An Operational Clinical Definition of Epilepsy

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Running Title: Operational Definition of Epilepsy

Key Words: epilepsy, seizure, definition, unprovoked, recurrence

Numbers: Number of text pages = 18; number of words (including the title, author information, and summary)=5646; number of tables (main=2 and supplementary=0); number of figures (none); proposed size of tables and figures (in terms of number of journal pages) = 1 total or part of 1.
Abstract:

Epilepsy was defined conceptually in 2005 as a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures. This definition is usually practically applied as having two unprovoked seizures more than 24 hours apart. The ILAE commissioned a task force to consider altering the operational definition for special circumstances that do not meet the two unprovoked seizures criteria. The task force proposes that epilepsy be considered to be a disease of the brain defined by any of the following conditions; 1. At least two unprovoked seizures occurring more than 24 hours apart; 2. One unprovoked seizure and a probability of further seizures similar to the general recurrence risk after two unprovoked seizures (approximately 75% or more); 3. At least two seizures in a setting of reflex epilepsy. Epilepsy is considered to be no longer present for individuals who had an age-dependent epilepsy syndrome but are now past the applicable age or those who have remained seizure-free for at least 10 years off anti-seizure medicines, provided that there are no known risk factors associated with a high probability (≥75%) of future seizures. “No longer present” is not necessarily identical to the conventional view of “cure.” Different operational definitions may be formed and used for various specific purposes. This revised definition of epilepsy brings the term in concordance with common use by most epileptologists.

Introduction:

In 2005, a Task Force of the International League Against Epilepsy (ILAE) formulated conceptual definitions of “seizure” and “epilepsy” (Table 1) (Fisher et al., 2005). Conceptual definitions can be translated for specific purposes into operational (practical) definitions.

<table>
<thead>
<tr>
<th>Table 1: Conceptual Definition of Seizure and Epilepsy – 2005 Report</th>
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<tr>
<td><strong>An epileptic seizure</strong> is a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain.</td>
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<tr>
<td><strong>Epilepsy</strong> is a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures, and by the neurobiological, cognitive, psychological, and social consequences of this condition. The definition of epilepsy requires the occurrence of at least one epileptic seizure.</td>
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The ILAE commissioned a Task Force to formulate an operational definition of epilepsy for purposes of clinical diagnosis. This paper summarizes the recommendations of the Task Force, including appended notes and case examples explaining the reasons for these recommendations and occasional dissenting views.

**Operational clinical definition of epilepsy**

Conceptually, epilepsy exists where there is a high risk for recurring unprovoked seizures, although the actual required risk is subject to debate. A commonly used operational definition employed for epidemiological purposes has considered epilepsy to be present after two unprovoked seizures occurring at least 24 hours apart (Hauser et al., 1991). After two unprovoked non-febrile seizures, the chance of having another is 73% (Hauser et al., 1998) at four years (95% CI is 59%-87%), versus 40-52% after a single unprovoked seizure (Berg & Shinnar, 1991).¹

The “two unprovoked seizure” definition of epilepsy has served well, but it is inadequate in some clinical circumstances. A patient might present with a single unprovoked seizure after a remote brain insult, such as a stroke, CNS infection or trauma. A patient with such brain insults has a risk of a second unprovoked seizure that is comparable to the risk for further seizures after two unprovoked seizures (Hesdorffer et al., 2009). Another patient may meet a definition of an epilepsy syndrome with a high risk of seizure recurrence and therefore may be considered by many epileptologists to have epilepsy after a single unprovoked seizure. A third patient might have photosensitive epilepsy, yet not be considered to have epilepsy because the seizures are provoked by lights. In order to bring the operational clinical definition of epilepsy into concordance with how epileptologists think about epilepsy, the ILAE Task Force recommends broadening the definition of epilepsy to include the circumstances enumerated in Table 2. The Task Force also added a time limit to the definition.
Several elements of this definition require clarification.

**Disease:**

Epilepsy has traditionally been referred to as a disorder or a family of disorders, rather than a disease, to imply that it is comprised of many different diseases and conditions. A disorder implies a functional disturbance, not necessarily lasting; whereas, a disease may (but not always) convey a more lasting derangement of normal function. Many heterogeneous health problems, for example cancer or diabetes, are comprised of numerous sub-disorders and are still considered to be diseases. The term “disorder” is poorly understood by the public and minimizes the serious nature of epilepsy. The Task Force thought that epilepsy, as an enduring predisposition to seize, is best considered to be a disease.

