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Evidence Based Practice

Meaningful Use of School Health Data

Kathleen Hoy Johnson, MN, RN, NCSN, and Martha Dewey Bergren, RN, DNS, NCSN, FNASN, FASHA

Meaningful use (MU) of Electronic Health Records (EHRs) is an important development in the safety and security of health care delivery in the United States. Advancement in the use of EHRs occurred with the passage of the American Recovery and Reinvestment Act of 2009, which provides incentives for providers to support adoption and use of EHRs. School nurses play an important role in alerting the public and key decision makers to the value of school health data to the MU of EHRs. The timeline for adopting MU of EHRs is short and school nurses must participate in the process to assure MU of school health data. This article describes MU and the importance of this federal action to school health.

Keywords: computers/technology; documentation; electronic health records; leadership

A first grade student is treated in the emergency room (ER) for severe asthma. The next morning the student's school nurse opens the electronic student health record where an alert flashes on the screen. It includes the parent's authorization to release information, a discharge summary of the student's ER visit, and an electronic medication order for an Albuterol metered dose inhaler (MDI). Later that morning, when the student arrives with their parent and their MDI, the school nurse is prepared with an initial emergency care plan and has already alerted the student's teacher of the needed accommodations. The school nurse answers the questions the parent has developed since the child's discharge from the ER and instructs the student in the proper use of the MDI. At the child's next appointment with their provider, information on the administration of the MDI at school transfers to the child's EHR in the clinic and the provider adjusts the medication orders in response. The new orders are immediately transferred to the student's school health record.

Welcome to the world of HITECH—the Health Information Technology for Economic and Clinical Health Act of 2009. This federal law sets national standards for the use and exchange of health information through the meaningful use (MU) of electronic health records (EHRs) and is designed to improve the quality and coordination of health care in the United States (Committee on Ways and Means, 2009). School health records hold essential information to contribute to this goal and assure quality, coordinated care for school-age children, and school nurses play an important role in alerting the public and key decision makers to the value of school health data for the MU of EHRs. The process for implementing MU of EHRs is on a fast timeline, increasing the urgency for school nurses to describe the contribution that school health records make to support children's health care. It is essential that school nurses quickly become informed about MU to assure that the extensive amount of health care that is delivered

