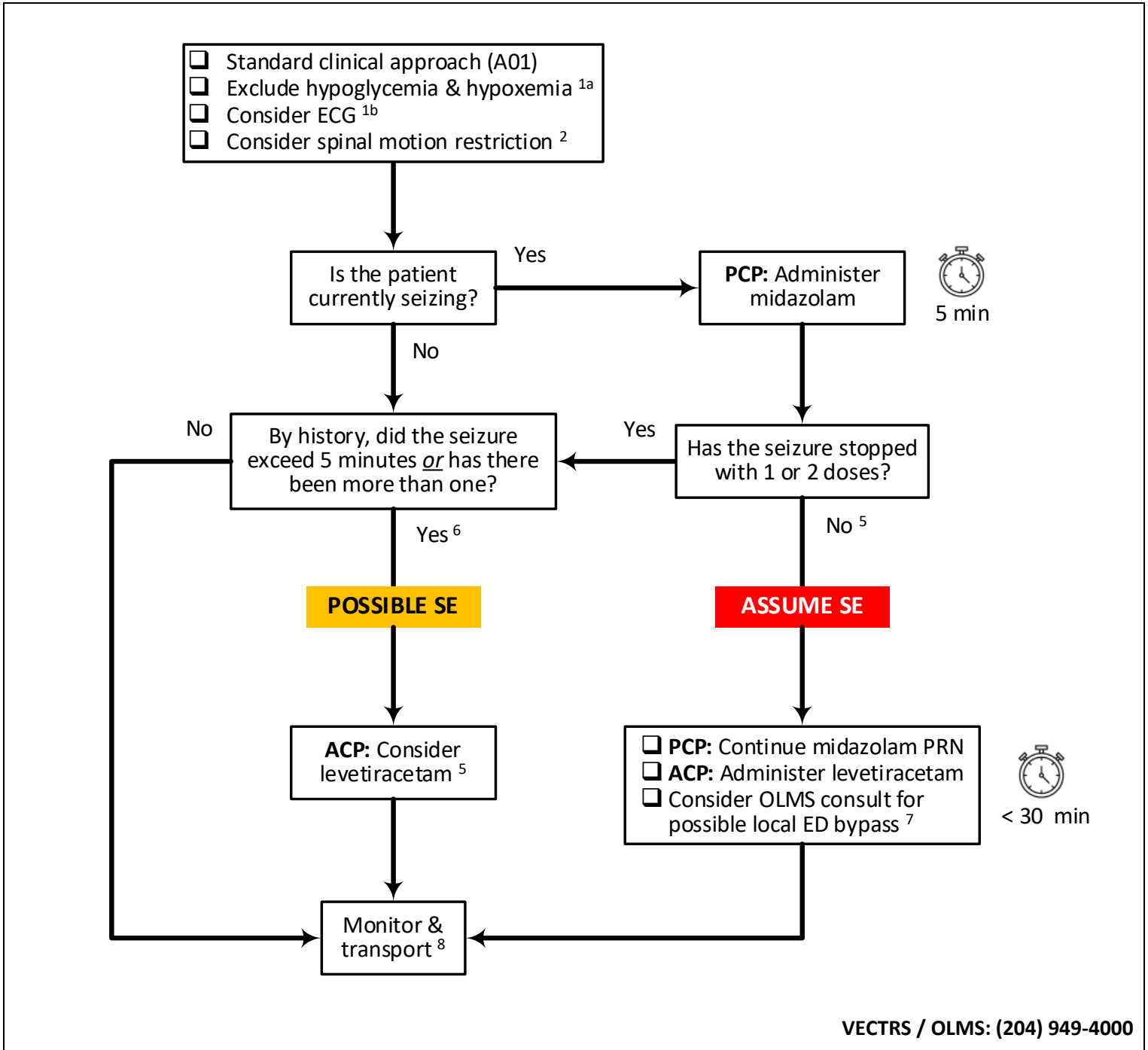
	<b>E14 - SEIZURE &amp; STATUS EPILEPTICUS</b>		
	Version date: 2025-12-06	Effective date: 2026-01-06 (07:00)	
PCP = PCP - ACP	ICP = ICP & ACP	ACP = ACP only	None = EMR - ACP



### INDICATIONS

- Witnessed or reported seizure (convulsion)

