

# School Nurses' Experience With Administration of Rectal Diazepam Gel for Seizures

Christine O'Dell, RN, MSN; and Kathryn O'Hara, RN

**ABSTRACT:** The purpose of this study was to determine school nurses' knowledge of state and school district policies, their experience regarding the administration of rectal diazepam gel in the school, and the perceived benefits and barriers of providing this treatment. Four hundred nineteen nurses responded to a survey conducted during the National Association of School Nurses Annual Meeting. Seventy-one (18%) nurses surveyed had administered rectal diazepam gel in a school setting, while 54 (13%) nurses reported that either their state practice act or school district prohibited them from giving rectal medications in the school. Medication administration benefits, such as early intervention for treatment of acute seizure emergencies, were noted. Barriers were also identified, with lack of privacy as the most frequently listed. Scope of practice as it pertains to administering medication in the school and the extent to which delegation of duties can be used in the situation of administering rectal medication in a seizure emergency remain issues for school nurses.

**KEY WORDS:** delegation of duties, intractable seizures, medication administration, prolonged seizures, rectal medication

## INTRODUCTION

This year, 200,000 people in the United States will be diagnosed with epilepsy, and more than 45,000 of these new cases will be school-age children. Epilepsy is the third most common serious pediatric neurological disorder after mental retardation and cerebral palsy. Epilepsy affects as many as 326,000 children ages 5 to 14 in the United States today (Epilepsy Foundation, 2006). Most people diagnosed with epilepsy will have well-controlled seizures with the use of daily medication; however, 30–40% continue to have seizures despite treatment (Sillanpaa, Jalava, Kaleva, & Shinnar, 1998). Epilepsy is more common in children with other neurological disorders such as mental retardation (25.5%), cerebral palsy (13%), and autism

(25.5%). It is especially common in those with multiple disabilities, with almost 50% of those with both mental retardation and cerebral palsy being affected (Nevo et al., 1995; D'Amelio, Shinnar, & Hauser, 2002). It is also more common in genetic syndromes such as Down syndrome (13.6%), which are associated with mental retardation. Any child with epilepsy, even if well controlled, can have a breakthrough seizure.

Research has shown that 50% of first seizures last longer than 5 minutes, and 12% of new-onset seizures last over 30 minutes (Shinnar, Berg, Moshe, & Shinnar, 2001). Twenty-five to 40% of status epilepticus (SE) occurs in people with epilepsy; and 15–27% of people with epilepsy will experience at least one episode of SE (Delorenzo et al., 1996; Sillanpaa & Shinnar, 2002). In addition, there is a subgroup of individuals with prolonged seizures, and these individuals tend to have prolonged seizures if they seize again (Shinnar et al., 2001). Health care providers are able to identify children who are candidates for therapy that will stop seizures before they become prolonged. These children may have prescriptions for rectal di-

*Christine O'Dell, RN, MSN, is a clinical nurse specialist at Comprehensive Epilepsy Management Center, Montefiore Medical Center, Bronx, NY.*

*Kathryn O'Hara, RN, is an epilepsy nurse clinician at Virginia Commonwealth University Medical Center, Richmond, VA.*

azepam gel to be given in the school if needed. Rectal diazepam gel is an FDA-approved therapy for out-of-hospital use to abort seizures. School nurses are being asked to provide treatment for acute seizures by administering rectal diazepam gel in an emergency situation.

Most people diagnosed with epilepsy will have well-controlled seizures with the use of daily medication; however, 30–40% continue to have seizures despite treatment.

A study by Olympia, Wan, and Avner (2005) indicated that school nurses had confidence in responding to emergencies associated with asthma and diabetes. However, this national study reported that school nurses have less confidence in dealing with the management of life-threatening emergencies associated with seizures.

While children are receiving an increased number of medications in school (Ficca & Welk, 2006), there are an insufficient number of licensed nurses to cover all schools. Because there is not a registered school nurse in every school, medications are frequently administered by unlicensed personnel. The study by Ficca and Welk found a lack of understanding among nurses about the ramifications of the Nurse Practice Act (NPA) in Pennsylvania in regard to delegation. In response to a survey of school principals in Iowa, 41% responded that they had ultimate legal responsibility for medication administration (Farris, McCarthy, Kelly, Clay, & Gross, 2003). Each state has its own NPA that regulates who can be a nurse and what a nurse can do. Interpretation of the NPA can lead to differing views regarding nursing practice and medication administration in the school setting.

