



The Center for  
Health and Health Care in Schools

## **Project Title: Improving Quality in Medication Management in Schools**

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Project period: 08/06/2003 – 02/05/2005

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This project was supported by the Agency for Healthcare Research and Quality by grant number 1 R13 HS014208-01 (Revised), with matching support from The Robert Wood Johnson Foundation.

## Structured Abstract

**Purpose.** This project examined the child health safety and quality aspects of medication management for children in school settings.

**Scope.** Improving the safety of the management of medication and other treatment regimens when they are in school was the focus of an invitational conference, *Improving Quality in Medication Management in Schools*. The invitational meeting brought together stakeholders and experts with interest in improving the safety of this aspect of child healthcare. The conference was organized by the Center for Health and Health Care in Schools in March 2004.

**Methods.** Project components included (1) preparation of a pre-conference issue brief, (2) organization of the conference with development of an advisory committee as well as preparation of a conference agenda, a guest list, and presenters, and (3) publication/dissemination of the final report.

**Results.** The final report presented recommendations from the diverse group of stakeholder constituencies that attended the meeting---school nurses, pharmacists, parents of chronically ill children, school administrators, physicians, and healthcare financing experts. Recommended next steps include (1) establishing criteria that could be used to identify measures or standards for evaluating the safety of school medication management practices, (2) strengthening the participation of community pharmacists in school-based medication management, and (3) exploring links between the gold standard community care for chronic conditions such as asthma and diabetes and school-based medication practices. The Center also prepared a publication on psychotropic drug management at school that was disseminated to more than 25,000 individuals.

**Key words:** medications at school, child drug safety, psychotropic drugs, schools and medications

## Improving Quality in Medication Management in Schools

### Purpose of the study

This project examined the child health safety and quality aspects of medication management for children in school settings. Using the work of the Committee on Quality of Health Care in America as a guide, the specific purposes of the conference were to:

- describe the issues of patient safety in medication management in schools
- identify the unique characteristics of in-school medication management, including the impact of school board policies, local and state law and regulations, collaboration with community-based providers, and workforce supply and training issues
- develop and prioritize research topics ready for further study and make recommendations for next steps that contribute toward systems changes to improve the quality of medication management in school settings, and
- identify approaches for integrating school-based medication management monitoring and quality improvement practices with the larger healthcare quality improvement systems.

### Scope

#### Background

*The need.* Five days a week, 9 months a year, nearly 50 million children between the ages of 5 and 18 attend schools for 6-1/2 to 7 hours daily. Of these children, “an estimated 10-15% have a chronic physical health condition, and 1% have a severe chronic condition” (McCarthy, Kelly & Reed, 2000). Some 9% of young people are estimated to have an identifiable mental disorder (US Department of Health and Human Services (DHHS), 2000). Treatment regimens for children with chronic physical or mental health conditions frequently require the collaboration of personnel located in schools with community-based providers. The importance of collaboration is particularly evident in the area of medication administration,

*What we know.* Because data collection is not uniform across or within school districts, the number of students receiving medications in schools can only be estimated. An article in the *Journal of the American Pharmaceutical Association* reported that, in 1998, more than one million children were taking medication such as methylphenidates (a controlled substance used to treat ADHD) in schools (Reutzell, Patel & Myers, 2001). Another recent study found that the use of psychotropic medication had grown dramatically, with more than \$1 billion spent on psychotropic medicine to treat, on average, 4% of all youths, predominately those ages 6-17 (RAND Health, Research Highlights, 2001).

