The Journal of School Nursing
2015, Vol. 31(5) 318-325

DOI: 10.1177/1059840515578753
jsn.sagepub.com

School Health Services for Children With Special Health Care Needs in California

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Abstract

Children with special health care needs (CSHCN) are at risk for school failure when their health needs are not met. Current studies have identified a strong connection between school success and health. This study attempted to determine (a) how schools meet the direct service health needs of children and (b) who provides those services. The study used the following two methods: (a) analysis of administrative data from the California Basic Educational Data System and (b) a cross-sectional online survey of 446 practicing California school nurses. Only 43% of California's school districts employ school nurses. Unlicensed school personnel with a variety of unregulated training provide school health services. There is a lack of identification of CSHCN, and communication barriers impair the ability to deliver care. Study results indicate that California invests minimally in school health services.

Keywords

school nurse, survey, children with special health care needs, unlicensed assistive personnel

Schools have a legal obligation to provide a free appropriate public education for children with special health care needs (CSHCN). To meet this mandate, schools provide a wide range of health services that have been characterized as a "hidden health care system" (Lear, 2007). These services remain largely unrecognized and underfunded by policy makers, administrators, and the general public (Brener, Wheeler, Wolfe, Vernon-Smiley, & Caldart-Olson, 2007; Lear, 2007). In our society, parents expect their children's basic health care needs to be addressed while they are at school and during extracurricular school activities, so they can safely attend school. In addition, the Individual with Disabilities Improvement Education Act (2004; PL 108-446) and section 504 of the Rehabilitation Act of 1973 (PL 93-112) provide some legal requirements that address the health needs of students during school hours. Students may require health care services during school hours for many reasons, ranging from life-threatening events that occur from an unidentified condition (e.g., first episode of anaphylaxis) to providing care coordination required for a chronic condition (e.g., asthma, epilepsy, and diabetes). In addition to offering specific health care services, schools may be required to partner with public health agencies during infectious disease outbreaks and to provide preventive services, including health screenings and health education (Rebmann, Elliott, Reddick, & Swick, 2012). These requirements place schools in the role of a de facto provider of a range of health care services, and little is known about how well schools address the health needs of CSHCN. This article focuses on one type of health services provided by schools, those for children with special health needs.

Fortunately, the majority of children who attend school on a daily basis are healthy and do not require any specialized attention to their health needs beyond a healthy and safe environment. However, in California, about 16% of 6- to 11-year-old and 20% of 12- to 17-year-old children have a special health care need that may require additional health services at school to allow for their full participation (Lucile Packard Foundation for Children's Health [LPFCH], 2010). Although schools use special education service eligibility

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and section 504 of the Rehabilitation Act requirements to identify children who may need health services, many children who would benefit from additional health services may remain unidentified. The Maternal Child Health Bureau employs a broad, inclusive definition for CSHCN, "children who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally" (McPherson et al., 1998, p. 138). Due to the various legal definitions and qualifications for special education, many CSHCN may not have an individualized education plan or a section 504 plan. Therefore, the health needs of these students may go unrecognized or unaddressed by the school system. For example, a student with chronic asthma is a CSHCN but may not require or qualify for special education or 504 accommodations.

Failure to address the health needs of CSHCN can have substantial negative consequences for educational outcomes. For instance, CSHCN are more likely to repeat a grade than children without special health care needs (20.9% vs. 7.8%). About 15% miss 11 or more days of schools compared to 4% without a special health condition, and 47% miss more than the average days missed by children without special health care needs (LPFCH, 2010). Students who miss 10 or more school days per year are at higher risk for grade-level failure and failure to complete high school (Chang & Romero, 2008). Connection to school and engagement with school are also significant predictors of school success and high school graduation (Chang & Romero, 2008), but fewer than half (42%) of the CSHCN who have functional limitations feel connected to school (LPFCH, 2010). CSHCN represent a subpopulation of students who are at significant risk of chronic absenteeism and school failure (Bethell et al., 2010; Fletcher & Richards, 2012; Forrest, Bevans, Riley, Crespo, & Louis, 2011).