**Two unprovoked seizures:**

Epilepsy exists in a patient whose brain, for whatever reason, demonstrates a pathological and enduring tendency to have recurrent seizures. This tendency can be imagined as a pathological lowering of the seizure threshold, when compared to persons without the condition. Table 2, item 1, represents the current commonly employed definition of epilepsy as at least two unprovoked seizures occurring more than 24 hours apart. A seizure that is provoked by a transient factor acting on an otherwise normal brain to temporarily lower the seizure threshold does not count towards a diagnosis of epilepsy. The term "provoked seizure" can be considered as being synonymous with a "reactive seizure" or an "acute symptomatic seizure" (Beghi et al. 2010). A seizure after a concussion, during a febrile seizure, or in

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**Table 2: Operational (Practical) Clinical Definition of Epilepsy**

Epilepsy is a disease of the brain defined by any of the following conditions:

1. At least two unprovoked seizures occurring more than 24 hours apart.

2. One unprovoked seizure and a probability of further seizures similar to the general recurrence risk after two unprovoked seizures (approximately 75% or more).

3. At least two seizures in a setting of reflex epilepsy.

Epilepsy is considered to be no longer present for individuals who had an age-dependent epilepsy syndrome but are now past the applicable age or those who have remained seizure-free for at least 10 years off anti-seizure medicines, provided that there are no known risk factors associated with a high probability (>75%) of future seizures.
association with alcohol-withdrawal each would exemplify a provoked seizure that would not lead to a diagnosis of epilepsy. The term “unprovoked” implies absence of a temporary or reversible factor lowering the threshold and producing a seizure at that point in time. Unprovoked is however an imprecise term because we can never be sure that there was no provocative factor. Conversely, identification of a provocative factor does not necessarily contradict the presence of an enduring epileptogenic abnormality. The concepts of “unprovoked” and “provoked” therefore, do not clearly distinguish epileptic from reactive seizures, they merely inform the likelihood of one diagnosis or the other.

Etiology should not be confused with provocative factors, as some etiologies will produce an enduring tendency to have seizures. A brain tumor, for example, might cause a person to have an epileptic seizure, but this is not a transient insult. As an enduring potentially epileptogenic abnormality a brain tumor implies an increased predisposition to have more seizures and thus would contribute to a diagnosis of epilepsy.

**High recurrence risk**

Table 2, item 2 defines another path for diagnosing epilepsy. Its intent is to encompass circumstances for which many epileptologists now consider epilepsy to be present after a single unprovoked seizure, because of very high recurrence risk. Such examples may include patients with a single seizure occurring at least a month after a stroke (Hesdorffer et al. 2010) or a child with a single seizure and a focal cortical dysplasia (Fauser et al., 2006). Another example is a patient in whom diagnosis of a specific epilepsy syndrome associated with persistent threshold alteration can be made after the occurrence of a single seizure. Recurrence risks are not known for the majority of individual cases. However, if a treating physician determines that the symptomatic lesion has generated an enduring predisposition for unprovoked seizures with a risk comparable to those who have had two unprovoked seizures (which we all agree is epilepsy), then that person too should be considered to have epilepsy. Choosing a specific threshold risk number might be excessively precise, but for general comparison, this risk is about 70-75% after two unprovoked seizures.² It is important to note that a single seizure plus a lesion or a single seizure plus epileptiform EEG spikes does not automatically satisfy criteria for this operational definition of epilepsy. Data must be available to support an approximate 75% risk or more for another lifetime seizure. This operational definition makes no attempt to enumerate the conditions that would increase risk for a second unprovoked seizure above the threshold cited above. Doing so is the task of the physician caring for the patient and also researchers who contribute to the growing literature on epidemiology of epilepsy. When data are insufficient to demonstrate more than a 75% chance for another seizure, then epilepsy is not considered present until there is a second unprovoked seizure.³
This operational definition makes no attempt to enumerate the conditions that would increase risk for a second unprovoked seizure above the threshold cited above. Doing so is the task of the physician caring for the patient and also researchers who contribute to the growing literature on epidemiology of epilepsy. However, the Task Force has appended examples below illustrating the practical application of the revised definition.