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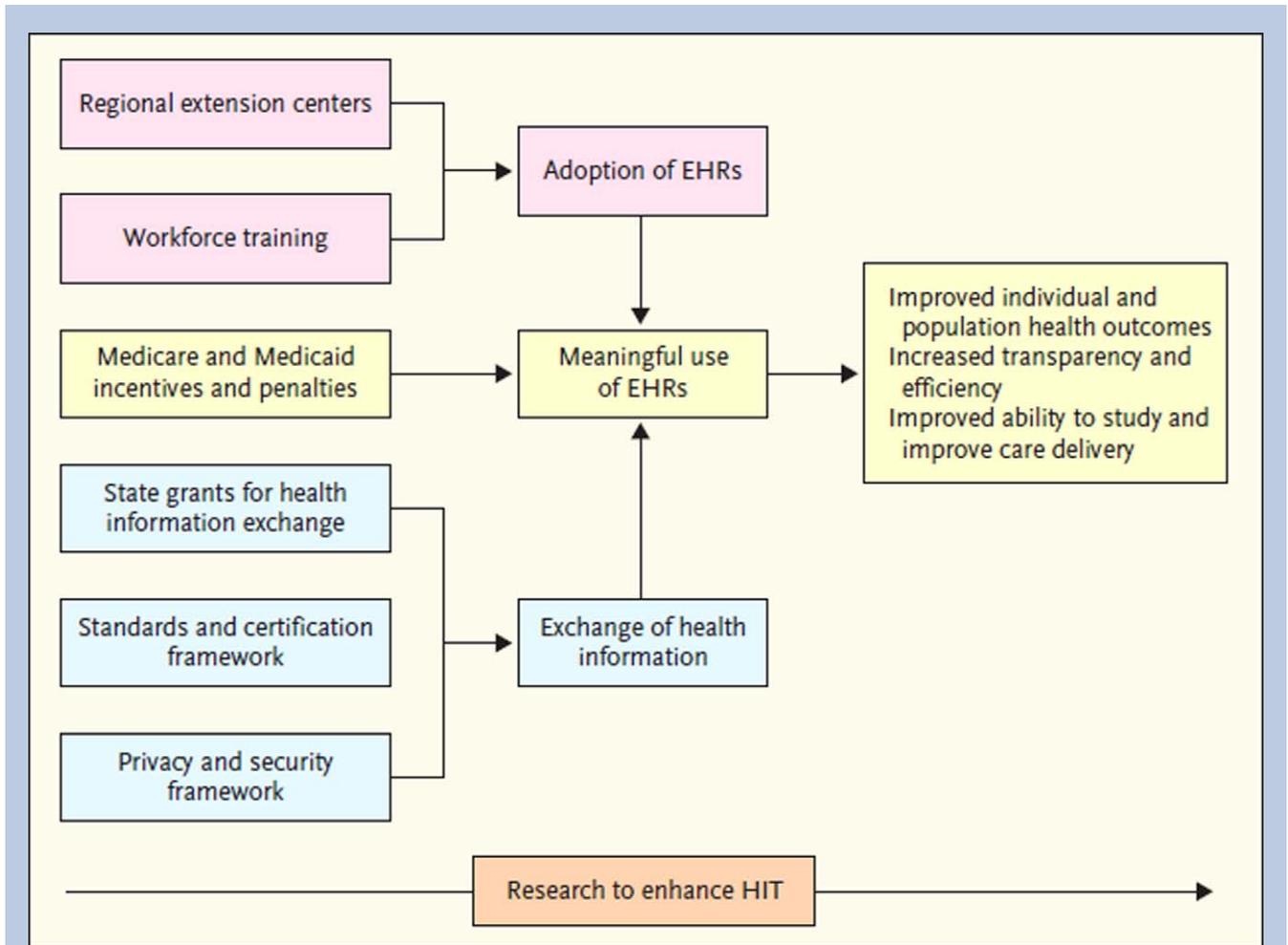
Figure 1.   The HITECH act's framework for meaningful use of electronic health records (Blumenthal, 2009).

in schools is not forgotten and left out of this national debate. This article addresses MU and the implications for school nursing practice.

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WHAT IS MU OF EHRS?

EHRs, established at great effort and expense in a variety of care settings, often become the electronic equivalent of a file cabinet—reduced to a storage facility for data. The current focus on MU is designed to ensure that the power of EHRs is harnessed to strengthen the communication of patient information and meet the goals of improved care coordination, enhanced quality of clinical care, and dissemination of public health information. David Blumenthal, MD of the Office of the National Coordinator for Health Technology (ONC), states that MU will allow health care consumers to have access to efficient, quality health care, that is coordinated across providers, and which promotes the active partnership of consumers in their own care. The criteria for MU of EHRs was announced by the Centers for Medicare & Medicaid Services (CMS) in July, 2010, as part of the implementation of the American Recovery and Reinvestment Act of 2009 (HHS: CMS, 2010). The

Recovery Act provides incentive payments to support eligible professionals in the adoption, implementation, upgrade, or MU of EHRs (HHS: CMS, 2010). Medicaid incentive payments, which can be as much as $63,750, are proposed to begin between January and August of 2011. CMS emphasizes that the incentives are not merely about the adoption of EHRs but about motivating a wide range of stakeholders to use electronic records for the exchange of health care information to improve health care quality (HHS: CMS, 2010).

