

# Development and Reevaluation of Outpatient Imaging Efficiency Measures

## *Summary of the Imaging Efficiency Technical Expert Panel*

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## Table of Contents

Background .....	3
Measure Development Team .....	3
The TEP.....	4
TEP Members .....	4
TEP Meetings .....	5
Conclusion.....	6
Table 1: Key Issues Discussed during First TEP Meeting and Feedback.....	6
<i>Appendix A.</i> CORE and Lewin Measure-Development and Maintenance Teams .....	11
<i>Appendix B.</i> TEP Call Schedule.....	12

## Background

The Centers for Medicare & Medicaid Services (CMS) has contracted with Yale New Haven Health Services Corporation Center for Outcomes Research and Evaluation (CORE), and its partner, The Lewin Group (Lewin), to develop and maintain seven outpatient imaging efficiency measures (OIE) for the CMS outpatient quality reporting programs that support the objectives of the CMS and National Quality Strategies (NQS). CORE/Lewin is conducting a reevaluation of the outpatient imaging efficiency measures currently reported in the Hospital Outpatient Quality Reporting (HOQR) Program and is exploring the possible use of these measures in the Medicare Shared Savings Program (MSSP).

Current measures include:

Measure Number	Measure Name
OP-8	Magnetic resonance imaging (MRI) Lumbar Spine for Low Back Pain
OP-9	Mammography Follow-Up Rates
OP-10	Abdomen Computed Tomography (CT) – Use of Contrast Material
OP-11	Thorax CT – Use of Contrast Material
OP-13	Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac Low Risk Surgery
OP-14	Simultaneous Use of Brain Computed Tomography and Sinus CT
OP-15	Use of Brain Computed Tomography in the Emergency Department for Atraumatic Headache

CORE/Lewin convened a technical expert panel (TEP) consisting of stakeholders and experts to contribute direction, technical input, and diverse perspectives to the measure reevaluation and expansion work. The objective of the OIE measures is to promote high-quality, efficient care in the area of imaging. Specifically, each measure aims to reduce unnecessary exposure to testing or treatment that risk downstream patient harm, to ensure adherence to evidence-based medicine and practice guidelines, and to promote efficiency by reducing waste.

This report summarizes the feedback and recommendations provided by the TEP at the first meeting regarding the maintenance of seven claims-based measures within the Hospital Outpatient Quality Reporting (HOQR) program, and the possible expansion of one OIE measure into the MSSP.

## Measure Development Team

Dr. Elizabeth Drye and Dr. Arjun Venkatesh are leading the CORE measure development and maintenance team; Dr. Charlie Bruetman is leading the Lewin measure development and maintenance team. Dr. Drye is Director of Quality Measurement Programs at CORE and a Research Scientist in Pediatrics at the Yale School of Medicine. Dr. Venkatesh is a Scientist at CORE and an emergency physician whose research interests are in the development of performance measures designed to improve emergency department, hospital, and health system outcomes. Dr. Bruetman is the Senior Vice President and Market Lead for the Federal Health and Human Services market at The Lewin Group. See **Appendix A. CORE and Lewin Measure Development and Maintenance Teams**, for the full list of members of the CORE and Lewin staff.

## The TEP

A well-balanced representation of stakeholders on the TEP will help to ensure the consideration of key perspectives in the measure selection, development, respecification, and maintenance processes. Consequently, CORE/Lewin requested input from a broad group of stakeholders, including patients, caregivers, and consumer advocates; clinicians or other caregivers with subject matter expertise, including cardiology, emergency medicine, neurology, oncology, orthopedics, primary care, and radiology; informaticists, epidemiologists, methodologists, and other experts in measurement science; health system and hospital representatives; payers; healthcare purchasers; and, experts in healthcare disparities.

In alignment with the CMS Measures Management System (MMS) Blueprint, CORE/Lewin, under the guidance of CMS, held a public call for nominations and convened a TEP. CORE solicited potential TEP members through a posting on CMS’s website, email blasts sent to CMS physician and hospital listservs, and also by reaching out to individuals and organizations recommended by the team and stakeholder groups.

