

Guidelines

The following is a list of proposed medical specialty guidelines that have been found for the 11 targeted procedures to be included in the Medicare Imaging Demonstration. The list includes only guidelines developed or endorsed by medical societies within the United States. The medical societies include:

- American College Radiology (ACR)
- American College of Cardiology (ACC)
- American Academy of Neurology (AAN)
- American Academy of Otolaryngology (AAO)
- American College of Physicians (ACP)
- North American Spine Society (NASS)
- American Pain Society, in collaboration with ACP
- United States Headache Consortium, including American Academy of Family Physicians (AAFP), AAN, American Headache Society (AHS), American College of Emergency Physicians (ACEP), American College of Physicians /American Society of Internal Medicine (ACP), American Osteopathic Association (AOA), National Headache Foundation (NHF)

Methodology

The Lewin Group undertook the following steps to identify the guidelines relevant to the 11 targeted procedures:

1. *Claims data:* The Lewin Group first determined those procedures targeted for inclusion in the Demonstration by analyzing Medicare claims data on fee-for-service beneficiaries and speaking with industry experts. Procedures were selected based on the following requirements:
 - a. Represent a large share of Medicare expenditures or have experienced a high rate of growth;
 - b. Are covered by appropriateness criteria developed or endorsed by a medical specialty society; and,
 - c. Have evidence of variation in utilization rates or appropriate use.

After identifying 11 procedures for inclusion in the Demonstration, The Lewin Group analyzed the claims data of each targeted procedure to identify the diagnoses in first position on the imaging claims.

2. *High volume diagnoses:* The guidelines searched for included those guidelines covering diagnoses that were 1% or higher of all images ordered within a specific procedure in the Medicare fee-for-service population. Volume was first searched using the 4-digit ICD-9 code in the claims data (with each diagnosis at the 4-digit

code level representing at least 1% of all ordering volume in a procedure), and then extended to include 3-digit “families” of symptoms and diagnoses at or above 1% of the total ordering volume.

3. *Guideline Identification:* The Lewin Group began its search of guidelines by using the Agency for Healthcare Research and Quality (AHRQ) National Guideline Clearinghouse (NGC). Search terminology included those words found directly in ICD-9 symptoms /diagnoses, descriptions of ICD-9 symptoms /diagnoses, and any available synonyms or other possible language used in the medical profession to describe high volume ICD-9 symptoms /diagnoses. The Lewin Group also searched the websites of medical specialty societies to find guidelines that may have inadvertently been missed using the AHRQ NGC. After compiling a list of the guidelines representing those diagnoses $\geq 1\%$ of all diagnoses within a given procedure. The Lewin Group refined the list further based on feedback from medical specialty societies.

GUIDELINE LISTING¹**Procedures: CT Abdomen**American College of Radiology:

- Acute Abdominal Pain and Fever or Suspected Abdominal Abscess (2008)
- Acute Onset Flank Pain—Suspicion of Stone Disease (2008)
- Acute Pancreatitis (2006)
- Acute Pyelonephritis (2008)
- Blunt Abdominal Trauma (2008)
- Crohn’s Disease (2008)
- Follow-up Imaging of Bladder Carcinoma (2009)
- Follow-up of Malignant or Aggressive Musculoskeletal Tumors (area of interest) (2008)
- Follow-up of Renal Cell Carcinoma (2009)
- Hematuria (2008)
- Incidentally Discovered Adrenal Mass (2009)
- Indeterminate Renal Masses (2008)
- Jaundice (2008)
- Left Lower Quadrant Pain (2008)
- Liver Lesion Characterization (2006)
- Metastatic Bone Disease (area of interest) (2009)
- Palpable Abdominal Mass (2008)
- Post-treatment Follow-up of Prostate Cancer (2007)
- Pretreatment Staging of Colorectal Cancer (2008)
- Pretreatment Staging of Invasive Bladder Cancer (2009)
- Pretreatment Staging Prostate Cancer (2009)
- Primary Bone Tumors (area of interest) (2009)
- Pulsatile Abdominal Mass, Suspected Abdominal Aortic Aneurysm (2009)
- Recurrent Lower Urinary Tract Infections in Women (2008)
- Renal Cell Carcinoma Staging (2008)
- Renal Trauma (2009)
- Resectable Rectal Cancer (2007)
- Right Lower Quadrant Pain (2007)
- Right Upper Quadrant Pain (2007)
- Soft Tissue Masses (area of interest)² (2009)
- Stage I Breast Carcinoma (2009)
- Staging and Follow-up of Ovarian Cancer (2009)
- Staging of Bronchogenic Carcinoma (2008)
- Suspected Liver Metastases (2008)

¹ In general, the guidelines have been identified based on those diagnoses having a volume of $\geq 1\%$. However where a guideline is applicable to more than one procedures, the guideline has been included even if diagnoses under that procedure were $< 1\%$, unless volume was minimal.

