

TABLE 2. Anticonvulsant drug therapies for convulsive status epilepticus (CSE)						
Drug and route	Dose	Maximum	Rate	Repeat	Risks	Comments
<b>First-line treatments</b>						
<b>Midazolam</b> • IV, IO	0.1 mg/kg	5 mg				
• IM	0.2 mg/kg	10 mg				
• Buccal	0.5 mg/kg	10 mg				
• Intranasal	0.2 mg/kg	10 mg (5 mg per nostril)				
<b>Lorazepam</b> • IV, IO, Buccal	0.1 mg/kg	4 mg	< 2 mg/minute (IV over 0.5 to 1 minute)	May repeat once after 5 minutes, if still seizing.	Hypotension, respiratory depression, sedation	Use sublingual tablets for buccal route.
<b>Diazepam</b> • IV, IO	0.3 mg/kg	5 mg (< 5 years) 10 mg (≥ 5 years)	Over 2 minutes			
• PR	0.5 mg/kg	20 mg				
<b>Second-line treatments</b>						
<b>Fosphenytoin*</b> • IM, IV, IO	20 mg PE/kg (phenytoin equivalents)	1000 mg PE	IV over 5 to 10 minutes (prepared in NS or D5W)	Give an additional 5 mg PE/kg if ineffective	Hypotension, bradycardia, arrhythmia.	Expensive. Do not use in combination with phenytoin. Not suggested for use in seizures due to intoxication.
<b>Phenytoin*</b> • IV, IO	20 mg/kg	1000 mg	1 mg/kg/minute–over 20 minutes (prepared in NS only)	Give an additional 5 mg/kg if ineffective	Hypotension, bradycardia, arrhythmia, IV extravasation injury.	Do not use in combination with fosphenytoin. Not suggested for use in seizures due to intoxication.

<b>Phenobarbital</b> • IV, IO	20 mg/kg	1000 mg	1 mg/kg/min – over 20 minutes (prepared in NS or D5W)		Respiratory depression (especially if benzodiazepine has been used), hypotension, sedation (higher risk than phenytoin)	May be best second-line choice in infants <6 months and in febrile status epilepticus, or if on phenytoin maintenance.
<b>Levetiracetam</b> • IV, IO	60 mg/kg	3000 mg	Given over 5 to 15 minutes (prepared in NS or D5W diluted to 15 to 50 mg/mL)		Possible psychosis (low risk)	
<b>Additional second-line options, available in Canada only through Health Canada's Special Access Programme</b>						
<b>Drug and route</b>	<b>Dose</b>	<b>Maximum</b>	<b>Rate</b>	<b>Repeat</b>	<b>Risks</b>	<b>Comments</b>
<b>Valproic acid</b> • IV, IO	30 mg/kg	3000 mg	Given over 5 minutes (prepared in NS or D5W)	Give an additional 10 mg/kg if ineffective	Use with caution in pre-existing liver or mitochondrial disease.	
<p>* If a patient is already receiving phenytoin, a partial loading dose of 5 mg/kg may be given. Subsequent doses may be given based on anticonvulsant levels.</p> <p>† If a patient is already on phenobarbital, a loading dose of 5 mg/kg may be given. Subsequent doses may be given based on anticonvulsant levels.</p> <p>D5W 5% dextrose in water; IM Intramuscular; IO Intraosseous; IV Intravenous; NS Normal saline; PR Per rectum</p>						

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**Source:** Emergency management of the paediatric patient with convulsive status epilepticus, Acute Care Committee, February 1, 2021. Available at [www.cps.ca](http://www.cps.ca)