

NATIONAL QUALITY FORUM

Measure Submission and Evaluation Worksheet 5.0

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. The evaluation criteria, evaluation guidance documents, and a blank online submission form are available on the [submitting standards web page](#).

NQF #: 1953	NQF Project: Neurology Project
(for Endorsement Maintenance Review)	
Original Endorsement Date:	Most Recent Endorsement Date: Last Updated Date: Oct 21, 2015
BRIEF MEASURE INFORMATION	
De.1 Measure Title: Seizure type(s) and current seizure frequency(ies)	
Co.1.1 Measure Steward: American Academy of Neurology	
De.2 Brief Description of 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.	
2a1.1 Numerator Statement: Patient visits with seizure type(s) specified and current seizure frequency for each seizure type documented in the medical record.	
2a1.4 Denominator Statement: All visits for patients with a diagnosis of epilepsy.	
2a1.8 Denominator Exclusions: 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)	
1.1 Measure Type: Process	
2a1. 25-26 Data Source: Administrative claims, Electronic Clinical Data : Electronic Health Record	
2a1.33 Level of Analysis: Clinician : Individual	
1.2-1.4 Is this measure paired with another measure? No	
De.3 If included in a composite, please identify the composite measure (<i>title and NQF number if endorsed</i>):	

STAFF NOTES (<i>issues or questions regarding any criteria</i>)
Comments on Conditions for Consideration:
Is the measure untested? Yes <input checked="" type="radio"/> No <input checked="" type="radio"/> If untested, explain how it meets criteria for consideration for time-limited endorsement:
1a. Specific national health goal/priority identified by DHHS or NPP addressed by the measure (<i>check De.5</i>):
5. Similar/related endorsed or submitted measures (<i>check 5.1</i>):
Other Criteria:
Staff Reviewer Name(s):

1. IMPACT, OPPORTUNITY, EVIDENCE - IMPORTANCE TO MEASURE AND REPORT

Importance to Measure and Report is a threshold criterion that must be met in order to recommend a measure for endorsement. All three subcriteria must be met to pass this criterion. See [guidance on evidence](#).

Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria. ([evaluation criteria](#))

1a. High Impact: H O M O L O I O

(The measure directly addresses a specific national health goal/priority identified by DHHS or NPP, or some other high impact aspect of healthcare.)

De.4 Subject/Topic Areas (Check all the areas that apply): [Neurology](#)

De.5 Cross Cutting Areas (Check all the areas that apply): [Functional Status, Health and Functional Status, Prevention, Safety](#)

1a.1 Demonstrated High Impact Aspect of Healthcare: [Affects large numbers, A leading cause of morbidity/mortality, Patient/societal consequences of poor quality, Severity of illness](#)

1a.2 If "Other," please describe:

1a.3 Summary of Evidence of High Impact (Provide epidemiologic or resource use data):

[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.](#)

[The relationship between seizure frequency, seizure type and quality of life: findings from three European countries.](#)

[Baker GA, Gagnon D, McNulty P. University Department of Neurosciences, Walton Centre for Neurology and Neurosurgery, Liverpool, UK. baker-g@wcn.co.uk](#)

[Understanding the relationship between seizure frequency, seizure type and scores obtained from quality of life \(QOL\) measures is important if the incorporation of QOL measures into epilepsy clinical trials is to become standard practice. There is also a need to consider cross-cultural differences obtained from QOL measures, particularly in the context of multicentre international trials. In this study, 300 patients recruited from UK, Germany and France completed the Functional Status Questionnaire \(FSQ\); information about patients' clinical and demographic status was also collected. Results from the study highlighted that seizure type and seizure frequency, as well as country of origin, were significant predictors of scores on the FSQ. It is important to measure the effect of seizure type, not just seizure frequency, on QOL when testing for differences between antiepileptic therapies in the context of clinical trials.](#)

[Early treatment cost in epilepsy and how it varies with seizure type and frequency](#)

[Begley CE, Lairson DR, Reynolds TF, Coan S. School of Public Health, University of Texas Health Science Center, 2001. \[http://dx.doi.org/10.1016/S0920-1211\\(01\\)00310-2\]\(http://dx.doi.org/10.1016/S0920-1211\(01\)00310-2\), How to Cite or Link Using DOI](#)
[The purpose of this paper is to describe the temporal pattern of healthcare cost in two population-based samples of new cases of epilepsy from two different regions of the US, and show how it varies with seizure type and frequency. Epilepsy-related healthcare cost from onset through 4 years of follow-up was determined for two population-based incident samples from Houston, TX and Rochester, MN. Cases were identified over the period 1987–1991 and followed through 1994. Annual use and cost was calculated for the first through fourth year of treatment for each person in the combined samples to examine the temporal pattern of early treatment cost. A multivariate model was estimated to examine how seizure type and](#)

seizure frequency affect early treatment cost while controlling for location, age, gender, and ethnicity. Our estimates indicate high initial healthcare cost at onset for most patients followed by lower cost in subsequent years. The mean annual epilepsy-related healthcare cost per patient was \$3157 for the first year, \$702 for the second year, \$471 for year three, and \$411 for year four. Cost was significantly higher for groups whose seizures continued and were relatively frequent, but was not significantly different for groups with partial seizures as compared with primary generalized seizures. There was a 2.2-fold difference in 4-year cost between patients with a single seizure at onset and those having recurrent seizures at the rate of more than one per month, controlling for seizure type, age, gender, and ethnicity.

Types of Seizures and Syndromes (2012 IOM Report: Epilepsy)

Although much remains to be learned about the neuroscience of the epilepsies and the causes of specific types of epilepsy, in general, seizures are caused by abnormal, excessive, and hypersynchronized neuron discharges in the brain (McNamara, 1994; Pitkanen and Lukasiuk, 2011). These discharges can involve widespread areas of the brain simultaneously or be focused in one specific area. The effects of seizures on a person's health and well-being depend on the location and extent of the nerve cells involved; as a result, seizures can range from mild (such as a momentary loss of awareness) to severe (such as body convulsions).

Defining and categorizing the multiple types of epilepsy can be difficult. In 1964, the International League Against Epilepsy (ILAE) developed a classification system for epilepsy seizures and syndromes that continues to be updated (Arnautova and Nesmeianova, 1964; Berg et al., 2010). Because of the complex and disparate nature of where and to what extent the brain is affected by seizures, the epilepsies can be categorized according to multiple dimensions:

Seizure type—Seizures are classified into two major categories: (1) focal seizures that originate in a network of neurons limited to one hemisphere of the brain and (2) generalized seizures that originate in a network of neurons that is distributed to both brain hemispheres (Berg et al., 2010). Seizures also can be categorized as of unknown type. Box 1-2 provides an overview of seizure types.

Syndromes—Berg and colleagues (2010) recently defined a syndrome as “a complex of clinical features, signs, and symptoms that together define a distinctive, recognizable clinical disorder” (p. 681). Often a syndrome is characterized by a typical age of onset, specific characteristics of the electroencephalogram (EEG), and seizure types. Table 1-3 provides an overview of a few of the many epilepsy syndromes.

