Epilepsy
Physician Performance Measurement Set

American Academy of Neurology Board of Directors
Approved August 10, 2009

AMA Convened Physician Consortium for Performance Improvement
Approved March 9, 2010
Physician Performance Measures (measures) and related data specifications developed by the American Academy of Neurology (AAN) are intended to facilitate quality improvement activities by physicians.

These measures are intended to assist physicians in enhancing quality of care. Measures are designed for use by any physician who manages the care of a patient for a specific condition or for prevention. These measures are not clinical guidelines and do not establish a standard of medical care, and have not been tested for all potential applications.

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Purpose of Measures
These clinical performance measures which the American Academy of Neurology (AAN) developed using the model for performance measure development from the Physician Consortium for Performance Improvement (PCPI), are designed for use in individual quality improvement. The measures may also be used in data registries, continuing medical education (CME) programs, and board certification programs. Unless otherwise indicated, the measures are also appropriate for accountability if the necessary methodological, statistical, and implementation rules are met.

The measure titles listed below may be used for accountability:

Measure # 1: Seizure Type(s) and Current Seizure Frequency(ies)
Measure # 2: Documentation of Etiology of Epilepsy or Epilepsy Syndrome
Measure # 3: Electroencephalogram (EEG) Results Reviewed, Requested, or Test Ordered
Measure # 4: Magnetic Resonance Imaging/Computed Tomography Scan (MRI/CT Scan) Results Reviewed, Requested, or Scan Ordered
Measure # 5: Querying and Counseling about Anti-Epileptic Drug (AED) Side Effects
Measure # 6: Surgical Therapy Referral Consideration for Intractable Epilepsy
Measure # 7: Counseling About Epilepsy Specific Safety Issues
Measure # 8: Counseling for Women of Childbearing Potential with Epilepsy

Intended Audience, Care Setting, and Patient Population
These measures are designed for use by physicians and other eligible health professionals who provide care to individuals diagnosed with epilepsy. The measures may be used in the emergency department only if the physician or eligible provider uses the appropriate ICD-9 and CPT codes as described under each individual measure. The measures are intended to be used to calculate performance and/or to report measurement at the individual physician level.

Measure Specifications
The AAN seeks to specify measures for implementation using multiple data sources, including paper medical records, administrative (claims) data, and in particular, Electronic Health Record Systems (EHRS). Specifications to report on the measures for Epilepsy using administrative (claims) data are included in this document. The AAN has identified codes for these measures, including ICD-9 and
CPT (Evaluation and Management Codes, Category I and, where applicable, Category II codes). Specifications for additional data sources, including EHRS, will be fully developed at a later date.

**Measure Exclusions**
The AAN used the PCPI policy “Specification and categorization of measure exclusions: recommendations to PCPI work groups” as the basis for defining exclusions. (Available at: http://www.ama-assn.org/ama1/pub/upload/mm/370/exclusions053008.pdf. Accessed September 2008)

This methodology is described below.

For process measures the PCPI provides three categories of reasons for which a patient may be excluded from the denominator of an individual measure:

- **Medical Reasons**
  - Not indicated (absence of organ/limb, already received/Performed, other)
  - Contraindicated (patient allergy history, potential adverse drug interaction, other)

- **Patient Reasons**
  - Patient declined
  - Social or religious reasons
  - Other patient reasons

- **System Reasons**
  - Resources to perform the services not available
  - Insurance Coverage/Payer-related limitations
  - Other reasons attributable to health care delivery system

These measure exclusion categories are not available uniformly across all measures; for each measure, there must be a clear rationale to permit an exclusion for a medical, patient, or system reason. The exclusion of a patient may be reported by appending the appropriate modifier to the CPT Category II code designated for the measure:

- **Medical reasons**: modifier 1P
- **Patient reasons**: modifier 2P
- **System reasons**: modifier 3P

Although this methodology does not require the external reporting of more detailed exclusion data, the PCPI recommends that physicians document the specific reasons for exclusion in patients’ medical records, for purposes of optimal patient management and audit-readiness. The PCPI also advocates for the systematic review and analysis of each physician’s exclusions data to identify practice patterns and opportunities for quality improvement. For example, it is possible for implementers to calculate the percentage of patients whom physicians have identified as meeting the criteria for exclusion.
Please refer to the documentation for each individual measure for information on acceptable exclusion categories and the codes and modifiers to be used for reporting.

**Data Capture and Measure Calculation**

The intent of this measurement set is to encourage physicians to collect data on each patient eligible for a measure. Physicians should receive feedback on measures both at the patient level to facilitate patient management and in the aggregate to identify opportunities for improvement across a physician’s patient population.

Measure calculations will differ depending on whether a rate is being calculated for performance or reporting purposes.

The method of calculation for performance follows three steps. First, identify the patients who meet the eligibility criteria for the denominator (PD); second, identify which of those patients meet the numerator criteria (A); and third, for those patients who do not meet the numerator criteria, determine whether an appropriate exclusion applies and then subtract those patients from the denominator (C) (see examples below).

The methodology also enables implementers to calculate the rates of exclusions and to analyze further both low rates and high rates, as appropriate (see examples below).

The method of calculation for reporting differs. One program that currently focuses on reporting rates is the Centers for Medicare and Medicaid Services (CMS) Physician Quality Reporting Initiative (PQRI). Under that program’s current design, there is a reporting denominator determined solely from claims data (CPT and ICD-9), which in some cases results in a reporting denominator that is much larger than the eligible population for the performance denominator. Additional components of the reporting denominator are explained below.

The components that make up the numerator for reporting include all patients from the eligible population for which the physician has reported, including the number of patients who meet the numerator criteria (A), the number of patients for whom valid exclusions apply (C), and the number of patients who do not meet the numerator criteria (D). These components, where applicable, are summed to make up the inclusive reporting numerator. The calculation for reporting will be the reporting numerator divided by the reporting denominator (see examples below).

Examples of calculations for reporting and performance are provided for each measure.

**Calculation for Performance**

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerator, Denominator, and Denominator Exclusions.

- **Numerator (A) Includes**: Number of patients meeting numerator criteria
- **Performance Denominator (PD) Includes**: Number of patients meeting criteria for denominator inclusion
- **Denominator Exclusion (C) Includes**: Number of patients with valid medical, patient, or system exclusions (where applicable; will differ by measure)
Performance Calculation

\[
\frac{A}{PD - C} = \frac{\text{# of patients meeting numerator criteria}}{\text{# of patients in denominator} - \text{# of patients with valid denominator exclusions}}
\]

It is also possible to calculate the percentage of patients either excluded overall or excluded by medical, patient, or system reason where applicable:

Overall Exclusion Calculation

\[
\frac{C}{PD} = \frac{\text{# of patients with any valid exclusion}}{\text{# of patients in denominator}}
\]

OR

Exclusion Calculation by Type

\[
\frac{C_1}{PD} = \frac{\text{# patients with medical reason}}{\text{# patients in denominator}}
\]

\[
\frac{C_2}{PD} = \frac{\text{# patients with patient reason}}{\text{# patients in denominator}}
\]

\[
\frac{C_3}{PD} = \frac{\text{# patients with system reason}}{\text{# patients in denominator}}
\]

Calculation for Reporting

For reporting purposes, this measure is calculated by creating a fraction with two components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following components, where applicable. (There may be instances where there are no patients to include in A, C, D, or E.)

A. Number of patients meeting additional denominator criteria (for measures where true denominator cannot be determined through ICD-9 and CPT Category I coding alone) AND numerator criteria

C. Number of patients with valid medical, patient or system exclusions (where applicable; will differ by measure)

D. Number of patients not meeting numerator criteria and without a valid exclusion
E. All other patients not meeting additional denominator criteria (for measures where true denominator cannot be determined through ICD-9 and CPT Category I coding alone)

**Reporting Denominator (RD) Includes:**
RD. Denominator criteria (identifiable through ICD-9 and CPT Category I coding)

<table>
<thead>
<tr>
<th>Reporting Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (# of patients meeting additional denominator criteria AND numerator criteria) + C (# of patients with valid exclusions) + D (# of patients NOT meeting numerator criteria) + E (# of patients not meeting additional denominator criteria)</td>
</tr>
</tbody>
</table>

| RD ( # of patients in denominator) |
Burden of Illness (Mortality and Morbidity)

Epilepsy is the third most common neurological disorder in the United States. (Alzheimer’s disease and stroke are the two most common.1) It is equal in prevalence to cerebral palsy, multiple sclerosis, and Parkinson’s disease combined1. Approximately 2.5 million Americans are affected by epilepsy2.

Epilepsy is not a single entity but a family of more than 40 syndromes3. Although people of all ages can be affected by epilepsy, the very young (under 2) and the elderly are the most affected2,4. In the United States, epilepsy currently affects more than 326,000 children under age 15 and more than 90,000 of them have severe seizures that cannot be adequately treated1.

There is an extremely high burden of illness associated with epilepsy. The mortality rate among people with epilepsy is two to three times higher than that of the general population, and the risk of sudden death is 24 times greater1. Every year 200,000 people in the United States will be diagnosed with epilepsy4 and an estimated 25,000 to 50,000 will die of seizures and related cause3. Thirty to 40 percent of people with epilepsy are severely affected and continue to have seizures even if given treatment1. Optimal seizure control can reduce the risk of epilepsy-related mortality, decrease morbidity, and greatly improve the quality of life.

Prevalence/Incidence

Prevalence of active epilepsy (history of the disorder plus a seizure or use of antiepileptic medicine within the past 5 years) is estimated at approximately 2.5 million in the United States2. The prevalence rate is higher among racial and ethnic minorities than among Caucasians4.

