

METHODOLOGY

We reviewed EMS protocols for seizure management across the US by online search. Prior literature showed that EMS protocols are not standardized and vary by state, or even by region, county or EMS agency within several states, and by EMS provider level.¹ Therefore, 1) we searched for the statewide EMS protocol for seizure management of each US state, and 2) if we could not find a statewide protocol, we selected one EMS protocol in the city with most inhabitants or capital city as representative of this state.

RESULTS

Table 1 includes details on the EMS protocols reviewed across the US (information available for 47 states). Common findings were: 1) administration of BZD mainly restricted to EMS providers with the highest level, such as paramedics, 2) variability with regards to the type of BZD recommended, dosages, routes of administration and re-dosing instructions, and 3) lack of non-BZD ASM in all protocols, except one state which includes non-BZD ASMs in its statewide protocol for paramedics. Some protocols promote repeated doses of BZD if seizures continue, but do not permit escalation to non-BZD ASM; and many protocols recommend a consultation call with a physician if the patient does not respond to BZD, although typical second line SE treatment drugs are not routinely included as required medications in ambulances. Of note, many statewide protocols serve as models for the development of regional/county/local protocols, but are not viewed as mandatory. Regions, counties or agencies may adapt the model and have individualized protocols, potentially increasing related variability.

1. Kupas DF, Schenk E, Sholl JM, Kamin R. Characteristics of statewide protocols for emergency medical services in the United States. Prehosp Emerg Care. 2015 Apr-Jun 2015;19(2):292-301. doi:10.3109/10903127.2014.964891

Table 1. EMS protocols across the United States of America (table focusing on pediatric instructions) [pages 2-12, including online links to protocols]:

STATE	Statewide protocol available?	EMS type / technician level	BZD included in the protocol? Types, dosage and route of administration recommended? BZD re-dosing instructions or consultation call?	Non-BZD ASM included in the protocol?
Alabama	Yes	Basic	No	No
		Advanced/ Intermediate	No	No
		Paramedic	- Lorazepam 0.1 mg/kg slow IV, max 2 mg. - Midazolam 0.1 mg/kg slow IV/IM or 0.2 mg/kg IN via atomizer, max 5 mg. * Midazolam IN preferred drug for pediatric patients if available. Suggested phone call if maximum dosage.	No
Alaska	Yes (NASEMSO model)	No divisions on protocol	- Midazolam 0.2 mg/kg IM preferred, or IN (max 10 mg); 0.1 mg/kg IV or IO, max 4mg. - Diazepam 0.1 mg/kg IV or IO, max 4mg; 0.2 mg/kg PR, max 10 mg. - Lorazepam 0.1 mg/kg IV or IO, max 4mg. *IN/IM preferred over PR/IV/IO routes. Consider consultation if not trained personnel or 2 doses of BZD administered.	No
Arizona	Yes	EMT	No	No
		AEMT	No	No
		EMT-I / Paramedic	- Midazolam 0.2 mg/kg IM/IN, max 5 mg if < 40 kg, max 10 mg if ≥ 40kg; 0.1 mg/kg IV slow over 2 min, max 4 mg. - Lorazepam 0.1 mg/kg IV slow over 2 min, max 4 mg. May repeat for total of 2 doses regardless of route.	No
Arkansas	Yes (NASEMSO model)	No divisions on protocol	- Midazolam 0.2 mg/kg IM preferred, or IN (max 10 mg); 0.2 mg/kg IV or IO, max 4mg. - Diazepam 0.1 mg/kg IV or IO, max 4mg; 0.2 mg/kg PR, max 10 mg. - Lorazepam 0.2 mg/kg IV or IO, max 4mg. *IN/IM preferred over PR/IV/IO routes. Consider consultation if not trained personnel or 2 doses of BZD administered.	No
California	No (e.g. Los Angeles County, including Los Angeles city)	No divisions on protocol	-Midazolam (5mg/ml) 0.1mg/kg IM/IV; 0.2 mg/kg IN. May repeat x1 in 2 min (max 2 doses prior to base contact). Contact base for persistent seizure and for additional medication orders. May repeat midazolam as above, max 4 total doses.	No
Colorado	No (e.g. Denver metropolitan area)	EMT, AEMT	No	No
		EMT-I, paramedic	- Midazolam 0.1 mg/kg IV/IO (max 2 mg); 0.2 mg/kg IN/IM (intranasal preferred) (max 5mg). - Diazepam 0.3 mg/kg IV/IO (max 5 mg). - Lorazepam 0.05 mg/kg IV; 0.1 mg/kg IN/IM (intranasal preferred). All ASM may be repeated x 1 after 5 min, contact base for > 2 doses.	No

