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RESEARCH NOTES

Medication management in Minnesota schools: The need for school nurse–pharmacist partnerships

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ABSTRACT

Background: Pharmacist participation in school medication management (MM) is minimal. School nurses are responsible for increasingly complex medication administration and management in schools.

Objectives: The purpose of this study was to 1) assess the MM needs of school nurses in Minnesota, and 2) determine if and how interprofessional partnerships between nurses and pharmacists might optimize MM for students.

Methods: Researchers from the University of Minnesota College of Pharmacy, School Nurse Organization of Minnesota, and Minnesota Department of Health conducted a 32-item online survey of school nurses.

Results: Nurses administered the majority of medications at their school (69.9%) compared with unlicensed assistive personnel (29%). Stimulants (37.7%), asthma medications (25.7%), over-the-counter analgesics (17.8%), and insulin (6.6%) were the most commonly administered drug therapies. A clear majority of school nurses were interested in partnering with pharmacists: 90.3% thought that a pharmacist could assist with MM, 80% would consult with a pharmacist, and 12.3% reported that they already have informal access to a pharmacist. Topics that nurses would discuss with a pharmacist included new medications (71.6%), drug–drug interactions (67.1%), proper administration (52%), and storage (39.4%). The top MM concerns included 1) availability of students' medications and required documentation, 2) health literacy, 3) pharmacist consultations, 4) lack of time available for nurses to follow up with and evaluate students, 5) family-centered care, 6) delegation, 7) communication, and 8) professional development.

Conclusion: Although the majority of school nurses surveyed indicated that partnerships with pharmacists would improve school MM, few had a formal relationship. Interprofessional partnerships focused on MM and education are high on the list of services that school nurses would request of a consultant pharmacist. Study results suggest that there are opportunities for pharmacists to collaborate with school nurses; further study is necessary to advance high-quality MM for students in Minnesota schools.

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The quality of medication management (MM) in U.S. schools affects the health and education of millions of students. Optimal school MM builds students' capacity to maintain good health, progress in learning, attain higher levels of education, and therefore experience better health across their life course.^{1–5} Advances and innovations in law, medicine, and technology have made it possible for more students with complex medical conditions to attend school.^{6–11} Concurrently, rates of childhood asthma, diabetes, obesity, toxic stress, and mental health diagnoses have risen.^{1,12–14} The increasing complexity of drug therapies used to address these conditions

has necessitated an expansion of the school nurse's MM role.^{15,16} Yet, as the need for MM increased, school funding cuts curtailed nurse availability and thus student access to services.^{13,17} In addition, pharmacists are generally absent from current school MM processes.^{18–21}

Although there is considerable evidence to support the conclusion that MM is a vital service provided by nurses,^{15,22–25} that MM is the core of pharmacy practice,²⁶ and that interprofessional collaborative practice improves quality of care,²⁷ the combined efforts of school nurses and pharmacists in providing MM have yet to be sufficiently explored. The purpose of the present mixed methods study was to investigate MM in Minnesota schools and determine if and how nurses and pharmacists could work together to provide safe, high-quality, and accessible MM. The study was grounded in community-based participatory research.²⁸

Background

In 2012, nearly 10 million children (13%) experienced a health problem that required a prescription medication for at least 3 months. The National Center for Health Statistics reported that selected prescription drug classes used in the past 30 days for those younger than 18 years from 2009 to 2012 included: bronchodilators (5.1%), leukotriene modifiers (2.0%), respiratory inhalant products (2.0%), psychostimulants (3.5%), and antidepressants (1.2%).^{2,29,30} Most children attending school are under the age of 18 years and may need to take their medications at school.

MM at school is a complex endeavor because it is directed by federal and state laws that govern health, nursing, pharmacy, education, special education, disabilities, privacy, parental rights, criminal law, and illicit drugs.³¹ These and other environmental factors contribute to a multidimensional process of getting medications to school. Typically, a pharmacist fulfills a prescriber's order. A parent or family member either picks up and delivers medication directly to school or takes it home for their child to carry to school. Securing the required written documentation often necessitates multiple back-and-forth communications with providers and parents (see Minnesota Guidelines³²).³³ The nurse then manages the medication, which may include delegating drug administration to unlicensed assistive personnel (UAP). Nurses also prepare medications for field trips, which in the case of an overnight trip may include medications regularly given at home. Prescription refills require repetition of many of these steps. The administration of medications to students can be impeded by delayed ordering or transport; missing prescriber or parent documentation; lack of care coordination among multiple providers; and lost, stolen, or diverted medications from students transporting medication to school.^{9,34}

School nurses practice family-centered care (FCC), which connects them with families, school personnel, and health care providers.^{35,36} They provide many vital services that are associated with increased attendance, higher-quality schools, and cost savings.^{9,15,37} Historically, school MM has been provided by nurses and is currently the second most common service delivered.^{13,38} In addition to managing known medications, nurses are responsible for the care of students who may or may not be adherent to home medications, or who carry and self-administer medications at school.^{22,32,39}

Mounting workloads, multiple site assignments, delegation to UAP, and constrained funding and resources have given rise to a number of problems.^{38,40} For example, medication errors increase with the use of UAP, making their training critical.^{9,23,34,38,40–42} However, in Minnesota, UAP training is designed and implemented by each school district. This approach raises concerns about consistency, and development takes up valuable school nurse time.

As medication experts, pharmacists can perform a vital role in school MM.^{19–21,26,43} In 2000, the U.S. Pharmacopeial Convention (USP), supported by pharmacy organizations, passed a resolution to “facilitate the development of a rational school medicines policy.”⁴⁴ Since 2000, the profession has been more active in school MM. More recently, a commentary in the *American Journal of Health-System Pharmacists*⁴⁵ suggested that objectives from the organization's 2015 initiative ought to apply to school MM.⁴⁵ Although there is little evidence that pharmacists are engaged in MM at the school level or in academia,⁴⁶ studies show that pharmacist participation in education initiatives benefits students, parents, and school personnel.^{19–21,47} Pharmacists can take additional steps in their practice, as consultants and as community volunteers, to work with nurses and improve the quality of MM.⁴⁴ When professionals from different health disciplines work together with patients, families, caregivers, and communities, health systems tend to be stronger and health outcomes better.²⁷ The present authors reasoned that the combined expertise of school nurses and pharmacists could deliver a higher quality of MM in schools than either profession alone. The purpose of this study was to investigate how school nurses and pharmacists can best collaborate to provide safe, high-quality, accessible, and student-centered MM.

Methods

The University of Minnesota (UMN) College of Pharmacy researchers worked with the School Nurses Organization of Minnesota (SNOM) and the Minnesota Department of Health to conduct a 32-item online survey ([Appendix A](#)). The survey was created with the use of the Qualtrics system sponsored by UMN and consisted of the following question types: demographic, yes or no, rank order, open-ended, and defined selection options. A community-based participatory research approach was used; decision making was shared, and community partners were active in this research endeavor. Two focus groups were used to develop survey questions. The survey was piloted by a small group of school nurses and pharmacists and was reviewed by SNOM board members for accuracy and appropriateness. Suggested edits from both groups were incorporated. The UMN Institutional Review Board deemed the survey to be exempt from informed consent requirements.

SNOM e-mailed a survey link to their listserv, featured an announcement on their website, and invited investigators to make the survey available at their fall conference. The number of recipients on the listserv fluctuates; SNOM estimates that they have approximately 200 active members. Respondents received a gift card for participation to recognize the value of their time. This study focused on Minnesota respondents (as determined by zip code or school district); respondents not in Minnesota were excluded. Descriptive statistics were used

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