The cumulative incidence (risk of developing epilepsy) within the United States increases with age. One percent of the population can be expected to have developed epilepsy by 20 years of age4. By 75-80 years of age, 3 percent of the population will likely have been diagnosed with epilepsy, and 10 percent will likely have experienced some type of seizure4.

Burden of Illness (Cost)

The annual economic burden due to epilepsy is estimated to be about $15.5 billion1,2 in the United States from associated health care costs and losses or reduction in employment, wages, and productivity.

Potential of Epilepsy Performance Measurement Set to Improve Health Outcomes

Epilepsy is a widely recognized neurologic condition, but is it often poorly understood, diagnosed, and treated. The lack of specialty care may lead to a delayed diagnosis and inadequate treatment. The health-related quality of life can be measured in days of activity limitation, pain, depression, anxiety, cognitive deficits, reduced vitality, and insufficient sleep or rest. The deficits in quality of life due to epilepsy and its treatment are comparable to conditions such as arthritis, heart problems, diabetes, and cancer1. A performance measurement set for epilepsy has the potential to increase patient safety, improve diagnosis, improve treatment, reduce the number of deaths due to epilepsy, and increase the quality of life for those who have epilepsy.

Variability in Clinical Practice:

Diagnosing epilepsy is a multi-step process that can involve multiple different tests and many different specialties. Epilepsy treatment is provided by multiple different specialties. These
specialties include neurology, internal medicine, pediatrics, obstetrics and gynecology, psychiatry, neurosurgery, and family practice.

Medical professionals vary in their skill and approach to diagnosing epilepsy, determining seizure type, identifying causation, and administering appropriate therapy. A uniform performance measurement set is needed to clarify these roles and to determine how best to establish evidence-based standards of care.

Available Evidence
Numerous recommendations for performance measures exist that could easily be applied by neurologists, epileptologists, and other health professionals.

In addition, there are multiple sources of nationally and internationally accredited guidelines available. The major guideline-producing entities are the American Academy of Neurology (AAN), Scottish Intercollegiate Guideline Network (SIGN), Centers for Disease Control (CDC), National Institute for Health and Clinical Excellence (NICE), and the Singapore Ministry of Health. Other, smaller relevant data sources for epilepsy guidelines are available as well.

The performance measures found in this document have been developed using these guidelines, enabling the physician to track his or her performance in individual patient care across patient populations. Please note that the provision of epilepsy care must be based on individual patients’ needs and the clinician’s professional judgment. Performance measures are not to be used as a substitute for clinical guidelines or individual physician clinical judgment. There may be instances where the age of an individual patient lies beyond the age range identified for the performance measure(s); however, this does not preclude the patient from receiving the service. Whether or not a patient should receive specific care is a decision that needs to be made between the patient and the physician while weighing the risks and benefits of the service with individual patient preference.
### EPILEPSY

**Measure #1: Seizure Type(s) and Current Seizure Frequency(ies)**

This measure may be used as an Accountability measure

<table>
<thead>
<tr>
<th>Clinical Performance Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Numerator:</strong> Patient visits with seizure type(s) specified and current seizure frequency for each seizure type documented in the medical record.</td>
</tr>
<tr>
<td><strong>Denominator:</strong> All visits for patients with a diagnosis of epilepsy.</td>
</tr>
</tbody>
</table>

**Denominator Exclusions:**
- Documentation of medical reason for not documenting seizure type(s) and current seizure frequency for each seizure type (e.g. patient is unable to communicate and an informant is not available).
- Documentation of patient reason for not documenting seizure type(s) and current seizure frequency for each seizure type (e.g. patient and/or informant refuses to answer or comply)

**Measure:** All visits for patients with a diagnosis of epilepsy who had the type(s) of seizure(s) and current seizure frequency for each seizure type documented in the medical record.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

- Detailed history of the attack should be obtained from the person who had the attack + symptoms and from eyewitness(es) to the attack. (Level B) NICE (Oct. 2004)\(^2\)

- The seizure type(s) and epilepsy syndrome should be identified. (Level C) SIGN (April 2003)\(^2\)

- When a patient with epilepsy receives follow-up care, then an estimate of the number of seizures since the last visit and assessment of drug side-effects should be documented. (Level D 1+/ Primary) Pugh (2007)\(^1\)

- IF a patient is thought to have a diagnosis of epilepsy THEN the diagnosis should include a best estimation of seizure types. (Level C 2+/Secondary) Pugh (2007)\(^1\)

**Rationale for the Measure:**

Seizures are divided into generalized and partial (or focal) types based on whether they begin throughout the brain simultaneously or in one focal region (Dreifuss et al 1981). The main objective in treating epilepsy is to reduce the frequency of seizures and eventually achieve seizure freedom without medication side effects. In order to know that a treatment is effective, the patient’s seizure frequency must be known before an intervention is begun so it can be compared to the seizure frequency determined during follow-up visits after an intervention is instituted. Antiepileptic drugs reduce the frequency of seizures in controlled clinical trials. Seizure freedom is associated with improvement in health-related quality of life, for example after epilepsy surgery. Therefore, accurate assessment of seizure frequency is necessary to provide most forms of care for epilepsy.

Data Capture and Calculations:

Calculation for Performance
For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:
Patient visits with seizure type(s) specified and current seizure frequency for each seizure type documented in the medical record.

Performance Denominator (PD) Includes:
All visits for patients with a diagnosis of epilepsy.

Denominator Exclusions (C) Include:
- Documentation of medical reason for not documenting seizure type(s) and current seizure frequency for each seizure type in the medical record.

<table>
<thead>
<tr>
<th>Performance Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (# of patient visits meeting measure criteria)</td>
</tr>
<tr>
<td>PD (# of patients visits in denominator) − C (# of patient visits with valid denominator exclusions)</td>
</tr>
</tbody>
</table>

Components for this measure are defined as:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patient visits with seizure type(s) specified and current frequency for each seizure type documented in the medical record</td>
</tr>
<tr>
<td>PD</td>
<td># of patient visits for patients with a diagnosis of epilepsy</td>
</tr>
<tr>
<td>C</td>
<td># of patient visits for patients with valid medical reason(s) for not documenting seizure type(s) and current seizure frequency for each seizure type</td>
</tr>
</tbody>
</table>

Calculation for Reporting
For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:
A. Patient visits with a documentation of seizure type(s) specified and current seizure frequency for each seizure type.
C. Patient visits with documentation of medical reason(s) for not documenting seizure type(s) and current seizure frequency for each seizure type.
D. Patient visits with no documentation of seizure type(s) specified and current seizure frequency for each seizure type and there is no documented reason for not doing so.

Reporting Denominator (RD) Includes:
RD. All visits for patients with a diagnosis of epilepsy.
Reporting Calculation

\[
\text{A (\# of patient visits meeting numerator criteria)} + \text{C (\# of patient visits with valid exclusions)} + \text{D (\# of patient visits NOT meeting numerator criteria)} = \text{RD (\# of patient visits in denominator)}
\]

Components for this measure are defined as:

<table>
<thead>
<tr>
<th>A</th>
<th># of patient visits with seizure type(s) and current seizure frequency for each seizure type documented</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td># of patients visits with documentation of medical reason for not documenting seizure type(s) and current seizure frequency for each seizure type</td>
</tr>
<tr>
<td>D</td>
<td># of patients visits with no documentation of seizure type(s) and current seizure frequency for each seizure type</td>
</tr>
<tr>
<td>RD</td>
<td># of patient visits with a diagnosis of epilepsy</td>
</tr>
</tbody>
</table>

Measure Specifications - *Seizure Type(s) and Current Seizure Frequency(ies)*

Measure specifications for data sources other than administrative claims will be developed at a later date.

**A. Administrative Claims Data**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

(Note: The specifications listed below are those needed for performance calculation.)

Denominator (Eligible Population): All visits for patients with a diagnosis of epilepsy.
- CPT ® Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309
- ICD-9 diagnosis codes: 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.51, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91

Numerator: Patient with documentation of seizure type(s) specified and current frequency of each seizure type.
- Report the CPT Category II, *Seizure Type(s) and Current Seizure Frequency(ies)* in development designated for this numerator 1200F.

Denominator Exclusion: Documentation of medical reason(s) or patient reason(s) for not recording seizure type(s) and seizure frequency for each seizure type (e.g., patient or caregiver unable or unwilling to communicate or provide information) or documentation of patient reason(s)
- Append modifier to CPT Category II code: Medical Reason 1200F-1P. Patient Reason 1200F-2P.

**B. Electronic Health Record System (in development)**

**C. Paper Medical Record (in development)**
# EPILEPSY

## Measure #2: Documentation of Etiology of Epilepsy or Epilepsy Syndrome

This measure may be used as an Accountability measure

**Clinical Performance Measure**

<table>
<thead>
<tr>
<th>Numerator:</th>
<th>Patient visits with etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator:</td>
<td>All visits for patients with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td>Denominator Exclusions:</td>
<td>No exclusions appropriate for this measure.</td>
</tr>
<tr>
<td>Measure:</td>
<td>All visits for patients with a diagnosis of epilepsy who had their etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.</td>
</tr>
</tbody>
</table>

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

The seizure type(s) and epilepsy syndrome should be identified. (Level C) SIGN (April 2003) 

Determine: seizure type(s), epilepsy syndrome, etiology and co-morbidity. (Level C) NICE (Oct. 2004)

If a patient is thought to have a diagnosis of epilepsy then the diagnosis should include a best estimation of seizure types. (Level C 2+/Secondary) Pugh (2007)

**Rationale for the Measure:**

The natural history, selection of treatment, expected response to treatment, and content of counseling are determined by the etiology of epilepsy or epilepsy syndrome (Commission on Classification 1989). Therefore, the etiology of epilepsy or epilepsy syndrome should be determined at the initial visit. Epilepsy is a chronic condition in which treatments must be instituted over long durations, such as achieving maximum tolerated doses of antiepileptic drugs. Since it is often a relatively long interval between starting an intervention and determining if it is effective, the etiology of epilepsy or syndrome should be reviewed at each visit to determine if an alternative therapy is warranted.