The ONC has outlined a process for the implementation of MU (please see Figure 1), which includes regional extension centers (which address the business aspects of health information exchange) and workforce training that will support the adoption of EHRs; Medicare and Medicaid incentive payments to promote MU of EHRs; as well as Health Information Exchange grants (to develop the appropriate methods for exchange of health information between providers), a framework for EHR standards and certification, and a framework for privacy and security to support health information exchange. MU aims to improve health outcomes for individuals and populations, increase transparency and efficiency, and support research into improved care delivery (see Figure 1). MU recognizes that exchange of health information is crucial to the efficient, effective delivery of health care and requires the collaboration of a wide range of stakeholders (Health Information and Management Systems Society [HIMSS], n.d.). School nurses, as advocates for school-age children, must become vocal stakeholders in the implementation of MU of the health data they collect but also to have access to the data they need from other health care providers to provide the most accurate and efficient care for school aged children. School health data must be included in this national health information exchange process so that information about the child's response to treatment and understanding of self-care is shared at the point of care to accommodate treatment decisions by primary care providers and specialists.

WHAT IS THE NURSING ROLE IN MU?

Physician and primary care providers are the focus of the incentives of the CMS funding for EHRs. However, nursing informatics leaders are part of discussions and policy making around the MU of EHRs. Nursing informatics uses nursing, computer, and information sciences to transform patient data into knowledge and ultimately wisdom about effective nursing care (American Nurses Association [ANA], 2008). The ONC for Health Information Technology (HIT) has created two multidisciplinary Federal Advisory Committees to coordinate MU implementation, which include Informatics Nurse Specialists. These committees, which will steer the nation's course for the adoption of HIT, are the Policy Committee, which makes recommendations for the policy framework to develop and adopt HIT, and the Standards Committee that addresses implementation standards. Three nurses serve on these committees—Connie Delaney, PhD, RN, FAAN, FACMI on Policy and Judy Murphy, RN, FACMI, FHIMSS, and Linda Fischetti, RN, MS, on the Standards Committee. As respected nursing informatics experts, they provide a strong nursing presence as the nation moves forward in the adoption of MU of EHRs.

As a population-based specialty, school nurses are aware of the need to incorporate skills from a variety of nursing specialties to provide appropriate care to students. Current advances in the delivery of health care using EHRs require that school nurses now add skills from the specialty of nursing informatics to their practice. School nurses need to be able to articulate the depth, breadth, and pervasiveness of school health data to medical, nursing, and consumer HIT policy makers.

THE IMPORTANCE OF EHRS IN SCHOOL HEALTH

School nurses are charged with ensuring the safety and security of the children in their care, therefore MU of EHRs is an important development for the quality of health care delivered in schools. EHRs hold the potential to improve quality, reduce cost, increase efficiency, prevent errors, and expand access to health care (HHS (a): HIT, 2010; HHS: HIT, 2010). To achieve the quality and effectiveness promised in HIT however, it is important that children benefit from the data in their entire EHR—including the data kept in their school health room. Students with chronic conditions such as asthma (as illustrated in the

opening case study), severe allergies, diabetes, cardiac conditions, and seizure disorders must have their school health data included in their plan of care to fully implement MU. These students will benefit from direct medication entry by the prescriber (Computerized Provider Order Entry [CPOE]) as well as the ability of the prescriber to review medication administration and response data kept in the school health record. In this way, the school health record can provide a bridge to "real-time" condition management data that providers typically cannot access—daily records of important treatment and response measures, such as medication administration and airway peak flow readings.

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Integrating school health documentation with the records maintained by primary care providers and the greater health care system is important to the coordination of care for students and will also enhance the visibility and utilization of school health services—the nation's "hidden health care system" (Lear, 2007). A study of state school health data reporting instruments revealed that the variables collected in these instruments formed a framework that describes the broad range of health care provided by school nurses (Johnson, 2009). The categories in this framework describe interventions for community risk management; health promotion and prevention; episodic care; and case management. While the full implementation of these activities is dependent on the size and acuity of the nurse's caseload, the framework describes important ways in which school nurses support the goals of MU by coordinating care for students with chronic conditions; supporting wellness in healthy children; and sustaining healthy communities.