The type of treatment prescribed will depend on several factors, including the type of epilepsy, the frequency and severity of the seizures, your age, overall health, and medical history. An accurate diagnosis of the type of epilepsy (not just the type of seizure, since most seizure types occur in different types of epilepsy) is critical to choosing the best treatment

The IOM report explicitly stated the need for the development and implementation of a national quality measurement and improvement strategy for epilepsy care. “An independent organization with expertise in quality measurement and care should assist in the development of the national strategy, particularly the development of performance metrics.” Specifically, the IOM report calls for the national quality strategy to include defining performance metrics for epilepsy with specific attention to access to care for underserved populations, access to specialized care, co-management of care among specialized epilepsy providers, and coordination of care with other health care providers and community services organizations.

The AAN is a non-profit professional association with extensive experience and expertise in developing quality measures for neurological conditions and has developed eight quality measures for epilepsy care. The AAN has not yet completed testing of these measures. Three of the epilepsy measures were chosen for inclusion in the 2012 PQRS program and thus are under consideration for endorsement by the NQF at this time. The AAN has also developed five other evidence-based quality measures for epilepsy:

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

Epilepsy and Seizure Statistics

- Epilepsy and seizures affect nearly 3 million Americans of all ages, at an estimated annual cost of \$17.6 billion in direct and indirect costs.
- Approximately 200,000 new cases of seizures and epilepsy occur each year.
- Ten percent of the American population will experience a seizure in their lifetime.

Health condition statistics are typically expressed in terms of incidence and prevalence in a particular population within a specific period of time. Incidence is a measure of the number of new cases of a medical condition that occur in the population during a measured amount of time, usually one year. Prevalence is defined as the total number of existing cases of a disease in a specific population at a stated point in time. In any one day, at a certain time, there are a specific number of people with a certain disorder.

There is no central registry of cases of epilepsy or seizures in the United States. Epidemiologists base their estimates on peer-reviewed studies of medical records at specific institutions or in defined local communities. Surveys of physicians and patients, self reporting, and studies in matched populations or segments of populations overseas may also be taken into account.

From this mixture of sources, leading experts in the field have arrived at the following estimates of the incidence and prevalence of seizures and epilepsy in the United States:

Incidence -- Seizures:

- 300,000 people have a first convulsion each year.
- 120,000 of them are under the age of 18.
- Between 75,000 and 100,000 of them are children under the age of 5 who have experienced a febrile (fever-caused) seizure.

Incidence -- Epilepsy:

- 200,000 new cases of epilepsy are diagnosed each year.
- Incidence is highest under the age of 2 and over 65.
- 45,000 children under the age of 15 develop epilepsy each year.
- Males are slightly more likely to develop epilepsy than females.
- Incidence is greater in African American and socially disadvantaged populations.
- Trends show decreased incidence in children; increased incidence in the elderly.
- In 70 percent of new cases, no cause is apparent.
- 50 percent of people with new cases of epilepsy will have generalized onset seizures.
- Generalized seizures are more common in children under the age of 10; afterwards more than half of all new cases of epilepsy will have partial seizures.

Prevalence -- Epilepsy:

- Prevalence of active epilepsy (history of the disorder plus a seizure or use of antiepileptic medicine within the past 5 years) is estimated as nearly 3 million in the United States.
- Prevalence tends to increase with age.
- 326,000 children through age 15 have epilepsy.
- More than 300,000 persons over the age of 65 have epilepsy.
- Higher among racial minorities than among Caucasians.

- Cumulative incidence (risk of developing epilepsy):
- By 20 years of age, one percent of the population can be expected to have developed epilepsy.
- By 75 years of age, three percent of the population can be expected to have been diagnosed with epilepsy, and ten percent will have experienced some type of seizure.

Epilepsy risk in special populations:

The basic, underlying risk of developing epilepsy is about one percent. Individuals in certain populations are at higher risk. For example, it is estimated that epilepsy can be expected to develop in:

- 25.8 percent of children with mental retardation
- 13 percent of children with cerebral palsy
- 50 percent of children with both disabilities
- 10 percent of Alzheimer patients
- 22 percent of stroke patients
- 8.7 percent of children of mothers with epilepsy
- 2.4 percent of children of fathers with epilepsy
- 33 percent of people who have had a single, unprovoked seizure

1a.4 Citations for Evidence of High Impact cited in 1a.3: Dreifuss FE, Bancaud J, Henriksen O, et al. Proposal for the revised clinical and electroencephalographic classification of epileptic seizures. *Epilepsia* 1981;22:489-501.

Epilepsy Foundation of America Statistics Incidence and Prevalence
<http://www.epilepsyfoundation.org/aboutepilepsy/whatisepilepsy/statistics.cfm>

Institute of Medicine Report "Epilepsy Across the Spectrum: Promoting Health and Understanding"
<http://www.iom.edu/Reports/2012/Epilepsy-Across-the-Spectrum.aspx>

1b. Opportunity for Improvement: H● M● L● I●

(There is a demonstrated performance gap - variability or overall less than optimal performance)

1b.1 Briefly explain the benefits (improvements in quality) envisioned by use of this 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.

1b.2 Summary of Data Demonstrating Performance Gap *(Variation or overall less than optimal performance across providers): [For Maintenance – Descriptive statistics for performance results for this measure - distribution of scores for measured entities by quartile/decile, mean, median, SD, min, max, etc.]*

Epidemiological research is needed in large, representative U.S. populations to monitor trends in epilepsy incidence and related mortality and to track outcomes. Studies need to be conducted among the general population and in subpopulations at higher risk: children, for whom prognosis is a major concern; older adults, who have greater mortality associated with epilepsy; women, to track outcomes, including reproductive outcomes; as well as veterans and diverse racial or ethnic and socioeconomic groups, in order to assess any disparities in incidence, prognosis, and mortality and to determine opportunities for intervention. Within these subpopulations, sufficient numbers are needed to compare incidence by etiology, seizure type, syndrome, and the presence of comorbid conditions. With respect to treatment, these surveillance data could be used to monitor the outcomes of epilepsy care and provide feedback to health care providers (Box et al., 2010; Trevathan, 2011). As examples, specific populations for whom further

research is needed—older adults, veterans, children, and people with epilepsy and associated comorbidities—are described below.

QUIET Indicator Study. Indicators #4 and #14 were used as support for this measure. The 2011 Pugh et al. study on quality of care for adults with epilepsy showed the proportion of patients receiving quality indicator concordant care by setting for all settings for quality indicator #4 (if a patient is thought to have a diagnosis for epilepsy then the diagnosis should include a best estimate of seizure types) was 44.62% and for quality indicator #14 (when a patient with epilepsy receives follow-up care, then an estimate of number of seizures since the last visit and assessment of drug side-effects should be documented) quality indicator concordant care was provided for 27.94% of the patients. Overall for patients with chronic epilepsy quality indicator concordant care was only provided 45.07% of the time.