**Data Capture and Calculations:**

**Calculation for Performance**

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

**Performance Numerator (A) Includes:**

Patient visits with etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.

**Performance Denominator (PD) Includes:**

All visits for patients with a diagnosis of epilepsy.
Performance Calculation

\[
\begin{align*}
A & \quad \# \text{ of patient visits meeting measure criteria} \\
PD & \quad \# \text{ of patient visits in the denominator}
\end{align*}
\]

Components for this measure are defined as:

<table>
<thead>
<tr>
<th></th>
<th># of patient visits with etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patient visits for patients with a diagnosis of epilepsy</td>
</tr>
<tr>
<td>PD</td>
<td></td>
</tr>
</tbody>
</table>

Calculation for Reporting

For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:
A. Patients visits with documentation of etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.
D. Patient visits with no documentation of etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.

Reporting Denominator (RD) Includes:
RD. All visits for patients with a diagnosis of epilepsy.

Reporting Calculation

\[
\frac{A \ (# \text{ of patients meeting numerator criteria}) + D \ (# \text{ of patients NOT meeting numerator criteria})}{RD \ (# \text{ of patients in denominator})}
\]

Components for this measure are defined as:

<table>
<thead>
<tr>
<th></th>
<th># of patient visits with documentation of etiology of epilepsy or epilepsy type(s) reviewed and documented if known, or documented as unknown or cryptogenic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patient visits meeting numerator criteria</td>
</tr>
<tr>
<td>D</td>
<td># of patient visits no documentation of etiology of epilepsy or epilepsy types(s) reviewed and documented if known, or documented as unknown or cryptogenic.</td>
</tr>
<tr>
<td>RD</td>
<td># of patient visits for patients with a diagnosis of epilepsy</td>
</tr>
</tbody>
</table>
Measure Specifications- *Documentation of Etiology of Epilepsy or Epilepsy Syndrome*
Measure specifications for data sources other than administrative claims will be developed at a later date.

**A. Administrative Claims Data**
Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).
(Note: The specifications listed below are those needed for performance calculation.)

Denominator (Eligible Population): All visits for patients with a diagnosis of epilepsy.
- CPT ®Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309  
  AND
- ICD-9 diagnosis codes: 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.51, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91

Numerator: Patient visits with documentation of etiology of epilepsy or with epilepsy syndrome(s) reviewed and documented if known, or documented as unknown or cryptogenic.
- Report the CPT Category II, *Documentation of Etiology of Epilepsy or Epilepsy Syndrome*, in development designated for this numerator **1205F**.

Denominator Exclusion: None.

**B. Electronic Health Record System (in development)**

**C. Paper Medical Record (in development)**
EPILEPSY
Measure #3: Electroencephalogram (EEG) Results Reviewed, Requested, or Test Ordered

This measure may be used as an Accountability measure

<table>
<thead>
<tr>
<th>Clinical Performance Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Numerator:</strong> Patients who had the results of at least one electroencephalogram (EEG) reviewed or requested, or if an EEG was not performed previously, then an EEG ordered.</td>
</tr>
</tbody>
</table>

| **Denominator:** All patients with a diagnosis of epilepsy seen for an initial evaluation. |

**Denominator Exclusions:**
- Documentation of medical reason for not reviewing or requesting electroencephalogram (EEG) results or, if an EEG was not performed previously, for not ordering an EEG (e.g. patient has a serious skin condition that prevents EEG electrode adhesion).
- Documentation of patient reason for not reviewing or requesting electroencephalogram (EEG) results or, if an EEG was not performed previously, for not ordering an EEG (e.g. patient refuses to cooperate).
- Documentation of system reason for not reviewing or requesting electroencephalogram (EEG) results or, if an EEG was not performed previously, for not ordering an EEG (e.g. no insurance; patient cannot pay).

**Measure:** All patients with a diagnosis of epilepsy seen for an initial evaluation who had the results of at least one electroencephalogram (EEG) reviewed or requested, or if EEG was not performed previously, then an EEG ordered.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

- Use EEG: to assess the risk of seizure recurrence after a first unprovoked seizure (Level B) NICE (Oct. 2004) 22

- Use EEG: to support a diagnosis of epilepsy in adults in whom the clinical history suggests it (Level C) NICE (Oct. 2004) 22

- Use EEG: to determine seizure type and epilepsy syndrome (Level C) NICE (Oct. 2004) 22

- EEG can be used to support the diagnosis in patients in whom the clinical history indicates a significant probability of an epileptic seizure or epilepsy. (Level C) SIGN(April 2003) 23

- EEG should be performed in young people with generalized seizures to aid classification and to detect a photoparoxysmal response. (Level C) SIGN(April 2003) 23

- Video EEG and other specialist investigations should be available for patients who present diagnostic difficulties. (Level C) SIGN(April 2003) 23

- EEG should be considered as part of the neurodiagnostic evaluation of the adult with an apparent unprovoked first seizure because it has substantial yield. (Level B) AAN QSS and TTA (Nov 2007) 9

- EEG should be considered as part of the neurodiagnostic evaluation of the adults with an apparent unprovoked first seizure because it has value in determining the risk for seizure recurrence (Level B) AAN QSS and TTA (Nov 2007) 9
In the initial clinical evaluation of a first seizure, the patient should receive: detailed seizure history (events before, during, and after); review for predisposing conditions (i.e. stroke, head trauma, drugs/alcohol); physical and neurological examination; labs (e.g. screening laboratory testing for routine medical assessment) AND if there is no indication of provocation an order for EEG; an order for neuroimaging (MRI preferred) or rationale for not ordering OR referral to higher level of epilepsy specialty care. (Level C 2+/ Primary) Pugh (2007) 17

Rationale for the Measure:

EEG findings are considered in the determination of the epilepsy syndromes. Specific EEG findings are often associated with specific epilepsy syndromes, especially generalized epilepsy syndromes. Each epilepsy syndrome has a characteristic natural history and treatment so it is important to consider the EEG to correctly define the epilepsy syndrome. Seizures due to localization-related epilepsy syndromes are treated with medications that are different from seizures due to generalized epilepsy syndromes and epilepsy surgery is routinely considered primarily for localization-related epilepsies. Although only approximately 40% of patients with epilepsy will have an abnormal EEG (Salinsky et al 1987), routine EEG is a necessary part of the evaluation of epilepsy because it can determine the seizure type and epilepsy syndrome. At least one EEG at any time in the evaluation of a patient with epilepsy is necessary to attempt to capture abnormalities that may define a patient’s epilepsy syndrome, although more than one EEG may be necessary in some cases. Because the epilepsy syndrome and other factors are determined from the EEG, the results must be known to confirm or determine the etiology or epilepsy syndrome in the initial evaluation of even well-controlled epilepsies, such as when a patient with established epilepsy is evaluated for the first time by a physician. However, routinely repeating the EEG in well-controlled epilepsy patients is not necessary when an adequate EEG has been performed previously because it is expected that the results of the previous EEG will be available.


Data Capture and Calculations:

Calculation for Performance

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:
Patients who had the results of at least one electroencephalogram (EEG) reviewed or requested, or if an EEG was not performed previously, then an EEG ordered.

Performance Denominator (PD) Includes:
All patients with a diagnosis of epilepsy seen for an initial evaluation.

Denominator Exclusions (C) Include:
- Documentation of medical reason for not ordering an EEG if an EEG was not performed previously
- Documentation of patient reason for not reviewing or requesting EEG results or, if an EEG was not performed previously, for not ordering an EEG
- Documentation of system reason for not reviewing or requesting EEG results or, if an EEG was not performed previously, for not ordering an EEG
Performance Calculation

\[
\frac{A \ (\text{# of initial evaluations meeting measure criteria})}{PD \ (\text{# of initial evaluations in denominator}) - C \ (\text{# of initial evaluations with valid denominator exclusions})}
\]

Components for this measure are defined as:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of initial evaluations for patients with the results of at least one electroencephalogram (EEG) reviewed, requested, or ordered.</td>
</tr>
<tr>
<td>PD</td>
<td># of initial evaluations for patients with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td>C</td>
<td># of initial evaluations for patients with a valid medical reason, patient reason or system reason for not documenting the results of at least one electroencephalogram (EEG) reviewed, requested, or ordered.</td>
</tr>
</tbody>
</table>

Calculation for Reporting

For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

**Reporting Numerator includes each of the following instances:**

A. Initial evaluations with documentation of the results of at least one electroencephalogram (EEG) reviewed or requested, or if an EEG was not performed previously, then an EEG ordered.

C. Initial evaluations with documentation of valid medical reason, patient reason or system reason for not reviewing or requesting the results of at least one electroencephalogram (EEG), or if an EEG was not performed previously, for not ordering an EEG.

D. Initial evaluations with no documentation of the results of at least one electroencephalogram (EEG) reviewed or requested, or if an EEG was not performed previously, then an EEG ordered.

**Reporting Denominator (RD) Includes:**

All initial evaluations for patients with a diagnosis of epilepsy.

**Reporting Calculation**

\[
\frac{A \ (\text{# of initial evaluations meeting numerator criteria}) + C \ (\text{# of initial evaluations with valid exclusions}) + D \ (\text{# of initial evaluations NOT meeting numerator criteria})}{RD \ (\text{# of initial evaluations in denominator})}
\]

Components of this measure defined as:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of initial evaluations for patients with the results of at least one electroencephalogram (EEG) reviewed or requested, or if an EEG was not performed previously, then an EEG ordered.</td>
</tr>
<tr>
<td>Measure Specifications- <em>Electroencephalogram (EEG) Results Reviewed, Requested, or Test Ordered</em></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Measure specifications for data sources other than administrative claims will be developed at a later date.</td>
<td></td>
</tr>
</tbody>
</table>

**A. Administrative Claims Data**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

(Notice: The specifications listed below are those needed for performance calculation.)