Health services provided in school influence the health and educational outcomes of CSHCN (Baisch, Lundeen, & Murphy, 2011). Therefore, it is important to better understand how schools are currently providing health services for CSHCN. The purpose of this study was to describe school health service delivery in California's schools by obtaining information about (a) the current registered nurse, school nurse workforce in California's public schools; (b) the identification, assessment, and transition planning process for CSHCN; (c) the identity of those who deliver health services and their training; and (d) the school nurses' role with school-based health centers. School nurses were surveyed to provide information about school health services because, when available, they are the primary health services provider in schools and are usually the only health care professional available in a school building.

Method

Two methods were used for the study. The first was analysis of a mandatory, annual collection of administrative data reported to the state and publicly available through the California Basic Educational Data System (CBEDS). The CBEDS data for school year 2011–2012 were analyzed to provide information on data on student enrollment and number of nurses employed in the state (California Department of Education, 2013). The second method was an online survey sent to practicing school nurses who were members of the California School Nurses Organization (CSNO). This research was approved by the first author's Institutional Review Board.

Participants

A cross-sectional survey was conducted in April–May 2013 with the entire membership of the 989 registered nurses who belonged to the CSNO, a state affiliate of the National Association of School Nurses. The CSNO membership list is the only available compilation of school nurses in California. Approximately 50% of school nurses in California belong to CSNO, with the majority (90%) employed by a local school district (California Department of Education, 2013). The CSNO membership represents a similar geographic distribution as school nurses across the state (California Department of Education, 2013). We received surveys from 518 nurses (52.4% response rate) and excluded 72 from further analysis because they did not meet study criteria such as no longer working as a school nurse or not working in a public school system. The results are based on the responses of 446 school nurses. In addition to the survey, the CBEDS data were analyzed to determine the number of school nurses in California and their location (California Department of Education, 2013).

CSNO members were sent an introductory e-mail containing information about the survey and a request that they watch for the survey the following week in their e-mail. Passive consent was considered affirmative based on completion of the survey. Participants were provided with a US$5 e-mailed gift certificate that arrived with the survey and was awarded whether the survey was completed or not. E-mail reminders were sent 3 times to participants who did not respond. Each participant who completed a survey was entered into a drawing for an electronic tablet. Each of the five CSNO membership sections was offered a US$500 scholarship award for the highest percentage of participation by its members.

Instrument and Procedures

The survey consisted of 10 demographic and 31 occupational and school health questions with branching questions to request additional information based on the response. This article reports on a selection of topics from the survey that related to school health services. Advice on the study was provided by a 14-member school nurse council representing urban, suburban, and rural school districts across the state, plus a national school nurse consultant. Survey development was preceded by (a) analysis of the content of a 2-day

workshop with the advisory council, (b) a previous national survey of school nurses, "Documenting the Experience of Caring for Children with Special Health Care Needs in the Schools" (Anderson & Enge, 2009), and (c) 18 key informant interviews with stakeholders in school health, including state-level administrators in education, mental and public health services, legislators, and district-level administrators in special education and health services. Thematic analysis of information from these sources was completed and major issues in school health and school nursing practice were extracted and converted into survey topics. A draft survey was reviewed by the advisory council and pretested by five practicing school nurses. Based on their feedback, the survey was refined and a beta e-version was sent out electronically to 10 practicing school nurses to assess clarity and ease of the e-version interface. Additional modifications were made, and the final version was approved by the advisory council. Survey data were collected using secure https encryption software, SNAP (Snap Surveys, Portsmouth, NH) and analyzed using SAS 9.3 (SAS Institute Inc., Carey, NC).

Results

Characteristics of School Nurse Practice

Nationally, the staffing ratio recommendation is 1 nurse to 750 students, and depending on the acuity of the students, it can be as much as 1 nurse to 1 student (National Association of School Nurses, 2010). However, only 43% of California's school districts reported to the CBEDS that they had a school nurse. Analysis of the state's data indicated that not only is there a wide variation in school nursing services across the state geographically, but also there can be variation in the availability of school nurses from year to year in any one school district. School nurse to student ratios for those districts with nurses varied from 1 nurse to 829 students to 1 nurse to 13,383 students.

