Measure #419: Overuse Of Neuroimaging For Patients With Primary Headache And A Normal Neurological Examination– National Quality Strategy Domain: Efficiency and Cost Reduction

2016 PQRS OPTIONS FOR INDIVIDUAL MEASURES:
CLAIMS, REGISTRY

DESCRIPTION:
Percentage of patients with a diagnosis of primary headache disorder whom advanced brain imaging was not ordered

INSTRUCTIONS:
This measure is to be reported at each visit for patients with a diagnosis of primary headache during the reporting period. This measure may be reported by clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

Measure Reporting via Claims:
ICD-10-CM diagnosis codes, CPT codes, and patient demographics are used to identify patients who are included in the measure’s denominator. Quality-data codes are used to report the numerator of the measure.

When reporting the measures via claims, submit the listed ICD-10-CM diagnosis codes, CPT codes, and appropriate numerator quality-data code. All measure-specific coding should be reported on the claim(s) representing the eligible encounter.

Measure Reporting via Registry:
ICD-10-CM diagnosis codes, CPT codes, and patient demographics are used to identify patients who are included in the measure’s denominator. The listed numerator options are used to report the numerator of the measure.

The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:
All patients with a diagnosis of primary headache

Denominator Criteria (Eligible Cases):
All patients, regardless of age

AND
Diagnosis for Primary Headache (ICD-10-CM): G43.001, G43.009, G43.011, G43.019, G43.101, G43.109, G43.111, G43.119, G43.401, G43.409, G43.411, G43.419, G43.501, G43.509, G43.511, G43.519, G43.701, G43.709, G43.711, G43.B0, G43.B1, G43.C0, G43.C1, G43.801, G43.809, G43.811, G43.819, G43.901, G43.909, G43.911, G43.919, G44.001, G44.009, G44.011, G44.019, G44.021, G44.029, G44.031, G44.039, G44.041, G44.049, G44.051, G44.059, G44.091, G44.099, G44.1, G44.201, G44.209, G44.211, G44.219, G44.221, G44.229, G44.45, G44.52, G44.53, G44.59, G44.81, G44.83, G44.84, G44.85, G44.89

AND
Patient encounter during the reporting period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99281, 99282, 99283, 99284, 99285, 99304, 99305, 99306, 99307, 99308, 99309, 99310, 99324, 99325, 99326, 99327, 99328, 99334, 99335, 99336, 99337, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350

NUMERATOR:
Patients with a normal neurological examination for whom advanced brain imaging (CTA, CT, MRA or MRI) was NOT ordered.
Definition:
Normal Neurological Examination - Absence of signs of increased intracranial pressure (e.g., papilledema, absent venous pulsations on funduscopic examination, altered cognition), focal neurologic deficits, ataxia, pathologic neurologic reflexes (e.g., Babinski sign, clonus), signs of meningeal irritation.

Numerator Quality-Data Coding Options for Reporting Satisfactorily:
Patients with Primary Headache diagnosis and Advanced Brain Imaging not Performed
(Two G-codes [G9534 & G9535] are required on the claim form to submit this numerator option)
Performance Met: G9534:
Advanced brain imaging (CTA, CT, MRA or MRI) was NOT ordered
AND
G9535:
Patients with a normal neurological examination
OR
Patients with Primary Headache diagnosis and Advanced Brain Imaging Performed for Medical Reasons
Medical Performance Exclusion: G9536:
Documentation of Medical reason(s) for ordering an advanced brain imaging study (i.e., patient has an abnormal neurological examination; patient has the coexistence of seizures, or both; recent onset of severe headache; change in the type of headache; signs of increased intracranial pressure (e.g., papilledema, absent venous pulsations on funduscopic examination, altered mental status, focal neurologic deficits, signs of meningeal irritation); HIV-positive patients with a new type of headache; immunocompromised patient with unexplained headache symptoms; patient on coagulopathy/anti-coagulation or anti-platelet therapy; very young patients with unexplained headache symptoms)
OR
Patients with Primary Headache diagnosis and Advanced Brain Imaging Performed for System Reasons
System Performance Exclusion: G9537:
Documentation of System reason(s) for ordering an advanced brain imaging study (i.e., needed as part of a clinical trial; other clinician ordered the study)
OR
Patients with Primary Headache diagnosis and Advanced Brain Imaging Performed, Reason not given
(Two G-codes [G9538 & G9535] are required on the claim form to submit this numerator option)
Performance Not Met: G9538:
Advanced brain imaging (CTA, CT, MRA or MRI) was ordered
AND
G9535:
Patients with a normal neurological examination