The appointment term for the TEP is from February 2015 through September 2018. During the first year, reevaluation activities will focus on OP-8 (MRI Lumbar Spine for Low Back Pain), OP-11 (Thorax CT – Use of Contrast Materials), and OP-13 (Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low-Risk Surgery); development activities will also evaluate the potential for expansion of one OIE measure to the Medicare Shared Savings Program. CORE/Lewin will ask the TEP for input and feedback on areas of measure importance, scientific acceptability, feasibility, usability and use, and harmonization.

### TEP Members

Name, Credentials, and Professional Role	Organizational Affiliation City, State
Meenu Arora, MBA <i>Quality Improvement Leader</i>	Sequoia Hospital Campbell, CA
Brian Baker <i>Chief Executive Officer</i>	Carealytics Franklin, TN
Peter Benner <i>Vice Chair</i>	MNSure Inver Grove Heights, MN
Martha Deed, PhD <i>Patient Advocate</i>	Safe Patient Project's Patient Advocacy Network North Tonawanda, NY
Lawrence Feinberg, MD <i>Attending Physician</i>	University of Colorado Hospital Aurora, CO
Elliott Fishman, MD <i>Professor of Radiology and Oncology</i>	Johns Hopkins School of Medicine Baltimore, MD
Marian Hollingsworth <i>Patient Advocate</i>	La Mesa, CA
Michael Hutchinson, MD PhD <i>Clinical Associate Professor of Neurology</i>	Icahn School of Medicine at Mount Sinai New York, NY

Name, Credentials, and Professional Role	Organizational Affiliation City, State
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Barbara Landreth, RN, MBA <i>Clinical Information Analyst</i>	St. Louis Area Business Health Coalition Tulsa, OK
Barbara McNeil, MD PhD <i>Ridley Watts Professor and Head Professor of Radiology</i>	Harvard University Cambridge, MA
Michael J. Pentecost, MD <i>Chief Medical Officer</i>	NIA Magellan Washington, DC
David Seidenwurm, MD <i>Medical Staff Consultant</i>	Sutter Medical Group Sacramento, CA
Adam Sharp, MD MS <i>Research Scientist</i>	Kaiser Permanente Southern California Pasadena, CA
Paul R. Sierzenski, MD MS-HQS RDMS FACEP FAAEM <i>Medical Director</i>	Christian Health Care System Bear, DE

## TEP Meetings

CORE/Lewin has conducted the first TEP meeting (see **Appendix A. CORE and Lewin Measure Development and Maintenance Teams** and **Appendix B. TEP Call Schedule**). TEP meetings follow a structured format consisting of a presentation of key issues, followed by an open discussion of these issues by the TEP members.

The first TEP meeting focused on gaining TEP feedback on potential updates to measure specifications to support national efforts to reduce the overuse of diagnostic and advanced imaging, and on evaluating the potential for expanding one OIE measure into the MSSP. TEP members provided considerable input on the measures. More specifically:

- TEP members were supportive of the project goals.
- TEP members were generally supportive of the context and intention of OP-8, and its expansion into the MSSP setting.
- Regarding the current lumbar spine surgery exclusion for OP-8, TEP members had conflicting feedback on this exclusion in regard to the look-back period.
- For OP-8, TEP members agreed that the two potentially new exclusions should not be added to the measure: motor neuron disease and ankylosing spondylitis.
- TEP members provided written feedback on the face validity, feasibility, and usability and use of OP-8, OP-11, and OP-13 within the HOQR setting.

## Conclusion

TEP feedback was instrumental in refining CORE/Lewin’s approach to measure maintenance and expansion. *Table 1: Key Issues Discussed during First TEP Meeting and Feedback* describes the key issues discussed during the TEP meetings and the TEP responses.

