Administering Intranasal Midazolam (Versed) in the School Setting
Foreword

This guideline contains recommendations for current best practices for the health service topic addressed. They have been reviewed by the School Nurse Practice Subcommittee of the Michigan Statewide School Nurse Task Force as a means to provide consistent and safe care to the students. Specific laws and regulations that direct school nursing practice or other health services are identified in the guidelines. There is no guarantee that the use of guidance in this document will lead to any particular result or outcome. The information in this document was researched in September, 2016.

Purpose

This document will provide guidelines and resources for administering Midazolam in the school setting.

Overview

The Centers for Disease Control and Prevention (CDC) (2015) describes seizures as a brief change in normal electrical brain activity resulting in alterations in awareness, perception, behavior, or movement. Seizures affect persons of all ages, but are particularly common in childhood. Seizures affect nearly 1% of children and adolescents aged 6–17 years (CDC, 2015). Epilepsy, high fever, head injuries, infections, metabolic conditions, neurodevelopmental conditions, cardiovascular conditions and complications with birth can cause seizures (CDC, 2015). The majority of children and adolescents with epilepsy attend some form of school outside the home (Hartman, Devore, & Section on Neurology, Council on School Health, 2016). Hartman et al. (2016) recommends that school personnel be aware of emergency intervention measures that are needed in the school setting because it is more difficult to stop a prolonged seizure and the longer the seizure, the longer the recovery period. Cross et al. (2013) indicated that the presence of a caregiver trained and able to administer a rescue medication determines if children having seizures receive treatment in time.

Midazolam (Versed) is increasingly being used by emergency medical services because of its short elimination half-life (Hartman et al., 2016). Hartman et al. (2016) indicated that an attractive feature of Midazolam is that it avoids the inconvenience and emotional discomfort of diazepam gel. Mula (2014) identified the advantages of midazolam (oral or intranasal) for acute management of epileptic seizures as rapid onset of action, not causing metabolic acidosis, and ability to being administered in prehospital settings. Sirsi (2010) identified cost factors and social considerations as a benefit to using intranasal midazolam. Humphries and Eiland (2013) reviewed the efficacy, safety, cost and pharmokinetics of intranasal midazolam and found it to be efficacious and a reasonably safe treatment for seizures in the pediatric population and recommended it should be considered as an anticonvulsant agent for community and prehospital use when intravenous access is not available. Other studies have also shown the effectiveness of nonintravenous midazolam for seizure control (Arya et al., 2015; Ulgey, Aksu, & Bicer, 2012; Brigo, Nardone, Tezzon and Trinka, 2015; Holsti, et al., 2007; Holsti et al., 2010; McIntyre et al., 2005; McMullen et al., 2010; Mpimbaza, Ndeez, Staedke, Rosenthal, & Byarugaba, J. 2008; Mula, 2014; Rainbow, Brown, & Lam, 2002; Sofou, Kristjansdottir, Papachatzakis, Ahmadzadeh, & Uvebrant, 2009; Thakker & Shanberg, 2013; Zhao, Wang, Wen, Yang, Feng, Fan, 2016; Zelcer & Goldman, 2016). Wilson, Macleod and O’Regan (2004) found midazolam to be an effective treatment for prolonged
seizures in the community and preferred over rectal diazepam by families. Hartman et al., (2016) indicated that an individualized action plan will be most effective if it takes into consideration the possible options for the least restrictive medication choice (buccal or nasal route).

