Oxygen Safety in the School Setting

MICHIGAN ASSOCIATION OF SCHOOL NURSES OXYGEN SAFETY IN THE SCHOOL SETTING

MICHIGAN SCHOOL NURSE GUIDELINES AND RESOURCES

Original Date of Issue: 2016
Foreword

These guidelines contain current best practice recommendations for the health service topic addressed. The guidelines 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 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 July, 2016.

Purpose

This document will provide guidelines and resources for oxygen safety in the school setting.

Overview

Porter, Page, & Somppi (2013) reported the increasing prevalence of children with special health care needs assisted by oxygen, tracheostomies, and ventilators who are attending school. Medical oxygen is classified by the Food and Drug Administration (FDA) as a drug (Brinkerhoff, 2009; Brubaker & Selekman, 2013; Goldman, 2015). The FDA sets guidelines that manufacturers must follow when making medical grade oxygen (Brinkerhoff, 2009). Oxygen administration in the school setting is guided by federal law, Michigan law, model polices, local school policies, and national standards:

- Federal Drug Administration (FDA)
- Attorney General Opinion, No. 5679, April 11, 1980
- The Revised School Code (Excerpt) Act 451 of 1976 Section 380.1178
- Administrative Rule R340.1161 - 1163
- School district policies and procedures
- National Association of School Nurses School Nursing Scope & Standards of Practice
- National Association of School Nurses Position Statement - Medication Administration in the School Setting
- Michigan Occupational Safety and Health Administration.

Legal Framework for Oxygen in the School Setting

State law, model policies, guidance documents, local school policies and national school nursing guidelines provide direction for storing and administering oxygen in the school setting.
### Federal Guidance Document

<table>
<thead>
<tr>
<th>Guidance Document</th>
<th>Brief Description</th>
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<tr>
<td><em>Guidance for industry – Current good manufacturing practice for medical gases.</em></td>
<td>Note: As long as an individual or a firm meets the requirements in the following labeling statement then medical grade oxygen may be dispensed without a prescription. If a firm sells medical grade oxygen to emergency medical services, i.e., fire departments, rescue squads, ambulance companies, etc. for emergency use, then the label is required to contain the statement: <em>&quot;For emergency use only when administered by properly trained personnel for oxygen deficiency and resuscitation. For all other medical applications, Rx Only.&quot;</em> Please note that each state usually defines what properly trained personnel are. The labeling statement can be found in this document on page 17.</td>
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### Michigan Law

<table>
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<th>Law</th>
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<tr>
<td>Revised School Code §380.1178</td>
<td>Liability- sets forth legal provisions for the immunity of school employees, designated by the school administrator, against an allegation of “simple” negligence if the employee administers the medication under certain requirements including being in the presence of another adult. <em>If a school employee is a licensed registered professional nurse, subsection (1) applies to that school employee regardless of whether the medication is administered in the presence of another adult.</em></td>
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<tr>
<td>Administrative Rule R340.1163</td>
<td>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;</td>
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<tr>
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<td><strong>Michigan Public Health Code, PA 368 of 1978.</strong></td>
<td>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.</td>
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<tr>
<td><strong>Attorney General Opinion, No. 5679, April 11, 1980</strong></td>
<td>A physician must delegate and supervise the act of medication administration if the school district does not employ a school nurse.</td>
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<td><strong>MDE Model Medication Policy</strong></td>
<td>The Michigan Department of Education issued a memo to school superintendents outlining a model medication policy (2002). Note: Not a law.</td>
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School Nurse’s Role

The National Association of School Nurses (NASN) (NASN, 2011) identified the school nurse as the leader in the school community that oversees school health policies and programs (NASN, 2011). 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 oxygen safety in the school setting. Care Coordination is the principal that includes student care plans, an essential component for providing a safe environment for students needing oxygen. The NASN position statement (2012a), 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 and implementation

1. Ensure there are policies and plans in place for safe, effective, and efficient administration of all medications (e.g. oxygen) at school (American Academy of Pediatrics (AAP) Council on School Health, 2009).

2. Make provisions for secured and immediate access to emergency medications (e.g. oxygen) 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).
3. Consider using checklists to ensure the same process is followed consistently each time a stock medication (e.g. oxygen) is administered. Checklists don’t rely on human memory, allow for mutual checking, and enhance communication (Pereira-Argenziano & Levy, 2015).

4. Consider education and consultation at no charge from MIOSHA when oxygen is to be administered at school. Information about consultation can be retrieved from http://www.michigan.gov/lara/0,4601,7-154-11407-15317----00.html.

5. Collaborate and discuss with school administrators the need for a Hazardous Communication Plan if there is oxygen in the school setting. Information can be retrieved at http://www.michigan.gov/lara/0,4601,7-154-11407---00.html.

6. Ensure there is a Safety Data Sheet for oxygen in the school setting. Information can be found at http://www.michigan.gov/lara/0,4601,7-154-11407---00.html and https://www.osha.gov/Publications/HazComm_QuickCard_SafetyData.html.

7. Understand that medications, including oxygen should be in accordance with state laws, pharmacy and nurse practice acts (NASN, 2012b).