Complex febrile seizures (CFSs) are provoked seizures, but they warrant special mention because they are risk factors for future epilepsy. CFSs have at least one of the following characteristics: focality: repeated febrile seizures in 24 hours or during the duration of the febrile illness; and duration commonly defined as longer than 10 minutes. Among children with a CFS, the risk for a subsequent unprovoked seizure is 10% when associated with a duration of at least 10 minutes (Annegers et al., 1987), 14% when associated with status epilepticus (Berg & Shinnar, 1996) and a maximum of 49% when associated with the presence of all three characteristics of CFSs (Annegers et al., 1987). These risks are less than the 75% risk needed to meet the threshold for high risk endorsed by the Task Force; therefore, the condition of having CFSs is not defined as epilepsy, although it may presage epilepsy.

**Implications for treatment:**

Diagnosing epilepsy after a single unprovoked seizure, when there is high risk for recurrence may or may not lead to a decision to initiate treatment. The proposed operational definition may provide support to a physician who wishes to treat a patient with high recurrence risk after a single unprovoked seizure. However, a treatment decision is distinct from a diagnosis, and should be individualized depending upon the desires of the patient, the individual risk-benefit ratio and the available options.

To be clear, the diagnosis of epilepsy and a decision to treat are two related but different issues. Many epileptologists treat for a time after an acute symptomatic seizure (for example, with Herpes encephalitis), with no implication of epilepsy. In contrast, patients with mild seizures, with seizures at very long intervals or those declining therapy might go untreated even when a diagnosis of epilepsy is beyond dispute.

**Reflex epilepsy:**

Table 2, item 3 defines recurrent reflex seizures as epilepsy. Reflex epilepsies are in fact provoked by immediate transient stimuli, such as flashing lights (Harding, 2004), so they are not "unprovoked." However, the tendency to respond to such stimuli with seizures meets the conceptual definition of epilepsy, in that reflex epilepsies are associated with an enduring abnormal predisposition to have such seizures.
Unprovoked seizures separated in time:

The time span between two unprovoked seizures that together qualify as epilepsy is subject to ambiguity. Seizures clustering within 24 hours confer approximately the same risk for later seizures as does a single seizure (Neligan et al., 2012). The Task Force retained the current thinking that unprovoked seizures clustering in a 24 hour period be considered to be a single unprovoked seizure for purposes of predicting recurrence risk.

The definition of epilepsy does not specify an outer time limit for occurrence of the second unprovoked seizure. Epilepsy would be considered present if an unprovoked seizure occurred at age 1 and at age 80, a condition sometimes referred to as oligoepilepsy (Rajna & Solyom, 2011). The Task Force acknowledges that, in such circumstances, the causes of the seizures occurring at the two time points might be different, and if so then epilepsy would not be present. 4

Epilepsy no longer present:

Is epilepsy, once diagnosed, always present? Should a person who has been seizure-free and off medication for decades after absence seizures as a child still be considered to have epilepsy? Likewise, are patients with mesial temporal lobe epilepsy who have been seizure-free off medications for ten years after resection of their hippocampal sclerosis considered to still have epilepsy? Seizure freedom for long intervals of time can result from one of several very different underlying circumstances and treatments. An abnormal tendency to have unprovoked seizures may remain, but the seizures are successfully controlled by therapy. Children can outgrow their epilepsy, as with benign epilepsy with centro-temporal spikes (BECTS). Some persons might have had a definitive treatment, such as brain surgery, rendering them permanently seizure-free.

Medical literature uses the term "remission" to imply an abeyance of a disease and "cure" to imply its disappearance, i.e., a chance of recurrence no greater than for the general population. The definitions Task Force chose to use the simpler phrase "no longer present." 5 When epilepsy is no longer present, it follows that the person no longer has epilepsy, although it does not guarantee that it will not return.