Hartman et al. (2016) indicated that adverse effects of all seizure rescue medications include decreased respirations, oversedation, and cardiopulmonary instability. Although studies have shown nonintravenous midazolam to be effective for seizure control, reasonably safe, and more convenient to use in prehospital settings than diazepam gel, there are reported side effects. Zelcer and Goldman (2016) identified a burning sensation or irritation in the nose lasting for 30-45 seconds and a bitter taste in the mouth. Ulgey et al. (2012) identified drowsiness after an oral dose lasting 30-90 minutes. Bosson et al. (2014) found the occurrence of apnea in children with out-of-hospital seizures is multifactorial and risk factors likely included treatment with midazolam and prolonged seizure. Bosson et al. (2014) indicated the overall risk of apnea in their study cohort was 4.5% and the most important factor in reducing the risk of apnea in children with out-of-hospital seizure is termination of seizure activity. MacIntyre et al. (2005) found that buccal midazolam was not associated with an increased incidence of respiratory depression (5.5% for both diazepam and buccal midazolam). Mula (2014) indicated that serious side effects, such as respiratory depression, occurred in about 1% of the population studied. McMullen et al. (2010) found 0.5% of the children studied had respiratory complications from nonintravenous midazolam.

There are legal and safety issues school districts need to consider when intranasal midazolam is prescribed for a student in the school setting (Hartman et al., 2016). The Michigan Department of Education (MDE) (2016) provides legal and policy information about medication administration in schools.

Intranasal midazolam is currently classified as “off label” and has not yet been approved by the FDA although studies support its efficacy and find it to be a reasonably safe treatment for prolonged seizures. School nurses need to create and sustain a culture of safety in the school setting. Safe medication administration in Michigan schools is guided by:

- Federal law (FERPA, HIPAA)
- Attorney General Opinion, No. 5679, April 11, 1980
- The Revised School Code (Excerpt) Act 451 of 1976 Section 380.1178 and Section 380.1179
- Administrative Rule R340.1161 - 1163
- School district policies and procedures
- National Association of School Nurses (NASN) School Nursing: Scope and Standards Practice (NASN & American Nurses Association [ANA], 2011)

Providing an environment that is responsive to emergency health needs of students is essential to creating a safe school setting (NASN, 2012b). Olympia, Wan, & Avner (2005) studied medical complaints in schools requiring EMS activation and found difficulty breathing and seizures were the most documented complaints. Olympia (2016) indicated both the American Academy of Pediatrics (AAP) and
the American Heart Association (AHA) published guidelines stressing the need to establish emergency response plans to deal with life-threatening emergencies in children that included the goal of equipping the school for life-threatening emergencies. Foley (2013) suggested that some schools may have additional equipment or medication needs, especially if they have a long EMS response time.

**Legal Framework for Administering Midazolam (Versed) in Schools**

State and federal law, model policies, *School Nursing: Scope and Standards Practice* (NASN & ANA, 2011) and the NASN position statements provide guidance for administering medications in school when there is a school nurse present. A significant number of school districts in Michigan do not have any school nurse coverage or the school nurse oversees multiple buildings and is not on site to provide emergency care for students. School nurses that delegate the administration of medication per school district policy adhere to the Occupational Regulation Sections of the Michigan Public Health Code, Act 368 of 1978, Part 172 Nursing. School districts that don’t employ school nurses follow the revised School Code (see Resources) and have the MDE *Guidelines for Administering Medication to Pupils in School* as a resource.

**Federal Law**

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<tr>
<td>34 CFR 99 Family Educational Rights and Privacy Act (FERPA)</td>
<td>Provides privacy restrictions on student records. School health records are covered under this act. In school FERPA takes precedence over HIPAA.</td>
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<tr>
<td>PL 104-91 Health Insurance Portability and Accountability Act of 1996 (HIPAA)</td>
<td>Provides privacy restrictions on student records. School health records are covered under this act. In school FERPA takes precedence over HIPAA.</td>
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<tr>
<td>Americans with Disabilities Act of 1990 (ADA)</td>
<td>Disability discrimination prohibited.</td>
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<td>Section 504, Rehabilitation Act of 1973</td>
<td>Protects the rights of children with special health-care needs (CSHCN) by providing related services, including health services, to those not eligible for special education.</td>
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<tr>
<td>34 CFR Part 300 Individuals with Disabilities Act of 1997 (IDEA)</td>
<td>Guarantees access to education and related services to assist children with disabilities benefit from special education. Reauthorization of 2004, Sec. 602 (26) list school nurse services as a related service.</td>
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**Every Student Succeeds Act (ESSA)**

This Act reauthorizes the 50-year-old Elementary and Secondary Education Act (ESEA), the nation’s national education law and longstanding commitment to equal opportunity for all students. ESSA replaces No Child Left Behind.

