Weight-Bearing MRI in Modern Spine Practice: Addressing Milliman Criteria

Adding **Weight** to Your Surgical Pre–Authorization Application
DISCLOSURES

Douglas K. Smith MD has no business relationship with Esaote USA and has nothing to disclose.

Dr. Smith is the Founder and Owner of Musculoskeletal Imaging Consultants LLC and Primo Teleradiology LLC.
History of Spinal Imaging

1895: Roentgen discovers X-ray.
1921: Sicard reports oil myelogram
1944: Pantopaque replaces oil

1976: Myelogram-CT
1980s: Water soluble
History of Spinal Imaging

1978: First MRI scanner. Indomitable
1981: First MRI commercially available
1980-90s: Declining myelography

1996: FONAR: Stand-Up™ MRI
1997+: No new 1G upright MRIs
2000s: Resurgence CT/myelo
History of Spinal Imaging

2008: Easote introduced 2nd generation Weight Bearing MRI into Europe.

2012: Esaote obtains FDA approval for G-Scan Brio.

2nd generation (2GMRI™) weight-bearing MRI and provides both supine and vertical MRI images. XP technology and Improved Surface Coils.
Simulated Weight-Bearing
Unsatisfying Substitute
Mid-1990s-2012

Compression load straps between waist belt and platform under feet.

Increases lumbar lordosis but not much else.
“Choosing an MRI is more than Tesla”

High Field Strength (1.5T or 3.0T)
- Cryogens generate low temperatures
- Expensive purchase/maintenance.
- Closed tube design.

Low Field Strength (0.2-0.5T)
- Permanent electromagnet.
- Two parallel plates with open sides.
- Much lower maintenance costs.
Frequently Asked Questions

1. What does a 2nd Generation weight-bearing MRI Esaote G-Scan Brio MRI Cost to purchase and operate?
2. How does image quality compare to high field MRI?
3. What does 2G WBMRI show that makes it unique?
4. Would a 2G MRI be a profitable “in-office ancillary”?
5. How does Esoate Brio Tilting MRI contribute to a synergistic approach to meeting Milliman criteria?
High vs. Low Field MRI
Relative Purchase Costs

Isolated MRI Costs
(MRI + Shielding)

**Whole Body MRI**
Requires expensive shielding of field.

**Esoate G-Scan Brio**
utilizes RF Case.

* Esaote figures.
FONAR c/w Esaote G-Scan Brio

**FONAR Stand-Up™ MRI**
First Generation Weight Bearing MRI
$1.5 Million
2-3X Installation Cost
Service ≈ $12K per month
High Electrical Costs

**Esaote G-Scan Brio MRI**
Second Generation Weight Bearing MRI
$800k MRI/Shield
<50% Installation/Maintenance
Esaote Shielding Case

*Lower Installation Cost*

Single room installation
- Installation surface: 270 Sq.Ft.
- Height of the room:
  - Minimal 9 ft. for weight bearing exam of spine and knee
  - Suggested 10.6 ft. for weight bearing exam of spine, knee and ankle
- Total weight: 7.9 tons
- Power line 5 KW
- No Cryogens
- Dedicated shielding case by Esaote
Frequently Asked Questions

1. What does a 2nd Generation weight-bearing (2GWB MRI Esaote G-Scan) MRI Cost?

2. How does image quality compare to high field MRI?

3. What does 2G WBMRI show that makes it unique?

4. Would a 2G MRI be a profitable “in-office ancillary”?

5. How does Esoate Brio Tilting MRI contribute to a synergistic approach to meeting Milliman criteria?
Field Strength and Spine MRI