In fact, school nursing is a bridge between the specialties of primary care and community care in their role as public health providers, serving as a vital resource for epidemiological monitoring of infectious disease outbreaks; aggregation of population health data to measure child health outcomes; research data for evidence based practice; and data for resource allocation and the identification of efficient school nursing practice models. School nurses support well children with the delivery health promotion; health education; and illness prevention interventions such as anti-smoking, avoidance of risky behaviors, and guidance for healthy weight. Additionally, school nurses are a skilled resource for student health and education at the individual level—in the case management of students with chronic conditions as described above; the provision of episodic care in the school health room; individualized health education; and the provision and transfer of medication, immunization, and health screening data between providers and the school nurse. These routine activities of school nurses—care delivered in America's hidden health care system—support the goals of MU that must be described in a national forum.

School nurses also have an interest in MU related to Medicaid incentives. As part of the provision of individual care to students, many school health programs receive Medicaid reimbursement for their services. School nurses must describe their role in Medicaid service delivery to assure continued access to this financial resource. Additionally, it is important to include those students outside the Medicaid system whose only health care provider may be the school nurse and whose only health care record may be in their school health room (Bradford & O'Sullivan, 2007). Thus, the school EHR may be the only health data in the national health information networks for disadvantaged students. The National Association of School Nurses (NASN) advocates for children with health and economic disparities to include their health data in national databases of the health care system at large (National Association of School Nurses [NASN], 2010). Finally, school nurses are a trusted resource for families and thus have opportunities to provide education on the importance of and use of EHRs through school newsletters and contact with families. All of these efforts by school nurses support MU of EHRs (Blumenthal, 2010) making real time information available, at the point of care and remotely, in a format accessible to the clinician. Because MU supports the right information, at the right time,

to the right provider—school health data can benefit from and support MU.

In fact, school nurses are well positioned to support this effort in health care reform. EHRs are a vital component of a school nursing practice, given that it is a population-based specialty that serves a broad range of conditions and especially given the reality of the typical school nurse's large caseload (Maughan, 2009). In 2009, 59% of school nurses reported using EHRs—developing a rich source of individual and aggregate student health data (NASN, 2009). These school health databases hold important but underutilized measures of child health quality that, when aggregated, describe child health needs and interventions. While multiple national data sets describe school-age children and influence the financial resources directed at their health and education, school health data and the outcomes of school nursing interventions are not represented in these national databases. Effective use of school health data fills this gap in child health care that has been identified by the National Quality Forum (NQF) a nonprofit agency dedicated to improving health care for Americans (NQF, 2010). School nursing data and interventions are important resources to improve child health. The consequences of not measuring, investing in, and utilizing the economical delivery of child health using a school nursing model are costly and shortsighted.

Finally, the use of data to measure and improve health outcomes is a time-honored strategy of nurses. Florence Nightingale's painstaking collection and analysis of data resulted in dramatic improvements in health care. Lina Rogers' analysis of 1 month of school health data convinced the New York City Public School Board to hire the nation's first 12 school nurses, dramatically improving the health and education of children (Zaiger, 2006). These nurse innovators spent countless hours analyzing and evaluating data to create knowledge and plan interventions targeting the health of special populations. The power of data to document the needs of students is as true for school nurses today as it was in Rogers' time. In fact, the need for EHRs in all school health rooms has become critical as the volume of data required for effective care of students has expanded beyond the ability of the human mind to absorb and analyze it (Hebda & Czar, 2009).

Data management in the form of intelligent and integrated information systems is a key factor in explaining the value and efficiency of school nursing services and to creating knowledge driven nursing care through the transformation of practice and research (Lang, 2008).

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School health data on all students must be included in planning for MU of EHRs. Otherwise, decisions aimed at ensuring quality health care for America's children will be based upon incomplete information (NASN, 2010) and the value of school nursing as an effective delivery model for ensuring the health of our nation's children will be lost.