What time interval and circumstance should define "no longer present"? 6 Recurrence risk depends upon the type of epilepsy, age, syndrome, etiology, treatment and many other factors. Juvenile myoclonic epilepsy is known to be subject to lifelong elevated risk for seizures (Geithner et al., 2012). Structural brain lesions, such as malformations of cortical development (Rowland et al., 2012), may elevate risk for seizures long-term. Seizures may recur at variable intervals after remission due to removal of an epileptogenic lesion, such as a cavernous malformation (Kim et al., 2011).
The risk of seizure recurrence after unprovoked seizures diminishes with time, although it may never reach risk levels for normal individuals who have not had a prior seizure. Most relapses are early. After a single unprovoked seizure, 80% (Hart et al., 1990; Neligan et al., 2012) to 90% (Lindsten et al., 2001) of those who had a second did so within two years. In one study (Hauser et al., 1998), after a second unprovoked seizure, subsequent seizures occurred within 4 years, but none in the ensuing 3 years, suggesting that the risk may not be zero but is low. Few data are available on seizure recurrence risk after being seizure-free and off medication for extended periods of time. Delayed relapses do occur, but they are rare after 5 years (Lossius et al., 2008). By 10 years off anti-seizure medicines, the annual risk for seizures probably is very low (Chadwick et al., 1996).

Clinicians will have to individualize a determination of whether epilepsy is no longer present. The Task Force chose to define epilepsy as being no longer present for individuals who had an age-dependent epilepsy syndrome but are now past the applicable age or those who have remained seizure-free for at least 10 years off anti-seizure medicines, provided that there are no known risk factors associated with a high probability (≥75%) of future seizures. Examples of such high-risk conditions include juvenile myoclonic epilepsy and cortical dysplasia. Delineation of circumstances in which epilepsy is definitively cured is beyond the scope of this paper.

Some risk factors, for example certain types of EEG or neuroimaging findings such as dysplasias or tumors, raise consideration of a diagnosis of epilepsy, but do not necessarily raise the risk high enough to justify such a diagnosis under the criteria proposed in Table 2. No formula can be applied for additive risks, since data are lacking on how such risks combine; such cases will have to be decided by individualized considerations. If evidence and physician experience are insufficient to document a high (≥75%) recurrence risk after a first unprovoked seizure, then epilepsy should not be diagnosed until occurrence of a second unprovoked seizure. Hence, the old definition remains the “default” definition.

**Imperfect information:**

From the clinician’s perspective, the new operational definition linking epilepsy to a predefined probability of seizure recurrence brings greater clarity and clinical relevance to the diagnostic process. However, optimal application of this definition often requires specialized diagnostic and interpretative skills - specifically, in assessing recurrence risks, or in diagnosing syndromes - which may not be broadly available in all settings, particularly at the primary care level. Even more important is the inevitable uncertainty in many situations about the potential epileptogenicity of an MRI demonstrated lesion. For instance, one or more brain cysts in an individual with neurocysticercosis, a cavernous hemangioma or a meningioma, may be incidental findings with no epileptogenic potential. Risk does not necessarily mean causation.
In the absence of a seizure documented by video-EEG recording and typical for a person’s recurrent unprovoked seizures, there will be situations where a diagnosis of epilepsy remains uncertain. One approach to these ambiguities would be to define a condition called “probable (or possible) epilepsy.” Such an approach has been adopted with other diseases, such as with the multiple sclerosis McDonald criteria (Polman et al., 2011), the amyotrophic lateral sclerosis El Escorial criteria (Beghi et al., 2002), migraine (Silberstein et al., 2007), vascular dementia (Tang et al., 2004), or sudden unexpected death in epilepsy (Nashef et al., 2012). The ILAE Task Force recognized the subtle, but important, difference between telling a patient that “you have probable epilepsy” versus “you probably have epilepsy.” In the absence of secure information, the latter statement, or another statement simply expressing uncertainty, seemed a more straightforward assertion. Therefore, the Task Force has not defined probable epilepsy as a specific entity, but has left that possibility open for the future.