**Denominator** (Eligible Population): All patients with a diagnosis of epilepsy seen for an initial evaluation.

- CPT ® Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99345

AND

- ICD-9 diagnosis codes: 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91

AND

- If this measure is reported on the same claim as an E/M service for “new patient” (99201-99205), the denominator code (1119F or 1121F) does not need to be reported.

- If reporting an established patient code or consultation code, (99212-99215 or 99241-99245), the reporting physician should use 1119F to report initial evaluation for condition or 1121F to denote a subsequent evaluation.

**Numerator:** Patients who had the results of at least one electroencephalogram (EEG) reviewed or requested, or if an EEG was not performed previously, then an EEG ordered.

- Report the CPT Category II, *Electroencephalogram (EEG) Results Reviewed, Requested, or Test Ordered*, in development designated for this numerator **3650F**.

**Denominator Exclusion(s):** Documentation of medical reason(s), patient reason(s) and/or system reason(s) for not reviewing or requesting electroencephalogram (EEG) results or, if an EEG was not performed previously, for not ordering an EEG.

- Append modifier to CPT II code: 3650F-1P (medical), 3650F-2P (patient), or 3650F-3P (system).

**B. Electronic Health Record System (in development)**

**C. Paper Medical Record (in development)**
Measure #4: Magnetic Resonance Imaging/Computed Tomography Scan (MRI/CT Scan) Results Reviewed, Requested or Scan Ordered

This measure may be used as an Accountability measure

| Numerator: | Patients who had the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred). |
| Denominator: | All patients with a diagnosis of epilepsy seen for an initial evaluation. |
| Denominator Exclusions: |
| • Documentation of medical reason for not reviewing or requesting MRI or CT scan results or, if a MRI or CT scan was not obtained previously, for not ordering a MRI or CT scan (e.g. diagnosis of an idiopathic epilepsy syndrome). |
| • Documentation of patient reason for not reviewing or requesting MRI or CT scan results or, if a MRI or CT scan was not obtained previously, for not ordering MRI or CT a scan (e.g. patient refusal). |
| • Documentation of system reason for not reviewing or requesting MRI or CT scan results or, if a MRI or CT scan was not obtained previously, for not ordering a MRI or CT scan (e.g. no insurance; patient unable to pay for either scan). |

Measure: All patients with a diagnosis of epilepsy seen for an initial evaluation who had the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

Use neuroimaging (MRI/CT) to identify structural abnormalities that cause certain epilepsies. (Level C) NICE (Oct. 2004) 22

Do not routinely request neuroimaging when a diagnosis of idiopathic generalized epilepsy has been made. (Level C) NICE (Oct. 2004) 22

The use of MRI is particularly important for people in whom seizures continue in spite of first-line medication. (Level C) NICE (Oct. 2004) 22

CT is an alternative to MRI if MRI is contraindicated or unavailable. (Level C) NICE (Oct. 2004) 22

Brain imaging using CT or MRI should be considered as part of the neurodiagnostic evaluation of adults presenting with an apparent unprovoked first seizure. (Level B) AAN TTA (Oct 2007) 13

Magnetic resonance imaging (MRI) is the modality of choice for brain imaging in patients with epilepsy. (Level C) SIGN(April 2003) 23

Brain imaging is not routinely required when there is a confident diagnosis of idiopathic generalized epilepsy and if there is rapid and complete response to the first line antiepileptic drug. (Level C) Pugh (2007) 17

In the initial clinical evaluation of a first seizure, the patient should receive:
- detailed seizure history, - review for predisposing conditions (i.e. stroke, head trauma, drugs/alcohol), - physical and neurological examination, - labs (e.g. screening laboratory testing for routine medical assessment),
-AND if there is no indication of provocation –an order for EEG, -an order for neuroimaging (MRI preferred) or rationale for not ordering OR –referral to higher level of epilepsy specialty care. (Level C 2+/Primary) Pugh (2007)17

**Rationale for the Measure:**

Epilepsy syndromes are fundamentally categorized as generalized or localization-related and the etiology is characterized as “symptomatic” of structural brain disease, “cryptogenic” when there is suspicion of a brain lesion but cannot be demonstrated, or as “idiopathic.” The presence of structural disease is fundamental to determine the etiology, especially to exclude progressive brain lesions such as tumors. Known idiopathic syndromes have characteristic EEG findings and presentations and lack structural brain disease. There is no structural brain disease in idiopathic syndromes and neuroimaging is not routinely indicated. Therefore, neuroimaging should be obtained in all patients unless a known idiopathic epilepsy syndrome is diagnosed. MRI is preferred because it demonstrates much greater brain detail and has a higher sensitivity for the structural causes of epilepsy (Bronen et al. 1996). At least one adequate MRI or CT scan is necessary at any time in the evaluation for epilepsy to identify structural brain disease. Because the epilepsy syndrome and other factors are determined by the presence of structural brain disease, the results of an MRI or CT scan must be known to confirm or determine the etiology or epilepsy syndrome in the initial evaluation of even well-controlled epilepsy, such as when a patient with established epilepsy is evaluated for the first time by a physician. However, repeating the MRI or CT scan is not necessary when an adequate MRI or CT scan has been performed previously because it is expected that the results of the previous scan will be available.


**Data Capture and Calculations:**

**Calculation for Performance**

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

**Performance Numerator (A) Includes:**

Patients who had the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).

**Performance Denominator (PD) Includes:**

All patients with a diagnosis of epilepsy seen for an initial evaluation.

**Denominator Exclusions (C) Include:**

- Documentation of medical reason for not ordering a MRI or CT scan (MRI Preferred) if a MRI or CT scan was not performed previously.
- Documentation of patient reason for not reviewing or requesting MRI or CT scan results or, if a MRI or CT scan was not performed previously, for not ordering a MRI or CT scan.
- Documentation of system reason for not reviewing or requesting MRI or CT scan results or, if an MRI or CT scan was not performed previously, for not ordering a MRI or CT scan.
Performance Calculation

**A** (# of initial evaluations meeting measure criteria)

PD (# of initial evaluations in denominator) – C (# of initial evaluations with valid denominator exclusions)

Components for this measure are defined as:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of initial evaluations for patients with the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).</td>
</tr>
<tr>
<td>PD</td>
<td># of initial evaluations for patients with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td>C</td>
<td># of initial evaluations with valid medical reason, patient reason or system reason for not reviewing or requesting the results of at least one MRI or CT scan or, if a MRI or CT scan was not obtained previously, for not ordering a MRI or CT scan (MRI Preferred).</td>
</tr>
</tbody>
</table>

Calculation for Reporting

For reporting purposes, this measure is calculated by creating a fraction with the following components: **Reporting Numerator** and **Reporting Denominator**.

**Reporting Numerator includes each of the following instances:**

**A.** Initial evaluations for patients with the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).

**C.** Initial evaluations with documentation of valid medical reason, patient reason or system reason for not reviewing or requesting the results of at least one MRI or CT scan or, if a MRI or CT scan was not obtained previously, for not ordering a MRI or CT scan.

**D.** Initial evaluations with no documentation of the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then no MRI or CT scan ordered (MRI Preferred).

**Reporting Denominator (RD) Includes:**

All patients with a diagnosis of epilepsy seen for an initial evaluation.

**Reporting Calculation**

\[
\frac{A \ (# \ of \ initial \ evaluations \ meeting \ numerator \ criteria) + C \ (# \ of \ initial \ evaluations \ with \ valid \ exclusions) + D \ (# \ of \ initial \ evaluations \ NOT \ meeting \ numerator \ criteria)}{RD \ (# \ of \ initial \ evaluations \ in \ denominator)}
\]

Components of this measure defined as:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of initial evaluations for patients with the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).</td>
</tr>
</tbody>
</table>
| C | # of initial evaluations with valid medical reason, patient reason or system reason
documented for not reviewing or requesting the results of at least one MRI or CT scan or, if a MRI or CT scan was not obtained previously, for not ordering a MRI or CT scan.

<table>
<thead>
<tr>
<th>D</th>
<th># of initial evaluations for patients with no documentation of the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then no MRI or CT scan ordered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD</td>
<td># of initial evaluations for patients with a diagnosis of epilepsy</td>
</tr>
</tbody>
</table>

Measure Specifications- **Magnetic Resonance Imaging/Computed Tomography Scan (MRI/CT Scan) Reviewed, Requested or Scan Ordered**

Measure specifications for data sources other than administrative claims will be developed at a later date.

**A. Administrative Claims Data**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

(Note: The specifications listed below are those needed for performance calculation.)

**Denominator (Eligible Population):**

All patients with a diagnosis of epilepsy seen for an initial evaluation.

- CPT® Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99345
- ICD-9 diagnosis codes: 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.51, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91
- If this measure is reported on the same claim as an E/M service for “new patient” (99201-99205), the denominator code (1119F or 1121F) does not need to be reported.
- If reporting an established patient code or consultation code, (99212-99215 or 99241-99245), the reporting physician should use 1119F to report initial evaluation for condition or 1121F to denote a subsequent evaluation.

**Numerator:**

Patients with the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).

- Report the CPT Category II, Magnetic Resonance Imaging/Computed Tomography Scan (MRI/CT Scan) Ordered, Reviewed, or Requested, in development designated for this numerator 3324F.

**Denominator Exclusion(s):**

Documentation of medical reason(s), patient reason(s) and/or system reason(s) for not documenting the results of at least one MRI or CT scan reviewed or requested or, if a MRI or CT scan was not obtained previously, then a MRI or CT scan ordered (MRI Preferred).