ACTION LIST FOR SCHOOL NURSES

The continued adoption and sophistication of electronic student health records is essential to the complete integration of primary care, acute care, and school health records. School nurses play an important role in alerting the public and key decision makers to the value of school health data to the MU of EHRs. Action to support the integration of school health data into MU standards is recognized on a number of levels in the school nurse's scope and standards of practice (American Nurses Association & National Association of School Nurses [ANA & NASN], 2005). Electronic student health records support documentation of the Nursing Process (Standards 1–6) as well as data collection and monitoring quality practice (Standard 7); the requirement for lifelong learning (Standard 8); collaboration for continuity of care (Standard 11); research (Standard 13); resource utilization (Standard 14); leadership (Standard 15); and use of technology (Standard 16). Given the volumes of data that must be incorporated into students' plans of care, large caseloads and limited resources of school nursing

practice, EHRs for all students, and inclusion of school health data in MU criteria is vital to the efficient provision of health care for our nation's children.

To achieve the goal of an EHR for all students, it is essential that school nurses become fluent in the language of informatics and MU to effectively articulate the value of integrating school health data into national criteria (please see *Important Terms in Meaningful Use*). School nurses should look for opportunities to become educated and proactive users of EHRs through the science of nursing informatics (please see *Informatics Resources for School Nurses*). School nurses can also stay current in MU progress by subscribing to email updates from the ONC at http://healthit.hhs.gov/ or the eHealth Collaborative at http://www.nationalehealth.org/ or participate in classes in the National Health Information Network (NHIN) at http://www.nationalehealth.org/ through the National eHealth Collaborative.

Just as every child deserves a school nurse, every child should have the benefit of an EHR. School nurses must advocate for the collection and use of standardized school health data in EHRs for every child through typical advocacy routes. School nurses must familiarize themselves with the language of MU (please see *Important Terms in Meaningful Use*) and look for opportunities to educate families and local health and education stakeholders on the value of integrating school health data with EHRs in their school newsletters; PTA meetings; and interactions with parents and policy leaders. School nurse leaders must capitalize on opportunities to make public comments to educate policy leaders on the potential in school health data to support children's health on the eHealth and HealthIT websites identified earlier. School health advocacy groups such as the NASN, the National Association of State School Nurse Consultants, and the American School Health Association can bring the school health perspective to the evolution of MU at the state and federal levels. School nursing services are an untapped resource to support the health of our nation's youngest citizens. The nation is moving rapidly on a path toward MU of EHRs—while the timeline is short, the opportunities to promote student health are immeasurable. School nurses can use this opportunity to bring America's hidden health care system out of the shadows.

INFORMATICS RESOURCES FOR SCHOOL NURSES

NASN Discussion lists/Informatics—http://www.nasn.org/

ONC—http://healthit.hhs.gov/

U.S Department of Health & Human Services ARRA—http://www.hhs.gov/recovery/

Medicaid EHR Incentive Programs—http://www.cms.gov/EHRIncentivePrograms/

National *e*Health Collaborative—http://www.nationalehealth.org/

TIGER—http://www.tigersummit.com/

ANIA-Caring—http://www.ania-caring.org/

Healthcare Information Management & Services Society (HIMSS)—http://www.himss.org

CIN—Computers, Informatics, Nursing Journal—http://journals.lww.com/

Weekend Immersion in Nursing Informatics (WINI)—http://www.icce.us/

Summer Institute of Nursing Informatics (SINI)—http://nursing.umaryland.edu/sini/

ANA—http://www.nursingworld.org/

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IMPORTANT TERMS IN MU

ANI—Alliance for Nursing Informatics is an organization of nursing organizations supporting nursing informatics.

ARRA—American Recovery and Reinvestment Act of 2009, which describes MU and provides financial incentives for users.

Beacon Communities—"$220 million in grants to build and strengthen health IT infrastructure and health information exchange capabilities, including strong privacy and security measures for data exchange, within 15 communities" (HHS, 2009).

Certification—"defined process of ensuring the functionality, security and interoperability of EHRS that meet the standards and certification criteria required to achieve meaningful use of those records. Providers must use certified EHRS to qualify as meaningful users" (Blumenthal, 2009).