**Table 1: Key Issues Discussed during First TEP Meeting and Feedback**

Topic	Key Issues Discussed	TEP Feedback/Discussion
Welcome and Introductions	CORE, Lewin, and CMS introduced key project personnel, and reviewed meeting objectives. The objectives of the meeting were to discuss measure maintenance and measure expansion.	TEP members introduced themselves and disclosed any potential conflict of interests (COIs).
TEP Charter	Lewin reviewed the TEP charter, including: project title; dates; project overview; project and TEP objectives; scope of responsibilities; guiding principles; estimated number and frequency of meetings; and TEP membership.	TEP members accepted the TEP charter, without revisions.
Imaging Efficiency Measures Project Overview	<p>CORE, Lewin, and CMS provided an overview of the project, and described each of the 7 claims-based measures:</p> <ul style="list-style-type: none"> <li>• OP-8: MRI Lumbar Spine for Low Back Pain</li> <li>• OP-9: Mammography Follow-up Rates</li> <li>• OP-10: Abdomen CT – Use of Contrast Material</li> <li>• OP-11: Thorax CT – Use of Contrast Materials</li> <li>• OP-13: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low-Risk Surgery</li> <li>• OP-14: Simultaneous Use of Brain CT and Sinus CT</li> <li>• OP-15: Use of Brain CT in the Emergency Department for Atraumatic Headache</li> </ul>	TEP members were supportive of the project goals.

Topic	Key Issues Discussed	TEP Feedback/Discussion
Measure Expansion	<p>CORE and Lewin reviewed work completed on investigating potential measure expansion of:</p> <ul style="list-style-type: none"> <li>• OP-8: MRI Lumbar Spine for Low Back Pain</li> <li>• OP-11: CT Thorax With and Without Contrast Material</li> <li>• OP-13: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low-Risk Surgery</li> </ul> <p>All three measures are currently endorsed by the National Quality Forum (NQF) for hospital outpatient reporting. CORE and Lewin sought TEP feedback on the possibility of expanding OP-8 to another CMS reporting program (Medicare Shared Savings Program [MSSP] for Accountable Care Organizations [ACOs]), and sought feedback on unique considerations specific to use of the measure in a different program as well as the need to consider any new measure exclusions.</p> <p>NQF is actively seeking to re-evaluate OP-8 for continued endorsement.</p>	<p>Several TEP members inquired about the context and intention of the expansion of OP-8 into the MSSP setting. CORE/Lewin explained that expanding OP-8 into a new setting, such as in ACOs, would enable measurement of a broader number of visits occurring in outpatient settings currently not captured in the hospital outpatient measure. In addition, CORE/Lewin explained that OP-8 was being further evaluated for expansion given the conditional support recommendation received at the NQF MAP for use of OP-8 in the MSSP as well as the strong alignment between the measure and care coordination goals of the MSSP.</p> <p>For OP-8, one TEP member asked if the team is looking at this in the context of the existing lumbar spine utilization measure in the core metrics for ACOs, or looking at this independently. CORE/Lewin responded that it would be a scientifically-sound measure, designed to fill a quality gap and drive improvement.</p> <p>A few TEP members discussed the importance of how to best manage the patient (i.e., preventing unnecessary surgery). Alternatively, other TEP members felt that focusing on imaging was ideal because of the patient-level harm, stress, and risks introduced by early, or unnecessary, imaging. One TEP member noted that use of MRIs to reassure patients their back pain is not associated with underlying pathology can have unintended consequences, including unnecessary patient exposure to contrast media, increased medical expense, and increased patient anxiety associated with waiting for imaging results.</p> <p>A TEP member indicated strong support for the concept of using OP-8 in the MSSP, but added that there are conservative treatments that do not show up in the construct of administrative data. The TEP member underscored the importance of capturing how long the patient experienced back pain before going to see a doctor. The rates of MRI without antecedent care may be focused around those patients who have experienced low back pain for a long time and are desperate for treatment, before coming in to see a doctor. CORE/Lewin noted that there are some types of conservative treatments that will not be captured on a claim (e.g., heating pads). For this reason, CORE/Lewin will look at the date of the encounter along with the amount of time it took until the patient got the MRI. The assumption is that</p>

