below has been added for clarification purposes. Codes requiring a 7th character are represented by “+”:

<table>
<thead>
<tr>
<th>Code</th>
<th>Code Description</th>
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<tbody>
<tr>
<td>70551 - 70553</td>
<td>Magnetic resonance (e.g., proton) imaging, brain (including brain stem); without contrast material, with contrast material(s), or without contrast material(s), followed by contrast material(s) and further sequences</td>
</tr>
<tr>
<td>70554 - 70555</td>
<td>Magnetic resonance imaging, brain, functional MRI</td>
</tr>
<tr>
<td>72141 - 72142, 72156</td>
<td>Magnetic resonance (e.g., proton) imaging, spinal canal and contents, cervical; without contrast material(s), with contrast material(s), or without contrast material(s), followed by contrast material(s) and further sequences [Not covered for repeat MRI scans in different positions]</td>
</tr>
<tr>
<td>72195 - 72197</td>
<td>Magnetic resonance (e.g., proton) imaging, pelvis; without contrast material(s), with contrast material(s), or without contrast material(s), followed by contrast material(s) and further sequences</td>
</tr>
<tr>
<td>73218 - 73223</td>
<td>Magnetic resonance (e.g., proton) imaging, upper extremity, other than joint; without contrast material(s), with contrast material(s), or without contrast material(s), followed by contrast material(s) and further sequences</td>
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<tr>
<td>Code</td>
<td>Code Description</td>
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<tr>
<td>73718 - 73723</td>
<td>Magnetic resonance (e.g., proton) imaging, lower extremity other than joint; without contrast material(s), with contrast material(s), or without contrast material(s), followed by contrast material(s) and further sequences</td>
</tr>
<tr>
<td>74181 - 74183</td>
<td>Magnetic resonance (e.g., proton) imaging, abdomen; without contrast material(s), with contrast material(s), or without contrast material(s), followed by contrast material(s) and further sequences</td>
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HCPCS code covered if selection criteria are met:
- S8042 Magnetic resonance imaging (MRI), low-field

ICD-10 codes covered if selection criteria are met:
- Too many to list

ICD-10 codes not covered for indications listed in the CPB:
- M48.02 Spinal stenosis, cervical region
- M50.00 - M50.03 Cervical disc disorder with myelopathy
- M50.10 - M50.13 Cervical disc disorder with radiculopathy
- M50.20 - M50.23 Other cervical disc displacement
- M50.30 - M50.33 Other cervical disc degeneration
- M50.80 - M50.83 Other cervical disc disorders
- M50.90 - M50.93 Cervical disc disorder, unspecified
- Q79.6 Ehlers-Danlos syndrome
The above policy is based on the following references:


26. Hailey D. Open magnetic resonance imaging (MRI) scanners. Issues in Emerging Health Technologies. Issue 92. Ottawa, ON; Canadian Agency for Drugs and Technologies in Health (CADTH); 2006.


AETNA BETTER HEALTH® OF PENNSYLVANIA

Amendment to
Aetna Clinical Policy Bulletin Number: 0093 Open Air, Low Field Strength, and Positional Magnetic Resonance Imaging (MRI) Units

There are no amendments for Medicaid.