### WARNINGS

- None

### NOTES

1. There are numerous causes of seizures (appendix A) and the clinical presentation may vary depending on the location within the brain and the amount of cortex involved.
  - a. Causes such as hyperglycemia or hypoxemia should be quickly corrected to prevent permanent neurological damage.
  - b. Malignant ventricular dysrhythmias can present with seizure in the absences of cardiac symptoms.
2. Patients can sometimes injure themselves during a seizure and it may be difficult to exclude a spinal injury if the patient has a decreased level of consciousness or altered mentation.
3. Most *uncomplicated seizures* will usually spontaneously remit within a 2 to 3 minutes, and prehospital medication administration is usually unnecessary if the episode is short-lived and unlikely to recur.
4. Once a seizure has continued for more than a few minutes it is unlikely to stop naturally and may be harder to treat. Cellular damage arises from the prolonged repetitive discharge of neurons. After 30 minutes permanent neurological injury is likely and even death may ensue (mortality rates as high as 40 percent are reported in refractory cases).  
 An operational definition for *status epilepticus* (SE) is likely more useful for prehospital management, as traditional definitions may underdiagnose it. For the purposes of this care map, a seizure lasting longer than 5 minutes or failure to respond promptly to first-line antiseizure therapy with a benzodiazepine should be assumed to represent SE.  
*Generalized convulsive status epilepticus* (GCSE) is recognized by prolonged bilateral tonic-clinic activity and loss of consciousness, while *focal motor status* will present without the alteration in consciousness and unilateral motor findings. *Nonconvulsive status epilepticus* (NCSE) is more difficult to diagnose due to the absence of visible seizure activity, but may present with other findings such as altered mental status or abnormal behavior, and can sometimes be mistaken for a psychiatric disorder (appendix B).
5. A patient should be assumed to be in status if they are actively seizing and the seizure does not terminate with up to 2 doses of midazolam. Continue to administer midazolam as necessary (PRN) to stop the seizure, with careful monitoring of their respiratory status. Paramedics with the advanced (ACP) work scope should initiate second-line antiseizure therapy with levetiracetam ideally within 30 minutes of recognition.
6. A patient who is not actively seizing but is reported to have had a prolonged or multiple seizures (especially with persistent mental status abnormalities) might also be in status. Paramedics with the ACP work scope may consider initiating second-line therapy if the time to medical care will be delayed.
7. Failure of status to respond to second-line anticonvulsant therapy will require other interventions, possible even general anesthetic (GA) with mechanical ventilation. Bypassing a local emergency department (ED) and transporting to

a center with the necessary expertise, experience and equipment may be indicated but logistically challenging. Paramedics should keep a low threshold to call the Virtual Emergency Care & Transport Resource Service (VECTRS) and consult with online medical support (OLMS) for destination decision support and possible intercept.

8. During a seizure the patient will be apneic, resulting in oxygen destauration and hypercapnia. In the postictal period, ineffective ventilation and / or airway compromise can cause respiratory failure, particularly if a benzodiazepine has been administered (especially if mutliple doses).

#### LINKS

- A01 - Standard clinical Approach
- F04 - Spinal Motion Restriction
- M07.1 - Midazolam
- M29 - Levetiracetam

#### APPROVED BY



EMS Medical Director



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#### VERSION CHANGES (refer to X01 for change tracking)

- Removal of phenytoin from algorithm
- New definition for status
- Flow charts combined & simplified
- Revised notes for greater clarity

### APPENDIX A: CAUSES OF SEIZURES

#### ACTIVE SYSTEMIC INSULT:

- Hypoglycemia or hyperglycemia
- Hypoxemia
- Alcohol & drug withdrawal
- Drug intoxication
- Hyponatremia or hypernatremia
- Hypocalcemia
- Hypomagnesemia
- Uremia (end-stage renal failure)
- Hyperthyroidism
- Fever / hyperthermia

#### ACUTE / RECENT BRAIN INSULT:

- CNS infection (encephalitis, meningitis)
- Acute stroke
- Acute head injury
- Intracranial surgery

### TABLE B: SIGNS OF NONCONVULSIVE STATUS EPILEPTICUS

#### Altered mental status / consciousness:

- Confusion
- Obtundation
- Coma

#### Abnormal motor activity:

- Subtle rhythmic twitching of the face or eyes
- Fixed eye deviation
- Automatisms (e.g., lip smacking, chewing)
- Catatonia

#### Abnormal language / behavior:

- Aphasia, mutism, stuttering, echolalia
- Delirium , psychosis
- Agitation, anxiety

#### Abnormal perception / sensory disturbances:

- Hallucinations (including smell or taste) (olfactory, gustatory, auditory, visual).
- Visual loss
- Headache