Wick P, Fountain N. Patient reported clinician adherence to Epilepsy Performance Measures of Quality of Care. (Before the publication of the Quality Measures) Poster. Epilepsy Meeting Dec 2010.

Patient reported adherence of their physician to the quality measure (Strongly Agree, Agree; Disagree, & Strongly Disagree not noted here)

- 1a. Type of Seizure (51% Strongly Agree, 38% Agree)
- 1b. Frequency of Seizure (62% Strongly Agree, 25% Agree)

1b.3 Citations for Data on Performance Gap: [For Maintenance – Description of the data or sample for measure results reported in 1b.2 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included]

Institute of Medicine Report "Epilepsy Across the Spectrum: Promoting Health and Understanding"
<http://www.iom.edu/Reports/2012/Epilepsy-Across-the-Spectrum.aspx>

Fountain NB, Van Ness PC, Swain-Eng R, et al. Quality improvement in neurology: AAN epilepsy quality measures. *Neurology* 2011;76:94-99.

Wicks P, Massagli M, Frost J, et al. Sharing health data for better outcomes on PatientsLikeMe. *J Med Internet Res* 2010;12:e19.

Gumnit R. We are Failing Our Patients: Guidelines and Quality Measures Epilepsia Accessed 09/24/12.
<http://www.mincep.com/pdfs/publications/Epilepsia%20Editorial%20We%20Are%20Failing%20Our%20Patients.pdf>

Pugh MJ, Berlowitz DR, Rao JK Et al. The quality of care for adults with epilepsy: an initial glimpse using the QUIET measure *BMC Health Services Research* 2011, 11:1 <http://www.biomedcentral.com/1472-6963/11/1>

1b.4 Summary of Data on Disparities by Population Group: [For Maintenance – Descriptive statistics for performance results for this measure by population group]

Race and ethnicity A study in the Harlem neighborhood of New York City found epilepsy prevalence to be higher in Hispanics than in non-Hispanics and a higher prevalence of active epilepsy³ in whites than in blacks, although the prevalence of lifetime epilepsy⁴ was higher in blacks compared to whites (Kelvin et al., 2007). In this community, there were racial and ethnic disparities in care; blacks were more likely to receive care in the emergency department compared to whites and Hispanics. Similarly, Hope and colleagues (2009) found that blacks and Hispanics were more likely than whites to be diagnosed in an emergency department, and blacks were more likely to receive a suboptimal seizure medication. Differences in care for prevalent epilepsy were also observed in residents of Alabama and surrounding

states, where blacks were 60 percent less likely than non-Hispanic whites to undergo epilepsy surgery after receiving electroencephalograph (EEG) monitoring as part of a surgical evaluation, an association that persisted after controlling for factors such as SES and medical insurance coverage (Burneo et al., 2005). The degree to which differences in epilepsy incidence and prevalence in different racial and ethnic groups reflect differences in socioeconomic status is unknown. Also unknown is the degree to which the treatment gap contributes to the higher epilepsy prevalence in some subgroups.

Wick P, Fountain N. Patient reported clinician adherence to Epilepsy Performance Measures of Quality of Care. (Before the publication of the Quality Measures) Poster. Epilepsy Meeting Dec 2010.
There are some patient reported differences in physician adherence to the quality measures by the type of clinician. N=221 overall.

- 1a. Seizure type 100% adherence (epileptologist); 85% adherence (neurologist); 87% adherence (PCP); 88% adherence (Other clinician); p-value 0.197
- 1b. Seizure frequency: 91% adherence (epileptologist); 94% adherence (neurologist); 60 % adherence (PCP); 25% adherence (Other clinician); p-value <.001

1b.5 Citations for Data on Disparities Cited in 1b.4: [*For Maintenance – Description of the data or sample for measure results reported in 1b.4 including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*]

Institute of Medicine Report "Epilepsy Across the Spectrum: Promoting Health and Understanding"
<http://www.iom.edu/Reports/2012/Epilepsy-Across-the-Spectrum.aspx>

Wick P, Fountain N. Patient reported clinician adherence to Epilepsy Performance Measures of Quality of Care. (Before the publication of the Quality Measures) Poster. Epilepsy Meeting Dec 2010.

1c. Evidence (*Measure focus is a health outcome OR meets the criteria for quantity, quality, consistency of the body of evidence.*)

Is the measure focus a health outcome? Yes ☐ No ☐ **If not a health outcome, rate the body of evidence.**

Quantity: H ☐ M ☐ L ☐ I ☐ **Quality:** H ☐ M ☐ L ☐ I ☐ **Consistency:** H ☐ M ☐ L ☐ I ☐

Quantity	Quality	Consistency	Does the measure pass subcriterion 1c?
M-H	M-H	M-H	Yes <input type="radio"/>
L	M-H	M	Yes <input type="radio"/> IF additional research unlikely to change conclusion that benefits to patients outweigh harms: otherwise No <input type="radio"/>
M-H	L	M-H	Yes <input type="radio"/> IF potential benefits to patients clearly outweigh potential harms: otherwise No <input type="radio"/>
L-M-H	L-M-H	L	No <input type="radio"/>
Health outcome – rationale supports relationship to at least one healthcare structure, process, intervention, or service			Does the measure pass subcriterion 1c? Yes <input type="radio"/> IF rationale supports relationship

1c.1 Structure-Process-Outcome Relationship (*Briefly state the measure focus, e.g., health outcome, intermediate clinical outcome, process, structure; then identify the appropriate links, e.g., structure-process-health outcome; process-health outcome; intermediate clinical outcome-health outcome*):

Process-health outcomes

By documenting the seizure frequency(ies) and seizure type(s) the clinician is better able to know which treatments to offer the patient. This is the most important desired outcome of this measure. It is very important that the clinician knows the patient's seizure type(s) and frequency(ies) so that the clinician can appropriately treat the patient and know which tests or procedures may or may not need to be ordered

(which can reduce overuse of unnecessary tests, in some cases). This will lead to better patient management, improved seizure management, and better patient outcomes (eg quality of life because of managed symptoms, ability to work/function, etc.)

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.

The American Academy of Neurology has preliminary data from the implementation of these measures into the Maintenance of Certification Performance in Practice (NeuroPI) Epilepsy Module. There have been 291 physicians to date who have enrolled in Epilepsy module. However, the extrapolation of data from this module is not yet appropriate as the sample size is believed to be too small to be able to provide generalizable data. However, by the time this measure comes back to the NQF for the end of the Temporary Endorsement period (estimated by 1/2014) there will be additional data available to support the link of this measure to the desired patient outcomes. In addition, we will have some data back from the CECity registry database, which just went live in August 2012, by 1/2014 to add additional support to this measure.

1c.2-3 Type of Evidence (Check all that apply):

Clinical Practice Guideline, Other
Quality Indicator paper

1c.4 Directness of Evidence to the Specified Measure (State the central topic, population, and outcomes addressed in the body of evidence and identify any differences from the measure focus and measure target population):

The evidence is directly related to this measure. Central Topic: epilepsy Population: individuals diagnosed with epilepsy Outcomes addressed: identification of seizure type(s), number of seizures since last visit, epilepsy syndrome, and seizure details. No identified differences between the measure focus and measure target population.

