

# 2009 “Must Read” Papers for School Health Physicians

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Most of us find it difficult to find the time to read as much school health literature as we would like.

Members of the Physician Section of the American School Health Association (ASHA) and the American Academy of Pediatrics (AAP) Council on School Health have worked together to develop a list of important school health papers published in 2009. Members nominated research and review papers they found to be important for school health physicians and then voted on their top choices. A few key new or updated policy statements were also nominated. We are publishing a summary of the top 12 research and review papers and listing all new key policy statements.

In 2010 we will attempt to increase the frequency of these postings. Send your nominations for “Must Read” papers as soon as you identify an important paper. Send nominations to [lschwheeler@aap.net](mailto:lschwheeler@aap.net).

The top papers for 2009 address school policies and 4 components of coordinated school health: health services, mental health, physical activity, and nutrition. The studies cover students in elementary and secondary schools and include those with chronic conditions and other special needs. Several key messages for school health physicians are identified.

- School policies and programs should ensure a safe and supportive school environment for all students including those with special needs or health conditions like asthma. We need many more schools with fulltime school nurses and more “asthma-friendly schools.”
- Pediatricians need to do their part by sending asthma action plans to school.
- Screening or case detection programs at school are appropriate only when they are not only feasible, sensitive, and reasonably specific but they must also lead to improved health among identified students. Unless effective referral, evaluation, and treatment systems are identified or created, schools need to avoid screening for “the disease of the month.”
- School-based adolescent immunizations programs are effective.
- During influenza outbreaks, public health and schools can work together to assess the pros and cons of school closure in their community.
- Injury surveillance is an important aspect of school health programs. Students with disabilities merit special attention.
- Pediatricians can promote physical activity by advocating for child- and pedestrian-friendly cities.
- Participants in the School Breakfast Program and the National School Lunch Program have better daily nutrition relative to non-participants. Contrary to public opinion, the NSLP is not associated with higher rates of student obesity.

## Asthma-Friendly Schools

**Source:** Jones SE, Wheeler LS, Smith AM, McManus T. Adherence to National Asthma Education and Prevention Program's "How Asthma-Friendly Is Your School?" Recommendations. *J Sch Nurs.* 2009;Oct;25(5):382-394.

**Contact:** Sherry Everett Jones - [sce2@cdc.gov](mailto:sce2@cdc.gov)

**Purpose:** This study is a secondary analysis of SHPPS 2006 data aimed at examining the degree of adherence of a representative sample of US schools to the recommendations found in the NAEPP Asthma-Friendly School Checklist.

**Summary:** Asthma is a chronic health condition among children and adolescents that is heavily dependent on prevention and environmental control. The SHPPS 2006 data is a national dataset collected by the CDC focusing on school policies and programs. Responses from the SHPPS 2006 were analyzed against the eight components of the NAEPP "How Asthma-Friendly is Your School Checklist?" using 23 questionnaires developed for this study. Data analysis showed that high adherence to some of the NAEPP's recommendations. However, for most recommendations, adherence was much lower. Of note, less than 1/3 of schools had a full-time registered nurse. The study made a clear case for the need of significant improvements in school policies and programs to ensure a safe and supportive school environment for students with asthma.

**Comment:** This study beautifully illustrates how a national dataset can be used to drill down, make further assessments, and recommendations. This paper highlights the importance of the schools investing in the safety of their students with asthma through adherence to policy recommendations and the need for full-time registered school nurses in the schools. This analysis can be repeated to follow-up on progress in this area in the future.

**Abstractor:** Rani S Gereige, MD, MPH, FAAP - [Rani.Gereige@mch.com](mailto:Rani.Gereige@mch.com)

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## Asthma "Screening" and Morbidity

**Source:** Gerald JK, Sun Y, Grad R, Gerald LB. Asthma Morbidity Among Children Evaluated by Asthma Case Detection. *Pediatrics.* 2009;Nov;124(5):e927-e933.

**Contact:** Joe K. Gerald MD, PhD - [geraldj@email.arizona.edu](mailto:geraldj@email.arizona.edu)

**Purpose:** This study evaluates the burden of respiratory symptoms and health care use among children identified as having asthma by school-based case detection ("screening").