- Append modifier to CPT II code: 33324F-1P (medical), 3324F-2P (patient), or 3324F-3P (system)

**B. Electronic Health Record System (in development)**

**C. Paper Medical Record (in development)**
EPILEPSY
Measure #5: Querying and Counseling about Anti-Epileptic Drug (AED) Side-Effects

This measure may be used as an Accountability measure.

<table>
<thead>
<tr>
<th>Clinical Performance Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Numerator:</strong> Patient visits with patient queried and counseled about Anti-Epileptic Drug (AED) side-effects and the querying and counseling was documented in the medical record.</td>
</tr>
<tr>
<td><strong>Denominator:</strong> All visits for patients with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td><strong>Denominator Exclusions:</strong></td>
</tr>
<tr>
<td>• Documentation of medical reason for not querying and counseling patient about AED side effects (e.g. patient is NOT receiving an AED; patient is unable to communicate and no informant is available).</td>
</tr>
</tbody>
</table>

**Measure:** All visits for patients with a diagnosis of epilepsy who were queried and counseled about Anti-Epileptic Drug (AED) side-effects and the querying and counseling was documented in the medical record.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

WHEN a patient with epilepsy receives follow-up care, THEN an estimate of the number of seizures since the last visit and an assessment of drug side-effects should be documented. (Level D 1+/Primary) Pugh (2007)17

IF the patient meets the criteria for epilepsy diagnosis (generally two unprovoked seizures) then AED treatment should be discussed with the patient and caregivers and offered. (Level A 1+/Primary) Pugh (2007)17

If a person newly diagnosed with epilepsy is taking medications for other disorders, then the physician should minimize the risk of interactions between the newly prescribed AED and concomitant medications. (Level A 3/Primary) Pugh (2007)17

The side effect and interaction profiles should direct the choice of drug for the individual patient. (Level A) SIGN(April 2003) 23

Factors to consider when tailoring treatment strategy to the individual: Seizure type, Epilepsy Syndrome, Co-medications, Co-morbidity, Lifestyle, and Preferences of individual (and their family and/or caregivers, as appropriate) (Level A.) NICE (October 2004) 22

Antiepileptic drug treatment strategy should be individualized according to the seizure type, epilepsy syndrome, co-medication, co-morbidity and the individuals’ lifestyle and preferences (and/or those of their family and/or carers as appropriate). (Grade A, Level 1++) Singapore (Jan. 2007) 25

Patients with epilepsy should receive an annual review of information including topics such as:
- Chronic effects of epilepsy and its treatment including drug side-effects, drug-drug interactions, effect on bone health;
- Contraception, family planning, and how pregnancy and menopause may affect seizures (EVIDENCE GRADE C);
- Screening for mood disorders;
- Triggers and lifestyle issues that may affect seizures;
- Impact of epilepsy on other chronic and acute diseases;
Rationale for the Measure:

There are over 20 medications used for the treatment of epilepsy, each with specific side effect profiles. Since antiepileptic drug trials rarely compare one drug against another, it is unclear which medication should be tried first based on efficacy or toxicity. Thus, it can be hard to predict drug effects in a specific patient, though assessing co-morbidities and picking a medication based on seizure and epilepsy classification may guide therapy. Patients often fail to report side effects unless this information is specifically requested. Some patients become noncompliant with medications when these drugs cause side effects, and this can result in breakthrough seizures and their consequences. Drug side effects may be acute or chronic. They may be dose related, e.g. sedation, in which case a dose reduction is needed or these side effects may be idiosyncratic, e.g. rash, unrelated to dose, but requiring discontinuation of the drug. Some side effects are related to pharmacokinetic or pharmacodynamic drug interactions. In addition, querying patients about cognitive or neuropsychological impairments may be useful in detecting somatic or psychiatric AED side-effects. Any or all of these factors may result in side effects appearing between visits so it is important to discuss side effects at each visit.

ILAE (Jul 2006)\textsuperscript{19}
AAN TTA & QSS (April 2004)\textsuperscript{14}
AAN TTA & QSS (April 2004)\textsuperscript{15}

Data Capture and Calculations:

Calculation for Performance

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerator, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:
Patient visits with patient queried and counseled about Anti-Epileptic Drug (AED) side effects and the querying and counseling was documented in the medical record.

Performance Denominator (PD) Includes:
All visits for patients with a diagnosis of epilepsy.

Denominator Exclusions (C) Include:
- Documentation of medical reason for not querying and counseling patient about AED side effects.

Performance Calculation

\[
\frac{\text{A (} \# \text{ of patient visits meeting measure criteria)}}{\text{PD (} \# \text{ of patients visits in denominator) – C (} \# \text{ of patient visits with valid denominator exclusions)}}
\]

Components for this measure are defined as:

| A | # of patient visits with patient queried and counseled about Anti-Epileptic Drug (AED) side effects and the querying and counseling was documented in the medical record. |
Calculation for Reporting
For reporting purposes, this measure is calculated by creating a fraction with the following components:
Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:
A. Patients visits with documentation of patient queried and counseled about Anti-Epileptic Drug (AED) side effects.
C. Patient visits with documentation of medical reason(s) for not querying and counseling patient about AED side effects.
D. Patient visits with no documentation of patient queried and counseled about Anti-Epileptic Drug (AED) side effects and there is no documented reason for not doing so.

Reporting Denominator (RD) Includes:
RD. All visits for patients with a diagnosis of epilepsy.

Reporting Calculation

\[
\frac{A \ (# \ of \ visits \ meeting \ numerator \ criteria) + C \ (# \ of \ visits \ with \ valid \ exclusions) + D \ (# \ of \ visits \ NOT \ meeting \ numerator \ criteria)}{RD \ (# \ of \ visits \ in \ denominator)}
\]

Components for this measure are defined as:

<table>
<thead>
<tr>
<th>A</th>
<th># of patient visits with patient queried and counseled about Anti-Epileptic Drug (AED) side effects and the querying and counseling was documented in the medical record.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td># of patients visits with valid medical reason documented for not querying and counseling patient about Anti-Epileptic Drug (AED) side effects.</td>
</tr>
<tr>
<td>D</td>
<td># of patients visits with no documentation of patient queried and counseled about Anti-Epileptic Drug (AED) side effects and there is not documented reason for not doing so.</td>
</tr>
<tr>
<td>RD</td>
<td># of patient visits with a diagnosis of epilepsy.</td>
</tr>
</tbody>
</table>

Measure Specifications- Querying and Counseling about Anti-Epileptic Drug (AED) Side-Effects
Measure specifications for data sources other than administrative claims will be developed at a later date.

A. Administrative Claims Data
Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

Denominator (Eligible Population): All visits for patients with a diagnosis of epilepsy.
- CPT® Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309
  AND
- ICD-9 diagnosis codes: 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.51, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91

Numerator: Patient visits with patient queried and counseled about Anti-Epileptic Drug (AED) side effects and the querying and counseling was documented in the medical record.
- Report the CPT Category II, *Querying and Counseling about Anti-Epileptic Drug (AED) Side-Effects* designated for this numerator 6070F.

Denominator Exclusion(s): Documentation of medical reason(s) for not documenting patient queried and counseled about Anti-Epileptic Drug (AED) side effects.
- Append modifier to CPT II code: 6070F-1P.

| B. Electronic Health Record System (in development) |
| C. Paper Medical Record (in development) |
EPILEPSY
Measure #6: Surgical Therapy Referral Consideration for Intractable Epilepsy

This measure may be used as an Accountability measure

<table>
<thead>
<tr>
<th>Clinical Performance Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Numerator:</strong> Patients who were considered for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.</td>
</tr>
<tr>
<td><strong>Denominator:</strong> All patients with a diagnosis of intractable epilepsy.</td>
</tr>
<tr>
<td><strong>Denominator Exclusions:</strong> No exclusions appropriate for this measure</td>
</tr>
</tbody>
</table>

**Measure:** All patients with a diagnosis of intractable epilepsy who were considered for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

Referral for assessment for neurosurgical treatment should be considered if the epilepsy is drug resistant. (Level B) SIGN(April 2003) 23

Patients with disabling complex partial seizures, with or without secondary generalized seizures, who have failed appropriate trials of first-line antiepileptic drugs should be considered for referral to an epilepsy surgery center, although criteria for failure of drug treatment have not been definitely established. (Level A) AAN QSS (Reaffirmed Oct. 2005) 5

Patients referred to an epilepsy surgery center for the reasons stated above who meet established criteria for an anteromesial temporal lobe resection and who accept the risks and benefits of this procedure, as opposed to continuing pharmacotherapy, should be offered surgical treatment. (Level A) AAN QSS & TTA (Oct. 2005) 5

Peds: Specialist consulted early in treatment when clinical features and risk factors for intractability exist. (Class I/Consensus) Caplin Pediatric Epilepsy Paper (May 2006) 26

In the initial clinical evaluation of a first seizure, the patient should receive: -detailed seizure history (events before, during, and after); -review for predisposing conditions (i.e. stroke, head trauma, drugs/alcohol); -physical and neurological examination; -labs (e.g. screening laboratory testing for routine medical assessment) AND if there is no indication of provocation –an order for EEG; -an order for neuroimaging (MRI preferred) or rationale for not ordering OR-referral to higher level of epilepsy specialty care. (Level C 2+/ Primary) Pugh (2007) 17

**Rationale for the Measure:**

About 30% of people with epilepsy have intractable (medically refractory) epilepsy meaning that seizures are uncontrolled. These cases suffer more morbidity and mortality, have higher lifetime costs and income loss, and have a poorer quality of life when compared to patients that are seizure free. When medical management fails, a patient should be referred to a higher level of care than they currently receive. Epilepsy surgery is a cost effective way to reduce seizures and reduce the risk of death from epilepsy. Most epilepsy centers report that the average patient has intractable seizures for about 20 years before referral for surgical consideration.
This measure would promote earlier consideration for referrals for pre-surgical evaluation.