The purpose of this study was to determine school nurses' knowledge of state and school district policies regarding the administration of rectal diazepam gel in the school setting, their experience in rectal diazepam gel administration, and the perceived benefits and barriers of providing this treatment in the school setting.

## METHODS

A 20-question survey was developed by the authors to obtain information from school nurses. Data collected on demographics included the state where they practiced, nursing education, years as a school nurse, type of position, and number of schools. Nurses were asked if their state and local school district permitted administration of rectal medications of any type, and if they permitted the administration of rectal diazepam gel or other rectal diazepam. The responses were limited to "yes/no" categories or check-off answers

such as either "no," "by RN only," or "by other school personnel." The school nurses were then asked about their experience in administering rectal diazepam and in what setting. The next group of questions related to school training programs for nonmedical personnel in the administration of rectal medication. The final two items were open-ended questions pertaining to the perceived benefits and barriers of using rectal diazepam gel in the school setting.

The survey was distributed at the 2004 annual meeting of the National Association of School Nurses in Seattle, Washington. The questionnaire was given to nurses viewing posters regarding epilepsy and treatment and to those attending a breakfast symposium discussing the treatment of seizures in the school. Because the questionnaire was distributed during these two time frames, the nurses surveyed may have been those with a particular interest in epilepsy and their answers may not have been representative of school nurses in general.

## RESULTS

There were 419 school nurse respondents to the survey representing every state except Michigan and Hawaii. The educational level reported were 237 (47%) baccalaureate degree, 131 (26%) registered nurse, 101 (20%) master's degree, 21 (4%) nurse practitioner, and 14 (3%) other. More than half (59%) of the respondents had more than 10 years' experience in school nursing, and 84% had over 5 years' experience (Table 1). Two hundred sixty-one (83%) direct care providers reported responsibility for a median of two schools (range 1–86 schools), and 53 (17%) administrators reported responsibility for a median of 42 schools (range 0–600 schools). While 23 (6%) nurses reported that their state practice act prohibited them from giving rectal medications of any type in the school setting, 31 (8%) indicated that their school district prohibited them from giving rectal medication in the school. Eighty-seven (21%) of the nurses reported they had administered rectal diazepam gel in some setting. Sixty-six (16%) of the nurses reported that nonnursing personnel at their school had been formally trained in administering rectal diazepam gel.

The school nurses identified the benefits of giving diazepam rectal gel in the school setting as efficacy and safety in treating seizures (Table 2). There were numerous issues identified as barriers in the administration of rectal diazepam gel in the school (Table 3).

**Table 1.** Years of School Nursing Experience

Years of Experience	Number (%)
>20 years	99 (24)
10–20 years	142 (35)
5–10 years	103 (25)
<5 years	66 (16)

The provision of student privacy (26%) was cited most often, followed by access to or availability of a nurse (21%). Legal and delegation issues (16%), staff anxiety and fear (16%), and training of nonnursing personnel (13%) were also mentioned.

## DISCUSSION

Rectal diazepam gel is an FDA-approved therapy for the treatment of prolonged and repetitive seizures that has been developed to be given not only inside the hospital setting, but also outside of a health care facility by laypersons (Valeant Pharmaceuticals, 2005). Medical practitioners are now routinely prescribing rectal diazepam gel to be administered to children in the school setting. However, there has been resistance among school administrators, staff, and nurses to providing this medical treatment. The route of administration, identification of the seizure emergency, fear of side effects, and the training of personnel other than a nurse to administer this medication are reasons mentioned.

Medical practitioners are now routinely prescribing rectal diazepam gel to be administered to children in the school setting.

The most common perceived obstacles cited by nurses in this study were providing privacy and the setting of administration. While the student requiring rectal medication will probably not be able to be moved, a blanket or screen can easily provide adequate privacy for medication administration. Children in this setting should be provided privacy whether or not they are being given rectal medication, as they will be in a compromised state during the seizure.