Topic	Key Issues Discussed	TEP Feedback/Discussion
		<p>during that time, the patient received conservative treatment. This is why the measure includes a 28- to 60-day window for evaluation and management claims, and a 60-day window for chiropractory and physical-therapy claims.</p> <p>A TEP member noted a potential conflict for the ACO setting: in a state with several physician-owned hospitals, orthopedists participate in different insurance contracts and are incentivized to order all of these tests at their own facilities. CORE/Lewin responded that this is a challenge that many ACOs will have when providing care to a disparate patient population; their intention is to find appropriate ways to coordinate, control, and manage the health of the population.</p> <p>In regard to OP-8 exclusions that should be added or removed if expanding the measure to the MSSP, a TEP member inquired about the neurologic impairment exclusion. The TEP member indicated that it is a general term. CORE/Lewin clarified that this exclusion is not general, but refers to a specific list of three ICD-9 codes: 344.60 (cauda equina syndrome without neurogenic bladder), 344.61 (cauda equina syndrome with neurogenic bladder), and 729.2 (neuralgia neuritis and radiculitis unspecified).</p> <p>A TEP member asked if the exclusion list had been updated over the last couple of years. CORE/Lewin indicated that the list had been revised to add a few additional exclusions based on updated clinical evidence. The additional exclusions were presented to NQF and also vetted by a TEP in 2014.</p> <p>CORE/Lewin also sought TEP input about the lumbar-spine-surgery exclusion (specified as either a short-term acute indication or as a long-term indication). TEP members had conflicting feedback. Two TEP members supported a longer look-back period. One member noted that clinicians may consider an MRI liberally for a person who has had past spine surgery, and that tends to be the 2<sup>nd</sup>, 4<sup>th</sup> or 8<sup>th</sup> MRI that becomes a problem (which is not easy to look at). The other TEP member added that a patient who has had lumbar spine surgery any time in the past has likely also undergone some version of conservative therapy, and would therefore be excluded. A TEP member in favor of a short look-back period noted that once a patient has had lumbar spine surgery, we know that they have had back pain, and those are the</p>

Topic	Key Issues Discussed	TEP Feedback/Discussion
		<p>patients that most need to be accepted into the conservative care pathway. The member suggested that the exclusion be used to look for acute complications of surgery. Lewin added that current guidelines are not clear on this, and that there are valid clinical views from both sides. CORE recommended that when this exclusion is considered, it should be considered within the context of the other exclusions (i.e., consider whether a shorter or longer time frame makes sense, given all the other exclusions).</p> <p><b>Summary:</b> TEP members were generally supportive of the context and intention of OP-8, and its expansion into the MSSP setting. Regarding the current lumbar spine surgery exclusion for OP-8, TEP members had conflicting feedback on this exclusion in terms of the look-back period. Lewin added that current guidelines are not clear on this exclusion, and that there are valid clinical views from both sides. Lewin/CORE will present this information to CMS for consideration.</p> <p><b>Action Item:</b> CMS will consider TEP feedback regarding the lumbar spine surgery exclusion for OP-8. Lewin will perform quantitative (importance, reliability, and validity) and qualitative testing (face validity, feasibility, and usability). OP-8 will be resubmitted to NQF in Fall, 2015.</p>
Measure Maintenance	<p>CORE and Lewin sought TEP feedback on potential annual updates to the following measure specifications:</p> <ul style="list-style-type: none"> <li>• OP-8: MRI Lumbar Spine for Low Back Pain</li> <li>• OP-13: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low-Risk Surgery</li> </ul> <p>Lewin identified the potential updates by reviewing the evidence base, including changes in clinical practice or updated empirical data that affect the measures. CORE and Lewin sought TEP feedback on:</p> <ul style="list-style-type: none"> <li>• Potential concerns related to conflicting clinical evidence</li> <li>• Potential problems with the</li> </ul>	<p>For OP-8, TEP members agreed that the following two potential exclusions should not be added to the list of measure exclusions: motor neuron disease and ankylosing spondylitis. TEP members agreed that patients with motor neuron disease typically do not present with concomitant lower-back pain. Further, in some patients presenting with symptoms of motor neuron disease, an MRI or electromyography (EMG) may be done to make certain the patient does not have structural disease. With regard to ankylosing spondylitis, TEP members agreed that the addition of this exclusion would not have a significant impact on the performance score or the pattern of care in the acute setting. Further, this condition should already be captured by another exclusion criterion (inflammatory and autoimmune disorders).</p> <p>For OP-13, current specifications exclude those patients who present with three or more of the following five diagnoses: diabetes mellitus, renal insufficiency, stroke/transient ischemic attack, prior heart failure, and ischemic heart</p>