Clinical Decision Support—"behind the scenes" information designed to guide safe clinical decisions. For example, if the provider orders a sulfa drug for a patient that is allergic to sulfa a warning will appear. It can also include reminders for follow up for scheduled treatments such as immunizations.

CMS—Centers for Medicare & Medicaid Services.

CPOE—Computerized Provider Order Entry allows prescribers to directly enter medication orders into the

patient record reducing errors and allowing for clinical decision support.

EHRs (Electronic Health Records)—An electronic record of "health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization" (The National Alliance for Health Information Technology, 2008, p. 6).

Electronic Personal Health Record—a "universally accessible, layperson comprehensible, lifelong tool for managing relevant health information, promoting health maintenance, and assisting with chronic disease management via an interactive, common data set of electronic health information and e-health tools." (Healthcare Information and Management Systems Society [HIMSS], 2008).

HIMSS—Healthcare Information and Management Systems Society is a not for profit organization dedicated to developing HIT (Healthcare Information and Management Systems Society [HIMSS], 2010).

HIE—Healthcare Information Exchange—"sharing of patient information such as demographic data, allergies, presenting complaint, diagnostic test values, and other relevant data between providers . . ." (Hebda & Czar, 2009, p. 528).

HIT—Health Information Technology.

HITECH—The Health Information Technology for Economic and Clinical Health (HITECH) Act, enacted as part of the American Recovery and Reinvestment Act of 2009, ". . . signed into law on February 17, 2009, to promote the adoption and meaningful use of health information technology." (HHS, n.d.).

Information Silo—electronic information held in one area that is not shared with other areas. For example the lab, admissions, and nurse all collect the patient's demographic information but it is not shared. This increases the risk of errors and decreases efficiency as data is collected and stored in multiple areas.

Interoperability—the " . . . ability of two entities, human or machine, to exchange and predictably use data or information while retaining the original meaning of that data" (Hebda & Czar, 2009, p. 530).

Meaningful Use—". . . electronically capturing health information in a coded format, using that information to track key clinical conditions, communicating that information in order to help coordinate care, and initiating the reporting of clinical quality measures and public health information" (Blumenthal, 2009).

NHIN—Nationwide Health Information Network (HHS (c): HIT, 2010) standards, services and policies to allow secure transfer of health information across the internet.

ONC—Office of the National Coordinator for HIT headed by David Blumenthal is charged with oversight of EHR adoption (HHS (a): HIT, 2010).

REC—Regional Extension Center.

RHIOs—Regional Health Information Organizations—"a group of organizations with a business stake in improving the quality, safety and efficiency of healthcare delivery" (HIMSS, n.d.).

SHARP—Strategic Health IT Advanced Research Projects Program focuses on "1) Security of Health Information Technology; 2) Patient-Centered Cognitive Support; 3) Healthcare Application and Network Platform Architectures; and, 4) Secondary Use of EHR Data" (HHS (b): HIT, 2010).

TIGER—Technology Informatics Guiding Education Reform is dedicated to identifying best practices for nursing informatics.

Timeline for the Implementation of Meaningful Use

2004—President George W. Bush signs a directive for an EHR for every American by 2014.

2009—President Barack Obama signs the American Reinvestment and Recovery Act (ARRA – Stimulus Bill) which provides incentives for adoption of EHRs. $19 Billion has been allocated for HITECH.

2010, June 18—Final Rule for temporary certification of EHRs announced.

2010, July 14—Meaningful Use Criteria announced.

2010, Summer—MU Hearings on Population and Public Health.

2010, October—Stage II MU Objectives presented.

2010, November—Stage II MU Objectives recommended to ONC.

2010, December—HHS requests public comment on Stage II Objectives.

2011—Meaningful Use incentives criteria include requirements to capture/share data. Incentive payments of up to $27 Billion over 10 years are available (Blumenthal, 2010).

2013—Meaningful Use incentives criteria include advanced clinical processes with clinical decision support (Blumenthal, 2010).