You Make the Call! 3T, 1.5T, or .25T
Field Strength and Spine MRI

3T

1.5T

0.25T
Improved Esaote Multi-Channel Surface Receiver Coils

Elbow/Wrist Coil

Knee Coil

Cervical Spine Coil

Shoulder Coil
Frequently Asked Questions

1. What does a 2nd Generation weight-bearing (2GWB MRI Esaote G-Scan) MRI Cost?
2. How does image quality compare to high field MRI?
3. What makes Esaote G-Scan Brio unique for spine imaging?
4. Would a 2G MRI be a profitable “in-office ancillary”?
5. Would it be more profitable to joint venture with a partner with technical/management expertise?
Claustrophobia

Closed Tube
places head deep within bore of MRI

“TUBE of TERROR”

Esaote G-Scan Brio

Less patient isolation

Less noise & Less claustrophobia
Metallic Surgical Implants

Metallic Implants Common in Spine Surgery

Stronger Magnet $\Rightarrow$ Larger Artifact

Pedicle Screws at 1.5T
Field Strength and Metallic Artifact

Metallic implants produce artifact directly proportional to the magnetic field strength.

Stronger MRI = More Artifact

Metallic Artifact Reduction Sequences (MARS)
High Field (1.5T)

Low field MRI ideal for metallic implant imaging
Fractured fixation screw of anterior fixation plate.

MARS Protocol on G-Scan
Positional Radiculopathy

Dynamic Foraminal Stenosis

Body weight compresses discs, facet joints override and disc compresses nerve root in the neural foramen.
Dynamic Central Stenosis

Supine at 1.5T

Standing G-Scan Brio

Supine G-Scan Brio
Positional Cervical Myelopathy

Positional Symptoms Require Positional MRI!

Flexion-Extension MRI Demonstrates Cord Compression Not Visible in Neutral.
Standing weight-bearing MRI may demonstrate spinal instability occult while supine.
Frequently Asked Questions

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2. How does image quality compare to high field MRI?
3. What does 2G WBMRI show that makes it unique?
4. **Would a 2G MRI be a profitable “in-office ancillary”?**
5. How does Esoate Brio Tilting MRI contribute to a synergistic approach to meeting Milliman criteria?
Multiscan Discount

- Single Studies
- S80/D20/T0
- S55/D15/T15
- S45/D20/T35

Legend:
- Triple
- Double
- Single
Practice Examples

Case Examples

Example 1: Only costs are MRI with simple build out and overhead absorbed by practice. Favorable payor mix. No MSD. Esaote figures show break even at 4-5 MRIs/day.

Example 2: MRI project pays cost for build out and rent/utilities but absorbs IT/compliance costs. Medicare rates, 25% MSD, 5% non-collection. Est. 5.5-7 MRIs/day.

Example 3: MRI absorbs all costs ($150k build out, rent and expenses and PACS/RIS, 50% MSD. Estimated 6.5-7.5/day.

* Each practice is different. Detailed proforma recommended.
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Clinical Care Guidelines
Actuary Creations

- Three actuaries dominate field:
  - “MCG” formerly “Milliman Care Guidelines”
  - Zynx Health
  - McKesson (InterQual)

- Guidelines are specific to diagnosis and proposed surgical treatment (CPT) code.

- Unless the guidelines are specifically documented in pre-authorization request, payor will likely deny pre-authorization as “not medically necessary”.

Milliman Care Guidelines

General Requirements

Signs: Objective Measures

Symptoms: Subjective Reports

Objective Diagnostic Imaging Findings

Supportive Objective Tests (EMG, Nerve blocks)

History of Non-operative Conservative Treatment

* All information must be specifically recorded and submitted as part of surgical pre-authorization application.
Meeting Milliman Criteria
4Ts: Best Practice Components

All 4 Components Necessary for Optimal Milliman Reporting Program.
Radiology Reporting
Common Practice

Vague History: “Back/leg pain”

Unknown Pain Distribution
Unknown planned procedure
No Milliman specifics in report

Symptom distribution unknown

Vague Report
Radiology Reporting
Common Practice

Surgical Pre-Authorization Application: Missing Milliman Criteria
Tell Patient: “Live With It”