STATE	Statewide protocol available?	EMS type / technician level	BZD included in the protocol? Types, dosage and route of administration recommended? BZD re-dosing instructions or consultation call?	Non-BZD ASM included in the protocol?
Connecticut	Yes	EMT / AEMT	No, only assist family if RM prescribed (diazepam rectal gel); if VNS, suggest the use of VNS magnet.	No
		Paramedic	- Midazolam 5 mg/ml concentration (IM/IN preferred if not IV/IO), 0.2 mg/kg IM/IN (max 8 mg) repeat every 5 min; or 0.1 mg/kg IV/IO (max 4 mg) repeat every 5 min. - Lorazepam 0.1 mg/kg IV/IO (max 2 mg if ≤ 39 kg, 4 mg if >39 kg) repeat every 5 min. - Diazepam 0.1 mg/kg IV/IO (max 10 mg) repeat every 5 min. * Until seizure activity ceases or maximum dose is reached.	No
Delaware	Yes	BLS	No protocol for seizures	No
		Paramedic	-Midazolam 0.2 mg/kg IM (if no IV/IO access, max 5 mg); 0.2 mg/kg IV/IO.	No
District of Columbia	Yes (district wide)	BLS	No	No
		ALS	-Midazolam 0.2 mg/kg IN (max 5 mg), repeat once in 5 min; 0.1 mg/kg IV/IO (max 2 mg), repeat once in 5 min. Contact medical control for additional doses.	No
Florida	No (Miami-Dade County, including Miami)	BLS	No	No
		ALS	-Midazolam 0.1 mg/kg IV/IO (max 5 mg); 0.2 mg/kg IM/IN (max 5 mg). May be repeated once in 5 min (max 10 mg). Medical control physician for additional administration of benzodiazepines.	No
Georgia	Not available (Fulton County, containing Atlanta, not available)			
Hawaii	Yes	EMT	Not clearly specified, restrictions for IV ASM (specific training needed and paramedic's supervision).	No
		Paramedic	- Midazolam 2 mg IN or IM (5 mg/ml concentration), repeat dose at 2 min (1 st option). - Diazepam 1 mg slow IV, repeat dose at 2 min (max 10 mg); PR 0.5 mg/kg if <6 yo, 0.3 mg/kg if 6-11 yo, 0.2 mg/kg if >11 yo (max 10 mg). - Lorazepam 0.1 mg/kg slow IV or IN (max 4 mg) (last option). Communicate with base station physician for further orders.	No
Idaho	Yes	EMT / AEMT	No	No
		Paramedic	- Midazolam 0.1 mg/kg IV (max 5 mg); 0.2 mg/kg IM (max 5 mg); 0.2 mg/kg IN (max 10 mg) (IN/IM preferred route if no IV access). - Diazepam 0.05 mg/kg IV (max 5 mg); 0.5 mg/kg PR (max 10 mg). - Lorazepam 0.05 mg/kg IV/IM (max 4mg). May repeat medications x1 in 5 min.	No
Illinois	No (e.g. region XI, Chicago)	BLS/EMT-B	No	No
		Paramedic	-Midazolam 0.2 mg/kg IN or 0.1 mg/kg IM (max 5 mg); 0.1 mg/kg IV/IO (< 6 y: max 6 mg) (≥ 6 y: max 10 mg). -Diazepam 0.1-0.3 mg/kg IV over 2-3 min, every 5 min (< 5 y: max 5 mg) (≥ 5 y: max 10 mg). -Lorazepam 0.1 mg/kg IV/IO, may repeat x1 (max 4 mg); 0.1 mg/kg IM.	No

