AAN Summary of Evidence-based Guideline for PATIENTS and THEIR FAMILIES

EVALUATING AN APPARENT UNPROVOKED FIRST SEIZURE IN ADULTS

If you are someone who has experienced a first seizure of unknown cause, this fact sheet will help you talk with your doctor about which tests may help to find the reason for your seizure and to tell if further seizures are likely.

Neurologists from the American Academy of Neurology are doctors who treat diseases of the brain and nervous system. The following information is provided by experts in neurology who carefully reviewed all of the available scientific studies about tests for adults with an apparent first seizure with unknown cause.

What are seizures?

Brain cells work by sending small electric signals to each other. Seizures happen when there are sudden changes in the way the cells work. During a seizure, a sudden wave of electrical energy covers part or all of the brain, interfering with normal brain activity. Consciousness, body movement, sensation, speech, mood, memory, and emotions can all be changed during the one or two minutes that the seizure lasts.

Along with a medical health history, a physical exam, and a neurological exam, your doctor may suggest that you undergo one or more of the following tests.

What are the tests and are they helpful?

Electroencephalography (EEG) – An EEG is a test that records the electrical activity created by the brain. An EEG may provide more and better information about the areas of the brain that are not normal.

There is good evidence* that an EEG should be considered as part of the routine nervous system examination. There is also good evidence* that an EEG should be considered as part of the routine nervous system examination because it is valuable in determining if further seizures are likely to occur.

Brain Imaging – Doctors use different methods to take pictures of brain structure and function. Some common imaging techniques include *computed tomography (CT)* and *magnetic resonance imaging (MRI).*

There is good evidence* that using CT or MRI should be considered as part of the routine nervous system evaluation.

Laboratory Tests – These tests may include checking your blood sugar (the amount of sugar in a specific amount of blood), blood count (the number of red and white cells in a specific amount of blood), and electrolyte levels, especially of sodium (the amount of salt in a specific amount of blood).

These tests may be helpful in certain situations determined by your doctor, but there is not enough* scientific information to argue for or against recommending any of these laboratory tests as part of the routine nervous system evaluation.

Lumbar Puncture (spinal tap) – This test is done to check the fluid surrounding the brain and spinal cord when the doctor suspects an infection.

This test may be helpful in certain situations determined by your doctor, especially if you have a fever, but there is not enough* scientific information to argue for or against recommending this test as part of the routine nervous system evaluation.

Toxicologic Tests – Toxicologic tests look at blood, urine, or hair for the presence of drugs.

These tests may be helpful in certain situations determined by your doctor, but there is not enough* scientific information to argue for or against recommending the tests as part of the routine nervous system evaluation.

*After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:
Strong evidence = more than one high-quality scientific study
Good evidence = at least one high-quality scientific study or two or more studies of a lesser quality
Weak evidence = the studies, while supportive, are weak in design or strength of the findings
Not enough evidence = either different studies have come to conflicting results or there are no studies of reasonable quality

This is an educational service of the American Academy of Neurology (AAN). It is designed to provide members with evidence-based guideline recommendations to assist with decision-making in patient care. It is based on an assessment of current scientific and clinical information and is not intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physicians caring for the patient, based on the circumstances involved. Physicians are encouraged to carefully review the full AAN guidelines so they understand all recommendations associated with care of their patients.

Copies of this summary and additional companion tools are available at *www.aan.com* or through AAN Member Services at (800) 879-1960.

AMERICAN ACADEMY OF NEUROLOGY

1080 Montreal Avenue • St. Paul, MN 55116
www.aan.com • *www.thebrainmatters.org*
(651) 695-1940