Almost one third of the surveyed nurses reported being contracted to work 40 or more hours per week, while 62% worked 20–39 hr (Mean = 33.4 hr). Thirty-six percent of school nurses worked in six or more school buildings. Four in 10 nurses worked in schools where the nurse estimated that more than 75% of the students were eligible for free or reduced-price lunch. One in 10 school nurses worked in schools where the respondents estimated that more than half of the students were not currently fluent enough in English to carry on a conversation. The majority of school nurses reported easy access to electronic school records (88%), Internet (98%), wireless Internet (69%), and e-mail (98%). Although the school district provided 75% school nurses with a laptop computer, fewer than half were provided with a cell phone and 16% with a tablet computer. Respondents represented a diverse range of school district size and geographic locations. The characteristics of the school nurse respondents can be found in Table 1.

Table 1. Characteristics of School Nurse Respondents.

	n	%
Highest Degree in Nursing ($N = 395$)		
Diploma/associate	12	3
Bachelor's degree	194	49
Master's degree	189	48
Certifications and credentials ($N = 395$)		
California School Nurse State Credential	349	88
California Administrative Services Credential	22	6
School Nurse National Certification	9	2
Advanced Practice Nursing State Certification	46	12
Advanced Practice Nursing National Certification	26	7
California Commission on Teacher Credential school nurse services credential	315	78
Years Working in Nursing ($N = 394$)		
Less than 10	41	10
10–24	99	25
25 or more	254	65
Years Working as a School Nurse ($N = 394$)		
Less than 10	124	31
10–24	219	56
25 or more	51	13
Gender ($N = 436$)		
Female	428	98
Race/ethnicity ($N = 394$)		
Hispanic/Latino, any race	29	7
American Indian/Alaska Native	1	1
Asian, Pacific Islander, Filipino	29	7
African American	3	1
White	317	81
Two or more races	11	3
Not reported	4	1
Age ($N = 439$)		
25–49	90	21
50–54	92	21
55–59	133	30
60 or older	124	28

Serving CSHCN

Participating school nurses lacked confidence that schools are providing for the health needs of CSHCN. When asked about their level of confidence that school health needs for all or nearly all CSHCN were met, 26% of school nurses reported that they were very or extremely confident. Forty-two percent said that they were pretty confident and one third reported that they were only slightly or not at all confident that health needs were met.

Eighty-four percent of nurses served mostly general education populations mixed with CSHCN, rather than a special education only population (16%). However, only about 56% of 446 respondents knew how many children had been identified as CSHCN in the schools they served; among those who did, the average estimate was 498 ($SD = 1,071$) with a maximum of 9,968 students. More than 8 in 10 nurses reported that there were at least 50 students identified as CSHCN. The school nurses estimated that the majority of

Table 2. Serving Children With Chronic Health Care Needs: School Nurse Estimates of Children With Chronic Health Care Needs Served in Schools.

27%—Chronic medical conditions (e.g., asthma, diabetes, and seizure disorders)
25%—Intellectual and other developmental disabilities (e.g., Down's Syndrome)
20%—Behavioral/mental health disorders (e.g., autism spectrum disorder)
10%—Mobility or sensory impairments (e.g., use of mobility devices or augmented communication)

CSHCN required services for chronic medical conditions, intellectual and other developmental disabilities, behavioral/mental health disorders, and mobility or sensory impairments (see Tables 2 and 3).

Assessment and Transition Planning for CSHCN

The majority of school districts in California (57%) do not report having any school nursing personnel (California Department of Education, 2013). Therefore, it is unknown how health services including identification, assessment, and transition planning occur in those districts. Participating school nurses reported that they typically conducted health assessments to determine the specific special health care needs in children (92%), with only a small portion of health assessments performed by school psychologists (5%) or other personnel (2%). Even when a school nurse was available, 74% reported that the school district or county did not require a school nurse to conduct health assessments prior to assignment to home hospital educational services or monitoring for students once they receive home–hospital education services.

Respondents were asked how many of the CSHCN whom they served had a formal plan to transfer health care services when they transitioned between grade levels, or from general education to a specialized school. Respondents reported that the percentage of children for whom a plan to transfer health care was not in place increased with grade levels. For transitions from general education to a specialized school, 49% reported that having a transition plan was the exception. Respondents reported the following three key reasons that transition plans were not developed for more CSHCN: the absence a standard process in the system, a paucity of time for the school nurse at the sending or receiving school, and the lack of a school nurse in the sending or receiving school (Table 4).