STATE	Statewide protocol available?	EMS type / technician level	BZD included in the protocol? Types, dosage and route of administration recommended? BZD re-dosing instructions or consultation call?	Non-BZD ASM included in the protocol?
Indiana	No (e.g. Indianapolis)	BLS	No	No
		ALS	-Midazolam 0.1 mg/kg IV/IM/IN (max 5 mg), repeatable once in 5 min if needed. Contact the receiving facility for further instructions or additional dosing if needed.	No
Iowa	Yes	Basic	No	No
		Advanced	-Benzodiazepine (dosage according to pediatric dosing reference), may repeat dose in 5 min if still seizing.	No
Kansas	Yes (sample protocol)	EMT-B, EMT-I	No	No
		Paramedic	-Diazepam 0.1 mg to 0.3 mg IV slowly or PR, may repeat in 15 min. Contact medical control for further orders.	No
Kentucky	Yes	EMT-Basic, EMT-Advanced	No, only assist family if RM prescribed; if VNS, determine if emergency could be related.	No
		Paramedic	- Lorazepam 0.1 mg/kg IV/IO (max 4 mg). - Midazolam 0.1 mg/kg IV/IM/IO (max 2 mg). - Diazepam 0.2 mg/kg IV or 0.5 mg/kg PR (max 5 mg or 10 mg PR). Any of the above may be repeated once in 5 min. May be repeated once in 5 min.	No
Louisiana	No (e.g. Region I, New Orleans)	Any EMT or paramedic certified in this region	-Midazolam 0.1 mg/kg IV/IO (max 5 mg); 0.2 mg/kg IM/IN (max 5 mg). - Diazepam 0.1 mg/kg IV/IO/IM (< 5 yo max 5 mg, ≥ 5 yo max 10 mg); 0.5 mg/kg PR. - Lorazepam 0.1 mg/kg IV/IO/IM, may repeat x1 q 2-5 min. *Midazolam IM first option prior IV access, last resort diazepam PR. *EMS practitioners are under the direction of the highest skilled level practitioner and medical control. Contact medical control for additional orders or consultation.	No
Maine	Yes	EMT, EMT-A	No	No
		Paramedic	-Midazolam 0.2 mg/kg IM (max 10 mg); 0.1 mg/kg IV (max 5 mg), 0.2 mg/kg IN over 15 sec (max 6 mg). *Midazolam IM first option if no IV access. Contact medical control if repeat dosing of midazolam needed.	No
Maryland	Yes	BLS	No	No
		ALS	May assist patients with administration of their prescribed BZD. -Midazolam 0.2 mg/kg IN/IM if no IV/IO (max 5 mg); 0.1 mg/kg IV/IO in 2 mg increments slow IVP over 1–2 min (max 5 mg). IN/IM preferred over IO (consider if seizures refractory to treatment). Additional doses of midazolam (up to max 5 mg) require medical consultation. -Diazepam up to 0.2 mg/kg PR (max 10 mg); 0.1 mg/kg in 2.5 mg increments SLOW IVP/IO/IM (max 5 mg). Midazolam preferred, diazepam if not midazolam available. IM requires all providers to obtain medical consultation.	No
Massachusetts	Yes	EMT, AEMT	No. AEMT can assist family if RM prescribed; and if VNS, suggest the use of VNS magnet.	No
		Paramedic	-Midazolam 0.1 mg/kg IV/IO/IM (max 8 mg); 0.2 mg/kg IN (max 10 mg). Contact medical control for additional doses.	No

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Michigan	Yes	EMT-Basic, EMT-Specialist	No	No
		Paramedic	-Midazolam according to MI-MEDIC cards or 0.1mg/kg IM (max 10 mg); 0.05 mg/kg IV/IO (max 5 mg). -Lorazepam 0.1 mg/kg IV/IO (max 4 mg), may repeat in 5 min, max 0.2 mg/kg total (max 8 mg). *Midazolam IM first election. If seizures persist, repeat midazolam, or lorazepam at the same dose or contact medical control for further instructions.	No
Minnesota	Yes	BLS	No	No
		ALS	- Midazolam IV/IO 0.1 mg/kg IV/IO (max 10 mg), if seizure not terminated within 10 min, additional 0.05 mg/kg IV/IO; 0.2 mg/kg IM (max 10 mg), if seizure not terminated within 10 min, additional 0.05 mg/kg IM; 0.2 mg/kg IN (max 10 mg). - Diazepam 0.1 mg/kg IV/IO/IM (max 10 mg), if seizure not terminated within 10 min, additional 0.05 mg/kg IV/IO/IM; PR 0.5 mg/kg ages 2-5 and 0.3 mg/kg ages 6-11. - Lorazepam 0.1 mg/kg IV/IO/IM (max 4 mg), if seizure not terminated within 10 min, additional 0.05 mg/kg IV/IO/IM (max 4 mg).	No
Mississippi	Yes (NASEMSO model)	No divisions on protocol	- Midazolam 0.2 mg/kg IM preferred, or IN (max 10 mg); 0.1 mg/kg IV or IO, max 4mg. - Diazepam 0.1 mg/kg IV or IO, max 4mg; 0.2 mg/kg PR, max 10 mg. - Lorazepam 0.1 mg/kg IV or IO, max 4mg. *IN/IM preferred over PR/IV/IO routes. Consider consultation if not trained personnel or 2 doses of BZD administered.	No
Missouri	No (e.g. Kansas City)	Any EMT	No	No
		Paramedic	-Midazolam 0.2 mg/kg IN (max 5mg), may repeat dose once; 0.1 mg/kg IV slow (max 5mg). Contact medical control for further additional doses.	No
Montana	Yes	EMR, EMT, AEMT	No	No
		AEMT with I99 Paramedic	- Midazolam 0.2 mg/kg (IV/IM/IN) (max 5 mg). - Diazepam 0.3 mg/kg (IV/ET/IO/PR) (max 10 mg). - Lorazepam 0.05 mg/kg (IV/IO/IM) (max 4 mg).	No
Nebraska	Yes	EMR, EMT, AEMT	No	No
		EMT-I	-Diazepam 0.04 to 0.2 mg/kg (max) IV/IO/PR, may repeat to max 10 mg.	No
		Paramedic	-Diazepam 0.04 to 0.2 mg/kg (max) IV/IO/PR, may repeat to max 10 mg. -Lorazepam 0.05 mg/kg IV/IO/MAD, may repeat. -Midazolam 0.1 mg/kg IV/IO/IM/MAD, may repeat 0.1 mg/kg. * Maximum dose not exceed adult dose.	No
Nevada	No (e.g. Clark County, including Las Vegas)	EMT, AEMT	No	No
		Paramedic	-Midazolam 0.1 mg/kg, IN/IM/IV/IO (max 5 mg). -Diazepam 0.1 mg/kg IM/IV/IO/PR (max 5 mg). -May repeat if status or recurrent seizures.	No