Data Capture and Calculations:

Calculation for Performance
For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:
Patients who were considered for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.

Performance Denominator (PD) Includes:
All patients with a diagnosis of intractable epilepsy.

Performance Calculation

\[
\frac{A}{PD}
\]

Components for this measure are defined as:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patients who were considered for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.</td>
</tr>
<tr>
<td>PD</td>
<td># of patients with a diagnosis of intractable epilepsy.</td>
</tr>
</tbody>
</table>

Calculation for Reporting
For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:
A. Patients with a documentation of consideration for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.
D. Patients with no documentation of consideration for referral for a neurological evaluation of appropriateness for surgical therapy within the past 3 years and there is no documented reason for not doing so.

Reporting Denominator (RD) Includes:
RD. All patients with a diagnosis of intractable epilepsy.
Components for this measure are defined as:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patients who were considered for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.</td>
</tr>
<tr>
<td>D</td>
<td># of patients with no documentation of consideration of referral for a neurological evaluation of appropriateness for surgical therapy within the past 3 years and there is no documented reason for not doing so.</td>
</tr>
<tr>
<td>RD</td>
<td># of patients with a diagnosis of intractable epilepsy.</td>
</tr>
</tbody>
</table>

**Measure Specifications-Surgical Therapy Referral Consideration for Intractable Epilepsy**

Measure specifications for data sources other than administrative claims will be developed at a later date.

**A. Administrative Claims Data**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

(Note: The specifications listed below are those needed for performance calculation.)

Denominator (Eligible Population): All patients with a diagnosis of intractable epilepsy.

- CPT ® Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309
- ICD-9 diagnosis codes: 345.41, 345.51

Numerator: Patients who were considered for referral for a neurological evaluation of appropriateness for surgical therapy and the consideration was documented in the medical record within the past 3 years.

- Report the CPT Category II, Surgical Therapy Referral Consideration for Intractable Epilepsy, in development designated for this numerator 5200F.

Denominator Exclusion(s): None

**B. Electronic Health Record System (in development)**

**C. Paper Medical Record (in development)**
EPILEPSY

Measure #7: Counseling about Epilepsy Specific Safety Issues

This measure may be used as an Accountability measure

<table>
<thead>
<tr>
<th>Clinical Performance Measure</th>
</tr>
</thead>
</table>

**Numerator:** Patients (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.

**Denominator:** All patients with a diagnosis of epilepsy.

**Denominator Exclusions:**
- Documentation of system reason for not counseling the patient about context-specific safety issues (i.e. caregiver is not available for the patient who is unable to comprehend counseling about safety issues)

**Measure:** All patients with a diagnosis of epilepsy (or their caregiver(s)) who were counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

At the time of initial seizure evaluation, the patient should receive information on driving restrictions, safety and injury prevention. (Level E 4/ Primary) Pugh (2007)¹⁷

QI 16. Patients with epilepsy should receive an annual review of information including topics such as:
- Chronic effects of epilepsy and its treatment including drug side-effects, drug-drug interactions, effect on bone health;
- Contraception, family planning, and how pregnancy and menopause may affect seizures (EVIDENCE GRADE C);
- Screening for mood disorders;
- Triggers and lifestyle issues that may affect seizures;
- Impact of epilepsy on other chronic and acute diseases;
- Driving and safety issues (Level D/Secondary) Pugh (2007)¹⁷

**Rationale for the Measure:**

Epileptic seizures can pose significant health and safety hazards. All states have laws about driving restrictions and the Federal Government regulates health standards for pilots of aircraft and interstate truck drivers. Businesses have safety regulations for their employees where sudden impairment may cause a dangerous situation for an employee or group of employees. While there are many medical conditions that may cause sudden impairment, seizures can be particularly dangerous and the problem may recur without warning. There are simple safety precautions that any patient with uncontrolled seizures can follow to reduce the risks. In some cases, restrictions are unnecessary since the patient may have only nocturnal seizures or other predictable seizure pattern. Motor vehicle accidents, drowning, burns, falls, fractures, industrial injuries and household injuries can all be prevented or reduced by educating the patient about these risks. Persons with epilepsy may incur legal difficulties if their seizures result in injuries to others. Physicians should discuss driving and other safety concerns. This performance measure could lead to increased patient and public safety.


Data Capture and Calculations:

**Calculation for Performance**

For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

**Performance Numerator (A) Includes:**
Patients (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.

**Performance Denominator (PD) Includes:**
All patients with a diagnosis of epilepsy.

**Denominator Exclusion (C) Includes:**
- Documentation of system reason for not counseling the patient about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns appropriate driving restrictions or bathing) at least once a year.

**Performance Calculation**

\[
\frac{A}{PD} - C
\]

Components for this measure are defined as:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patients (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.</td>
</tr>
<tr>
<td>PD</td>
<td># of patients with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td>C</td>
<td># of patients with valid system reason(s) for not counseling about context-specific safety issues at least once a year.</td>
</tr>
</tbody>
</table>

**Calculation for Reporting**

For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.
Reporting Numerator includes each of the following instances:
A. Patients (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.
C. Patients with documentation of system reason for not being counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns appropriate driving restrictions or bathing) at least once a year.
D. Patients with no documentation of patient (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year and there is no documented reason for not doing so.

Reporting Denominator (RD) Includes:
RD. All patients with a diagnosis of epilepsy.

Reporting Calculation

\[
\frac{A \text{ (# of patients meeting numerator criteria)} + C \text{ (# of patients with valid exclusions)} + \text{D (# of patients NOT meeting numerator criteria)}}{\text{RD (# of patients in denominator)}}
\]

Components for this measure are defined as:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td># of patients (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.</td>
</tr>
<tr>
<td>C</td>
<td># of patients with valid system exclusion documented for not counseling about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns appropriate driving restrictions or bathing) at least once a year.</td>
</tr>
<tr>
<td>D</td>
<td># of patients with no documentation of patient (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year and there is no documented reason for not doing so.</td>
</tr>
<tr>
<td>RD</td>
<td># of patients with a diagnosis of epilepsy.</td>
</tr>
</tbody>
</table>

Measure Specifications- Counseling about Epilepsy Specific Safety Issues
Measure specifications for data sources other than administrative claims will be developed at a later date.

A. Administrative Claims Data
Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

(Note: The specifications listed below are those needed for performance calculation.)

Denominator (Eligible Population): All patients with a diagnosis of epilepsy.

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- CPT® Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309
  AND
- ICD-9 diagnosis codes: 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.51, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91

Numerator: Patients (or their caregiver(s)) counseled about context-specific safety issues, appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.
- Report the CPT Category II, *Counseling about Epilepsy Specific Safety Issues*, designated for this numerator 4330F.

Denominator Exclusion: Documentation of system reason for not counseling patient about context-specific safety issues appropriate to the patient’s age, seizure type(s) and frequency(ies), occupation and leisure activities, etc. (e.g. injury prevention, burns, appropriate driving restrictions or bathing) at least once a year.
- Append modifier to CPT II code: 44330F-3P.

#### B. Electronic Health Record System (in development)
#### C. Paper Medical Record (in development)
Measure #8: Counseling for Women of Childbearing Potential with Epilepsy

This measure may be used as an Accountability measure

<table>
<thead>
<tr>
<th>Clinical Performance Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Numerator:</strong> Female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy and documented in the medical record at least once a year.</td>
</tr>
<tr>
<td><strong>Denominator:</strong> All females of childbearing potential (12-44 years old) with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td><strong>Denominator Exclusions:</strong> Documentation of medical reason for not counseling the patient about epilepsy and how its treatment may affect contraception and pregnancy (e.g. patient is surgically sterile).</td>
</tr>
</tbody>
</table>

**Measure:** All female patients of childbearing potential (12-44 years old) diagnosed with epilepsy who were counseled about epilepsy and how its treatment may affect contraception and pregnancy at least once a year.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

Women (and, if appropriate, their family and/or caregivers or others closely involved) should be given information about contraception, conception, pregnancy and breastfeeding. Information should be given in advance of sexual activity or pregnancy. (Level C) NICE 2004

IF a woman with epilepsy is of childbearing potential and receives oral contraceptives in conjunction with an enzyme inducing AED, THEN decreased effectiveness of oral contraception should be addressed. (higher doses of the oral contraceptive, alternative birth control methods, or change AED). (Level A 2+/Primary) Pugh (2007)

If AEDs are to be used in pregnancy the relative risks of seizures and fetal malformation should be discussed with the woman. (Level C) SIGN(April 2003)

Whenever possible, a woman should conceive on the lowest effective dose of one AED appropriate for her epilepsy syndrome. If she has good seizure control and presents already pregnant, there is probably little to be gained by altering her AEDs. (Level C) SIGN(April 2003)

Patients with epilepsy should receive an annual review of information including topics such as:
- Chronic effects of epilepsy and its treatment including drug side-effects, drug-drug interactions, effect on bone health;
- Contraception, family planning, and how pregnancy and menopause may affect seizures (EVIDENCE GRADE C);
- Screening for mood disorders;
- Triggers and lifestyle issues that may affect seizures;
- Impact of epilepsy on other chronic and acute diseases;
- Driving and safety issues (Level D/Secondary) Pugh (2007)

**Rationale for the Measure:**

Epilepsy is associated with sexual dysfunction, reduced fertility, increased pregnancy risks, and risks for malformations in the infant. Seizures can transiently disrupt pituitary hormone secretion. Treatment of seizures with antiepileptic drugs may alter hormone levels, render oral contraceptives less effective and may interfere with embryonic and fetal development. Certain antiepileptic mediations may have specific malformation risks. Since unplanned pregnancy is common, patients need to be informed about the risks of epilepsy and antiepileptic drug therapy prior to pregnancy. Folic acid supplementation, monotherapy for epilepsy, using lower doses of medication when possible and proper obstetrical, prenatal and pre-pregnancy...
Data Capture and Calculations:

Calculation for Performance
For performance purposes, this measure is calculated by creating a fraction with the following components: Numerators, Denominator, and Denominator Exclusions.