Unlicensed School Personnel Who Provide Health Services

Respondents were asked about training for unlicensed school personnel because the California Education Code permits training of such personnel, by the school nurse or other licensed health care professionals, to perform health services in schools (California Education Code, 2013). As a result, unlicensed school personnel with varying levels of unregulated training are providing health care services in schools and many of these individuals never anticipated that they would be required to perform health procedures (American Federation of Teachers, 2009). Teachers, secretaries, and school administrators, as well as parents, are providing health services when nurses are not available to meet the children's needs (Table 3). Personal medical care procedures at schools occur frequently, and procedures ranged from simple administration of oral medication to more complex care such ostomy care and gastrostomy feeding. Many procedures require assessment of the students' current health condition prior to safely conducting the procedure. In addition, some students with conditions such as ventricular shunts to control intracranial pressure require ongoing assessment while at school. For five of the procedures (medication: oral, medication: inhaler, gastrostomy feeding and care, blood sugar testing, and urinary catheterization), 20% or more of the respondents indicated that only other individuals besides the nurse performed this procedure. With the exception of ventilator care, 90% or more of the nurses indicated that they provided training when other staff performed these procedures (Table 3).

School nurses endeavor to provide training to unlicensed personnel who must perform these procedures, though their ability to provide that training and their confidence in the ability of others to provide this care varied substantially. When asked about their level of confidence that school health needs for all or nearly all CSHCN in the schools they served were met, only 26% of school nurses reported that they were very or extremely confident. Forty-two percent said that they were pretty confident and one third reported that they were only slightly or not at all confident that health needs were met.

Communication Regarding CSHCN

Only 56% of school nurses knew how many students had been identified as having a special health care need when they enrolled in school. Among those nurses who were aware that a student had a special health care need, 30% reported that they were not kept up-to-date by others, such as the parents or the child's physician, about a child's condition. Many CSHCN must take medication while at school, yet that medication may not be made available by the family. Among the several reasons why families did not provide medications was parent's refusal (76%), unable to afford the medication (75%), and language or cultural barriers (40%). Frequently when medication was not available, nurses reported that there was no one at school with time to follow up with the family (37%). Even when the school nurse recognized that communicating with the child's health care provider might improve care, 60% of the school nurses reported that they did not have a release of information from families to communicate with a primary or mental health care provider for the majority (75% or more) of students they serve. The most

Table 3. Medical Procedures Delivered by Personnel Other Than School Nurses.

Procedure	Number of Nurses Reported Students Needing Procedure (Total)	Reported Other Than Nurse Perform Procedure		Other Than Nurse Personnel Who Perform Procedure[a]			Who Usually Trains Other Personnel[a]			Nurse Reports Very to Extremely Confident in Others' Ability to Perform Procedure
		n[b]	% of Total	Health/Nursing Assistant %	Secretary %	Teaching staff %	*n*[c]	Nurse %[b]	Parent %[b]	%[d]
Blood sugar testing	351	300	86	79	51	24	294	98	9	79
Catheterization	227	186	82	85	3	33	178	98	12	73
Central venous catheters	55	11	20	100	0	9	10	90	0	55
Gastrostomy feeding and care	243	218	90	78	0	46	211	97	13	78
Inhaler medication	393	380	97	65	72	28	362	99	7	63
Injectable medication	300	102	34	82	31	32	98	95	7	55
Oral medication	401	386	96	69	78	31	373	99	4	72
Pump medication	240	100	42	82	20	15	92	98	23	67
Rectal medication	237	123	52	87	16	37	116	96	5	58
Ostomy care	130	113	87	84	1	34	108	96	10	65
Oxygen administration	137	98	72	86	8	30	90	92	16	67
Suctioning, oral	178	149	84	88	1	34	132	96	14	70
Ventilator care	79	47	60	100	2	5	36	81	22	66

Note. All figures are reported from school nurses who were available at a school site.
[a]Percentages not mutually exclusive. [b]This is the denominator for percentages for other personnel who perform the procedure. [c]This is the denominator for who provides the training. [d]Based on nurses who reported others performed procedure (Column 2).

Table 4. Assessment and Transition Planning for Children With Special Health Care Needs.