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New Hampshire	Yes	EMT, AEMT	No, only assist family if RM prescribed; if VNS, suggest the use of VNS magnet.	No
		Paramedic	- Midazolam 5 mg/ml concentration (IM/IN preferred if not IV), 0.2 mg/kg IM/IN (max 8 mg) repeat every 5 min; or 0.1 mg/kg IV (max 4 mg) repeat every 5 min. - Lorazepam 0.1 mg/kg IV (max 4 mg), repeat every 5 min. - Diazepam 0.1 mg/kg IV (max 10 mg) repeat every 5 min. * Diazepam and lorazepam are not well absorbed IM and should be given IV.	No
New Jersey	Yes	BLS	No	No
		ALS	- Diazepam 0.1 mg/kg IV (max 5 mg); may PR if not IV (same IV dose). - Lorazepam 0.05 mg/kg IV (max 2 mg); 0.05 mg/kg (max 2 mg) through an approved route of administration. - Midazolam 0.15 mg/kg (max 5 mg) through an approved route of administration.	No
New Mexico	Yes	EMS first responder, EMT-basic, EMT-intermediate	No	No
		Paramedic	- Midazolam 0.2 mg/kg IN/IM (max 5 mg), may repeat once after 10 min; 0.1 mg/kg IV slow/IO, repeat every 5 min as needed (max 10 mg). - Diazepam 0.05–0.1 mg/kg IV/IO. * Buccal, IN, or IM routes are preferred as first line. PR not recommended.	No
New York	Yes	BLS, EMT, AEMT	No, may assist family with rectal diazepam.	No
		EMT-critical care	-Midazolam 0.1 mg/kg IM/IN (max 5 mg). Medical control for additional doses.	No
		Paramedic	-Midazolam 0.1 mg/kg IV/IM/IN (max 5 mg). Medical control for additional doses.	No
North Carolina	Yes	EMR, EMT, AEMT	No	No
		Paramedic	- Midazolam 0.1 – 0.2 mg/kg IV/IO/IM/IN, may repeat every 3 to 5 min (max 10 mg). - Diazepam 0.1 – 0.3 mg/kg IV/IO/IM; 0.5 mg/kg PR; repeat 2 mg every 3 to 5 min (max 10 mg). *Do not delay IM with difficult IV/IO access. Notify destination or contact medical control.	No
North Dakota	Yes	EMT, AEMT	No	No
		Paramedic	- Midazolam IV/IO/IN, may repeat in 5 min. - Lorazepam IV/IO/IN, may repeat in 5-10 min. - Diazepam IV/IO, may repeat in 5-10 min. *Use weight/length-based system for pediatric patients.	No
Ohio	Yes	EMR, EMT	No	No
		AEMT	- Diazepam 0.2 mg/kg, slow IV push over 3 min (max 5 mg); if no IV, 0.5 mg/kg PR (max 10 mg).	No
		Paramedic	- Midazolam 0.1 mg/kg IM. - Diazepam 0.2 mg/kg, slow IV push over 3 min (max 5 mg); if no IV, 0.5 mg/kg PR (max 10 mg).	No