Rationale:
Imaging headache patients absent specific risk factors for structural disease is not likely to change management or improve outcome. Those patients with a significant likelihood of structural disease requiring immediate attention are detected by clinical screens that have been validated in many settings. Many studies and clinical practice guidelines concur. Also, incidental findings lead to additional medical procedures and expense that do not improve patient well-being.
Overuse of neuroimaging in pediatric patients was reported over a 13-year study period ranging from 41-47\%\textsuperscript{2} in a study by Graf, et al. Combining the results of the previous eight studies performed in children with recurrent headaches (7 in clinic-based population, 1 in children referred for neuroimaging), neuroimaging was undertaken in 38.1\% of the study populations (1,072/2,815; range 17.5–100\%).

You, et al. determined the indications for CT and MRI in Ontario. They studied 11,824 CT and 11,867 MRI scans from a random sample of 40 hospitals in Ontario. Hospital sampling was stratified by region and hospital teaching status. The publication reports that of the 11,824 CT scans completed, 3,930 (33\%) were of the head and 1,055 (26.8\%) of these were for the indication of headache. Because the CT scans were done for more than one indication the actual proportion of CT scans done solely for the purpose of headache was 16\%. Similarly, 4,038 (34\%) of all MRI scans were head scans of which 523 (13\%) were for the indication of headache. However, similar to CT scans, the MRI scans were requested for multiple indications and the actual proportion of MRI scans done solely for the purpose of headache was estimated to be 4\%. (Unpublished data, personal communication with author, April 29, 2010)

Information concerning the workup of headache in the ambulatory setting is limited. In actual practice, only about 3\% of patients who present with a new headache in the office setting have neuroimaging ordered.\textsuperscript{6} When neuroimaging is performed, about 4\% of CT scans find a significant and treatable lesion (in one sample of 293 CT scans, there were 12 true-positive scans and 2 false-positive scans).\textsuperscript{7} Expert guidelines regarding headaches among ambulatory patients recommend neuroimaging for migraine patients only in the presence of persistent focal abnormal neurological findings.

**Opportunity for Improvement**

There is a marked need to reduce the unnecessary use of neuroimaging for atraumatic primary headache disorders. This measure is intended to reduce the use of these unnecessary tests, reduce treatment costs, and improve patient safety by reducing the exposure to unnecessary radiation and testing.

**CLINICAL RECOMMENDATION STATEMENTS:**

Neuroimaging recurrent headache: Obtaining a neuroimaging study on a routine basis is not indicated in children with recurrent headaches and a normal neurologic examination. (Level B)

Neuroimaging is not usually warranted for patients with migraine and normal neurological examination. (Level B)

Neuroimaging is not indicated in patients with a clear history of migraine, without red flag features for potential secondary headache, and a normal neurological examination. (Level D)* Only included because it supports neuroimaging overuse in normal exam patients with migraine. But low level evidence; *deemed by guideline group to be one of the most clinically important recommendation.

Do not refer people diagnosed with TTH, migraine, CH or medication overuse headache (MOH) for neuroimaging solely for reassurance.

In adult and pediatric patients with migraine, with no recent change in pattern, no history of seizures, and no other focal neurological signs or symptoms, the routine use of neuroimaging is not warranted. (Grade B)

ACR Appropriateness Criteria (2009): MRA head with or without contract (2-Usually NOT appropriate for chronic headache-No New Features); CTA with contrast (Usually not appropriate for chronic headache, No New Features)

Don’t do imaging for uncomplicated headache.