1c.5 Quantity of Studies in the Body of Evidence (Total number of studies, not articles): There are two guideline recommendation statements and two quality indicators that support the development of this measure.

1c.6 Quality of Body of Evidence (Summarize the certainty or confidence in the estimates of benefits and harms to patients across studies in the body of evidence resulting from study factors. Please address: a) study design/flaws; b) directness/indirectness of the evidence to this measure (e.g., interventions, comparisons, outcomes assessed, population included in the evidence); and c) imprecision/wide confidence intervals due to few patients or events): The guideline/indicator authors did not provide an explicit process or documentation of a process like GRADE whereby precision, directness, etc were detailed in a systematic review to demonstrate the quality of the body of evidence for this measure. The available information from the guideline/indicator paper is provided below.

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)22

Evidence statements

A diagnosis of epilepsy can be made in the majority of cases on the basis of information obtained from individual and witness histories and examination of the individual. (III)

A number of clinical features may occur in different types of attack disorder, so diagnosis should be based on a combination of different symptoms and not on the presence or absence of single features. No single symptom is diagnostic of epilepsy. (IIb)

A clinical examination that includes a neurological examination is essential, since an abnormal examination after a first seizure predicts recurrence. (III)

Details

Methodological issues

In an evidence-based review of diagnosis one would be looking for articles that 'test' a clinical diagnosis of epilepsy (e.g. set of particular symptoms) against a validated test for epilepsy ('gold' standard). One would hope to determine the sensitivity (proportion of people with epilepsy who have a set of particular symptoms or signs) and specificity (proportion of people who do not have epilepsy who do not have a set of particular symptoms or signs) of the 'test'. These two measures would then be combined into an overall measure of the efficacy of a diagnostic test called the likelihood ratio – the likelihood that a given combination of symptoms would be expected in an individual with epilepsy compared with the likelihood that the same result would be expected in someone without epilepsy.^{36;37} Unfortunately it is difficult to prepare an evidence-based review on the clinical diagnosis of epilepsy for reasons discussed below.

Secondary evidence

AHRQ 200138

One systematic review that considered how the diagnosis of epilepsy should be made in adults and children was identified. The authors noted that it was difficult to prepare an evidence-based review of the predictive value of symptoms and signs in individuals with epilepsy for the following reasons:

1. 'Gold standard' for diagnosis was loosely construed and included both a clinical component and an EEG component.
2. The clinical requirements for diagnosis were highly variable and included such signs and symptoms as tonic/clonic movements, with or without post-ictal confusion, tongue biting, sphincter disturbance, aura, and loss of consciousness. Some studies required the events to be unprovoked; others did not. Some studies required the events be witnessed; others did not.
3. The seizure type was usually diagnosed by clinical features and the epilepsy syndrome, by seizure type and EEG findings.
4. Only a minority of studies referred to established classification schemas, for example, the International League Against Epilepsy (ILAE).

The authors made the following evidence statements from their review of the evidence:

'The literature supports the diagnostic role of a complete history, especially in diagnosing JME (juvenile myoclonic epilepsy), to elucidate an adequate description of the seizures to permit categorizing by seizure type, since a history suggestive of a focal seizure predicts recurrence. A clinical examination that includes a careful neurologic examination is essential, since an abnormal examination after a first seizure also predicts recurrence.'³⁸

This systematic review provided an evidence summary of relevant primary papers. Six papers were identified as helping answer the question as to the role of history and physical examination.

-Berg and colleagues^{39;40} reported that 609 of 613 children were assigned a syndromic diagnosis on the basis of clinical features.

-Arts, Geerts, Brouwer, and colleagues⁴¹ reporting on 466 children suggested the history alone yielded a 29 percent sensitivity and 89 percent specificity.

-Hoefnagels, Padblerg, Overweg, and colleagues⁴² noted that it was impossible to find a gold standard for the diagnosis of epilepsy and therefore developed their own to distinguish epilepsy from syncope.

Sensitivity and specificity of several components of a history were computed, e.g., particular symptoms before, during, and after the paroxysmal event. Those before the event had the highest sensitivity (88% to 98%), and those during the event, the highest specificity (64% to 94%).

- Camfield, Camfield, Dooley and colleagues⁴³ reported that in a retrospective analysis of 168 children seen after their first seizure, an abnormal neurologic examination (in 30 children) was predictive of recurrence, as was seizure type (partial seizure associated with increased risk). Neither the sleep-wake status at the first seizure nor a history of febrile seizures predicted recurrence. In three additional retrospective studies, the utility of various interventions in diagnosis and/or prediction of recurrence was reported.

-Ambrosetto, Giovanardi, and Tassinari⁴⁴ reported on history (and EEG findings) in 72 individuals and concluded that only generalized seizures as the sole ictal phenomenon, and a long interval between the first and second seizures, were predictive of seizure frequency subsequently.

Other primary papers

Sheldon 2002⁽⁴⁵⁾

Since the AHRQ review³⁸, an additional study prospectively sought evidence-based criteria that distinguished between seizures and syncope in a population of adults (n=671) who were referred to three academic centres in Canada and the UK (Wales) for assessment of transient loss of consciousness.⁴⁵ In this study the causes of loss of consciousness were known satisfactorily in 539 adults and included seizures (19%, 102/539, of these focal epilepsy 49% and generalized epilepsy 51%) and syncope (81%, 437/539; of these tilt-positive vasovagal syncope 67% and cardiac causes of syncope 33%).

The point score based on symptoms alone correctly classified 94% of individuals, diagnosing seizures with 94% sensitivity and 94% specificity.³²

The seizure type(s) and epilepsy syndrome should be identified. (Level C) SIGN (April 2003) 23

This guideline did not provide specific data about which studies were used to support the development of the recommendation statement. Information provided included:

Evidence statements
A diagnosis of epilepsy can be made in the majority of cases on the basis of information obtained from individual and witness histories and examination of the individual. (III)

A number of clinical features may occur in different types of attack disorder, so diagnosis should be based on a combination of different symptoms and not on the presence or absence of single features. No single symptom is diagnostic of epilepsy. (IIb)

A clinical examination that includes a neurological examination is essential, since an abnormal examination after a first seizure predicts recurrence. (III)

Details

Methodological issues

In an evidence-based review of diagnosis one would be looking for articles that 'test' a clinical diagnosis of epilepsy (e.g. set of particular symptoms) against a validated test for epilepsy ('gold' standard). One would hope to determine the sensitivity (proportion of people with epilepsy who have a set of particular symptoms or signs) and specificity (proportion of people who do not have epilepsy who do not have a set of particular symptoms or signs) of the 'test'. These two measures would then be combined into an overall measure of the efficacy of a diagnostic test called the likelihood ratio – the likelihood that a given combination of symptoms would be expected in an individual with epilepsy compared with the likelihood that the same result would be expected in someone without epilepsy.^{36;37} Unfortunately it is difficult to prepare an evidence-based review on the clinical diagnosis of epilepsy for reasons discussed below.