STATE	Statewide protocol available?	EMS type / technician level	BZD included in the protocol? Types, dosage and route of administration recommended? BZD re-dosing instructions or consultation call?	Non-BZD ASM included in the protocol?
Oklahoma	Yes	EMR, EMT, EMT-I85, AEMT	No	No
		Paramedic	- Midazolam 0.1 mg/kg IM/IVP/IN/IO (max 5 mg), may repeat once in 5 min. - Diazepam 0.1 mg/kg (max 5 mg) IVP/IO/IM, may repeat once in 5 min. - Lorazepam 0.1 mg/kg (max 2 mg) IVP/IO/IM, may repeat once in 10 min. *Midazolam preferred option.	No
Oregon	No (e.g. Multnomah County, including Portland)	EMR, EMT, AEMT, EMT-I	No	No
		Paramedic	-Midazolam 0.3 mg/kg IM/IN (max 5 mg), may repeat every 3-5 min (max 10 mg). If still seizing, obtain IV/IO access, administer midazolam 0.1 mg/kg IV/IO every 3-5 min (max 15 mg IV/IO). If IV/IO is available, midazolam 0.1 mg/kg IV/IO (max 5 mg) every 3-5 min (max 25 mg IV/IO). * Total dose of midazolam, regardless of route (IM, IN, IV, IO) is 25 mg. If still seizing, contact medical control for possible midazolam drip.	No
Pennsylvania	Yes	BLS	No	No
		ALS	-Lorazepam 0.1 mg/kg IV/IO/IN (max 2 mg), may repeat every 5 min (max 4 mg). -Diazepam 0.3 mg/kg IV/IO (max 5 mg); 0.5 mg/kg PR (max 10 mg); may repeat every 5 min (max 0.6 mg/kg). -Midazolam 0.15 mg/kg IM; 0.1 mg/kg IV/IO/IN (max 2 mg); may repeat every 5 min (max 0.2 mg/kg IV). Titrate until seizure stops. Contact medical command.	No
Rhode Island	Yes	EMT	No, only assist family if RM prescribed; if VNS, suggest the use of VNS magnet.	No
		AEMT-Cardiac practitioner	- Midazolam 0.2 mg/kg IM/IN (max 4 mg); 0.1 mg/kg IV (max 4 mg); may repeat every 5 min (max of 1 mg/kg). - Lorazepam 0.1 mg/kg IV (max 4 mg), may repeat every 5 min (max 0.5 mg/kg). - Diazepam 0.1 mg/kg IV (max 5 mg); 0.5 mg/kg PR (max 20 mg); may repeat every 5 min (max 1 mg/kg).	No
		Paramedic	- Midazolam 0.2 mg/kg IM/IN (max 4 mg); 0.1 mg/kg IV (max 4 mg); may repeat every 5 min (max of 1 mg/kg). - Lorazepam 0.1 mg/kg IV (max 4 mg), may repeat every 5 min (max 0.5 mg/kg). - Diazepam 0.1 mg/kg IV (max 5 mg); 0.5 mg/kg PR (max 20 mg); may repeat every 5 min (max 1 mg/kg). *IM/IN route preferred if no immediate IV access. *Lorazepam first option if IV/IO access. *Diazepam least desirable choice.	YES -Phenobarbital 20 mg/kg IV, rate < 50 mg/min, may repeat 5 mg/kg IV every 5 min until seizure activity is terminated. -Levetiracetam 20 mg/kg IV over 15 min, may repeat once.

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South Carolina	Yes	EMR, EMT, AEMT	No	No
		Paramedic	-Benzodiazepines, may repeat once after 5 min. Local medical control will assign dosage, route, etc. * Addressing the ABCs and verifying blood glucose is more important than stopping the seizure. Rectal diazepam/lorazepam: Draw drug dose up in a 3 ml syringe. Remove needle and attached syringe to an IV extension tube. Insert tube in rectum and inject drug. Flush with 3 ml of air and remove. Contact medical control if still seizing.	No
South Dakota	Not available (Minnehaha County, including Sioux Falls, not available; Hughes County, containing Pierre, not available)			
Tennessee	Yes	EMR, EMT, AEMT	No	No
		Paramedic	-Diazepam 0.1 mg/kg IV/IO. -Midazolam 0.1 mg/kg IV/IO; 0.2 mg/kg IM (max 6 mg), may repeat once after 10 minutes, contact medical control if seizure activity persists after repeat dose; 0.3 mg/kg IN (max 10 mg), max total 0.4 mg/kg. -Lorazepam 0.1 mg/kg IV/IO (max 4 mg), may repeat in 5 min; not to exceed 0.2 mg/kg total (max 8 mg). * If seizure persists for 4 min repeat medication once.	No
Texas	No (e.g. city of Houston)	BLS	No	No
		ALS	-Midazolam IN/IM per pediatric dosing. If seizure continues > 5 min after initial dose, midazolam IN/IM/IV/IO per pediatric dosing. Further orders as per on-line physician. Dosing: 0.1 mg/kg IV/IO and 0.2 mg/kg IN/IM; careful titration for repeat dosages, not exceeding 2 mg per dose; maximum cumulative dose of 4 mg without on-line physician approval. * Midazolam should be given IM (or IN in pediatric patients) prior to an IV attempt. Midazolam shall only be given initially IV or IO if the patient has a pre-existing IV or IO immediately available.	No