A recent National Health Interview Survey reported that nearly 11% of children ages 5-17 (5.6 million children) had a health problem that required them to take a prescription medication for at least 3 months (CDC, National Center for Health Statistics, 2002). A substantial number of those children are bringing their medications to schools. Additionally, school nurses state that their medication administration duties have increased dramatically, in part because of the increased role of pharmaceuticals in medical practice generally but also because a growing number of students have been diagnosed with conditions such as asthma and attention deficit/hyperactivity disorder. (Reutzel et al., 2001) Representatives from the Boston, Massachusetts, and Austin, Texas, school systems reported that, during school year 2001-2002, there were 227,114 and 188,519 contacts involving medication management, respectively, at the two school districts. With many schools lacking both trained health professionals and a locked medication cabinet, arranging for safe, reliable medication administration is a critical and unresolved challenge. (Brener et al., 2001)

The contrast in standards between medication management\* in a health facility and medication administration at school can be profound. Although there has been an increase in the number of children needing medication administered during school hours, there has been no examination of the safety and quality issues associated with the increase in medications required by children. There are many schools and school systems in which nurses are present in a school building infrequently or not at all. Though there has been no established connection between structural factors and quality outcomes, the National Association of School Nurses (NASN) recommends a ratio of one school nurse for every 750 children. Reports suggest that the reality is closer to one school nurse per 1,300-1,400 children (McCarthy et al., 2000). A recent study by the NASN assessed medication administration practices of school nurses and found that 314 (48.5%) of the respondents “report that a medication error occurred in the past year in their school(s),” with the most frequent error being missed doses (79.7%) (McCarthy et al., 2000).

*Previous responses to the challenges of medication management in schools.* During the past decade, a number of programmatic and policy offices involved in school health have proposed standards of care for medication management or recommended policies related to the topic:

- The Office of School Health Programs at the University of Colorado Health Sciences Center, a nationally recognized center for school nursing research, published recommendations for school-based administration of medication to students (1990).
- The School Health Unit of the Massachusetts Department of Public Health defined medication administration as a priority policy development area (1991).
- The American Academy of Pediatrics adopted a policy statement outlining Guidelines for the Administration of Medication in Schools (1993, 1997).

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\* ‘Medication administration’ refers to the delivery of the medication itself. Medication management refers to the processes involved in receipt and storage of medication, delivery of the drug, and observation of the child for drug reactions.

- The National Association of School Nurses adopted a position statement on Medication Administration in the School Setting (1993, 1997).
- The Alabama School Health Service Advisory Task Force developed guidelines for administration of medications by school personnel (1995).
- Minnesota legislation CHAPTER 9-S.F. No. 4, Article 1, Section 61 directs the Commissioner of Health, in consultation with the Board of Nursing, to study the issue of administration of medications in schools by convening a work group to assist in the study and make recommendations (2001).
- *The Journal of the American Pharmaceutical Association* summarized the current knowledge about medication management in primary and secondary schools and recommended greater collaboration between school nurses and pharmacists, a sentiment echoed by an article in the *Journal of School Health* (2001).

The consensus from field professionals and the literature is that the issues related to medication management in schools require closer attention and explicit strategies for system improvement. Experts recommend exploring these issues within the context of overlapping policies, regulations, and rules that include federal and state laws and regulations, local ordinances, and the policies and procedures of the organization in question (e.g., physician office, hospital). In addition to the focus on systems improvement, clinical professional issues, such as delegation of medication administration responsibilities to unlicensed personnel, liability issues, and professional development, need to be addressed.

*The safety and quality context for medication management.* As the Federal government and the healthcare field embark on the quest for quality patient safety practices, the results from this conference are intended to contribute to and complement the work being done by the Committee on Quality Health Care in America and others.

Although school-based services are frequently omitted in considerations of healthcare system change, schools are often part of the system of care for all children. In some cases, in the absence of other providers, schools become the default provider, as they have in the instance of mental health. Schools are particularly likely to assume that role for poor children, who are disproportionately members of minority groups.

Reports from the US Department of Health and Human Services have called for the increased use of schools sites to expand access to health services, including most recently mental health and dental health services. The new focus on advancing quality in healthcare should include consideration of this emerging delivery site.