Secondary evidence

AHRQ 2001³⁸

One systematic review that considered how the diagnosis of epilepsy should be made in adults and children was identified. The authors noted that it was difficult to prepare an evidence-based review of the predictive value of symptoms and signs in individuals with epilepsy for the following reasons:

1. 'Gold standard' for diagnosis was loosely construed and included both a clinical component and an EEG component.

2. The clinical requirements for diagnosis were highly variable and included such signs and symptoms as tonic/clonic movements, with or without post-ictal confusion, tongue biting, sphincter disturbance, aura, and loss of consciousness. Some studies required the events to be unprovoked; others did not. Some studies required the events be witnessed; others did not.
3. The seizure type was usually diagnosed by clinical features and the epilepsy syndrome, by seizure type and EEG findings.
4. Only a minority of studies referred to established classification schemas, for example, the International League Against Epilepsy (ILAE).

The authors made the following evidence statements from their review of the evidence:

'The literature supports the diagnostic role of a complete history, especially in diagnosing JME (juvenile myoclonic epilepsy), to elucidate an adequate description of the seizures to permit categorizing by seizure type, since a history suggestive of a focal seizure predicts recurrence. A clinical examination that includes a careful neurologic examination is essential, since an abnormal examination after a first seizure also predicts recurrence.'

This systematic review provided an evidence summary of relevant primary papers. Six papers were identified as helping answer the question as to the role of history and physical examination.

-Berg and colleagues^{39;40} reported that 609 of 613 children were assigned a syndromic diagnosis on the basis of clinical features.

-Arts, Geerts, Brouwer, and colleagues⁴¹ reporting on 466 children suggested the history alone yielded a 29 percent sensitivity and 89 percent specificity.

-Hoefnagels, Padblerg, Overweg, and colleagues⁴² noted that it was impossible to find a gold standard for the diagnosis of epilepsy and therefore developed their own to distinguish epilepsy from syncope.

Sensitivity and specificity of several components of a history were computed, e.g., particular symptoms before, during, and after the paroxysmal event. Those before the event had the highest sensitivity (88% to 98%), and those during the event, the highest specificity (64% to 94%).

- Camfield, Camfield, Dooley and colleagues⁴³ reported that in a retrospective analysis of 168 children seen after their first seizure, an abnormal neurologic examination (in 30 children) was predictive of recurrence, as was seizure type (partial seizure associated with increased risk). Neither the sleep-wake status at the first seizure nor a history of febrile seizures predicted recurrence. In three additional retrospective studies, the utility of various interventions in diagnosis and/or prediction of recurrence was reported.

-Ambrosetto, Giovanardi, and Tassinari⁴⁴ reported on history (and EEG findings) in 72 individuals and concluded that only generalized seizures as the sole ictal phenomenon, and a long interval between the first and second seizures, were predictive of seizure frequency subsequently.

Other primary papers

Sheldon 2002⁽⁴⁵⁾

Since the AHRQ review³⁸, an additional study prospectively sought evidence-based criteria that distinguished between seizures and syncope in a population of adults (n=671) who were referred to three academic centres in Canada and the UK (Wales) for assessment of transient loss of consciousness.⁴⁵ In this study the causes of loss of consciousness were known satisfactorily in 539 adults and included seizures (19%, 102/539, of these focal epilepsy 49% and generalized epilepsy 51%) and syncope (81%, 437/539; of these tilt-positive vasovagal syncope 67% and cardiac causes of syncope 33%).

The point score based on symptoms alone correctly classified 94% of individuals, diagnosing seizures with 94% sensitivity and 94% specificity.³²

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)¹⁷

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)¹⁷
PUGH Pugh MJ, Berlowitz DR, Montouris G, et al. What constitutes high quality of care for adults with epilepsy? *Neurology*. 2007 20;69(21):2020-7.

This is not a guideline. It is a quality indicator panel that developed the measures using an evidence and consensus based process. There is not a lot of data available on the methodology or specific studies used to support the development of the indicators. However, their conclusions and recommendations concur with our existing guideline recommendation statements.

"We developed explicit quality indicators using the modified Delphi process (RAND Appropriateness Method) that has been successfully employed in the development of quality indicators for over 30 different preventive health, acute, or chronic diseases.^{3,18,19} This method incorporated a systematic review of the literature and guidelines to assure that selected process of care criteria are linked to relevant patient outcomes in clinical trials or expert clinical opinion (best practices)¹⁶ and an expert rating panel. The figure outlines this process.

3. McGlynn EA, Asch SM, Adams J, et al. The quality of health care delivered to adults in the United States. *N Engl J Med* 2003;348:2635–2645.

18. McGlynn EA, Kerr EA, Asch SM. New approach to assessing clinical quality of care for women: the QA Tool system. *Womens Health Iss* 1999;9:184–192.

19. Shekelle PG, MacLean CH, Morton SC, Wenger NS. Acove quality indicators. *Ann Intern Med* 2001;135: 653–667.

1c.7 Consistency of Results across Studies (*Summarize the consistency of the magnitude and direction of the effect*): The results of the studies were consistent that it is important to know seizure type and frequency in order to be able to treat the patient appropriately.

1c.8 Net Benefit (*Provide estimates of effect for benefit/outcome; identify harms addressed and estimates of effect; and net benefit - benefit over harms*):

There were no harms identified in any of studies.

1c.9 Grading of Strength/Quality of the Body of Evidence. Has the body of evidence been graded? **Yes**

1c.10 If body of evidence graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: NICE guideline development work group

SIGN guideline development work group

Pugh indicator development work group

Disclosures can be found in the guideline/indicator paper.

1c.11 System Used for Grading the Body of Evidence: Other

1c.12 If other, identify and describe the grading scale with definitions: NICE National Collaborating Centre for Primary Care. The diagnosis and management of the epilepsies in adults and children in primary and secondary care. London (UK): Royal College of General Practitioners; 2004 Oct.

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 stud 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

SIGN (1): SIGN 70: Diagnosis and Management of Epilepsy in Adults. A National Clinical Guideline. Edinburgh (Scotland) 2003 April p.49. Under revision as of June 2008.

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 rated 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

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

Pugh MJ, Berlowitz DR, Montouris G, Bokhour B, Cramer JA, Bohm V, Bollinger M, Helmers S, Ettinger A, Meador KJ, Fountain N, Boggs J, Tatum WO 4th, Knoefel J, Harden C, Mattson RH, Kazis L. What constitutes high quality of care for adults with epilepsy? Neurology. 2007 Nov 20;69(21):2020-7.

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

1c.13 Grade Assigned to the Body of Evidence: see recommendation/indicator statement 1c.15 and 1c.16

1c.14 Summary of Controversy/Contradictory Evidence: Not applicable.