**Consequences of the operational definitions:**

Definitions have consequences. From the viewpoint of the patient, epilepsy is associated with stigma and psychological, social cognitive and economic repercussions so important as to be built into the conceptual definition of epilepsy (Fisher et al., 2005). The new operational definition could improve outcomes by sensitizing clinicians about the need to give greater consideration to the risk of recurrence after a single unprovoked seizure, and making the clinicians more comfortable in initiating treatment after some unprovoked seizures. This must be individualized, since a diagnosis of epilepsy does not necessarily require prescription of an anti-seizure drug, and treatment might be justified in some patients for whom a definitive diagnosis of epilepsy has not been made. An operational definition allowing earlier diagnosis will be especially useful for prevention of unnecessary risks of physical injuries or social consequences resulting from recurrent seizures in patients deemed to be susceptible to a high risk for recurrence. The revised definition also provides an expanded opportunity for disease modifying interventions that prevent the progression of epilepsy and onset of comorbidities.

How revision of the definition of epilepsy will affect prevalence of epilepsy is unpredictable. Future epidemiological studies may choose to use the older operational definition for consistency. If the revised definition is used, some patients previously considered to have epilepsy will no longer carry an epilepsy diagnosis because of the provisions for epilepsy being “no longer present.” Other individuals who meet the “single seizure with high risk for another” criteria might be added to the epilepsy group.

The correct diagnosis of epilepsy in people who might not have been diagnosed previously may have both negative and positive consequences, particularly in developed countries. For example, economic consequences might include reimbursement by a national health service for medications whose cost otherwise would have to be covered by the affected person. On the other hand, many people with epilepsy have difficulty in obtaining life or medical insurance. Some
cannot purchase a first home without a life insurance policy secured at the time of home purchase. In developing countries, stigma could profoundly affect some people not previously considered to have epilepsy, with serious and misguided consequences such as loss of access to education or marriage bans. Allowing epilepsy to be declared "no longer present" may lift the stigma from some who should no longer be considered to have epilepsy. Positive economic and health consequences will accrue when more accurate diagnosis results in appropriate preventative treatment before a second seizure occurs.

People with reflex epilepsies previously have been disenfranchised by the requirement that seizures be unprovoked. The inclusion of reflex epilepsy syndromes in an operational definition of epilepsy now brings these individuals into the epilepsy community.

The revised definition described in this report is intended for clinical diagnosis, and might not be suitable for all research studies. Different operational definitions will be used depending on specific purposes, and comparisons could still be made using the traditional “two-unprovoked-seizure” definition of epilepsy whenever appropriate. Investigators must clearly identify the operational definition used in any study or publication.

A revised definition has implications for legislation and health economics. Regulations affecting individual life activities, such as driving restrictions, relate more to seizure frequency or to risk of seizure recurrence than to a diagnosis of epilepsy, but this is not always the case. In some countries a diagnosis of epilepsy per se limits the period of validity of a driving permit, or the type of permit that can be acquired. Guidelines about participation in certain sports may stipulate restrictions for people with a diagnosis of epilepsy, irrespective of seizure history. Insurance coverage and social benefits might also be affected by the diagnostic label. To the extent that a revised operational definition might affect the number of people diagnosed with epilepsy, there could be cost repercussions for the individual and for the society. Costs to society may not necessarily be higher, however, particularly if the new operational diagnosis codifies the current approach of epileptologists and leads to improved management of individuals who are likely or unlikely to have future seizures.

**Conclusion**

Epilepsy previously has been defined as at least two unprovoked seizures more than 24 hours apart. The revised operational definition implies that epilepsy also can be considered to be present after one unprovoked seizure in individuals who have other factors that are associated with a very high likelihood of a persistently lowered seizure threshold and therefore a high recurrence risk. Such risk should be equivalent to the recurrence risk of a third seizure in those with two unprovoked seizures, approximately 75%. The latter circumstance occurs with remote structural lesions, such as stroke, CNS infection, certain types of traumatic brain injury,
diagnosis of a specific epilepsy syndrome or in some circumstances with the presence of other risk factors. Those with recurrent reflex seizures, for example, photosensitive seizures, are also considered to have epilepsy with this new definition. This definition of epilepsy brings the term in concordance with common use by most epileptologists. Epilepsy is not necessarily life-long, and is considered to be "no longer present" if a person has been seizure-free off anti-seizure medications for at least ten years, and has no known ongoing predisposition to seizures, or has passed the age of an age-dependent epilepsy syndrome. The new definition is more complicated than the old, because it requires applying data, which may not exist, to a specific situation. Studies providing detailed knowledge of seizure recurrence risk are few, so most diagnoses of epilepsy will of necessity still be made by documentation of two unprovoked seizures. As more knowledge of recurrence risks is accrued for specific etiologies, application of the epilepsy definitions will become more precise and more useful.