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Utah	Yes	EMT	No	No
		AEMT, paramedic	-Midazolam 0.3 mg/kg IN (max 5 mg), may repeat once in 5 min (max 10 mg); 0.15 mg/kg IM (max 5 mg), may repeat once in 10 min (max 10 mg); 0.1 mg/kg IV/IO (max 5 mg), may repeat once in 5 min (max 10 mg). -Diazepam 0.1 mg/kg (max 5 mg) IV/IO, may repeat every 5 min (max10 mg); 0.2 mg/kg IM (max 10 mg), may repeat every 10 min (max 20 mg) (IM not preferred unless no other options). -Lorazepam 0.1mg/kg IV/IO/IM (max 2 mg), may repeat every 5 min (max 4 mg). Contact medical control for dosages above those provided or use of medication not fitting the guideline parameters.	No
Vermont	Yes	EMT, AEMT	No, only assist family if RM prescribed (diazepam rectal gel, intranasal midazolam; if VNS, suggest the use of VNS magnet.	No
		Paramedic	-Midazolam 0.2 mg/kg IM (preferred) or IN (max 10 mg, and 5mg/ml concentration recommended for IM/IN administration); 0.1 mg/kg IV (max 4 mg). -Lorazepam 0.1 mg/kg IV (max 4 mg). -Diazepam 0.1 mg/kg IV (max 10 mg). Any of the above may be repeated once after 5 min. Contact medical direction for additional dosing. Preferred initial dose is midazolam IM/IN. If IV established, administer IV.	No
Virginia	No (e.g. Tidewater EMS regional council, including Virginia Beach)	EMT, AEMT	No	No
		Intermediate Paramedic	-Midazolam 0.2 mg/kg IN equally divided in each nostril (max 5 mg) (midazolam IN preferred drug); 0.1 mg/kg slow IV/IM push over 1 min (max 2.5 mg) (IM if not IV access, may be just as good, if not better, than lorazepam IV) (midazolam IV/IM as 2nd option after midazolam IN). -Lorazepam 0.1 mg/kg IV/IO (max 2 mg), slow IV push, over 2 min (may be administered IM if no IV/IO access). May repeat with physician order (max 8 mg). *IO placement is the last resort.	No
Washington	No (King County, including Seattle, not available; e.g. Thurston County, including Olympia)	BLS	No	No
		ALS	-Midazolam 0.1 mg/kg IV, may repeat q 3 min (max 5 mg); 0.2 mg/kg IM/IN, may repeat q 3 min (max 10 mg).	
West Virginia	Yes	BLS	No	No
		Paramedic Advanced Care Technician	If patient has prescription of rectal diazepam, administer it and contact medical command. -Midazolam IV/IO/IM 0.1 mg/kg (max 5 mg); if no IV, 0.2 mg/kg IN via atomizer (max 5 mg). The administration requires medical control physician order. Further treatment as ordered by medical command.	No

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Wisconsin	Yes	EMR, EMT, AEMT	No	No
		Intermediate	-Midazolam 0.1-0.2 mg/kg IN/IM (max 10 mg) (should be 5mg/ml concentration), may repeat in 5 min; 0.1-0.2 mg/kg IV (max 10 mg), may repeat in 5 min. -Diazepam rectal 0.5 mg/kg <6 y/o, 0.3 mg/kg 6-11 y/o, 0.2 mg/kg > 11y/o, may repeat in 10 min, for continued seizure 0.2 mg/kg/dose. -Lorazepam 0.05-0.1 mg/kg/dose (max 2 mg). If no IV/IO access, administer midazolam IN/IM or rectal diazepam. Intermediate agencies may have only one benzodiazepine on formulary.	No
		Paramedic	Same than intermediate level plus alternative benzodiazepines. Contact medical control for persistent seizures.	No
Wyoming	No (Laramie County, including Cheyenne, not available)			No