1c.15 Citations for Evidence other than Guidelines(Guidelines addressed below):

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)

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)

PUGH Pugh MJ, Berlowitz DR, Montouris G, et al. What constitutes high quality of care for adults with epilepsy? Neurology. 2007 Nov 20;69(21):2020-7.

"We developed explicit quality indicators using the modified Delphi process (RAND Appropriateness Method) that has been successfully employed in the development of quality indicators for over 30 different preventive health, acute, or chronic diseases.^{3,18,19} This method incorporated a systematic review of the literature and guidelines to assure that selected process of care criteria are linked to relevant patient outcomes in clinical trials or expert clinical opinion (best practices)¹⁶ and an expert rating panel. The figure outlines this process.

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19. Shekelle PG, MacLean CH, Morton SC, Wenger NS. Acove quality indicators. Ann Intern Med 2001;135: 653–667.

1c.16 Quote verbatim, the specific guideline recommendation (Including guideline # and/or page #):

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)

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

1c.17 Clinical Practice Guideline Citation: NICE National Collaborating Centre for Primary Care. The diagnosis and management of the epilepsies in adults and children in primary and secondary care. (Uses information from Reference 20 and 21) London (UK): Royal College of General Practitioners; 2004 Oct.

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

1c.18 National Guideline Clearinghouse or other URL:

<http://guideline.gov/content.aspx?id=5694&search=epilepsy>

<http://guideline.gov/content.aspx?id=5963&search=epilepsy>

<http://www.ncbi.nlm.nih.gov/pubmed/17928576?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubm>

See Guidance for Definitions of Rating Scale: H=High; M=Moderate; L=Low; I=Insufficient; NA=Not Applicable

Created on: 10/27/2015 at 06:43 AM

[ed_ResultsPanel.Pubmed_RVDocSum](#)

1c.19 Grading of Strength of Guideline Recommendation. Has the recommendation been graded? [Yes](#)

1c.20 If guideline recommendation graded, identify the entity that graded the evidence including balance of representation and any disclosures regarding bias: [See 1c.15 or 1c.16](#)

1c.21 System Used for Grading the Strength of Guideline Recommendation: [Other](#)

1c.22 If other, identify and describe the grading scale with definitions: [NICE National Collaborating Centre for Primary Care. The diagnosis and management of the epilepsies in adults and children in primary and secondary care. London \(UK\): Royal College of General Practitioners; 2004 Oct.](#)

[Rating Scheme for Strength of the Evidence](#)

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[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](#)

[Recommendation taken from NICE guideline or technology appraisal guidance](#)

[SIGN \(1\): SIGN 70: Diagnosis and Management of Epilepsy in Adults. A National Clinical Guideline. Edinburgh \(Scotland\) 2003 April p.49. Under revision as of June 2008.](#)

[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
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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

1c.23. Grade assigned to the recommendation

See individual guideline/indicator citations in 1c.17

1c.24. Rationale for Using This Guideline Over Others

These recommendaiton statements and guidelines were chosen because of the high impact on care and gap in care for women with epilepsy. These guidelines and indicator papers were chosen over others because of their applicability to meet the gap in care and improve the quality of care of women with epilepsy of childbearing potential.

1c.23 Grade Assigned to the Recommendation: see 1c.15 or 1c.16

1c.24 Rationale for Using this Guideline Over Others: Supports the basis for the measure and demonstrates the gap in current care provided.

Based on the NQF descriptions for rating the evidence, what was the developer's assessment of the quantity, quality, and consistency of the body of evidence?

1c.25 Quantity: **Moderate** 1c.26 Quality: **Moderate** 1c.27 Consistency: **High**

1c.28 Attach evidence submission form:

1c.29 Attach appendix for supplemental materials:

Was the threshold criterion, *Importance to Measure and Report*, met?

(1a & 1b must be rated moderate or high and 1c yes) Yes ☐ No ☒

Provide rationale based on specific subcriteria:

For a new measure if the Committee votes NO, then STOP.

For a measure undergoing endorsement maintenance, if the Committee votes NO because of 1b. (no opportunity for improvement), it may be considered for continued endorsement and all criteria need to be evaluated.

2. RELIABILITY & VALIDITY - SCIENTIFIC ACCEPTABILITY OF MEASURE PROPERTIES

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **(evaluation criteria)**
 Measure testing must demonstrate adequate reliability and validity in order to be recommended for endorsement. Testing may be conducted for data elements and/or the computed measure score. Testing information and results should be entered in the appropriate field. Supplemental materials may be referenced or attached in item 2.1. See [guidance on measure testing](#).

S.1 Measure Web Page (*In the future, NQF will require measure stewards to provide a URL link to a web page where current detailed specifications can be obtained*). Do you have a web page where current detailed specifications for this measure can be obtained? **Yes**

S.2 If yes, provide web page URL: www.aan.com/go/practice/measurements

2a. RELIABILITY. Precise Specifications and Reliability Testing: H● M● L● I●

2a1. Precise Measure Specifications. (*The measure specifications precise and unambiguous.*)

2a1.1 Numerator Statement (*Brief, narrative description of the measure focus or what is being measured about the target population, e.g., cases from the target population with the target process, condition, event, or outcome*):

[Patient visits with seizure type\(s\) specified and current seizure frequency for each seizure type documented in the medical record.](#)

2a1.2 Numerator Time Window (*The time period in which the target process, condition, event, or outcome is eligible for inclusion*):

[All visits for patients with a diagnosis of epilepsy.](#)

2a1.3 Numerator Details (*All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, codes with descriptors, and/or specific data collection items/responses*):

[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.](#)

2a1.4 Denominator Statement (*Brief, narrative description of the target population being measured*):
[All visits for patients with a diagnosis of epilepsy.](#)

2a1.5 Target Population Category (*Check all the populations for which the measure is specified and tested if any*): [Senior Care](#)

2a1.6 Denominator Time Window (*The time period in which cases are eligible for inclusion*):
[Reporting period \(typically 1 year\)](#)

2a1.7 Denominator Details (*All information required to identify and calculate the target population/denominator such as definitions, codes with descriptors, and/or specific data collection items/responses*):

[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](#)

2a1.8 Denominator Exclusions *(Brief narrative description of exclusions from the target population):*
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)

2a1.9 Denominator Exclusion Details *(All information required to identify and calculate exclusions from the denominator such as definitions, codes with descriptors, and/or specific data collection items/responses):*
Append modifier to CPT Category II code: Medical Reason 1200F-1P. Patient Reason 1200F-2P.

