BlueCross BlueShield of Alabama

**Effective for dates of service on or after April 1, 2013, refer to:**
https://www.bcbsal.org/providers/policies/careCore.cfm

## Name of Policy:
# Standing Magnetic Resonance Imaging (MRI) (Vertical or Positional MRI)

Policy #: 261
Category: Radiology
Latest Review Date: February 2013
Policy Grade: C

## Background/Definitions:

*As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.*

*The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:*

1. *The technology must have final approval from the appropriate government regulatory bodies;*
2. *The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;*
3. *The technology must improve the net health outcome;*
4. *The technology must be as beneficial as any established alternatives;*
5. *The improvement must be attainable outside the investigational setting.*

*Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:*

1. *In accordance with generally accepted standards of medical practice; and*
2. *Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient's illness, injury or disease; and*
3. *Not primarily for the convenience of the patient, physician or other health care provider; and*
4. *Not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease*

## Description of Procedure or Service:

Magnetic Resonance Imaging (MRI) is a multiplanar image method based on the interaction between radiofrequency electromagnetic fields and certain atomic nuclei (usually hydrogen) in the body after the body has been placed in a strong magnetic field. It is particularly useful in detecting soft-tissue damage or disease. A patient usually is in a supine, relaxed position while undergoing an MRI. Axial-loading mechanical devices may be used during the MRI to simulate the erect position and show how the spine appears if the patient were in the standing position. The clinical significance of any additional information obtained with axial-loaded imaging is unclear.

The Upright (FONAR Corporation, Melville, NY) allows all parts of the body, particularly the spine and joints, to be imaged in the weight-bearing state. It has a motorized patient handling system that moves the patient into the magnet and places the anatomy of interest into the center of the magnet gap. Patients may be scanned in a sitting position, lying down, or in a certain position that causes their pain (e.g., flexion, extension, rotation, and lateral bending). It may also be used for patients with heart and lung conditions who are unable to tolerate lying down.

The U.S. Food and Drug Administration (FDA) Center for Devices and Radiological Health (CDRH) gave final 510(k) approval for the FONAR 360-degree MRI scanner in March 2000 and the FONAR Indomitable (Upright) MRI scanner in October 2000.

There are no radiological professional societies that have issued practice guidelines addressing this technique.

## Policy:

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**Effective for dates of service prior to April 1, 2013:**

**Standing Magnetic Resonance Imaging (MRI )** (vertical or positional) **meets** Blue Cross and Blue Shield of Alabama's medical criteria for coverage for the evaluation of severe lumbar spinal stenosis when surgery is being considered.

Additional **Standing MRI** views for all other conditions **do not** meet Blue Cross and Blue Shield of Alabama's medical criteria for coverage and is considered **investigational**.

*Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administers benefits based on the members' contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.*

## Key Points:

There are several articles in the literature that discuss standing or positional MRI.

Zamani, et al (1998) reported on 30 patients who had MRI of the lumbar spine while in an erect position and with flexion and extension. An open-configuration MR unit was used. The results showed the images were diagnostically adequate, but of inferior quality compared to a conventional unit.

Weishaupt et al (2000) reported on a small clinical trial that evaluated whether positional MRI of the lumbar spine demonstrated nerve root compromise not visible on supine MRI. 30 patients with chronic low back pain unresponsive to nonsurgical treatment and with disk abnormalities but without compression of neural structures were included. The results showed nerve root contact without deviation was present in 34 of 152 instances in the supine position, in 62 instances in the seated flexion position, and in 45 instances in the seated extension position. As compared with the supine position, in the seated flexion position nerve root deviation decreased from ten to eight instances; in the seated extension position, it increased from ten to 13 instances. Nerve root compression was seen in one patient in the seated extension position. The authors concluded that positional MR imaging more frequently demonstrates minor neural compromise than does conventional supine MR imaging.

Willen et al (2001) reported on an observational study conducted to estimate the clinical value of axially loaded imaging in patients with degenerative disorders of the lumbar spine. 172 patients were examined in the psoas-relaxed position and axially compressed supine position of the lumbar spine: 50 patients with CT myelography and 122 patients with MRI. Examination conducted during axial loading yielded additional valuable information in 50 of 172 patients (29%). There was additional valuable information in 69% of patients with neurogenic claudication, in 14% of patients with sciatica, and in 0% of patients with low back pain.

Jinkins et al (2003) reviewed the general clinical utility of MRI in the upright, weight-bearing positional evaluation of the spinal column during various dynamic-kinetic maneuvers in patients with degenerative conditions of the spine. The results showed that depending on the specific underlying condition; there were more or less pronounced significant alterations on positional MRI (pMRI) and kinetic MRI (kMRI) than on recumbent (rMRI), including: fluctuating anterior and posterior disc herniations, hypermobile spinal instability, central spinal canal and spinal neural foramen stenosis and general sagittal spinal contour changes. The authors concluded that this type of MRI has the potential benefits of revealing occult disease depending on true axial loading, unmasking kinetic-dependent disease, and scanning patients in the position of clinically relevant signs and symptoms.