Legend: BLS: Basic Life Support providers, ALS: Advanced Life Support providers, EMT: Emergency Medical Technician, AEMT: Advanced Emergency Medical Technician, EMT-I: Intermediate, EMR: Emergency Medical Responder, IM: intramuscular, IV: intravenous, IN: intranasal, IO: intraosseous, PR: per rectum, MAD: mucosal atomization device, RM: rescue medication, NASEMSO: National Association of State EMS Officials, BZD: benzodiazepines, ASM: anti-seizure medication, VNS: vagus nerve stimulation, ET: endotracheal.

LINKS TO THE PROTOCOLS:

ALABAMA: <http://www.alabamapublichealth.gov/ems/assets/9thEditionProtocolsFinal.pdf>

ALASKA: <https://nasemso.org/wp-content/uploads/National-Model-EMS-Clinical-Guidelines-2017-PDF-Version-2.2.pdf>

ARIZONA: <https://www.azdhs.gov/preparedness/emergency-medical-services-trauma-system/index.php#community-paramedicine-home>

ARKANSAS: https://www.healthy.arkansas.gov/images/uploads/pdf/EMS_National_Guidelines_2017.pdf

CALIFORNIA: Los Angeles County http://file.lacounty.gov/SDSInter/dhs/1040482_1231-PSeizure2018-04-29.pdf

COLORADO: Denver metropolitan area <http://www.dmemsmd.org/sites/default/files/DMEMSMD-Protocols-2019-7-Linked.pdf>

CONNECTICUT: [https://portal.ct.gov/-/media/Departments-and-](https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/ems/pdf/statewide_protocols/V20191ProtocolsFINALNOSEC2EpiAdd.pdf?la=en)

[Agencies/DPH/dph/ems/pdf/statewide_protocols/V20191ProtocolsFINALNOSEC2EpiAdd.pdf?la=en](https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/ems/pdf/statewide_protocols/V20191ProtocolsFINALNOSEC2EpiAdd.pdf?la=en)

DELAWARE: <https://statefireschool.delaware.gov/wp-content/uploads/sites/114/2018/10/2018-BLS-Standing-Orders.pdf> and <https://www.dhss.delaware.gov/dph/ems/files/paramedicstandingorders2018.pdf>

DISTRICT OF COLUMBIA: <https://fems.dc.gov/sites/default/files/dc/sites/fems/publication/attachments/DC%20FEMS%202017%20Protocol%20Update%20-%20April%201%2C%202019%20Part%201.pdf>

FLORIDA: Miami-Dade County <https://mdsceh.miamidade.gov/mobi/moms/protocol%2016p.pdf>

GEORGIA: Not available.

HAWAII: <https://health.hawaii.gov/ems/files/2018/09/SO2018.pdf>

IDAHO: <http://healthandwelfare.idaho.gov/Portals/0/Medical/EMS/EMSPC/EMSPCProtocols2017ProceduresFINAL.pdf>

ILLINOIS: Chicago, paramedics https://chicagoems.org/wp-content/uploads/2019/01/ALS-SMO-MDC_APPROVED.pdf ; BLS https://chicagoems.org/wp-content/uploads/2019/01/BLS-SMO-MDC_APPROVED.pdf

INDIANA: Indianapolis <http://protocols.indianapolisems.org/medical.html#parentVerticalTab11>

IOWA: <https://idph.iowa.gov/Portals/1/userfiles/179/2018%20Protocols%20FINAL-TOC%20update.pdf>

KANSAS: http://www.ksbems.org/ems/?page_id=468

KENTUCKY: <https://kbems.kctcs.edu/media/medical-direction/Kentucky%20State%20Protocols%20COMPLETE%204.18%20UPDATE.PDF>

LOUISIANA: New Orleans <https://www.nola.gov/ems/documents/rope- march 2018/>

MAINE: https://www.maine.gov/ems/documents/2018_Protocol.pdf

MARYLAND: http://www.miemss.org/home/Portals/0/Docs/Guidelines_Protocols/MD-Medical-Protocols-2019.pdf?ver=2019-04-18-095706-647

MASSACHUSETTS: <https://www.mass.gov/files/documents/2019/08/06/emergency-medical-services-pre-hospital-treatment-protocols-version-2019-2-effective-100119.pdf>