2015—Meaningful Use incentives criteria include measurement of improved outcomes (Blumenthal, 2010).

2016—Penalties for failure to adopt meaningful use of EHRs begin (Blumenthal, 2010).

APPENDIX

National Association of School Nurses: Meaningful Use: Public comment submitted March 15, 2010 on the proposed rule for the meaningful use of Electronic Health Records.

School nurses have immediate access to America's 50 Million school-age children from birth to 21 in every type of school setting. School nurses are extensions of the public health system and a vital component of the care of children with chronic health conditions and disabilities.

A significant proportion of health care in the United States is provided daily in the school setting.

- Hundreds of thousands of health screenings are performed at school:

- Vision, hearing, lead, body mass index (BMI), and dental screenings
- Risk assessments for obesity, mental health, and substance abuse
- The percentage of students in federally supported special education program increased from 8.3% to 13.4% from 1977 to 2008 (National Center for Education Statistics [NCES], 2010). Within this group, the rates of children with health conditions have doubled since 2001 (NCES, 2010).
- As rate of neonatal intensive care unit (NICU) survival increases, so do the numbers of children with neurodevelopmental problems. Among toddlers and infants in this group, who show no or mild disability, a significant number have moderate–severe disabilities at school age (Marlow, Wolke, & Bracewell, 2005; Hoekstra, Ferrara, Coeser, Payne & Connet, 2004).
- Each year, as these survivors enter early intervention services and Kindergarten, the need for school health services increases. Medically fragile children in school require ventilators, tube feedings, medication, and other complex nursing care (Clement, Barfield, Ayadi, & Wilber, 2007).
- School nurses complete the circle of the coordination of care for students with chronic conditions.
- Students with asthma are monitored for adherence with the asthma action plan and access to rescue medications in school.
- Students with epilepsy are managed in school and generate a clinical record of seizure activity and medications.
- Students with diabetes produce voluminous longitudinal data about carbohydrate intake, maintenance of a blood glucose levels, and insulin administration during the school day.
- Students with severe food allergies are managed daily in school.
- School nurses also have a major role in emergency preparedness and promote coordinated planning and implementation of emergency procedures for disease outbreaks and disasters.

Many of the children school nurses see are not served by the traditional health care system. While school nurses facilitate connecting school children to State Children's Health Insurance Program (SCHIP) and a medical home, many of the children in school every day live in the margins of society.

- Children are 25% of the population, but 35% of the population living in poverty (U.S. Census, 2005).
- 40.9% of the nation's K–12 students are low income and receive free and reduced price lunch (National Center for Education Statistics, 2006).
- Almost 12% of children do not have health insurance, but 19% of children in poverty lack insurance (U.S. Census, 2007).

- Over 900,000 children are homeless (National Law Center on Homelessness and Poverty, 2010).

All of these factors affect access to care and the school nurse may be the only health care accessible to some school-age children. The data about the children outside of the larger health care system are not captured in average primary care settings and by electronic health records in the primary care provider office. While school-based health care centers are a solution for some children, those primary care facilities are available to a very small percentage of U.S. children.

Data collected by school nurses enhance the ability for primary care providers to evaluate the plan of care and hold promise of evaluating efficacy of treatment protocols across populations. There is a sizable data gap regarding school health, a major component of the health care delivery system in the United States. There is a lack of data on the types and frequency of health services delivered in schools and the impact of that care on the health of children and families. School health services have been referred to as the "Hidden Health Care System" (Lear, 2007). School health data must be captured or the decisions aimed at ensuring quality health care for America's children are made using incomplete information.

In a recent poll, 59% of National Association of School Nurse members report they use electronic health records to record student health care. In Delaware, all school nurses use electronic health records and are using a uniform program. Several other states are implementing electronic health records in schools to facilitate state-level data. When the Health Information Exchanges do not interact with settings outside primary care provider or acute care settings, a complete picture of child health is missing. Meaningful use of health data is dependent on capturing health information collected in all care environments.

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