² For certain guidelines, ACR provides appropriateness criteria referring to “Areas of Interest”, as opposed to specifying the anatomical region.

Procedures: CT Pelvis

American College of Radiology:

- Acute Abdominal Pain and Fever or Suspected Abdominal Abscess (2008)
- Acute Onset Flank Pain—Suspicion of Stone Disease (2008)
- Acute Pyelonephritis (2008)
- Blunt Abdominal Trauma (2008)
- Crohn’s Disease (2008)
- Follow-up Imaging of Bladder Carcinoma (2009)
- Follow-up of Malignant or Aggressive Musculoskeletal Tumors (area of interest)³ (2008)
- Follow-up of Renal Cell Carcinoma (2009)
- Hematuria (2008)
- Left Lower Quadrant Pain (2008)
- Metastatic Bone Disease (area of interest)³ (2009)
- Post-treatment Follow-up of Prostate Cancer (2007)
- Pretreatment Staging of Colorectal Cancer (2008)
- Pretreatment Staging of Invasive Bladder Cancer (2009)
- Pretreatment Staging Prostate Cancer (2009)
- Primary Bone Tumors (area of interest) (2009)
- Recurrent Lower Urinary Tract Infections in Women (2008)
- Renal Trauma (2009)
- Resectable Rectal Cancer (2007)
- Right Lower Quadrant Pain (2007)
- Soft Tissue Masses (area of interest)³ (2009)
- Staging and Follow-up of Ovarian Cancer (2009)

Procedures: CT Thorax

American College of Radiology:

- Acute Respiratory Illness (2008)
- Acute Respiratory Illness in HIV-Positive Patient (2008)
- Chronic Chest Pain—High Probability of Coronary Artery Disease (2006)
- Chronic Chest Pain—Low to Intermediate Probability of Coronary Artery Disease (2008)
- Chronic Dyspnea – Suspected Pulmonary Origin (2009)
- Congestive Heart Failure (2006)
- Follow-up Imaging of Bladder Carcinoma (2009)
- Follow-up of Malignant or Aggressive Musculoskeletal Tumors (2008)
- Follow-up of Renal Cell Carcinoma (2009)
- Hemoptysis (2006)
- Metastatic Bone Disease (CT Sternum) (2009)
- Nonpalpable Breast Masses (2005)

³ For certain guidelines, ACR provides appropriateness criteria referring to “Areas of Interest”, as opposed to specifying the anatomical region.

- Pretreatment Staging of Invasive Bladder Cancer (2009)
- Primary Bone Tumors (area of interest) (2009)
- Renal Cell Carcinoma Staging (2008)
- Resectable Rectal Cancer (2007)
- Screening for Pulmonary Metastases (2008)
- Shortness of Breath—Suspected Cardiac Origin (2006)
- Soft Tissue Masses (area of interest) (2009)
- Solitary Pulmonary Nodule (2008)
- Stage I Breast Carcinoma (2009)
- Staging and Follow-up of Ovarian Cancer (2009)
- Staging of Bronchogenic Carcinoma (2008)

Procedures: SPECT-MPI

American College of Cardiology:

- Appropriate Use Criteria for Cardiac Radionuclide Imaging (2009)

American College of Radiology:

- Acute Chest Pain—Low Probability of Coronary Artery Disease (2008)
- Chronic Chest Pain—High Probability of Coronary Artery Disease (2006)
- Chronic Chest Pain—Low to Intermediate Probability of Coronary Artery Disease (2008)
- Shortness of Breath—Suspected Cardiac Origin (2006)

Procedures: MRI Brain

American Academy of Neurology:

- Diagnosis of Dementia (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology (2001)

American College of Radiology:

- Ataxia (2009)
- Cerebrovascular Disease (2006)
- Dementia and Movement Disorders (2007)
- Epilepsy (2006)
- Focal Neurologic Deficit (2008)
- Follow-up and Retreatment of Brain Metastases (2006)
- Follow-up of Malignant or Aggressive Musculoskeletal Tumors (area of interest)⁴ (2008)
- Follow-up of Renal Cell Carcinoma (2009)
- Head Trauma (2008)
- Headache (2009)
- Metastatic Bone Disease (area of interest) (2009)
- Orbits, Vision and Visual Loss (2009)

⁴ For certain guidelines, ACR provides appropriateness criteria referring to “Areas of Interest”, as opposed to specifying the anatomical region.