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### Michigan Law and Model Policies

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<td><strong>Revised School Code (EXCERPT)</strong> Act 451 of 1976</td>
<td>Liability- sets forth legal provisions for the immunity of school employees, <strong>designated by the school administrator</strong>, against an allegation of “simple” negligence if the employee administers the medication under certain requirements including being in the presence of another adult. <strong>If a school employee is a licensed registered professional nurse</strong>, subsection (1) applies to that school employee regardless of whether the medication is administered in the presence of another adult.</td>
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| **PUBLIC HEALTH CODE (EXCERPT)** Act 368 of 1978 | Supervision requires continuous availability of direct communication in person or by radio, telephone, or telecommunication between the supervised individual and a licensed health professional, the availability of the licensed health professional to review the practice of the supervised individual, to provide consultation to the supervised individual, to review records, and to further educate the supervised individual in the performance of the individual’s functions. |

| **Board of Nursing General Rules** | The Michigan Board of Nursing has promulgated specific administrative rules about delegation. In accordance with the Board of Nursing General Rules on Delegation, only a registered nurse may delegate nursing acts, functions, or tasks. |

| **Attorney General Opinion, No. 5679, April 11, 1980** | A physician must delegate and supervise the act of medication administration if the school district does not employ a school nurse. |
### MDE Model Medication Policy

The Michigan Department of Education issued a memo to school superintendents outlining a model medication policy (2002). Note: Not a law.

### PUBLIC HEALTH CODE (EXCERPT)

**Act 368 of 1978**

§ [333.16104](#)

The Michigan Board of Nursing has promulgated specific administrative rules about delegation. In accordance with the Board of Nursing General Rules on Delegation, only a registered nurse may delegate nursing acts, functions, or tasks.

### Administrative Rule R340.1163

Pertains to function of the school nurse. Assess and evaluate health status; interpret medical evaluations; plan course of action to minimize or prevent health problems; intermediary to family, physician, and social agencies; initiate supplemental testing; develop in-services and school policies. (School Code)


Michigan has an act that regulates the practice of nursing, along with 25 other health occupations. Michigan does not have a stand-alone act called the Nurse Practice Act because in Michigan, we have a consolidated practice act that covers 25 health occupations and is formally titled the Occupational Regulation Sections of the Michigan Public Health Code, PA 368 of 1978.

### PA 12 of 2014

The governing body of a school that operates K-12 shall adopt and implement a cardiac emergency response plan for the school. The plan must include at least: 1) Use and regular maintenance of the auto external defibrillator, 2) Activation of a cardiac emergency response team during an identified cardiac emergency, 3) A plan for effective communication, and 4) If a school is grades 9-12 a training plan for use of an auto external defibrillator in CPR rescue techniques.

## School Nurse’s Role

NASN (2011) identified the school nurse as the leader in the school community that oversees school health policies and programs. The *Framework for the 21st Century School Nursing Practice* provides a conceptual framework that explains the key principals of school nursing and provides structure and
focus to current evidence-based school nursing practice (NASN, 2016). Leadership is one of the five key principals in the framework that includes advocacy, policy development and implementation, and systems-level leadership that can provide direction to making decisions about administering midazolam in the school setting. Care Coordination, a second tenant in the Framework for the 21st Century School Nursing Practice, can also provide guidance in the management of students with seizures and use of midazolam in the school setting. The NASN position statement (2012), Medication Administration in the School Setting provides policy guidelines that protect the safety of students receiving medications in the school setting.

