



FOR NURSE PRACTITIONERS: GENERAL MANAGEMENT OF EPILEPSY

BACKGROUND

There are approximately 90,000 Ontarians with epilepsy, and around 6,500 will develop epilepsy each year. Beginning in 2014, The Epilepsy Implementation Task Force (EITF), supported by Critical Care Services Ontario, released a series of evidence-based recommendations to standardize epilepsy care and improve access to treatment. To learn more, please visit OntarioEpilepsyGuidelines.ca.

CLINICAL DIAGNOSIS

A diagnosis of epilepsy is based on a combination of the description of the event, associated symptoms and ancillary information. A detailed history should be taken from the patient and an eyewitness if possible. A careful history and neurologic examination may allow a diagnosis without extensive further evaluation.

Conditions such as syncope, migraine, drug reaction or intoxication, transient ischemic attacks or mental disorders may confound diagnosis. If a clear diagnosis cannot be established, referral to an appropriate specialist should be made. If psychogenic non-epileptic seizures are suspected, suitable referral should be made to psychological or psychiatric services for further investigation and treatment.

Brain imaging and electroencephalography (EEG) should be considered as part of the neurodiagnostic evaluation of patients presenting with an apparent unprovoked first seizure.

ANTI-EPILEPTIC DRUG (AED) THERAPY

AED treatment should aim to provide the best quality of life with seizure freedom and the fewest adverse effects. The shared decision to initiate AED treatment should be based on the type of seizures/epilepsy, risk of seizure recurrence, adverse effects of treatment, cost and duration of treatment, and goals of treatment. Patients should be treated with a single AED when possible.

PATIENT EDUCATION AND COUNSELLING

Ensuring patients are knowledgeable about their condition can help to alleviate stigma and negative attitudes about epilepsy and provide additional support for co-existing conditions. Patients should be given contact information for their local Community Epilepsy Agency. A list of agencies can be found by calling 1-866-EPILEPSY or visiting <http://epilepsyontario.org/agency>.

WHEN SHOULD PATIENTS BE REFERRED?

- After the first unprovoked epileptic seizure, patients should be referred for an EEG, and if necessary a brain MRI. Patients with abnormalities on MRI should be referred to a neurologist or neurosurgeon (when appropriate). AED treatment may be initiated by a primary care provider or specialist once a diagnosis is established.
- Patients who are not seizure-free (duration \geq 12 months) after an adequate trial of the first AED should be referred to a neurologist. AEDs must be tolerated, appropriate for the type of seizures and taken at the proper dose.
- Patients who are not seizure-free after two adequate trials of AEDs should be referred to an epileptologist at a specialized epilepsy centre for further testing. Treatment options for drug-resistant epilepsy include surgery, diet therapy, immune therapy or neurostimulation.

KEY POINTS

- ◆ **Diagnosis** is based on history and a clinical examination.
- ◆ **Referral** to a specialist is made if diagnosis is uncertain or if seizure freedom is not achieved with the first or second AED trial (at appropriate doses).
- ◆ **Provide** patients with access to additional resources and support, including a referral to their local community epilepsy agency.

OPTIONS FOR AEDs (list is not exhaustive)