Performance Numerator (A) Includes:
Female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy and documented in the medical record at least once a year.

Performance Denominator (PD) Includes:
All females of childbearing potential (12-44 years old) with a diagnosis of epilepsy.

Denominator Exclusions Include:
- Documentation of medical reason for not counseling patient about epilepsy and how its treatment may affect contraception and pregnancy at least once a year.

Performance Calculation

\[
\frac{A}{PD} - C
\]

Components for this measure are defined as:

<table>
<thead>
<tr>
<th>A</th>
<th># of female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy and documented in their medical record at least once a year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD</td>
<td># of female patients of childbearing potential (12-44 years old) with a diagnosis of epilepsy.</td>
</tr>
<tr>
<td>C</td>
<td># of female patients with a valid medical reason for not being counseled about epilepsy and how its treatment may affect contraception and pregnancy at least once a year.</td>
</tr>
</tbody>
</table>

Calculation for Reporting
For reporting purposes, this measure is calculated by creating a fraction with the following components: Reporting Numerator and Reporting Denominator.

Reporting Numerator includes each of the following instances:
A. Female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy and documented in their medical record at least once a year.
C. Female patients with documentation of medical reason for not being counseled about epilepsy and how its treatment may affect contraception and pregnancy at least once a year.

D. Female patients with no documentation of patient counseled about epilepsy and how its treatment may affect contraception and pregnancy at least once a year and there is no documented reason for not doing so.

Reporting Denominator (RD) Includes:

RD. All female patients of childbearing potential (12-44 years old) with a diagnosis of epilepsy.

**Reporting Calculation**

\[
\text{RD} = \frac{A \times \text{(# of patients meeting numerator criteria)} + C \times \text{(# of patients with valid exclusions)}}{D \times \text{(# of patients NOT meeting numerator criteria)}}
\]

Components for this measure are defined as:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td># of female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy and documented in the medical record at least once a year.</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td># of female patients with valid medical exclusion documented for not counseling female patient about epilepsy and how its treatment may affect contraception and pregnancy at least once a year.</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td># of female patients with no documentation of being counseled about epilepsy and how its treatment may affect contraception and pregnancy at least once a year and there is no documented reason for not doing so.</td>
</tr>
<tr>
<td><strong>RD</strong></td>
<td># of female patients of childbearing potential (12-44 years old) with a diagnosis of epilepsy.</td>
</tr>
</tbody>
</table>

Measure Specifications - *Counseling for Women of Childbearing Potential with Epilepsy*

Measure specifications for data sources other than administrative claims will be developed at a later date.

**A. Administrative Claims Data**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper).

(Note: The specifications listed below are those needed for performance calculation.)

Denominator (Eligible Population): All females of childbearing potential (12-44 years old) with a diagnosis of epilepsy.

- CPT ®Procedure Codes: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99215, 99241, 99242, 99243, 99244, 99245, 99304, 99305, 99306, 99307, 99308, 99309
- ICD-9 diagnosis codes: Females and ages of 12-44 years old with these codes 345.00, 345.01, 345.10, 345.11, 345.40, 345.41, 345.50, 345.51, 345.60, 345.61, 345.70, 345.71, 345.90, 345.91

Numerator: Female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy and documented in the medical record at least once a year.

- Report the CPT Category II, *Counseling for Women of Childbearing Potential with Epilepsy*, in development...
designated for this numerator 4340F.

Denominator Exclusion(s): Documentation of medical reason(s) for not documenting female patients counseled about epilepsy and how its treatment may affect contraception and pregnancy.

- Append modifier to CPT II code: 4340F-1P

<table>
<thead>
<tr>
<th>B. Electronic Health Record System (in development)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Paper Medical Record (in development)</td>
</tr>
</tbody>
</table>
Appendix A: Evidence Classification Schemes for Guidelines Cited in this Measurement Set

**ACEP (American College of Emergency Physicians)**
Clinical Policy: Critical Issues in the Evaluation and Management of Adult Patients Presenting to the Emergency Department with Seizures
Annals of Emergency Medical 43:5 May 2004

**Recommendations:**
Level A: Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e. based on “strength of evidence class I” or overwhelming evidence from “strength of evidence class II” studies that directly address all the issues).

Level B: Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on “strength off evidence class II” studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of “strength of evidence class III” studies).

Level C: Other strategies for patient management that are based on preliminary, inconclusive, or conflicting evidence or, in the absence of any published literature, based on panel consensus.

**American Academy of Neurology (AAN)**

<table>
<thead>
<tr>
<th>Suggested wording</th>
<th>Translation of evidence to recommendations</th>
<th>Rating of Therapeutic Article</th>
</tr>
</thead>
</table>
| (Note: Wording relevant to diagnostic, prognostic and screening questions are indicated in parenthesis.)
Conclusion:
A = Established as effective, ineffective or harmful (or established as useful/predictive or not useful/predictive) for the given condition in the specified population
Recommendation:
Should be done or, should not be done                                               | Level A rating requires at least two consistent Class I studies*                                            | Class I: Randomized, controlled clinical trial with masked or objective outcome assessment, in a representative population. Relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences. The following are required:
a) Concealed allocation
b) primary outcome(s) clearly defined
c) exclusion/inclusion criteria clearly defined
d) adequate accounting for drop-outs (with at least 80% of enrolled subjects completing the study) and cross-overs with numbers sufficiently low to have minimal potential for bias |
| Conclusion:
B = Probably effective, ineffective or harmful (or probably useful/predictive or not useful/predictive) for the given condition in the specified population
Recommendation:
Should be considered or, should not be considered                                    | Level B rating requires at least one Class I study or two consistent Class II studies                      | Class II: Prospective matched group cohort study in a representative population with masked outcome assessment that meets b-d above OR a RCT in a representative population that lacks one criteria a-d. |
Conclusion:

C = Possibly effective, ineffective or harmful (or possibly useful/predictive or not useful/predictive) for the given condition in the specified population

Recommendation:

May be considered or, may not be considered

Level C rating requires at least one Class II study or two consistent Class III studies

Class III: All other controlled trials (including well-defined natural history controls or patients serving as own controls) in a representative population, where outcome is independently assessed, or independently derived by objective outcome measurement.**

Class IV: Studies not meeting Class I, II or III criteria including consensus, expert opinion or a case report.

*In exceptional cases, one convincing Class I study may suffice for an “A” recommendation if 1) all criteria are met, 2) the magnitude of effect is large (relative rate improved outcome > 5 and the lower limit of the confidence interval is > 2).

**Objective outcome measurement: an outcome measure that is unlikely to be affected by an observer’s (patient, treating physician, investigator) expectation or bias (e.g., blood tests, administrative outcome data).

<table>
<thead>
<tr>
<th>Rating of Diagnostic Article</th>
<th>Rating of Prognostic Article</th>
<th>Rating of Screening Article</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class I:</strong> A cohort study with prospective data collection of a broad spectrum of persons with the suspected condition established by an acceptable reference standard for case definition. The diagnostic test is objective or performed and interpreted without knowledge of the patient's clinical status. Study results allow calculation of measures of diagnostic accuracy.</td>
<td><strong>Class I:</strong> A cohort study of a broad spectrum of persons at risk for developing the outcome (e.g. target disease, work status). The outcome is defined by an acceptable reference standard for case definition. The outcome is objective or measured by an observer who is masked to the presence of the risk factor. Study results allow calculation of measures of diagnostic accuracy.</td>
<td><strong>Class I:</strong> A statistical, population-based sample of patients studied at a uniform point in time (usually early) during the course of the condition. All patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation that is masked to the patients’ clinical presentations.</td>
</tr>
<tr>
<td><strong>Class II:</strong> A case control study of a broad spectrum of persons with the condition established by an acceptable reference standard compared to a broad spectrum of controls or a cohort study where a broad spectrum of persons with the suspected condition where the data was collected retrospectively. The diagnostic test is objective or performed and interpreted without knowledge of the patient's clinical status. Study results allow calculation of measures of diagnostic accuracy.</td>
<td><strong>Class II:</strong> A case control study of a broad spectrum of persons with the condition compared to a broad spectrum of controls or a cohort study of a broad spectrum of persons at risk for the outcome (e.g. target disease, work status) where the data was collected retrospectively. The outcome is defined by an acceptable reference standard for case definition. The outcome is objective or measured by an observer who is masked to the presence of the risk factor. Study results allow calculation of measures of diagnostic accuracy.</td>
<td><strong>Class II:</strong> A statistical, non-referral-clinic-based sample of patients studied at a uniform point in time (usually early) during the course of the condition. Most patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation that is masked to the patients’ clinical presentations.</td>
</tr>
<tr>
<td><strong>Class III:</strong> A case control study or cohort study where either persons with the condition or controls are of a narrow spectrum. The condition is established by an acceptable reference standard. The reference standard and diagnostic test are objective or performed and interpreted by different observers. Study results allow calculation of measures of diagnostic accuracy.</td>
<td><strong>Class III:</strong> A case control study or a cohort study where either the persons with the condition or the controls are of a narrow spectrum where the data was collected retrospectively. The outcome is defined by an acceptable reference standard for case definition. The outcome is objective or measured by an observer who did not determine the presence of the risk factor. Study results allow calculation of measures of diagnostic accuracy.</td>
<td><strong>Class III:</strong> A sample of patients studied during the course of the condition. Some patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation by someone other than the treating physician.</td>
</tr>
<tr>
<td><strong>Class IV:</strong> Studies not meeting Class I, II or III criteria including consensus, expert opinion or a case report.</td>
<td><strong>Class IV:</strong> Studies not meeting Class I, II or III criteria including consensus, expert opinion or a case report.</td>
<td><strong>Class IV:</strong> Studies not meeting Class I, II or III criteria including consensus, expert opinion or a case report.</td>
</tr>
</tbody>
</table>

Retrospective: a case control study. Prospective: a cohort survey. Objective: a measurement unlikely to be affected by expectation bias.