**Recommendations for Practice**

**Leadership**

**Policy Development**

- Ensure there are policies and plans in place for safe, effective, and efficient administration of medications at school (AAP Council on School Health, 2009; Cross et al., 2013).
- Ensure the development of policies and administrative regulations concerning medical emergencies (AAP Council on School Health, 2009).
- Ensure policies address how medical emergencies will be handled outside of the traditional school day (Tanner & Clark, 2016).
- The medication policy should be reviewed annually and updated when necessary (Taliaferro and Resha, 2016).
- Ensure policies delineate the need for secured and immediate access to emergency medications at school, at all times, including before and after school hours and during students’ off-campus school sponsored activities (AAP Council on School Health, 2009).
- Ensure policies identify the need to protect student health information confidentiality (AAP Council on School Health, 2009).
- Ensure policies specify the need for a communication plan for school district administration, personnel, parents, local health care providers, Emergency Medical Services (EMS), and the community.
- Intranasal midazolam is currently classified as “off label” and has not yet been approved by the FDA although studies support its efficacy and find it to be a reasonably safe treatment for prolonged seizures. The Michigan School Nurse Advisory Council recommends school boards contact their attorneys to help determine the best solution for individual students having physician’s orders to administer intranasal midazolam at school. Furthermore, intranasal midazolam is considered a rescue medication. If school districts determine that administering intranasal midazolam is a safe option in their school setting, a protocol for safe administration should be written and incorporated into the district’s medication policy and procedure guidelines.

**Care Coordination for Administration of Intranasal Midazolam in the School Setting when there is a School Nurse Present:**

Daily access to a registered nurse best ensures the safety of students receiving any medication in the school setting, especially an emergency medication with potentially serious side effects (assessment; planning for care; accurate dosage and medication administration; monitoring for side effects; and
follow-up care). Therefore, the *Michigan School Nurse Advisory Council* strongly recommends intranasal midazolam is administered by a registered nurse and recommends the following safety strategies:

**Collaborative Communication**
- Communication with the prescribing licensed healthcare provider for intranasal midazolam is essential for the safe care of students in the school setting (Cross et al., 2013; Hartman et al., 2016). School nurses should expect the prescribing physician to:
  - Assess the student to determine the safety of intranasal midazolam administration in the school setting.
  - Inform school personnel and the family about what to anticipate when the student is medicated with intranasal midazolam.
  - Ask about the availability of licensed health care providers on site or plans for training UAP staff to administer intranasal midazolam (Hartman et al., 2016).
  - Provide a detailed Emergency Care Plan for seizures and medication administration in addition to contact information for school nurses and school personnel to ask questions.
  - Provide consultation to the school nurse and provide education as needed.
  - Inform the school nurse if the student has received intranasal midazolam previously and indicate how the student responded.
- Pre-event communication with local EMS about any student having intranasal midazolam prescribed as a rescue medication for prolonged seizures.
- Documentation of an initial “test” dose of intranasal midazolam given at home or in a health care setting (including student’s response) prior to being prescribed for use in the school setting (C. Handford, personal communication, January 7, 2016).

**Education**
- Professional development for the school nurse (if requested) on administering intranasal midazolam in the school setting.

**Student Care Plans**
- Emergency care plans developed collaboratively with the prescribing physician, family, and school nurse for individual students with seizure disorders (Cross et al., 2013; Hartman et al., 2016; Galemore, 2016; Wait et al., 2016).

**Direct Care**
- Call EMS each time intranasal midazolam is administered at school.
- Follow-up care that includes documentation of the seizure and response to intranasal midazolam (Hartman et al., 2016).