**Summary:** Data come from a school-based asthma case detection study of 3539 children. Respiratory symptoms, emergency department (ED) visits, and hospitalizations were assessed by questionnaire for children whose case detection result and physician study diagnosis agreed. Physician evaluation of 530 case detection results yielded 420 cases of agreement (168 children previously diagnosed asthma, 39 undiagnosed asthma, and 213 without asthma). No differences in severity were observed in children with previously and undiagnosed asthma. Children with

undiagnosed asthma reported less frequent daytime and nighttime symptoms than children with previously diagnosed asthma but more than those without asthma ( $P < .0001$ ). The proportion of children with at least 1 respiratory-related ED visit in the past year was 32%, 3%, and 3% for those with previously diagnosed, undiagnosed, and no asthma, respectively ( $P < .0001$ ). The proportion with at least 1 respiratory-related hospitalization was 8%, 0%, and 0%, respectively ( $P < .0001$ ). There were no differences in nonrespiratory ED visits ( $P = .93$ ). Children with undiagnosed asthma reported significantly less frequent respiratory symptoms and health care use than children with previously diagnosed asthma.

**Comment:** This study documents insignificant outcomes from a school-wide mass case detection program. Current literature recommends targeting school health efforts toward students with poorly controlled who are more adversely impacted by their disease. When their asthma is under good control, student with asthma miss no more school than other students.

**Abstractor:** Lani Wheeler, MD, FAAP, FASHA - [lswheeler@aap.net](mailto:lswheeler@aap.net)

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## Asthma Education

**Source:** Coffman JM, Cabana MD, Yelin EH. Do School-Based Asthma Education Programs Improve Self-Management and Health Outcomes? *Pediatrics*. 2009;124(2):729-742.

**Contact:** Janet M. Coffman, MPP, PhD - [janet.coffman@uscf.edu](mailto:janet.coffman@uscf.edu)

**Purpose:** The authors report on a systematic review of the literature on school-based asthma education programs over the past 30 years for children aged 4 – 17. Results were analyzed in the areas of knowledge of asthma, self-efficacy, self-management behaviors, quality of life, days of symptoms, nights with symptoms, and school absences.

**Summary:** Twenty-five articles that met inclusion criteria were carefully reviewed. Characteristics of interventions and target populations varied widely, as did outcomes assessed. Most studies that compared asthma education to “usual care” found that school-based asthma education improved knowledge (7/10), self-efficacy (6/8), and self-management behaviors (7/8). Fewer studies showed favorable effects on quality of life (4/8), days with symptoms (5/11), nights with symptoms (2/4), and school absences (5/17). No study measured all 7 outcomes. The authors present 3 possible reasons for the lack of consistent effects on health outcomes. First, the interventions may be inadequate: educational messages may need to be repeated more frequently over longer periods of time. Second, barriers to asthma management in the school may not have been addressed: lack of a school nurse, inability to self-carry rescue medications, triggers in schools, and poor coordination of care with students’ medical homes. Third, improvements in students’ knowledge, self-efficacy and self-management may not be sufficient: improvements in medical care (use of controller medications) or a child’s environment (environmental pollutants including second hand smoke) may also be necessary.

**Conclusion:** School-based asthma education can improve knowledge, self-efficacy and self-management behaviors. Partnerships between schools and health professionals may enhance these effects and translate into improved health outcomes. Pediatricians could help by sending Asthma Action Plans to schools and continuing efforts to control second hand smoke exposure. See

Commentary - Frankowski BL. *Asthma Education: Are Pediatricians Ready and Willing to Collaborate with Schools?* *Pediatrics*. 2009;142(2):793-795.

**Abstractor:** Barbara Frankowski, MD, MPH, FAAP - [Barbara.Frankowski@vtmednet.org](mailto:Barbara.Frankowski@vtmednet.org)

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## School-Based Mental Health Screening

**Source:** Scott MA, Wilcox HC, Schonfeld IS, Davies M, Hicks RC, Turner JB, Shaffer D. School-Based Screening to Identify At-Risk Students Not Already Known to School Professionals: The Columbia Suicide Screen. *Am J Public Health*. 2009;99:334-339.

**Contact:** Michelle A. Scott, PhD, MSW - [scottm@childpsych.columbia.edu](mailto:scottm@childpsych.columbia.edu)

**Purpose:** Determine the degree of overlap between students identified through school-based suicide screening and those thought to be at risk by school administrative and clinical professionals.

**Summary:** Both screening and the evaluations of school professionals are imperfect methods of identifying students with mental health problems. 1729 students from 7 high schools in the New York metropolitan area completed the Columbia Suicide Screen (489 positive screens). The clinical status of 641 students (73% of those who had screened positive and 23% of those who had screened negative) was assessed with modules from the Diagnostic Interview Schedule for Children. School professionals were asked to indicate whether they were concerned about the emotional well-being of each participating student. Approximately 34% of students with significant mental health problems were identified only through screening, 13.0% were identified only by school professionals, 34.9% were identified both through screening and by school professionals, and 18.3% were identified neither through screening nor by school professionals. The corresponding percentages among students without mental health problems were 9.1%, 24.0%, 5.5%, and 61.3%. School-based screening can identify suicidal and emotionally troubled students not recognized by school professionals.