*Advisory committee members and conference participants.* Conference planning and the pre-conference issue brief development benefited from input from a range of stakeholders. In addition to representatives of the funding organizations, AHRQ, and The Robert Wood Johnson Foundation, voices included representatives from a state and national school board association, a school superintendent, and a patient safety and quality expert as well as representatives from the National Association of School Nurses, the American Academy of Pediatrics, and the Federation of Families (a parent group).

The head of a state health department division for school health services, a former head of a city school nursing department, a representative of the CDC, and a professor from the Chicago College of Pharmacy completed the advisory group. Meeting participants included a broader group of parent advocates, health policy experts, and other school-based provider organizations. These traditional and nontraditional partners worked for a day and a half to undertake the following tasks: examine patient safety practices that may have application to school-based services; identify issues unique to school-based delivery systems; explore next steps essential to moving forward; and integrate these findings into the larger healthcare quality discussion.

## Methods

This project to improve medication management at school was organized around four basic activities. These were a pre-conference issue brief, the conference itself, a post-conference report, and the Psychotropic Drugs and Children fact sheet.

*Issue brief:* Prior to the convening of experts and stakeholders, an issue brief was prepared and circulated to advisory committee members and, later, to meeting invitees. This brief explored the challenge of strengthening medication management at school at the beginning of the 21<sup>st</sup> century. As the brief stated in its introduction:

In the past 30 years, there have been major changes in healthcare, including an increased reliance on prescription drugs. There have also been changes in school systems, with a federal mandate created in the 1970s obligating schools to provide certain children with medical services, including medication. Medications that schools are asked to manage may include controlled substances, psychotropic medications, and a range of therapeutic interventions for chronic illnesses such as diabetes and asthma. Over-the-counter medications, homeopathic medications, and dietary supplements have their own challenges. With more children receiving increasingly powerful drugs during the school day, the school system's liability for safe management of medication has increased. This is a whole new situation. No one planned it and no one planned **for** it. But now is the time to look at the issue and see what changes need to be made.

The issue brief began by highlighting 10 factors worthy of analysis by those seeking to systematically strengthen medication management processes. These were policy guidance, delegation, documentation, processes, security, quality control, self-medication, privacy, prescribing standards, and communication between school personnel and community-based medical professionals. The brief concluded by asking whether the inpatient-focused safety-improvement literature can be applicable to medication management in schools. The brief also asked conference participants to consider whether new research is needed to create a knowledge base sufficient to make recommendations for systems changes in school practices, or do we already have the research sufficient to make recommendations? Other questions suggested for consideration by the upcoming conference included these: What are the downsides of assuming that a safer system can be created when unlicensed personnel perform medical functions?

What are the politics that will impact the capacity of community, state, and national institutions to implement any recommendations? Are there strategies that could be developed to build a foundation for quality improvement in medication management at school?

*The conference.* A day-and-a-half--long conference format was selected as the vehicle most likely to secure participation by critical but time-pressed stakeholders. The conference opened with a reception, dinner, and opening keynote by Dr. Howard Bauchner, Professor, Pediatrics and Public Health, Boston Medical Center. In a key statement, Dr. Bauchner noted that child health, which is the context for school health, may be changing from a 30-year focus on behavior-oriented ‘new morbidities’ to the new, new morbidities of chronic diseases and mental health. Thus, he argued that there will be increasing attention to the school’s capacity to assist students adhere to treatment regimens. This development would have major implications for school health programs.

The meeting continued through the following day with an opening plenary session that included presentations describing the school health programs in Boston, Massachusetts, and Austin, Texas, including data summaries on health services provided and the volume of medications dispensed. Smaller workshop discussions examined the challenges to reducing risk in medication management at school. Among findings from the workshops were the following:

- The limited work undertaken in risk reduction in pediatric ambulatory care in general makes it difficult to jump start efforts in systems improvement for school-based medication management.
- The ongoing debate on who should staff school health programs makes it difficult to focus on other system components that might be strengthened to improve medication management at school.
- There are additional issues, not mentioned in the issue brief, that should be considered when addressing medication management at school. These include psychotropic drugs, data collection and analysis, accountability and liability, and parental involvement.