**Care Coordination for Administration of Intranasal Midazolam in the School Setting by Unlicensed Assistive Personnel (UAP):**

The *Michigan School Nurse Advisory Council* strongly recommends intranasal midazolam is administered in the presence of a school nurse. When a school nurse is not present to administer intranasal midazolam, school districts may want to consider developing a written accommodation plan that specifies the school responsibilities to best ensure student safety. The accommodation plan should include:
Collaborative Communication

- Communication with the prescribing licensed healthcare provider for intranasal midazolam is essential for the safe care of students in the school setting (Cross et al., 2013; Hartman et al., 2016). School personnel should expect the prescribing physician to:
  - Assess the student to determine the safety of intranasal midazolam administration in the school setting.
  - Inform school personnel and the family about what to anticipate when the student is medicated with intranasal midazolam.
  - Ask the school administrator about the availability of licensed health care providers on site or plans for training UAP staff to administer intranasal midazolam (Hartman et al., 2016).
  - Provide a detailed Emergency Care Plan for seizures and medication administration in addition to contact information for school personnel to ask questions (Cross et al., 2013; Hartman et al., 2016; Wait et al., 2013).
  - Provide consultation to the school staff and follow-up education as needed.
  - Inform the school administrator if the student has received intranasal midazolam previously and indicate how the student responded.
- Notification to parent/guardian and prescribing licensed health care provider that there is not a school nurse available to administer intranasal midazolam at school.
- Pre-event communication with local EMS about any student having intranasal midazolam prescribed as a rescue medication for seizures.
- Documentation of an initial “test” dose of intranasal midazolam given at home or in a health care setting (including student’s response) prior to being prescribed for use in the school setting (C. Handford, personal communication, January 7, 2016).

Education

- Appropriate training from a registered nurse, physician, nurse practitioner, or physician assistant for the UAP staff designated to administer intranasal midazolam (Cross et al., 2013; Hartman et al., 2016; Wait et al., 2013). Training should include:
  - Instruction on the district’s or school’s medications policies and procedures;
  - Orientation to the causes, signs, symptoms, and treatment of seizures specific to the individual student and the anticipated effects and possible adverse effects of intranasal midazolam (Hartman et al., 2016);
  - Demonstration and instruction using realistic supplies for administering intranasal midazolam;
  - Skill-based practice using realistic supplies in simulated seizure emergency response situation;
  - Instruction on the procedures for contacting EMS, completing a school incident report, and notifying the parent/guardian that intranasal midazolam has been administered;
  - Documentation of knowledge and skill-based competency evaluation demonstrating that the employee was adequately trained;
  - Recommendations on frequency of refresher training including demonstration of skill-based competency;
  - Identification of contact information for the prescribing healthcare provider and other resources to address questions and concerns.
- CPR/AED/First Aid training for UAP staff trained to administer intranasal midazolam and monitoring for continued CPR/AED/First Aid training.

**Student Care Plans**
- Detailed emergency care plan for the individual student developed collaboratively with the licensed health care provider that prescribed intranasal midazolam, school officials, and parent/guardians. Contact information for the prescribing licensed healthcare provider should be included in the plan (Cross et al., 2016; Galemore, 2016; Hartman et al., 2016; Wait et al., 2013).

**Direct Care**
- 911 call to EMS each time intranasal midazolam is administered by school staff.
- Follow-up care that includes documentation of the seizure and response to intranasal midazolam (Hartman et al., 2016).

**Health Equity**

The CDC (2009) provides a guide to creating easy-to-understand materials (fact sheets, FAQ’s, brochures, booklets, pamphlets, web content) from scientific and technical information. The guide includes practical ways to organize information and use language and visuals. The guide can be retrieved from [http://www.cdc.gov/healthliteracy/pdf/Simply_Put.pdf](http://www.cdc.gov/healthliteracy/pdf/Simply_Put.pdf)

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### Red Flags for Administering Midazolam in the School Setting

1. Unclear information is provided to parents and there is poor communication between health care provider and school officials (Wait et al., 2013).

2. The emergency care plan doesn’t specify emergency care for the student in a wide variety of school activities including transportation to and from school, field trips, before and after school activities, and other activities beyond the classroom setting (Galemore, 2016; Hartman et al., 2016).

3. There is no specific skills-based training plan that includes a plan for refresher training (Wait et al., 2013).


MICHIGAN ASSOCIATION OF SCHOOL NURSES ADMINISTERING MIDAZOLAM IN THE SCHOOL SETTING

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