The US Headache Consortium identified three consensus-based (not evidence-based) general principles of management for making decisions regarding neuroimaging in patients with headache: 1) testing should be avoided if it will not lead to a change in management; 2) testing is not recommended if the patient is not significantly more likely
than anyone else in the general population to have a significant abnormality; and 3) testing that normally may not be
recommended as a population policy may make sense at an individual level, resources notwithstanding.

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2016 Claims Individual Measure Flow
PQRS #419: Overuse Of Neuroimaging For Patients With Primary Headache And A Normal Neurological Examination

Denominator

Start

Yes

Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered, AND Patient With a Normal Neurological Examination

Yes

Reporting Met + Performance Met G9534 AND G9535 (4 visits)

No

Diagnosis for Primary Headache as Listed in Denominator*

No

Not Included in Eligible Population/Denominator

Yes

Include in Eligible Population/Denominator (8 visits)

Numerator

Reporting Met + Performance Met G9536 (1 visit)

Docuementation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study

Yes

Reporting Met + Performance Exclusion G9537 (0 visits)

No

Encounter as Listed in Denominator* (1/1/2016 thru 12/31/2016)

Yes

Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, AND Patient With a Normal Neurological Examination

Yes

Reporting Met + Performance Not Met G9538 AND G9535 (2 visits)

No

Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study

Sampling Calculations:

Reporting Rate

Performance Met (a=4 visits) + Performance Exclusion (b + b2 = 1 visit) + Performance Not Met (c=2 visits) = 7 visits = 87.50%

Eligible Population / Denominator (d=8 visits) = 8 visits

Performance Rate

Reporting Numerator (7 visits) – Performance Exclusion (b1 + b2 + 1 visit) = 6 visits

Reporting Met (a=4 visits) = 4 visits = 66.67%

*See the posted Measure Specification for specific coding and instructions to report this measure.

Note: Reporting Frequency: Visit

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The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used alone or as a substitution for the measure specification.
2016 Registry Individual Measure Flow
PQRS #419: Overuse Of Neuroimaging For Patients With Primary Headache And A Normal Neurological Examination

SAMPLE CALCULATIONS:

Reporting Rate =
Performance Met (a=4 visits) + Performance Exclusion (b^1+b^2=1 visit) + Performance Not Met (c=2 visits) = 7 visits = 87.50%

Performance Rate =
Performance Met (a=4 visits) = 4 visits = 66.67%
2016 Claims Individual Measure Flow
PQRS #419: Overuse Of Neuroimaging For Patients With Primary Headache And A Normal Neurological Examination

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator

2. Check Patient Diagnosis:
   a. If Diagnosis for Primary Headache as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Diagnosis for Primary Headache as Listed in the Denominator equals Yes, proceed to check Current Encounter Performed.

3. Check Encounter Performed:
   a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Encounter as Listed in the Denominator equals Yes, Include in Eligible population

4. Denominator Population:
   a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 visits in the sample calculation.

5. Start Numerator

6. Check Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered AND Patient With a Normal Neurological Examination:
   a. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered AND Patient With a Normal Neurological Examination equals Yes, include in Reporting Met and Performance Met.
   b. Reporting Met and Performance Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 visits in Sample Calculation.
   c. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered AND Patient With a Normal Neurological Examination equals No, proceed to Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study.
7. Check Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study:
   a. If Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study equals Yes, include in Reporting Met and Performance Exclusion.
   b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b1 equals 1 visit in the Sample Calculation.
   c. If Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study equals No, proceed to Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study.

8. Check Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study:
   a. If Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study equals Yes, include in Reporting Met and Performance Exclusion.
   b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b2 equals 0 visits in the Sample Calculation.
   c. If Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study equals No, proceed to Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination.

9. Check Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination:
   a. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination equals Yes, include in Reporting Met and Performance Not Met.
   b. Reporting Met and Performance Not Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter c equals 2 visits in the Sample Calculation.
   c. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination equals No, proceed to Reporting Not Met.

10. Check Reporting Not Met
    a. If Reporting Not Met equals No, Quality Data Code or equivalent not reported. 1 visit has been subtracted from the reporting numerator in sample calculation.