**Comment:** Suicide screening in schools can increase the discovery of students with suicidal thinking and other mental health problems. Screening is one of the important first steps to identify at risk students. With early identification adolescents with mental health problems are more likely to be referred for evaluation and treatment, the critical next steps for them to succeed.

**Abstractor:** Robert Gunther, MD MPH FAAP - [rcgunther@aap.net](mailto:rcgunther@aap.net)

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## School-Based Adolescent Immunization Delivery

**Source:** Daley MF, Curtis CR, et al. Adolescent Immunization Delivery in School-Based Health Centers: A National Survey. *J Adolesc Health*. 2009;45(5):445-452

**Contact:** Matthew F. Daley - [daley.matthew@tchden.org](mailto:daley.matthew@tchden.org)

**Purpose:** To assess adolescent vaccine practices and delivery in the school-based health center environment and to identify barriers to vaccination in this population.

**Summary:** Determination of the most effective and efficient method to deliver the three recommended vaccines for adolescents is essential. This study surveyed 521 school-based health clinics to determine the vaccines that were offered at their sites, the methods utilized for vaccination tracking, reminder/recall systems and the barriers to vaccination. 84% of the SBHCs provided vaccines to adolescents. These vaccines included Tdap, MCV4, HPV and influenza. 69% of the sites utilized electronic health records or a vaccine information system to record immunizations. Reminder/recall methods used included telephone, mail and direct contact at school. 83% of sites used one or more of these methods. Barriers to immunization included access to immunization records, parental and adolescent consent, difficulties in billing for vaccines not provided by VFC and prioritization of health issues. The investigation revealed that SBHCs are an effective way to administer vaccines to the adolescent population. The potential exists to provide increased immunization coverage and disease prevention in a setting that is accessible and equipped for adolescent healthcare delivery.

**Comment:** School-based health care centers are an appropriate vehicle for administering adolescent vaccines. The use of such sites can provide an efficient method to administer these vaccines to a large population of adolescents and thereby increase compliance and disease prevention and decrease disparities in healthcare delivery.

**Abstractor:** Jacqueline M. Kaari, DO, FACOP, FAAP - [kaari@umdnj.edu](mailto:kaari@umdnj.edu)

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## School Closure During Influenza Pandemic

**Source:** Cauchemez S, Ferguson NM, Wachtel C, Tegnell A, Saour G, Duncan B, Nicoli A. Closure of Schools During an Influenza Pandemic. *Lancet Infect Dis*. 2009;Aug;9(8):473-481.

**Contact:** Dr. Simon Cauchemez - [s.cauchemez@imperial.ac.uk](mailto:s.cauchemez@imperial.ac.uk)

**Purpose:** To determine the factors impacting on the decision to close schools during a pandemic.

**Summary:** The authors reviewed studies providing primary data regarding the effects of school closure during an influenza pandemic. Health effects of school closure are estimated by mathematical modeling to determine the effect on total cases as well as the peak incidence of influenza during a pandemic. It was noted that early school closures did impact on total cases of illness by 10 to 15% with a larger impact on peak incidence rates of about 40%. Health effects are strongly impacted by and difficult to separate from the effects of other mitigation strategies. The health benefits must be weighed against the economic and social costs of school closure. The loss of

parent days at work can be significant as well as the effect of absent parents who work in the health care system. Education will be interrupted as would free and reduced meals. The authors recommend that pandemic planning efforts take into account these multiple factors, and that school closure is most effective when it is done early and when the illness is severe. Future research priorities were also outlined.

**Comment:** There are many health, economic, and social factors that must be taken into account during pandemic planning that includes the potential for school closure. Early closure when illness severity is high seems to provide the clearest benefits.

**Abstractor:** Debbie Badawi, MD, FAAP, FASHA - [debbieb@mdschblind.org](mailto:debbieb@mdschblind.org)

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## Physical Education Class Injuries

**Source:** Nelson NG, Alhadj M, et al. Physical Education Class Injuries Treated in Emergency Departments in the US, 1997-2007. *Pediatrics*. 2009;124:918-925.