The meeting concluded in the afternoon of the second day.

*Recommendations and Limitations.* The final wrap-up conversation among participants reemphasized the importance of the conference topic but underscored the barriers to rapid forward movement in this arena. All agreed that limited research on patient safety and quality in ambulatory pediatric care has left the field poorly equipped to develop standards and measures of quality in medication management at school. However, as AHRQ program officer Denise Dougherty suggested, certain findings may point to areas in which greater attention would yield safety and quality gains. Dr. Dougherty pointed out that patient safety research has identified the “handoff,” when a patient moves from one care setting to another, as a key trigger for subsequent errors. This suggests that a recommendation might be that school nurses have more communication with prescribing physicians than a one-page written form provided to the school nurse. Data from the Boston school health program, however, indicated that direct, oral, school nurse-physician communication is rare.

Several participants suggested additional promising, though challenging, directions for continuing this work.

- If we don't have the research to begin discussions of standards or measures for patient safety and medication management at school, perhaps we could start by discussing *criteria* that could be used to identify measures or standards for evaluating the safety of medication management practices. Such a discussion might benefit from the inclusion of additional experts from the patient safety field.
- A promising area for patient safety improvement is greater engagement of community pharmacists in school-based medication management. Among the things pharmacists might do would be to routinely provide parents with two labeled containers of any medication that needs to be administered at school.<sup>1</sup> Pharmacists might also provide two copies of instructions for medication, including side effects and drug interactions, so that parents may send one copy to school. The evolving nature of medication ordering and distribution suggests that pharmaceutical benefit managers should also be brought into the conversation.
- Casting a broader net to identify multiple issues affecting patient safety at school might generate greater attention and more research on the topic. For example, although medical errors, particularly medication errors, have been recognized as a potential threat to patient safety, other school-based services are beginning to receive attention, including pre-participation physical evaluations for high school athletes and access to immunizations for uninsured children.
- Within the domain of chronic disease management, specialists have established "gold standards" for treatment of conditions and diseases common among school-age children, including asthma and diabetes. These well-established standards or measures of care quality may apply or might be adapted to the school setting.

Although the health of children has been of concern to schools for more than a century, the conference indicated to all of us that the possibilities for improved effectiveness of school health programs are great and deserve both careful study and conscientious application.

## **Results**

The project had three important outcomes. First, the issues associated with medication management at school were brought together, evaluated by a broad group of stakeholders and experts, discussed by a broader group of conferees, and refined into a document endorsed by the participants. Following the conference, the proceedings and the recommendations similarly were reviewed, edited, and endorsed by the 30 participants.

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<sup>1</sup> Note that regulations concerning the storage of medications at school may vary among school districts and states.



The proceedings were published by the Center for Health and Health Care in Schools, and, by spring 2005, 2,500 copies had been mailed or distributed at conferences to key leaders in child health quality and in school health. Additionally, the report was posted on the Center website, where a larger number of unique visitors viewed the document. Although not anticipated in the original grant application, concerns registered by conference participants on the specific issue of psychotropic drugs at school led the Center to prepare a report or fact sheet, *Psychotropic Drugs and Children: Use, Trends, and Implications for Schools*. This publication has been well received by state policymakers as well as building-based school nurses. The Center has mailed out 4,400 copies of the fact sheet, and 23,134 visitors have downloaded or viewed the publication from the Center website.

### **List of Publications and Products**

The Center for Health and Health Care in Schools. (2004, October). Medication Management in Schools: A Systems Approach to Reducing Risk and Strengthening Quality in School Medication Management. Washington, DC: School of Public Health and Health Services, The George Washington University Medical Center.

The Center for Health and Health Care in Schools. (2004, June; 2005, 2004, December-Revised). Medication Management in Schools: Psychotropic Drugs and Children: Use Trends, and Implications for Schools. Washington, DC: School of Public Health and Health Services, The George Washington University Medical Center.