Percentage of children without transition plan by grade level
37%—Early childhood to pre-kindergarten/elementary
37%—Elementary to Junior/middle school
41%—Junior/middle to high school
58%—high school to adulthood
Reported reasons for absence of transition plans for all transitions
73%—Absence a standard process in the system
43%—Paucity of time for the school nurse at the sending or receiving school
25%—Lack of a school nurse in the sending or receiving school

common reasons permission was not obtained were that the school did not ask the parents for release forms (79%), parents refused to provide permission (48%), nurses had no time for follow-up with the family to obtain consent (26%), and language or cultural barriers (20%).

School Nurse Role With School-Based Health Centers

California has 226 school-based health centers that provide primary care services that fulfill important health services for approximately 5% of the school children (California School Health Centers Association, 2013). The school-based health centers are primarily staffed by primary care providers (i.e., medical doctors, nurse practitioners, and physician assistants). However, the role and relationship between school nurses and school health centers are not well established. Most school nurses (57%) did not work with school-based health centers of any kind. Nearly one third (31%) worked in schools with health care programs that were linked to schools to coordinate and promote health care for students on campus but did not provide clinical services on the school site, while only 15% worked in a school-based program that delivered health care services on-site and 18% worked in schools with mobile programs that rotate health care teams through multiple school sites. For each of the types of school-based health services, nurses typically only made or took referrals from the program (>50%). Only 24% reported that they were included as full partners in the program, and this dropped to 14% for mobile programs and 12% for school-linked programs. Nurses also reported limited attendance at case management meetings: school-based programs (16%), school-linked programs (12%), and mobile programs (5%). Approximately 1 in 10 nurses working in schools with these three types of health care centers reported little or no relationship with the program.

Discussion

CSHCN are a population of students at risk for school failure if their health needs are not met. Schools should monitor their attendance, school performance, and graduation rates

and develop mechanisms to safely meet their health care needs while they are in school. However, schools face significant challenges in addressing the health needs of CSHCN, in large part due to the limited employment of school nurses. The study found that 1.2 million students in California were in school districts in 2011–2012 that employed no school nurses. Among districts with school nurses, 39% had nurse to student ratios of over 1 to 3,000. In addition, because school nurses, when present in a school district, are providing services in an average of six or more school buildings, they have limited availability to provide timely services at any one site or for any individual child. The wide range of school nurse to student ratios, in school districts that report having a school nurse indicates great variability among school districts in the resources they commit to provide school health services. Even if schools were willing to increase their employment of school nurses, more resources will be needed to support school nurse training programs and to enhance diversity in the workforce.

With high student to nurse ratios and assignments that cover multiple school buildings, school nurses reported an alarming lack of confidence in their ability to meet the health needs of students. Only 26% were very to extremely confident that they could meet the needs of all children. This indicates that many CSHCN may be at risk for having unaddressed health needs that may interfere with their access to equal educational opportunities. Establishing state-required systematic mechanisms for schools to identify children with unmet health care needs, monitoring their health status and providing basic health services in schools would help to assure that *all children* are fully able to benefit from the educational opportunities being offered.

Coordination of care within and across school systems is essential for the health, safety, and education of all school children (McClanahan & Weismuller, 2015; Thrall et al., 2012). Failure to coordinate care is costly to both health and education systems and place children at risk for school failure (Baisch et al., 2011). Of concern is that school nurses typically were not notified of changes in a child's condition or even how many CSHCN may be in their districts. Although students enrolled in special education services receive mandated transition planning, CSHCN without an individual educational plan do not have these same protections, and health information service plans may not be transferred between schools. Sporadic care coordination and missed communication across the K–12 systems and community providers magnifies the health risk for all children.

It is a paradox that while California has high educational requirements for its credentialed school nurses, schools are not required to provide school nurse services. Ironically, given the consequent high reliance on unlicensed school health personnel, there are no state-level requirements for school nurse supervision or training standards for unlicensed school health personnel (California Education Code, 2013). Each school district and school nurse, when available, is left to design training and monitoring requirement for unlicensed school personnel. Standardizing training and qualifications for unlicensed school personnel who perform health services at schools are needed to provide some assurance that health services in schools are provided appropriately. In the absence of state guidance, individual school governance systems should analyze their workforce and training requirements for both licensed and unlicensed personnel to ensure the safe and effective delivery of health services during school hours (American Federation of Teachers, 2009).