2a1.10 Stratification Details/Variables *(All information required to stratify the measure results including the stratification variables, codes with descriptors, definitions, and/or specific data collection items/responses):*

2a1.11 Risk Adjustment Type *(Select type. Provide specifications for risk stratification in 2a1.10 and for statistical model in 2a1.13):* **2a1.12 If "Other," please describe:**

2a1.13 Statistical Risk Model and Variables *(Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development should be addressed in 2b4.):*

2a1.14-16 Detailed Risk Model Available at Web page URL (or attachment). Include coefficients, equations, codes with descriptors, definitions, and/or specific data collection items/responses. Attach documents only if they are not available on a webpage and keep attached file to 5 MB or less. NQF strongly prefers you make documents available at a Web page URL. Please supply login/password if needed:

2a1.17-18. Type of Score:

2a1.19 Interpretation of Score *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score):*

2a1.20 Calculation Algorithm/Measure Logic *(Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.):*

2a1.21-23 Calculation Algorithm/Measure Logic Diagram URL or attachment:

2a1.24 Sampling (Survey) Methodology. If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate):

2a1.25 Data Source *(Check all the sources for which the measure is specified and tested).* If other, please describe:

Administrative claims, Electronic Clinical Data : Electronic Health Record

2a1.26 Data Source/Data Collection Instrument (*Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.*): [AAN NeuroPI-NeuroPI clinical modules](#) are designed to help neurologists meet the American Board of Psychiatry and Neurology (ABPN) Part 4 performance in practice requirement for Maintenance of Certification (MOC). There is a epilepsy module that includes this quality measure.

[CECity PQRI Wizard](#)

[Physician Quality Reporting System \(2012\) program measure](#)

[Patients Like Me: patient reported outcomes website](#) where patients report whether or not their clinician successfully completed the measure

2a1.27-29 Data Source/data Collection Instrument Reference Web Page URL or Attachment: [URL www.aan.com http://www.aan.com/globals/axon/assets/9079.pdf www.physicianconsortium.org](#)

2a1.30-32 Data Dictionary/Code Table Web Page URL or Attachment:

2a1.33 Level of Analysis (*Check the levels of analysis for which the measure is specified and tested*):
[Clinician : Individual](#)

2a1.34-35 Care Setting (*Check all the settings for which the measure is specified and tested*): [Ambulatory Care : Clinician Office/Clinic, Post Acute/Long Term Care Facility : Inpatient Rehabilitation Facility, Post Acute/Long Term Care Facility : Long Term Acute Care Hospital, Post Acute/Long Term Care Facility : Nursing Home/Skilled Nursing Facility](#)

2a2. Reliability Testing. (*Reliability testing was conducted with appropriate method, scope, and adequate demonstration of reliability.*)

2a2.1 Data/Sample (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

2a2.2 Analytic Method (*Describe method of reliability testing & rationale*):

2a2.3 Testing Results (*Reliability statistics, assessment of adequacy in the context of norms for the test conducted*):

2b. VALIDITY. Validity, Testing, including all Threats to Validity: H● M● L● I ●

2b1.1 Describe how the measure specifications (*measure focus, target population, and exclusions*) **are consistent with the evidence cited in support of the measure focus (criterion 1c) and identify any differences from the evidence:**

2b2. Validity Testing. (*Validity testing was conducted with appropriate method, scope, and adequate demonstration of validity.*)

2b2.1 Data/Sample (*Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included*):

2b2.2 Analytic Method *(Describe method of validity testing and rationale; if face validity, describe systematic assessment):*

2b2.3 Testing Results *(Statistical results, assessment of adequacy in the context of norms for the test conducted; if face validity, describe results of systematic assessment):*

POTENTIAL THREATS TO VALIDITY. *(All potential threats to validity were appropriately tested with adequate results.)*

2b3. Measure Exclusions. *(Exclusions were supported by the clinical evidence in 1c or appropriately tested with results demonstrating the need to specify them.)*

2b3.1 Data/Sample for analysis of exclusions *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):*

2b3.2 Analytic Method *(Describe type of analysis and rationale for examining exclusions, including exclusion related to patient preference):*

2b3.3 Results *(Provide statistical results for analysis of exclusions, e.g., frequency, variability, sensitivity analyses):*

2b4. Risk Adjustment Strategy. *(For outcome measures, adjustment for differences in case mix (severity) across measured entities was appropriately tested with adequate results.)*

2b4.1 Data/Sample *(Description of the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):*

2b4.2 Analytic Method *(Describe methods and rationale for development and testing of risk model or risk stratification including selection of factors/variables):*

2b4.3 Testing Results *(Statistical risk model: Provide quantitative assessment of relative contribution of model risk factors; risk model performance metrics including cross-validation discrimination and calibration statistics, calibration curve and risk decile plot, and assessment of adequacy in the context of norms for risk models. Risk stratification: Provide quantitative assessment of relationship of risk factors to the outcome and differences in outcomes among the strata):*

2b4.4 If outcome or resource use measure is not risk adjusted, provide rationale and analyses to justify lack of adjustment:

2b5. Identification of Meaningful Differences in Performance. *(The performance measure scores were appropriately analyzed and discriminated meaningful differences in quality.)*

2b5.1 Data/Sample *(Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):*

2b5.2 Analytic Method (Describe methods and rationale to identify statistically significant and practically/meaningfully differences in performance):

2b5.3 Results (Provide measure performance results/scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningful differences in performance):

2b6. Comparability of Multiple Data Sources/Methods. (If specified for more than one data source, the various approaches result in comparable scores.)

2b6.1 Data/Sample (Describe the data or sample including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included):

2b6.2 Analytic Method (Describe methods and rationale for testing comparability of scores produced by the different data sources specified in the measure):

2b6.3 Testing Results (Provide statistical results, e.g., correlation statistics, comparison of rankings; assessment of adequacy in the context of norms for the test conducted):

2c. Disparities in Care: ☐ H ☐ M ☐ L ☐ I ☐ NA ☐ (If applicable, the measure specifications allow identification of disparities.)

2c.1 If measure is stratified for disparities, provide stratified results (Scores by stratified categories/cohorts):

2c.2 If disparities have been reported/identified (e.g., in 1b), but measure is not specified to detect disparities, please explain:

2.1-2.3 Supplemental Testing Methodology Information:

Steering Committee: Overall, was the criterion, Scientific Acceptability of Measure Properties, met? (Reliability and Validity must be rated moderate or high) Yes ☐ No ☐
Provide rationale based on specific subcriteria:

If the Committee votes No, STOP

3. USABILITY

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (**evaluation criteria**)

C.1 Intended Actual/Planned Use (Check all the planned uses for which the measure is intended):
Payment Program, Professional Certification or Recognition Program, Public Reporting, Quality Improvement (Internal to the specific organization), Regulatory and Accreditation Programs

3.1 Current Use (Check all that apply; for any that are checked, provide the specific program information in the following questions): Public Reporting, Payment Program, Professional Certification or Recognition

Program, Regulatory and Accreditation Programs, Quality Improvement (Internal to the specific organization)

3a. Usefulness for Public Reporting: H● M● L● I●

(The measure is meaningful, understandable and useful for public reporting.)