Case Examples

1. Two seizures. A 25 year-old woman has two unprovoked seizures one year apart. Comment: This person has epilepsy, according to both the old and new definitions.

2. Stroke and seizure. A 65 year-old man had a left middle cerebral artery stroke 6 weeks ago and now presented with an unprovoked seizure. Comment: With a seizure in this time relation to a stroke (or brain infection or brain trauma) the literature (Hesdorffer et al., 2009) suggests a high (> 70%) risk of another unprovoked seizure. Therefore, in the new (but not the old) definition, this man would have epilepsy.

3. Photic seizures. A 6 year-old boy has had 2 seizures 3 days apart while playing a videogame involving flashing lights. There have been no other seizures. EEG shows an abnormal photoparoxysmal response. Comment: This boy has epilepsy according to the new definition (but not the old), even though the seizures are provoked by lights, since there is an abnormal enduring predisposition to have seizures with light flashes.

4. Benign Epilepsy with Centro-Temporal Spikes (BECTS). A 25 year-old man had seizures with face twitching when falling asleep at ages 9, 10 and 11 years; none since. EEG at age 9 years demonstrated centro-temporal spikes. Comment: For this young man, epilepsy is no longer present, because of passing the relevant age range of an age-dependent syndrome. The old definition has no provision for considering epilepsy to be no longer present.

5. Single seizure and dysplasia. A 40 year-old man had a focal seizure characterized by left hand twitching that progressed to a tonic-clonic seizure. This was his only seizure. MRI shows a probable transmantle dysplasia in the right frontal lobe and EEG shows right fronto-temporal interictal spikes. Comment: Although many clinicians would reasonably treat this man with anti-seizure medications, the
recurrence risk for seizures is not precisely known, and therefore epilepsy cannot yet be said to be present according to either definition. Should evidence later indicate at least a 75% risk for another seizure, then a diagnosis of epilepsy would be justified by the new definition.

6. Two seizures long ago. An 85 year-old man had a focal seizure at age 6 and another at age 8 years. EEG, MRI, blood tests and family history were all unrevealing. He received anti-seizure drugs from age 8 to age 10 years, when they were discontinued. There have been no further seizures. **Comment:** According to the new definition, epilepsy is no longer present, since he has been more than 10 years seizure-free and off seizure medication. This is not a guarantee against future seizures, but he has a right to be viewed as someone who does not currently have epilepsy.

7. Long-interval seizures. A 70 year-old woman had unprovoked seizures at ages 15 and 70. EEG, MRI and family history are unremarkable. **Comment:** Both old and new definitions consider this woman to have epilepsy. Despite the diagnosis, many clinicians would not treat because of the infrequency of seizures. Should investigations somehow show that the causes of the two seizures were different, then epilepsy would not be considered to be present.

8. Questionable information. A 20 year-old man has had 3 unobserved episodes over 6 months consisting of sudden fear, difficulty talking and a need to walk around. He is not aware of any memory loss during the episodes. There are no other symptoms. He has no risk factors for epilepsy and no prior known seizures. **Comment:** Declaring this man to have epilepsy is impossible by either the old or new definition. Focal seizures are on the differential diagnosis of his episodes, but both definitions of epilepsy require confidence that the person has had at least one seizure, rather than one of the imitators of seizures. Future discussions may define the boundaries of “possible and probable epilepsy.”