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Used same rating scale for level of evidence (Class I-III) as AAN, but this was a consensus process that determined the recommendations for performance indicators.


Evidence Classification scheme for therapeutic intervention
Class I: An adequately powered prospective, randomized, controlled clinical trial with masked outcome assessment in a representative population or an adequately powered systematic review of prospective randomized controlled clinical trials with masked outcome assessment in a representative populations. The following are required: a. Randomization concealment b. Primary outcome(s) is/are clearly defined c. Exclusion/inclusion criteria are clearly defined d. Adequate accounting for dropouts and crossovers with numbers sufficiently low to have minimal potential for bias e. Relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences.

Class II: Prospective matched-group cohort study in representative population with masked outcome assessment that meets a-e above or a randomized, controlled trial in a representative population that lacks one criteria a-e.

Class III: All other controlled trials (including well-defined natural history controls or patients serving as own controls) in a representative population, where outcome assessment is independent of patient treatment.

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion

Rating Scheme for the Strength of Recommendations
Level A rating (established as effective, ineffective, or harmful) requires at least one convincing class I study or at least two consistent, convincing class II studies.

Level B rating (probably effective, ineffective, or harmful) requires at least one convincing class II study or overwhelming class III evidence.

Level C rating (possibly effective, ineffective, or harmful) requires at least two convincing class III studies.

Good Practice Points (GPPs) Where there was lack of evidence but consensus was clear the Task Force members have stated their opinion as good practice points.


Class Criteria
IA RCT, or meta-analysis of RCTs, in a representative population that meets all six criteria:
1. Primary outcome variable: efficacy or effectiveness

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2. Treatment duration: ≥48 wk and information on ≥24 wk seizure freedom data (efficacy) or ≥48 wk retention data (effectiveness)
3. Study design: Double blind
4. Superiority demonstrated, or if no superiority demonstrated, the study’s actual sample size was sufficient to show non-inferiority of no worse than a 20% relative difference in effectiveness/efficacy (see text for detailed explanation of this detectable non-inferiority boundary)
5. Study exit: Not forced by a predetermined number of treatment-emergent seizures
6. Appropriate statistical analysis
   II A RCT or meta-analysis meeting all the class I criteria except that
   1. No superiority was demonstrated and the study’s actual sample size was sufficient only to show non-inferiority at a 21–30% relative difference in effectiveness/efficacy OR
   2. Treatment duration: ≥24 wk but <48 wk
   III A RCT or meta-analysis not meeting the criteria for any class I or class II category (e.g., an open-label study or a double-blind study with either a detectable non-inferiority boundary of >30% or forced exit criteria)
   IV Evidence from nonrandomized, prospective, controlled or uncontrolled studies, case series, or expert reports

ILAE Table 4. Relation between clinical trial ratings, level of evidence and conclusions

<table>
<thead>
<tr>
<th>Combination(s) of clinical trial ratings</th>
<th>Level of Evidence</th>
<th>Conclusion</th>
<th>Recommendation (based on efficacy and effectiveness data only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥21 class I studies or meta-analysis meeting class I criteria sources OR ≥2 class II studies</td>
<td>A</td>
<td>AED established as efficacious or effective as initial monotherapy</td>
<td>AED should be considered for initial monotherapy-first line monotherapy candidate</td>
</tr>
<tr>
<td>1 class II study or meta-analysis meeting class II criteria</td>
<td>B</td>
<td>AED probably efficacious or effective as initial monotherapy</td>
<td>AED should be considered for initial monotherapy-first line monotherapy candidate</td>
</tr>
<tr>
<td>≥2 class III double-blind or open-label study</td>
<td>C</td>
<td>AED possibly efficacious or effective as initial monotherapy</td>
<td>AED may be considered for initial monotherapy-alternative first line monotherapy candidate</td>
</tr>
<tr>
<td>1 class III double-blind or open label study</td>
<td>D</td>
<td>AED potentially efficacious or effective as initial monotherapy</td>
<td>Weak efficacy or effectiveness data available to support the use of the AED for initial monotherapy</td>
</tr>
<tr>
<td>≥1 class IV clinical studies OR expert committee reports, OR opinions from experienced clinicians OR absence of directly applicable clinical evidence upon which to base a recommendation</td>
<td>E</td>
<td>No RCT data available to assess if AED is effective as initial monotherapy</td>
<td>Either no data or inadequate efficacy or effectiveness data available to decide if AED could be considered for initial monotherapy</td>
</tr>
<tr>
<td>Positive evidence of lack of efficacy or effectiveness based on class I to IV studies OR significant risk of seizure aggravation based on class I to IV studies</td>
<td>F</td>
<td>AED considered as ineffective or significant risk of seizure aggravation</td>
<td>AED should not be used for initial monotherapy</td>
</tr>
</tbody>
</table>


**Rating Scheme for Strength of the Evidence**
Ia-Systematic review or meta-analysis of randomized controlled trials
Ib-At least one randomized controlled trial
IIa-At least one well-designed controlled study without randomization
IIb-At least one well-designed quasi-experimental descriptive studies, such as a cohort study
III-Well-designed non-experimental descriptive studies, case-control studies, and case studies
IV-Expert committee reports, opinions and/or clinical experience of respected authorities

**Rating Recommendations**
A* Directly based on category I evidence (meta-analysis of randomized controlled trials (RCTs) or at least one RCT)
B* Directly based on category II evidence (at least one controlled study without randomization or at least one other quasi-experimental study) or extrapolated from category I evidence
C* Directly based on category III evidence (non-experimental descriptive studies) or extrapolated from category I or II evidence
D* Directly based on category III evidence (expert committee reports or opinions and/or clinical experience of respected authorities) or extrapolated from category I, II or III evidence
N Recommendation taken from NICE guideline or technology appraisal guidance

**Pugh Paper: Epilepsy Measures Work Group Grading of Evidence and Indicators**

A: Rated as appropriate
F: Rated as feasible
N: Rated as necessary
N/A: Not Rated

**Ratings**
1-3 clearly appropriate/ reliable/ necessary
4-6 uncertain or equivocal
7-10 appropriate/ reliable/ necessary
Scottish Intercollegiate Guidelines Network (SIGN)  
And  
SIGN (2): SIGN 81: Diagnosis and management of epilepsies in children and young people. Edinburgh (Scotland); March 2005 p. 53. 

Grading of Recommendations (Note: Only measures graded as A, B, or C were included in the table)  
A: At least one meta-analysis, systematic review of randomized controlled trials (RCTs), or randomized controlled trial rated as 1++ and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results  
B: A body of evidence including studies rated as 2++, directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1++ or 1+  
C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rate as 2++  
D: Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+ 

Levels of Evidence  
1++: High quality meta-analyses, systematic reviews of randomized controlled trials (RCTs), or RCTs with a very low risk of bias  
1+: Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias  
1-: Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias  
2++: High quality systematic reviews of case control or cohort studies. High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal  
2+: Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal  
2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal  
3: Non-analytic studies, e.g. case reports, case series  
4: Expert opinion 

SINGAPORE (Jan. 2007)  
(Mirrors a lot of the same recommendations as SIGN (1) and NICE) 

Levels of Evidence:  
Level 1++: High quality meta-analyses, systematic reviews of randomized controlled trials (RCTs), or RCTs with a very low risk of bias. Level 1+: Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias. Level 1-: Meta-analyses, systematic reviews of RCTs, or RCTs with a high risk of bias
Level 2++: High quality systematic reviews of case control or cohort studies. High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
Level 2+: Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
Level 2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
Level 3: Non-analytic studies (e.g. case reports, case series)
Level 4: Expert opinion

Grades of Recommendation:
Grade A: At least one meta-analysis, systematic review of RCTs, or RCT rated as 1++ and directly applicable to the target population; or A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results
Grade B: A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 1++ or 1+
Grade C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2++
Grade D: Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+
GPP (good practice points): Recommended best practice based on the clinical experience of the guideline development group.
REFERENCES

Appendix B: Introductory Information Reference List


Appendix B: Guideline Reference List

AAN QSS


AAN TTA.


AAN TTA & QSS


16. ACEP. Clinical policy: critical issues in the evaluation and management of adult patients presenting to the emergency department with seizures. American College of Emergency Physicians - Medical Specialty Society. 2004 May. 21 pages. NGC:003558


18. EFNS. EFNS guideline on the management of status epilepticus. European Federation of Neurological Societies - Medical Specialty Society. 2006 May. 6 pages. NGC:005482


23. **SIGN**. Scottish Intercollegiate Guidelines Network (SIGN): **SIGN 70:** (1) **Diagnosis and management of epilepsy in adults. A national clinical guideline.** (2) **Diagnosis and management of epilepsy in adults. Update to printed guideline.** Scottish Intercollegiate Guidelines Network - National Government Agency [Non-U.S.]. 2003 Apr (addendum released 2004 Jun 7). Original guideline: 49 pages; Addendum: 3 pages. NGC:003832


25. **SINGAPORE** Singapore Ministry of Health-National Government Agency Epilepsy in Adults. 2007 Jan. 43 pages. NGC:005532


Questions or Comments:

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