3a.1. Use in Public Reporting - disclosure of performance results to the public at large *(If used in a public reporting program, provide name of program(s), locations, Web page URL(s)). If not publicly reported in a national or community program, state the reason AND plans to achieve public reporting, potential reporting programs or commitments, and timeline, e.g., within 3 years of endorsement: [For Maintenance – If not publicly reported, describe progress made toward achieving disclosure of performance results to the public at large and expected date for public reporting; provide rationale why continued endorsement should be considered.]*

All of three epilepsy measures are currently in use in the 2012 Physician Quality Reporting System program. They have also been implemented in the CE City Registry, a CMS qualified registry for PQRS, so that physicians can complete the registry and individual claims based measures. In addition, these measures were used as the basis for the American Academy of Neurology's Maintenance of Certification Performance in Practice (NeuroPI) Epilepsy Module. Moreover, we know that www.patientslikeme.com has added these measures to their patient portal, which is a resource patients use to understand their own healthcare. These measures were also supported by the National Association of Epilepsy Centers and the Epilepsy Foundation of America. Although we do not have specific data to identify which physicians are using these measures, we do know that many of their members have told the AAN that they are aware of these measures and are using them in their practices.

3a.2. Provide a rationale for why the measure performance results are meaningful, understandable, and useful for public reporting. *If usefulness was demonstrated (e.g., focus group, cognitive testing), describe the data, method, and results:* CMS has no yet reported back any data from PQRS 2012 program.

3.2 Use for other Accountability Functions (payment, certification, accreditation). *If used in a public accountability program, provide name of program(s), locations, Web page URL(s):* PQRS

3b. Usefulness for Quality Improvement: H● M● L● I●

(The measure is meaningful, understandable and useful for quality improvement.)

3b.1. Use in QI. *If used in quality improvement program, provide name of program(s), locations, Web page URL(s):*

[For Maintenance – If not used for QI, indicate the reasons and describe progress toward using performance results for improvement].

NeuroPI: 265 individuals have enrolled in the epilepsy module which uses this quality measure as part of the module measurement list.

CECity PQRS Wizard

Patients Like Me website

Physician Quality Reporting System <http://www.patientslikeme.com/conditions/3-epilepsy>. Patients report how often their physician successfully completes each epilepsy in the epilepsy measurement set developed by the AAN, including this measure.

3b.2. Provide rationale for why the measure performance results are meaningful, understandable, and useful for quality improvement. *If usefulness was demonstrated (e.g., QI initiative), describe the data, method and results:*

We have not yet received the data from the QI programs in 3b.1

Overall, to what extent was the criterion, Usability, met? H● M● L● I●

Provide rationale based on specific subcriteria:

4. FEASIBILITY

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. **(evaluation criteria)**

4a. Data Generated as a Byproduct of Care Processes: H ☐ M ☒ L ☐ I ☐

4a.1-2 How are the data elements needed to compute measure scores generated? (Check all that apply).

Data used in the measure are:

generated by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition

4b. Electronic Sources: H ☐ M ☒ L ☐ I ☐

4b.1 Are the data elements needed for the measure as specified available electronically (Elements that are needed to compute measure scores are in defined, computer-readable fields): No data elements are in electronic sources

4b.2 If ALL data elements are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources: Currently this measure has been specified for administrative claims (with CPT II codes). The AAN has contracted with two separate consultants to learn the process to develop eSpecifications, code value sets and develop eMeasures. The training was complete as of 9/25/12 and the measures will be full specified for eMeasures by December 2012.

4c. Susceptibility to Inaccuracies, Errors, or Unintended Consequences: H ☐ M ☒ L ☐ I ☐

4c.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measurement identified during testing and/or operational use and strategies to prevent, minimize, or detect. If audited, provide results:

Testing has not begun yet but will be completed by January 2014. Strategies to prevent, minimize or detect unintended consequences will be identified during testing in 2013. Operational use of this measure has not identified any inaccuracies, errors or unintended consequences of measurement.

4d. Data Collection Strategy/Implementation: H ☐ M ☒ L ☐ I ☐

A.2 Please check if either of the following apply (regarding proprietary measures):

4d.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues (e.g., fees for use of proprietary measures):

Testing has not begun yet but will be completed by January 2014. Operational use of this measure helped identify the need for a registry to simplify usage of measures (available via the CECity registry as of 8/2012). No other problems or issues have been identified.

Overall, to what extent was the criterion, Feasibility, met? H ☐ M ☒ L ☐ I ☐
Provide rationale based on specific subcriteria:

OVERALL SUITABILITY FOR ENDORSEMENT

Does the measure meet all the NQF criteria for endorsement? Yes ☐ No ☒
Rationale:

If the Committee votes No, STOP.

If the Committee votes Yes, the final recommendation is contingent on comparison to related and

competing measures.

5. COMPARISON TO RELATED AND COMPETING MEASURES

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure before a final recommendation is made.

5.1 If there are related measures (*either same measure focus or target population*) or competing measures (*both the same measure focus and same target population*), list the NQF # and title of all related and/or competing measures:

5a. Harmonization

5a.1 If this measure has EITHER the same measure focus OR the same target population as [NQF-endorsed measure\(s\)](#): Are the measure specifications completely harmonized?

5a.2 If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden:

5b. Competing Measure(s)

5b.1 If this measure has both the same measure focus and the same target population as NQF-endorsed measure(s):

Describe why this measure is superior to competing measures (*e.g., a more valid or efficient way to measure quality*); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible):

CONTACT INFORMATION

Co.1 Measure Steward (Intellectual Property Owner): [American Academy of Neurology, 201 Chicago Avenue, Minneapolis, Minnesota, 55415](#)

Co.2 Point of Contact: [Amy, Bennett, abennett@aan.com, 612-928-6072-](#)

Co.3 Measure Developer if different from Measure Steward: [American Academy of Neurology, 201 Chicago Avenue, Minneapolis, Minnesota, 55415](#)

Co.4 Point of Contact: [Amy, Bennett, abennett@aan.com, 612-928-6072-](#)

Co.5 Submitter: [Amy, Bennett, abennett@aan.com, 612-928-6072-, American Academy of Neurology](#)

Co.6 Additional organizations that sponsored/participated in measure development:
[See work group members in Ad.1](#)

Co.7 Public Contact: [Rebecca, Swain-Eng, MS, rswaineng@aan.com, 612-928-6121-, American Academy of Neurology](#)

ADDITIONAL INFORMATION

Workgroup/Expert Panel involved in measure development

Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and

See Guidance for Definitions of Rating Scale: H=High; M=Moderate; L=Low; I=Insufficient; NA=Not Applicable
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organizations. Describe the members' role in measure development.

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Ad.2 If adapted, provide title of original measure, NQF # if endorsed, and measure steward. Briefly describe the reasons for adapting the original measure and any work with the original measure steward:

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.3 Year the measure was first released: 2009

Ad.4 Month and Year of most recent revision: 11, 2009

Ad.5 What is your frequency for review/update of this measure? Every 3 years

Ad.6 When is the next scheduled review/update for this measure? 01, 2013

Ad.7 Copyright statement: 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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Ad.8 Disclaimers: THESE MEASURES AND SPECIFICATIONS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND.

Ad.9 Additional Information/Comments: Limited proprietary coding is contained in the measure specifications for convenience. Users of the proprietary coding sets should obtain all necessary licenses from the owners of these code sets. The AAN and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications.

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