We confirm that we have read the Journal’s position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

**Disclosures:** Author Robert S. Fisher has received support from, and/or has served as a paid consultant for the Maslah Saul MD Chair, the Anderson fund for Epilepsy Research, The Susan Horngren Fund, SmartMonitor, ICVRx, and has done consulting for Cyberonix, Oracle and UCB. Author Alexis Arzimanoglou has received support from, and/or has served as a paid consultant for Cyberonics, Eisai, GlaxoSmithKline, UCB Pharma, and Viropharma. Author J. Helen Cross, has received support from, and/or has served as a paid consultant for Eisai, Viropharma, and GSK. Author Jacqueline A. French has received support from, and/or has served as a paid consultant via the Epilepsy Study Consortium or the HEP project for Eisai Medical Research, GlaxoSmithKline, Impax, Johnson & Johnson, Mapp Pharmaceuticals, Novartis, Lundbeck, Pfizer, Seporacor, Sunovion, SK Life Science, Supernus Pharmaceuticals, UCB Inc/Schwarz Pharma, Upsher Smith, Vertex, Eisai Medical Research, LCGH, Impax, Mapp Pharmaceuticals, Novartis, UCB, UCB Inc/Schwarz Pharma, Upsher Smith, Lundbeck. Author Dale C. Hesdorffer has received support from, and/or has served as a paid consultant for UCB, Esai and UpsherSmith. Author Solomon L. Moshé has received support from, and/or has served as a paid consultant for the Charles Frost Chair in Neurosurgery and Neurology,
Lundbeck and UCB. Author Emilio Perucca has received support from, and/or has served as a paid consultant for Bial, Eisai, GSK, Lundbeck, Medichem, Pfizer, Sun Pharma, Supernus, UCB Pharma, Viropharma, Vertex. Author Ingrid E Scheffer has received support from, and/or has served as a paid consultant for UCB, Athena Diagnostics, GlaxoSmithKline and Janssen-Cilag EMEA. Author Torbjörn Tomson has received support from, and/or has served as a paid consultant for GSK, UCB, Eisai, Sun Pharma, and Bial. The remaining authors have no conflicts of interest.

References


The Task Force believed that an operational definition of seizures would be useful to assist a non-expert clinician in the diagnosis of a possible seizure-like event. Such a definition is beyond the scope of the Epilepsy Definition Task Force.

Specifying a level of risk for recurrence to quantify the concept of "enduring predisposition" was difficult for the Task Force. All agreed that an individual with two unprovoked seizures had epilepsy. The risk for a third seizure in such an individual is about 3 in 4. Therefore, the Task Force agreed that an individual having a similar risk after one unprovoked seizure should logically be considered also to have epilepsy. The number 75% is intended to be an approximate guideline, rather than a sharp cutoff.

Some suggested a time limit within which the two spontaneous seizures must occur to diagnose epilepsy. In the absence of consensus and evidence on which to base a specific time, lifetime occurrence was retained as the default.

The motivation for this aspect of the definition was twofold. First, many clinicians, patients and families consider epilepsy to be in the past when seizures no longer occur and no anti-seizure medications are employed. Second, the Task Force desired to remove lasting stigma associated with a lifetime diagnosis of epilepsy. Other terms considered included remission, terminal remission, complete remission, inactive epilepsy, epilepsy absent and cure. Remission, inactive and epilepsy absent did not convey the concept that epilepsy was gone and cure implied success of some treatment, rather than natural history of the disease. Further work will be required to define circumstances of true "cure."

Evidence to guide a specific required seizure-free number of years is limited, and existing risk functions show a continuous decline over time, rather than a natural breakpoint. Some argued for five years, but as many as 5% annually may have a seizure after a five-year seizure free interval. Being seizure-free off medications for at least 10 years predicts future freedom from seizures in a high percentage of cases.

Whether to define a condition called "probable epilepsy," "possible epilepsy" or both generated the most debate in the deliberations, and ultimately the issue was settled by majority view rather than full consensus. Probable epilepsy was considered for two different circumstances: the first in which one seizure had occurred and risks were high but not very high (e.g., < 75%) for having another. The second circumstance encompassed limited information in cases that seemed to be epilepsy, but reliable seizure descriptions or other key data were lacking. Allowing a diagnosis of probable epilepsy in the second circumstance could harmfully short-cut necessary diagnostics to clarify the diagnosis. The Task Force did see value in defining probable epilepsy, but believed that extensive future consideration would be needed in order to make its definition operationally consistent and useful.
These examples were presented on June 24, 2013 to the audience of the ILAE Congress Presidential symposium, with over 1000 epileptologists in attendance. Audience votes on whether epilepsy was present in these cases correlated very strongly with the terms of the revised definition. While not a scientifically valid survey, the responses indicated that epileptologists thought of epilepsy in ways consistent with the revised definition.