MICHIGAN: https://www.michigan.gov/documents/mdhhs/Section_4_Obstetrics_and_Pediatrics_613176_7.pdf

MINNESOTA: BLS https://mn.gov/emrbs/assets/2013BLSPedsguidelines_tcm1116-366187.pdf; ALS https://mn.gov/emrbs/assets/2013ALSPedsguidelines_tcm1116-366186.pdf

MISSISSIPPI: https://msdh.ms.gov/msdhsite/_static/47,19055,305,382.html

MISSOURI: Kansas City <https://www.kcmo.gov/home/showdocument?id=3348>

MONTANA: <http://boards.bsd.dli.mt.gov/Portals/133/Documents/med/ecp/MT%20protocol%20V%2011%203%202019.pdf?ver=2019-03-06-104644-380>

NEBRASKA: <http://dhhs.ne.gov/OEHS%20Program%20Documents/EMS%20Model%20Protocols.pdf>

NEVADA: Clark County, Las Vegas <http://media.southernnevadahealthdistrict.org/download/ems/2019/20190701-July-One-Protocol.pdf>

NEW HAMPSHIRE: <https://www.nh.gov/safety/divisions/fstems/ems/advlifesup/documents/patientprotocols7.1.pdf>

NEW JERSEY: https://njems.njlines.net/cdr/docs/NJEMS_FieldGuide_PDF.pdf

NEW MEXICO: <https://nmhealth.org/publication/view/policy/1892/>

NEW YORK: BLS https://www.health.ny.gov/professionals/ems/docs/bls_protocols.pdf; ALS https://www.health.ny.gov/professionals/ems/docs/collaborative_protocols.pdf

NORTH CAROLINA: <https://www.ncems.org/protocols/allprotocols.pdf>

NORTH DAKOTA: <https://www.health.nd.gov/epr/emergency-medical-systems/emergency-medical-services-system/ems-protocols/>

OHIO: https://www.ems.ohio.gov/links/ems_Pediatric-Guidelines-Procedures-Manual.pdf

OKLAHOMA: <https://www.ok.gov/health2/documents/2018%20State%20Protocols%20with%20references%204-18-2018.pdf>

OREGON: Multnomah County, including Portland <https://multco.us/health/providers/emts-paramedics>

PENNSYLVANIA: ALS <https://www.health.pa.gov/topics/Documents/EMS/2019%20PA%20ALS%20Protocols%20Final.pdf>, BLS <https://www.health.pa.gov/topics/Documents/EMS/2019%20PA%20BLS%20Protocols%20Final.pdf>

RHODE ISLAND: <http://www.health.ri.gov/publications/protocols/StatewideEmergencyMedicalServices.pdf>

SOUTH CAROLINA: <https://www.sccmsportal.org/sites/default/files/2017%20State%20Protocols%20and%20Formulary%209-12-2019.pdf>

SOUTH DAKOTA: Not available.

TENNESSEE: [https://www.tn.gov/content/dam/tn/health/events/7.7.18PDF%20TN%20EMS%20Protocol%20Guidelines%20-%20Mar2018%20\(Rcv7.7.18\).pdf](https://www.tn.gov/content/dam/tn/health/events/7.7.18PDF%20TN%20EMS%20Protocol%20Guidelines%20-%20Mar2018%20(Rcv7.7.18).pdf)

TEXAS: City of Houston <https://www.hfdmd.org/HFDProtocols2019.pdf>

UTAH: https://bemsp.utah.gov/bemsp/wp-content/uploads/sites/34/2018/07/2017_utah_ems_medical_guidelines-4.pdf

VERMONT: <http://www.healthvermont.gov/sites/default/files/DEPRIP.Protocols%202018%20FINAL%20June%208.pdf>

VIRGINIA: Virginia Beach, part of Tidewater EMS regional council <http://tidewaterems.org/update/2017%2010%2002%20Tidewater%20EMS%20Regional%20Medical%20Protocols%20with%20Appendixes.pdf>

WASHINGTON: King County, including Seattle, not available. Thurston County, including Olympia <https://www.thurstoncountywa.gov/m1/m1documents/Thurston%20County%20EMS%20Field%20Protocols.pdf>

WEST VIRGINIA: BLS <https://www.wvoems.org/media/371134/combined%20emt%20protocols.pdf>, paramedic <https://www.wvoems.org/media/371130/combined%20paramedic%20protocols.pdf>, ACT <https://www.wvoems.org/media/371138/combined%20act%20protocols.pdf>

WISCONSIN: <https://www.dhs.wisconsin.gov/ems/treatment.htm>

WYOMING: Not available.