8. Understand that the school Emergency Action Plan will lay the foundation for assuring the health and safety of all within the school community during the school day and will also incorporate planning for after school events including sporting events (Raines & Robinson, 2012). Medically fragile, mobility impaired, mentally and emotionally impaired, communication and sensory impaired, and non-English speaking students, staff, and visitors need to be included in school emergency plans (Bobo, Hallenbeck, & Robinson 2003; Flaherty, 2013; NASN, 2014; Porter et al., 2012).
   - Ensure healthcare provider orders are available for a 72-hour lockdown or disaster to support and care for children with chronic health conditions.
   - Identify a system for retrieving and transporting medications to areas of lockdown or evacuation.
   - AAP provides a template for collecting emergency information for children with special needs retrieved from http://www2.aap.org/advocacy/blankform.pdf.

9. Identify school staff members that need training for oxygen storage and administration, such as custodians and principals (Brubaker & Selekan, 2013).

10. Include safety requirements for oxygen in the school setting:
   - MIOSHA standards and legislation (retrieved from http://www.michigan.gov/lara/0,4601,7-154-11407-15368---00.html).
   - Follow manufacturer’s label, checklist and literature regarding unit specific storage and maintenance considerations (Goldman, 2015; Jevron, 2014).
   - Contact the local fire department and EMS in writing to notify them that there is a student with oxygen in school (Brubaker & Selekan, 2013; Porter et al., 2013).
   - Keep oxygen cylinders away from open flames and heat sources (Brubaker & Selekan, 2013; Jevron, 2014).
   - Store cylinders in a safe, secure area where they will not fall over or cause injury and where there is sufficient ventilation (Jevron, 2014; Porter et al., 2013).
   - Store oxygen out of direct sunlight (Brubaker & Selekan, 2013).
   - Don’t force cylinders open or closed using the hand wheel (Jevron, 2014).
   - Leave all labels and markings clearly visible on the cylinder (Jevron, 2014).
   - Don’t use any oil-based, oil, or grease products near the cylinder to avoid risking spontaneous combustion (Brinkerhoff, 2009; Jevron, 2014).
Report any defective oxygen cylinders to the proper regulatory agencies (Jevron, 2014).

**Care Coordination**

1. Know the student’s baseline status (Porter et al., 2013) and continue to monitor health status.
   - Assess the student’s response to oxygen therapy when the student arrives at school and as needed throughout the day (Brubaker & Seleman, 2013).
   - Assess oxygen saturation as ordered (Brubaker & Seleman, 2013).
   - Communicate any signs of infection, inflammation, or complications to the family and the healthcare provider (Brubaker & Seleman, 2013).

2. Obtain the physician’s order for oxygen (Brubaker & Seleman, 2013; Porter et al., 2013). The physician’s order should specify the following:
   - Continuous or intermittent (Lyons, 2012; Porter et al., 2013).
   - Route (nasal cannula, face, tracheostomy, mechanical ventilation) (Brinkerhoff, 2009; Brubaker & Seleman, 2013; Lyons, 2012).
   - Type (tank, liquid, concentrator) (Lyons, 2012).
   - Flow rate. Determine if the flow rate based on pulse oximetry and if there is an order to titrate oxygen based on pulse oximetry (Lyons, 2012; Porter et al., 2013).
   - Description of what constitutes the need for dismissal or a call to EMS (Porter, et al., 2013).
   - Additional Parameters (Lyons, 2012).

3. Develop and utilize Individual Health Plan (IHP) and Emergency Action Plan (EAP) for children with special health care needs (Porter et al., 2013). Include IHPs and ECPs for students with unique health needs in the broader disaster plan (Butler & Wyckoff, 2012; Olympia, 2016). Porter et al, (2013) recommended including the following in the IHP and ECP:
   - Students normal vital signs including normal pulse oximetry.
   - Accommodations for bus trips and field trips.
   - Maintaining 48-72 hours of needed supplies at the school in the event of an emergency.
   - Location of oxygen in several areas so it is readily accessible.
   - Consider inviting local fire personnel to advise on safety and storage.
   - “Oxygen in use” signs alert people that there is a student utilizing oxygen in school (Brubaker & Seleman, 2013).
   - Identify the type of oxygen in the IHP.
   - Check the oxygen daily to be sure there is a full tank.
   - Assess the length of time each oxygen container will last and make plans for delivery of oxygen at appropriate intervals (Brubaker & Seleman, 2013).

4. Participate in an in-service on the particular device from the company supplying the oxygen (Porter et al., 2013).

5. Document the checking of equipment and backup oxygen on a regular basis (Porter et al., 2013).

6. Document all care and communication in the student health record (Brubaker &Seleman, 2013).

7. Obtain a list of suppliers and contact information for the supplies (Porter et al., 2013).
8. Notify local fire department about the location of oxygen in the building.

**Health Equity**

The CDC 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

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**Red Flags for Oxygen in the School Setting**

1. Oxygen servicing companies are required to record documentation of training to meet their FDA requirement (Goldman, 2015).

2. Never use petroleum-based products on the oxygen equipment or student (Brinkerhoff, 2009; Brubaker & Selekman, 2013). For a dry nose or skin, utilize non-petroleum based lubricants when a student receives oxygen (Brinkerhoff, 2009).

3. There are three common oxygen delivery systems that would require a backup oxygen tank in the school that would provide oxygen for 24-48 hours (Brubaker & Selekman, 2013; Porter et al., 2013):
   - Gas system (green tanks of varying sizes) that have a gauge indicating how much oxygen is left in the tank (Porter et al., 2013).
   - Liquid oxygen that has a gauge indicating how much oxygen is left in the tank (Porter et al., 2013).
   - Concentrator (self-contained electrical device that produces oxygen and requires a backup battery).

4. While oxygen itself is not flammable, it will make fire burn hotter and faster (Brinkerhoff, 2009).

**References**