Topic	Key Issues Discussed	TEP Feedback/Discussion
	<p>technical approach to these updates</p> <ul style="list-style-type: none"> <li>• Potential stakeholder feedback that could arise from measure revisions</li> </ul>	<p>disease. Recent guidance could have a significant effect on the measure, however, there is no consensus across recent guidelines in terms of updating the exclusion list and criteria for this measure (e.g., is it clinically or technically appropriate to exclude patients if they have valvular heart disease or 2 of the conditions?). With regards to performing ambulatory low-risk non-cardiac surgery, a TEP member noted that this has to be based only on expert opinion since there is limited evidence that preoperative testing improves patient outcomes. One TEP member asked what would be done differently if the test was performed with a positive outcome, and how would performing that test provide a safety measure for the patient. Another TEP member responded that an aggressive approach might be to postpone the procedure and optimize the patient’s medical therapy (e.g., angioplasty and stent). The member added that there is limited evidence that it alters the outcome for these patients. With regard to changing the number of exclusions, TEP members did not suggest updating the measure to exclude patients with two or more diagnoses. This discussion will continue at a subsequent TEP meeting.</p> <p><b>Summary:</b> For OP-8, TEP members agreed that the two following potential new exclusions should not be added to the measure: motor neuron disease and ankylosing spondylitis.</p> <p><b>Action Item:</b> The discussion around OP-13 specification updates will continue at a subsequent TEP meeting.</p>
Qualitative Questions	<p>CORE and Lewin disseminated a qualitative survey to TEP members to assess the face validity, feasibility, and usability and use of the following measures within the HOQR setting:</p> <ul style="list-style-type: none"> <li>• OP-8: MRI Lumbar Spine for Low Back Pain</li> <li>• OP-11: CT Thorax With and Without Contrast Material</li> <li>• OP-13: Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac, Low-Risk Surgery</li> </ul>	<p>TEP members provided written feedback on the face validity, feasibility, and usability and use of OP-8, OP-11, and OP-13 within the HOQR setting. CORE/Lewin anticipates requesting additional feedback from TEP members to support qualitative testing of OP-8 and OP-11.</p> <p><b>Action Item:</b> CORE/Lewin will present results of qualitative testing for OP-8, OP-11, and OP-13 at a future TEP meeting.</p>

## Appendix A. CORE and Lewin Measure Development and Maintenance Teams

Name	Title/ Affiliation	Contact Information
Haikun Bao, PhD	Senior Statistician, CORE	<a href="mailto:haikun.bao@yale.edu">haikun.bao@yale.edu</a>
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## ***Appendix B. TEP Call Schedule***

### **TEP Meeting #1:**

Friday, June 05, 2015: 4:00-6:00pm ET (Location: Webinar)

### **Subsequent TEP Meetings:**

2015 (date TBD in August/September) (Location: Webinar)

2016 (date TBD) (Location: Webinar)

2016 (date TBD) (Location: Webinar)

2017 (date TBD) (Location: Webinar)

2017 (date TBD) (Location: Webinar)

2018 (date TBD) (Location: Webinar)

2018 (date TBD) (Location: Webinar)