The school nurses in this study had years of experience in school nursing and would be capable of providing care to a child with an acute seizure; however, most were responsible for more than one school. Lack of access to or the availability of a nurse in every school is unfortunately a common obstacle, and one that is not as easily rectified. Nurses and parents should support a nurse in every school; however, not

**Table 2.** Reported Benefits of Diazepam Rectal Gel Administration in the School

Perceived Benefits	Number
Seizure control	112
Quick response/effect	82
Early intervention	24
Patient safety	23
Avoid ED/ER/hospitalization	22
Easy administration	21
Return to normal activity	15
Other	17

all school districts have the resources to provide this type of coverage. In schools with a number of students with neurological abnormalities and seizures, it is extremely important that a nurse be present in the school and be educated regarding epilepsy and acute seizure treatment. An emergency treatment plan should be available for each child who has a seizure disorder. See the accompanying article in this issue for more information (O'Dell, O'Hara, Kiel, & McCullough, 2007).

Some states and school districts do not authorize delegation for the administration of medications. A review of state policies on administration of medication in the schools found there are no states that prohibit the administration of a rectal medication by a registered nurse if following a written order by a health care provider with prescriptive authority and with consent from the child's parent (Center of Health and Health Care in Schools [CHHCS], 2004). Other states allow delegation of the administration of rectal medications to unlicensed assistive personnel. In this case, the nurse who delegates this task is still responsible for the training and actions of the person administering medications. Some states do not have any policies regarding administration of medications in the school, but give school districts the responsibility of creating the policies and procedures related to this practice.

Twenty-three (6%) of the respondents in this study clearly did not know the policies under which they are providing care. Individual interpretation of the state's nurse practice act or interpretation of the school district's policies can create confusion regarding what is permitted or legal. Ultimately, individual school districts must assure the education, safety, and protection of all students in their jurisdiction; therefore, plans for providing emergency care must be available to ensure the safety of children with seizures.

The respondents to this survey were mostly experienced school nurses who identified that the major benefit of using rectal diazepam gel in the school was the timely control of seizures, allowing the student to avoid an emergency department visit and to return to

**Table 3.** Perceived Barriers to Diazepam Rectal Gel Administration in the School

Perceived Barrier	Number
Privacy/setting	83
Access/availability of nurse	69
Legal/delegation issues	50
Staff anxiety/fear	49
Lack of training	41
None	25
Consent of parents/physician/school	18
Difficult administration	15
Fear/embarrassment	13
Monitoring	10
Other	17

usual functioning safely. These are the reasons why rectal diazepam gel is being prescribed for administration in the school setting.

With the exception of the availability of a nurse, most of the perceived barriers to administering rectal diazepam gel in the school can be overcome with education of the school nurse and other school personnel. State school nursing organizations, epilepsy organizations, and parents need to educate legislative bodies about the importance of increasing nursing coverage in schools so they are available in emergency situations.

The fact is that most seizures are brief and most childhood seizures remit by adulthood (Sillanpaa et al., 1998). However, school-age children diagnosed with epilepsy are often confronted with problems other than seizures. Long-term social, behavioral, and educational problems can occur regardless of the severity and duration of the seizures. These problems may have an impact on school performance and adjustment. Students with epilepsy must deal with ignorance of the condition, which leads to discrimination and stigma.

Education of school nurses regarding epilepsy and current treatment, as well as the preparation of a seizure action plan, is the cornerstone of care for the student with seizures.

Education of school nurses regarding epilepsy and current treatment, as well as the preparation of a seizure action plan, is the cornerstone of care for the student with seizures. Developing protocols for delegation of this care in areas where appropriate are needed. The inadequate number of nurses in schools is an issue of importance for families, students, schools, and the general public.