Manenti et al (2003) looked at the interrelation of chronic low back pain and biomechanical changes of the lumbar spine using axial loading MRI. The results showed after loading, there were no significant modifications in ten patients (20%), a spinal stenosis in 18 patients (45%), an increase in the discal protrusions or hernias in 8 patients (20%), and a significant accentuation of the spondylolisthesis in 6 patients (15%).

Gulfer et al (2004) reported on seven patients with pelvic floor descent to determine whether there are statistically significant differences between measurement results on colpocystoproctography in the upright and supine positions, and to correlate these results with dynamic MRI. At pelvic strain, the bladder neck position, angle of urethral inclination, posterior vesicourethral angle and vaginal vault position measurements showed no statistically significant differences between colpocystoproctography in the upright and supine positions or dynamic MRI. For the bladder neck height at pelvic floor relaxation, significant differences were found between colpocystoproctography in the upright and supine positions, and colpocystoproctography in the upright position verus dynamic MRI.

The data that is available on the diagnostic efficacy of standing magnetic resonance imaging (MRI) compared to conventional MRI is very limited. These small studies indicate potential future clinical applications for specific populations, but large, randomized controlled trials are needed to show sufficient evidence of diagnostic efficacy as compared to conventional MRI as well as other imaging modalities.

**2012 Update**
Zou et al performed a study in 2008 that included 553 patients (mean age, 46 years; range: 18–76 years) with symptomatic back pain with/without radiculopathy who were referred for kinetic/positional MRI (0.6 Tesla). The disc bulge on MRI in the 3 positions (neutral, flexion, and extension) was quantified by MRI analysis software, and the bulge size was compared independently by 2 spine surgeons who were unaware of the patient's history and clinical findings. Increased disc bulge at extension and flexion, in comparison with neutral, was seen in 16% and 12% of discs, respectively. Diagnosis of grade 2 disc bulge that had been categorized as grade 1 in neutral position (i.e., missed diagnosis) was 19.5% for extension and 15.3% for flexion MRI.

## Key Words:
Standing magnetic resonance imaging, standing MRI, vertical MRI, positional MRI

## Approved by Governing Bodies:
The U.S. Food and Drug Administration (FDA) Center for Devices and Radiological Health (CDRH) granted final 501(k) approval to FONAR for their FONAR 360-degree MRI scanner in March 2000 and their FONAR Indomitable (currently marketed as Upright) MRI scanner in October 2000.

## Benefit Application:
Coverage is subject to member's specific benefits. Group specific policy will supersede this policy when applicable.

ITS: Home Policy provisions apply
FEP contracts: FEP does not consider investigational. Will be reviewed for medical necessity.

**Pre-certification requirements: Effective for dates of service on or after November 1, 2007**, required when ordered by a provider in a Blue Cross and Blue Shield of Alabama's Preferred or Participating Network for a patient covered by Blue Cross and Blue Shield of Alabama who will receive outpatient imaging services(s) from a Preferred Medical Doctor (PMD) or Preferred Radiology Participating (PRP) provider.

**Exceptions to the Alabama PMD and PRP pre-certification requirement**:
NASCO, Wal-Mart, Blue Advantage, Flowers Foods, Inc., FEP.

In addition to the above Blue Cross and Blue Shield of Alabama PMD/PRP Network requirement, **some self-insured national account groups** may require pre-certification for all MRIs **effective for dates of service on or after January 1, 2009**. Please confirm during your benefit verification process if a pre-certification is required.

Reviews to verify accuracy of pre-certification information will be conducted.

## Coding:

CPT codes: **76498** Unlisted magnetic resonance procedure (e.g., diagnostic, interventional)

This unlisted code is used for reporting the additional views for the different positions.

## References:


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2. Gufler H, et al. Colpocystoproctography in the upright and supine positions correlated with dynamic MRI of the pelvic floor, European Journal of Radiology, July 2004; 51(1): 41-47.
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11. Willen J, et al. The diagnostic effect from axial loading of the lumbar spine during computed tomography and magnetic resonance imaging in patients with degenerative disorders, Spine 2001, Vol. 26, No. 23, pp. 2607-2614.
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13. Zou J, Yang H, Miyazaki M et al. Missed lumbar disc herniations diagnosed with kinetic magnetic resonance imaging. Spine (Phila Pa 1976) 2008; 33(5):E140-4.

## Policy History:

Medical Policy Group, December 2005 **(2)**
Medical Policy Administration Committee, January 2006
Available for comment January 28-March 13, 2006
Medical Policy Group, December 2007 **(1)**
Medical Policy Group, December 2009 **(1)**
Medical Policy Group, June 2012 **(3)**; 2012 Updates-Key Words & References- Policy statement unchanged
Medical Policy Group, February 2013 **(3):** Updated policy with link to CareCore National© medical policies effective April 1, 2013
Medical Policy Administration Committee, March 2013
Available for comment February 15 through March 31, 2013
Medical Policy Group, November 2013 **(3):** Updated link to CareCore National©