- Pre-Irradiation Evaluation and Management of Brain Metastases (2009)
- Primary Bone Tumors (area of interest) (2009)
- Renal Cell Carcinoma Staging (2008)
- Stage I Breast Carcinoma (2009)
- Staging of Bronchogenic Carcinoma (2008)
- Vertigo and Hearing Loss (2008)

United States Headache Consortium:

- Evidence-Based Guidelines in the Primary Care Setting: Neuroimaging in Patients with Nonacute Headache (2000)

Procedures: CT Brain

American Academy of Neurology:

- Diagnosis of Dementia (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology (2001)

American College of Radiology:

- Ataxia (2009)
- Cerebrovascular Disease (2006)
- Dementia and Movement Disorders (2007)
- Epilepsy (2006)
- Focal Neurologic Deficit (2008)
- Follow-Up and Retreatment of Brain Metastases (2006)
- Follow-up of Malignant or Aggressive Musculoskeletal Tumors (area of interest)⁵ (2008)
- Follow-up of Renal Cell Carcinoma (2009)
- Head Trauma (2008)
- Headache (2009)
- Metastatic Bone Disease (area of interest) (2009)
- Orbits, Vision and Visual Loss (2009)
- Pre-Irradiation Evaluation and Management of Brain Metastases (2009)
- Primary Bone Tumors (area of interest) (2009)
- Stage I Breast Carcinoma (2009)
- Staging of Bronchogenic Carcinoma (2008)
- Vertigo and Hearing Loss (2008)

United States Headache Consortium:

- Evidence-Based Guidelines in the Primary Care Setting: Neuroimaging in Patients with Nonacute Headache (2000)

⁵ For certain guidelines, ACR provides appropriateness criteria referring to “Areas of Interest”, as opposed to specifying the anatomical region.

Procedures: CT Sinus

American Academy of Otolaryngology:

- Clinical Practice Guideline: Adult Sinusitis (2007)

American College of Radiology:

- Headache (CT head, include sinuses) (2009)
- Sinonasal Disease (2009)

Procedures: MRI Lumbar Spine

American Academy of Neurology:

- Practice parameters: Magnetic Resonance Imaging in the Evaluation of Low Back Syndrome (Original 1994; Reapproved in 2008).

American College of Physicians /American Pain Society:

- Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline for the American College of Physicians and the American Pain Society (2007)

American College of Radiology:

- Ataxia (2009)
- Dementia and Movement Disorders (2007)
- Low Back Pain (2008)
- Metastatic Bone Disease (2009)
- Myelopathy (2008)
- Primary Bone Tumors (area of interest) (2009)
- Stress/Insufficiency Fracture, Including Sacrum, Excluding other Vertebrae (area of interest)⁶ (2008)
- Suspected Spine Trauma (2009)

North American Spine Society:

- Diagnosis and Treatment of Degenerative Lumbar Spinal Stenosis (2007)
- Diagnosis and Treatment of Degenerative Lumbar Spondylolisthesis (2008)

Procedures: CT Lumbar Spine

American Academy of Neurology:

- Practice parameters: Magnetic Resonance Imaging in the Evaluation of Low Back Syndrome (Original 1994; Reapproved in 2008).

American College of Physicians /American Pain Society:

- Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline for the American College of Physicians and the American Pain Society (2007)

⁶ For certain guidelines, ACR provides appropriateness criteria referring to “Areas of Interest”, as opposed to specifying the anatomical region.

American College of Radiology:

- Low Back Pain (2008)
- Metastatic Bone Disease (2009)
- Myelopathy (2008)
- Osteoporosis and Bone Mineral Density (quantitative CT)⁷ (2007)
- Primary Bone Tumors (area of interest) (2009)
- Stress/Insufficiency Fracture, Including Sacrum, Excluding other Vertebrae (area of interest)⁸ (2008)
- Suspected Spine Trauma (2009)

North American Spine Society:

- Diagnosis and Treatment of Degenerative Lumbar Spinal Stenosis (2007)
- Diagnosis and Treatment of Degenerative Lumbar Spondylolisthesis (2008)

Procedures: MRI Knee

American College of Radiology:

- Acute Trauma to the Knee (2008)
- Nontraumatic Knee Pain (2008)
- Primary Bone Tumors (area of interest)⁸ (2009)
- Soft Tissue Masses (area of interest)⁸ (2009)

Procedures: MRI Shoulder

American College of Radiology:

- Shoulder Trauma (2005)

⁷ ACR's guideline for Osteoporosis had recommendations specific to Quantitative CT, in which normal CT equipment is used in addition to computer software.

⁸ For certain guidelines, ACR provides appropriateness criteria referring to "Areas of Interest", as opposed to specifying the anatomical region

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Low Back: American Academy of Neurology (1994; *Reapproved in 2008*): Practice parameters: Magnetic resonance imaging in the evaluation of low back syndrome (Summary statement). *Neurology* 44:767-770.

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