### IMPLICATIONS FOR SCHOOL NURSING PRACTICE

The findings of this study show that many schools share the services of a nurse. State nursing organizations must advocate for safe practice in schools, including adequate nurse-student ratios. School nurses in every state must know the regulations under which they practice. The school nurse is pivotal in the education of school personnel about epilepsy and its treatment as well as in providing care to the child having an acute seizure. The school and family should have an emergency plan in place for seizures. For breakthrough seizures, a rescue medication prevents delay of treatment. This not only empowers children and their families, it also provides rapid control of the seizure emergency.

### CONCLUSION

The results of this survey indicate that discrepancies exist among school nurses about the scope of practice and the delegation of administration of rectal medication by nonnurse personnel in the event of a seizure emergency. Each nurse should be aware of their state nurse practice act, state regulations regarding the administration of medications in the school, and the school district policy for administration of rectal medications. Our children need a safe, secure environment in which to learn. The school nurse, as an advocate for the child and family, can provide appropriate care to the student with seizures with the objective of creating an environment where all students can achieve their educational goals.

*Acknowledgments.* Financial support for this research was received from Valeant Pharmaceuticals North America.

### REFERENCES

- D'Amelio, M., Shinnar, S., & Hauser, W. A. (2002). Epilepsy in children with mental retardation and cerebral palsy. In O. Devinsky & L. E. Westbrook (Eds.), *Epilepsy and Developmental Disabilities* (pp. 3–16). Boston, MA: Butterworth Heinemann.
- Delorenzo, R. J., Hauser, W. A., Towne, A. R., Bogg, J. G., Pellock, J. M., Penberthy, L., Garnett, L., Fortner, C. A., & Ko, D. (1996). A prospective, population-based epidemiologic study of status epilepticus in Richmond, Virginia. *Neurology*, *46*, 1029–1035.
- Dodson, W. E., Delorenzo, R. J., Pedley, T. A., Shinnar, S., Treiman, D. M., & Wannamaker, B. B. (1993). The treatment of convulsive status epilepticus: Recommendations of the Epilepsy Foundation of America's working group on status epilepticus. *Journal of the American Medical Association*, *270*, 854–859.
- Epilepsy Foundation. (2006). "Incidence and prevalence of epilepsy." Retrieved July 14, 2006, from <http://www.epilepsyfoundation.org/answerplace/statistics.cfm>
- Farris, K. B., McCarthy, A. M., Kelly, M. W., Clay, D., & Gross, J. N. (2003). Issues of medication administration and control in Iowa schools. *Journal of School Health*, *73*(9), 331–337.
- Ficca, M., & Welk, D. (2006). Medication administration practices in Pennsylvania schools. *Journal of School Nursing*, *22*(3), 148–155.
- Nevo, Y., Shinnar, S., Samuel, E., Krumer, U., Leitner, Y., Fatal, A., Kutai, M., & Harel, S. (1995). Unprovoked seizures and developmental disabilities: Clinical characteristics of children referred to a child developmental center. *Pediatric Neurology*, *13*, 235–241.
- O'Dell, C., O'Hara, K., Kiel, S., & McCullough, K. (2007). Emergency management of seizures in the school setting. *Journal of School Nursing* *23*(3), 158–165.
- Olympia, R. P., Wan, E., & Avner, J. R. (2005). The preparedness of schools to respond to emergencies in children: a national survey of school nurses. *Pediatrics*, *116*(6), 738–745.
- Shinnar, S., Berg, A. T., Moshe, S. L., & Shinnar, R. (2001). How long do new-onset seizures in children last? *Annals of Neurology*, *49*, 659–664.
- Sillanpaa, M., Jalava, M., Kaleva, O., & Shinnar, S. (1998). Long-term prognosis of seizures with onset in childhood. *New England Journal of Medicine*, *338*, 1715–1722.
- Sillanpaa, M. & Shinnar, S. (2002). Status epilepticus in a population-based cohort with childhood-onset epilepsy in Finland. *Annals of Neurology*, *52*, 303–310.
- The Center of Health and Health Care in Schools (CHHCS). (March 2004). "State policies on administration of medication in the schools." Retrieved July 14, 2006, from <http://www.healthinschools.org/sh/mgmt/policies.asp>
- Valeant Pharmaceuticals International. (2005). Diastat® AcuDial® [package insert]. Costa Mesa, CA.