Expensive/Time Consuming

Radiology Reporting
Current Practice
Dedicated spine radiologist brings “arms distance” objective opinion to strengthen Insurance consideration.
What is the Difference Worth to You?
Check the Care Guidelines box the First Time

Expensive Appeals Process vs. Productive Surgical Procedure

When the cheapest radiology reading…. is not the least expensive!
Meeting Milliman Criteria
Collaborative Effort

Work Together and Share the Benefit

Insurance Payor Puzzle

Radiologist

Surgeon
Integrated Radiology Reporting
Current State-of-Art

History/Physical
EMG
EMR
NRB
Treatment History
Radiologist
Milliman Criteria

Lumbar Spinal Stenosis Fusion Criteria

Lumbar spinal stenosis with ALL of the following:

- Associated lumbar spondylolisthesis
- 1 or more of the following:
  
  Progressive or severe symptoms of neurogenic claudication

  **Back pain, neurogenic claudication symptoms, or radicular pain**

  associated with ALL of the following:

  - Significant functional impairment
  - Listhesis demonstrated on plain x-rays

  **Central, lateral recess or foraminal stenosis demonstrated on imaging**

  Failure at least 3 months conservative care
“Cervical myelopathy resulting from spinal cord compression as evidenced by 1 or more of the following:

**Clinical symptoms of myelopathy:**
- e.g. Clumsiness of hands, Urinary urgency, Bowel or bladder incontinence, Frequent falls.

**Clinical signs of myelopathy:**
- e.g. Hyperreflexia, Hoffmann sign, Increased tone or spasticity, Loss of thenar or hypothenar eminence, Galt abnormality, Positive Babinski sign

**Diagnostic imaging positive for cord compression from either herniated disk or osteophyte.**
Positional Myelopathy
Weight-Bearing and Flexion

Neutral
Flexion
Flexion

Pain Diagram
Integrated Radiology Reporting
Current State-of-Art

History/Physical -> EMR

EMR -> EMG

PACS

Obtained From Imaging Center

Pain Diagram

RadCloud®

Clinical Correlation
Lumbar Discectomy Criteria

“Nerve or spinal cord impingement seen on imaging studies”
1. Rapidly progressive neurologic findings with imaging evidence of pathology that correlates with clinical findings

2. Elective surgery needed as indicated by ALL of the following being present:
   - Herniated disk with ALL of the following:
   - Nerve or spinal cord impingement seen on imaging studies
   - Clinical findings consistent with impingement
   - All major psychosocial and substance abuse issues have been addressed.
   - Severe symptoms or findings that have not improved after at least 6 weeks of conservative therapy, including 1 or more of the following:
     - Severe disabling radiculopathy
     - Clinical findings of nerve root compromise
Milliman Criteria
MRI & Pain Diagram Correlation
Integrated Radiology Reporting
Level 2 Report

Planned Surgical Procedure (CPT)

CPT Codes

Specific Insurance Company (Milliman) Requirements

Historical Denial Data

Level 2 Customized Radiology Report

Appeal

* Patent Pending Process
1. **Comprehensive customized radiology report**
   - Detailed report including all pertinent imaging studies
   - Correlates with clinical and auxiliary testing information
   - Includes attached annotated key radiology images.

2. **Specifically addresses each Milliman criteria**
   - Specific to medical condition (i.e. cervical myelopathy)
   - Planned surgical procedure with CPT code(s).

3. **Surgical pre-authorization or appeal process**

4. **Benefitting surgeon pays involved fees.**
Esaote G-Scan Brio: “The MRI Worth Weighting For!™”

Douglas K. Smith, M.D.
Musculoskeletal Imaging Consultants LLC

www.msktelerads.com
210-587-6937
Call us: “We’re StandUp Guys®”

For more information about MRI:
www.GscanBrio.com
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Compliance

Joint Venture

Manage

MRI