### SAMPLE CALCULATIONS:

**Reporting Rate**

\[ \text{Reporting Rate} = \frac{\text{Performance Met (a=4 visits)} + \text{Performance Exclusion (b1=1 visit)} + \text{Performance Not Met (c=2 visits)}}{\text{Eligible Population / Denominator (d=8 visits)}} \]

\[ \text{Performance Met (a=4 visits)} = 4 \]

\[ \text{Performance Exclusion (b1=1 visit)} = 1 \]

\[ \text{Performance Not Met (c=2 visits)} = 2 \]

\[ \text{Eligible Population / Denominator (d=8 visits)} = 8 \]

\[ \text{Reporting Rate} = \frac{4 + 1 + 2}{8} = \frac{7}{8} = 0.875 \] or 87.50%

**Performance Rate**

\[ \text{Performance Rate} = \frac{\text{Performance Met (a=4 visits)} - \text{Performance Exclusion (b1=1 visit)}}{\text{Performance Met (a=4 visits)}} \]

\[ \text{Reporting Numerator (7 visits)} = 7 \]

\[ \text{Performance Exclusion (b1=1 visit)} = 1 \]

\[ \text{Performance Rate} = \frac{7 - 1}{4} = \frac{6}{4} = 1.5 \] or 66.67%
2016 Registry Individual Measure Flow
PQRS #419: Overuse Of Neuroimaging For Patients With Primary Headache And A Normal Neurological Examination

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator

2. Check Patient Diagnosis:
   a. If Diagnosis for Primary Headache as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Diagnosis for Primary Headache as Listed in the Denominator equals Yes, proceed to check Current Encounter Performed.

3. Check Encounter Performed:
   a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Encounter as Listed in the Denominator equals Yes, proceed to check Patient with a Normal Neurological Examination

4. Check Patient with a Normal Neurological Examination
   a. If Patient with a Normal Neurological Examination equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Patient with a Normal Neurological Examination equals Yes, Include in Eligible population

5. Denominator Population:
   a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 visits in the sample calculation.

6. Start Numerator

7. Check Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered AND Patient With a Normal Neurological Examination:
   a. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered AND Patient With a Normal Neurological Examination equals Yes, include in Reporting Met and Performance Met.
   b. Reporting Met and Performance Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 4 visits in Sample Calculation.
   c. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was NOT Ordered AND Patient With a Normal Neurological Examination equals No, proceed to Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study.
8. Check Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study:
   a. If Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study equals Yes, include in Reporting Met and Performance Exclusion.
   b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b1 equals 1 visit in the Sample Calculation.
   c. If Documentation of Medical Reason(s) for Ordering an Advanced Brain Imaging Study equals No, proceed to Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study.

9. Check Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study:
   a. If Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study equals Yes, include in Reporting Met and Performance Exclusion.
   b. Reporting Met and Performance Exclusion letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter b2 equals 0 visits in the Sample Calculation.
   c. If Documentation of System Reason(s) for Ordering an Advanced Brain Imaging Study equals No, proceed to Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination.

10. Check Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination:
    a. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination equals Yes, include in Reporting Met and Performance Not Met.
    b. Reporting Met and Performance Not Met letter is represented in the Reporting Rate and Performance Rate in the Sample Calculation listed at the end of this document. Letter c equals 2 visits in the Sample Calculation.
    c. If Advanced Brain Imaging (CTA, CT, MRA or MRI) was Ordered, And Patient With a Normal Neurological Examination equals No, proceed to Reporting Not Met.

11. Check Reporting Not Met
    a. If Reporting Not Met equals No, Quality Data Code or equivalent not reported. 1 visit has been subtracted from the reporting numerator in sample calculation.

SAMPLE CALCULATIONS:

\[
\text{Reporting Rate} = \frac{\text{Performance Met (a=4 visits)} + \text{Performance Exclusion (b1+b2=1 visit)} + \text{Performance Not Met (c=2 visits)}}{8 \text{ visits}} = 87.50\%
\]

\[
\text{Performance Rate} = \frac{\text{Performance Met (a=4 visits)}}{8 \text{ visits}} = 66.67\%
\]

\[
\text{Reporting Numerator (7 visits)} - \text{Performance Exclusion (b1+b2=1 visit)} = 6 \text{ visits}
\]