School-based health centers serve an important role in school health and, with one-time funding in 2013 from the Patient Protection and Affordable Care Act, experienced a rapid expansion in California (California School Health Centers, 2013). Therefore, collaboration between school-based health centers and school nurses is essential. Opportunities to improve school health services are being missed, as the participants in this study reported a general lack of communication and collaboration even with a school-based health center in their own school. State agencies and professional organizations should consider convening school-based health center staff and school nurses to discuss roles, responsibilities, and relationships between the two groups. A workshop by the West Virginia Department of Education (2006) explored how school-based health centers and school nurses can work together to enhance school health. Their findings could serve as a model for collaboration.

Limitations

Participation in this study was limited to California school nurses belonging to CSNO that represents about one half of school nurses in California. Results might have varied if school nurses not involved in a professional organization were surveyed. The school nurse to student ratio also varies district by district, and findings are not intended to reflect any specific geographic region or district within the state but rather create a statewide representation of school health issues. Ratios of school nurse to student also vary by state; therefore, states with greater availability of school nurses or with different credential or educational requirements may have significantly different ratios. Because 57% of California's school districts do not report having any school nurse personnel, the survey results do not apply to health services that may occur in those school districts. Further evaluation of how schools without credentialed school health personnel address safety and the health needs of CSHCN is needed, as workable models may have been developed that are meeting the needs of students. Alternatively, students' health care needs in those districts may not be fully met. The CBEDS relies on reports from school districts and the accuracy of those data is not assured through current monitoring systems. Finally, the provision of health services in the school and the availability of school nurses vary from state to state so these results may not generalize beyond California.

Implications for School Nursing

This study represents the first to focus on the perceptions of school nurses to understand how health care services are delivered in California's schools. California is similar to many states that are not investing in school health services or monitoring health service delivery within schools (Centers for Disease Control and Prevention, 2012). The lack of investment in school health services does not align with multiple researchers who found a strong connection between school success and health. Schools that attend to the health needs of their students with special health care needs experience direct rewards, that is, students who are healthy attend school more often, have higher levels of academic achievement and are more likely to graduate from high school (Basch, 2010; Centers for Disease Control and Prevention, 2012; Robert Wood Johnson Foundation, 2009). In California schools, addressing health needs also has a direct economic impact as a result of the average daily attendance revenue system that determines how much money flows to local school districts. Thus, missed school days due to chronic conditions have significant overall fiscal impact on schools. For example, in 2005, children with asthma in California missed an estimated 1.9 million days of school. California's superintendents and local boards of education are aware of this direct link between health and education; in a survey by the California School Boards Association (2008), 60% of their member districts strongly agreed that providing health services reduces absenteeism and improves academic achievement. The impact of lost school time and increased risk for school failure has consequences for society as well, because school success predicts future health, economic status, and well-being across the life span (Hanson, Austin, & Lee-Bayha, 2004).

The reciprocal relationship between the health and education systems is clear. Education influences health and overall health influences access to the school curriculum and social environment of school (California School Boards Association, 2008; Hanson et al., 2004). An essential first step to improve health services is to understand who the CSHCN are and what services they require during the school day to be in school, ready, and able to learn. Infrastructure, training, and support for school health personnel are also required. Specifically, more training and clinical supervision by school nurses or other licensed health care professionals should be required for unlicensed school personnel providing health services. School nurse workforce requirements should be delineated, and enhanced school nurse workforce recruitment is critical. Mechanisms to improve communication within school systems and with community providers would enhance schools' ability to provide services. Finally, robust data collection systems that monitor the health and educational outcomes of CSHCN would demonstrate the impact of health services delivery in schools and the value of licensed and trained school nurses using evidence-based delivery models to provide services in terms of academic achievement and benefit–cost analysis.

Acknowledgment

All the authors would like to thank the school nurses who took time to share their experiences with school health and members of the school nurse advisory council for lending their expertise. In addition, we would like to thank the Lucile Packard Foundation for Children's Health for funding this study.

Authors' Note

The opinions expressed herein are those of the authors and do not necessarily reflect those of any universities or agencies.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by the Lucile Packard Foundation for Children's Health, a 501(c) (3) public charity.

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