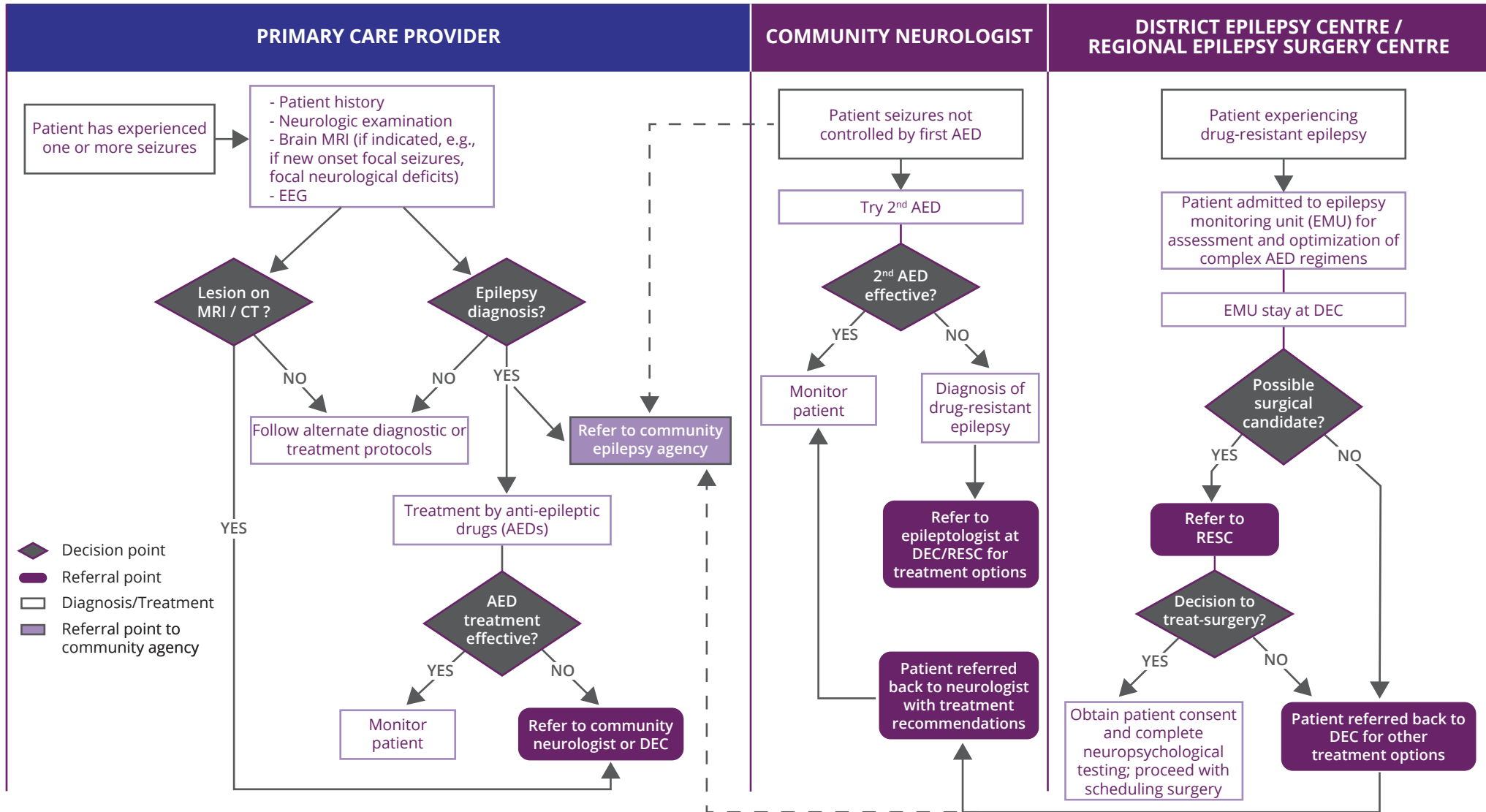
- 1. Adults with focal seizures:** Carbamazepine (CBZ), Phenytoin (PHT), Topiramate (TPR), Oxcarbazepine (OXC), Levetiracetam (LVR), Lamotrigine (LTG) and Valproic Acid (VPA). Other options include Phenobarbital (PB) and Primidone (PRM). In elderly adults Gabapentin (GP), LTG and Clobazam (CLB) may be considered.
- 2. Adults with generalized convulsive seizures:** VPA, LVR, TPR, LTG, PB, CBZ, OXC. CBZ, PHT and OXC should be used carefully in epilepsy syndromes in which myoclonic or absence seizure can occur, as they may worsen them. LTG may exacerbate myoclonus.
- 3. Children with focal seizures:** OXC, CBZ, VPA, CLB, PB.
- 4. Children with generalized tonic clonic seizures:** VPA, TPR, CLB, CBZ, LTG, LVR and PB. CBZ and PHT may precipitate or aggravate generalised tonic clonic seizures.
- 5. Children with absence seizures:** Ethosuximide (ESX), VPA and possibly LTG
- 6. Benign Epilepsy of childhood with centrotemporal spikes:** VPA and CBZ. Other options include OXC and LVR.
- 7. Juvenile Myoclonic Epilepsy:** VPA, LVR, TPR.
- 8. Infantile spasms:** Vigabatrin (VGB), Steroids (Oral prednisolone/injection ACTH).

AEDs TO AVOID OR USE WITH CAUTION:

- 1. Absence seizures:** CBZ, OSC, PHT and GP (avoid)
- 2. Myoclonic seizures/Juvenile Myoclonic Epilepsy:** CBZ, OXC and PHT (avoid).
- 3. Children less than 1 year of age:** VPA (avoid)
- 3. Children 1-2 years:** VPA (use with caution due to hepatotoxicity). This risk is high in combination with PB.
- 5. Women of child-bearing age:** VPA (avoid due to teratogenicity). *Note: Use of folic acid (1-5 mg/day) is highly recommended.
- 6. Severe allergic reactions** including Stevens Johnson Syndrome and toxic epidermal necrolysis are possible with the use of CBZ in certain ethnicities like Asians, especially Han Chinese (genetic testing is available).

i Uncontrolled seizures, even one per year, are linked to increased mortality, health risks and lower quality of life.

EPILEPSY PATIENT REFERRAL PATHWAY



DISTRICT EPILEPSY CENTRES (DECs) AND REGIONAL EPILEPSY SURGICAL CENTRES (RESCs):

- ◆ DECs are located at **The Ottawa Hospital, Hamilton Health Sciences, Children's Hospital of Eastern Ontario and Kingston General Hospital**. DECs provide basic investigations to assess candidacy for epilepsy surgery, including evaluations by an epileptologist, and full epilepsy monitoring unit (EMU) service.
- ◆ RESCs are located at **The Hospital for Sick Children, London Health Sciences and University Health Network - Toronto Western Hospital**. RESCs provide all of the services of a DEC with the addition of epilepsy surgery and intracranial monitoring. An RESC is also a DEC for its catchment area.

PROJECT ECHO:

Project ECHO® Ontario: Epilepsy Across the Lifespan is a technology-enabled, collaborative learning program that aims to build the capacity of primary health care providers to care for children, adolescents and adults with epilepsy. To learn more, please visit: www.echoontario.ca/Echo-Clinic/Epilepsy.aspx