**Contact:** Lara B. McKenzie, PhD, MA - [lara.mckenzie@nationwidechildrens.org](mailto:lara.mckenzie@nationwidechildrens.org)

**Purpose:** To describe the epidemiological features of physical education (PE)-related injuries treated in US emergency departments.

**Summary:** School wellness polices have highlighted the importance of increasing physical education and physical activity. An estimated 405,305 children and adolescents were treated in emergency departments for PE-related injuries. The annual number of cases increased 150% during the study period ( $P < .001$ ). Nearly 70% of PE-related injuries occurred during 6 activities - running, basketball, football, volleyball, soccer, and gymnastics. Boys' injuries were more likely to involve the head, be a laceration or fracture, be attributable to contact, and occur during group activities. Girls' injuries were more likely to involve the lower extremities, be strains and sprains, be acute noncontact, and occur during individual activities. Gender differences, age group and individual sport choice appear to carry variable risks and suggest the need to differentiate strategies. The authors propose that the 150% increase in injuries may have been related to the documented decrease in school nurses during the study period. In the absence of a nurse who could triage and assess, all school related injuries would, most likely, be referred to the emergency room.

**Comment:** In addition to triage, school nurses are ideally positioned to provide injury surveillance to inform and support differentiated education/prevention efforts. Student electronic medical records, with data to characterize patterns of injuries, can lead to a more targeted and responsive injury prevention strategy. Obesity prevention efforts, emphasizing increased physical education and physical activity, will intensify the need for injury surveillance.

**Abstractor:** Linda Grant, MD, MPH, FAAP - [lmgrant@bu.edu](mailto:lmgrant@bu.edu)

## Physically Disabled Students

**Source:** Egilson ST, Traustadottir R. Participation of Students with Physical Disabilities in the School Environment. *Am J Occup Ther.* 2009;63(3):264-272.

**Contact:** Snaefridur Thora Eglison, MSc OT, PhD - [sne@unak.is](mailto:sne@unak.is)

**Purpose:** This study investigated the factors that facilitate or hinder school participation of students with physical disabilities and explored the interaction of those factors.

**Summary:** The study used a mixed-methods design with qualitative data on 49 participants: 14 students, 17 parents, and 18 teachers and quantitative data on 32 students using the School Function Assessment. The investigators consider the physical environment (e.g., schools with heavy doors, steep ramps, rough surfaces, curbs, and uneven terrain that could impede access) as well as personal attributes (e.g., type of physical disability, associated problems with cognitive and communicative skills, emotional and behavioral issues, sense of control, or self-efficacy). The study used surveys of parents and teachers and direct observation of students. Participation of disabled students was most likely to occur during mealtimes, whereas they were most challenged to participate during recess, field trips, and when transportation was required. Possibilities of student participation decreased with increasing numbers of risk factors, but the interaction between factors was equally important. The authors concluded that in order to promote school participation of students with disabilities, occupational therapists should consider a confluence of child, environmental, and task factors rather than focusing on individual aspects.

**Comment:** There is virtually no research on how to accommodate physically disabled students in integrated or “mainstreamed” school settings. The *School Function Assessment* could be useful for schools self-assessments. The study identifies modifiable factors that could improve the students’ quality of life. Playgrounds, during recess were particularly prohibitive for these students.

**Abstractor:** Howard Taras, MD, FAAP, FASHA - [htaras@ucsd.edu](mailto:htaras@ucsd.edu)

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## Encouraging Walking in Children and Adolescents

**Source:** Giles-Corti B, Kelty SF, Zubrick SR, Villanueva KP. Encouraging Walking for Transport and Physical Activity in Children and Adolescents: How Important is the Build Environment? *Sports Med.* 2009;39(12):995-1009

**Contact:** Billie Giles-Corti - [Billie.Giles-Corti@uwa.edu.au](mailto:Billie.Giles-Corti@uwa.edu.au)

**Purpose:** To examine the evidence of the association between build environment and physical activity in children and adolescents.

**Summary:** There is growing evidence of the impact of the environment on childhood obesity and development, however the data is inconsistent and only few studies look at the mechanism through which the build environment influences children and youth behaviors in terms of physical activity and walking. This article reviews the literature on the impact of the environment on walking, with a focus on the factors associated with physical activity. Several studies show that there are different

factors that influence younger versus older children's level of physical activity. Parents are the gatekeepers for younger children and the real or perceived level of safety or the traffic influence parents' decision to let younger children walk to school or other destinations. For older children and adolescents, proximity of destination and to recreational facilities, neighborhoods esthetics, and higher urban densities are associated with increased level of activity and walking. There is persistent need for research on how age, sex, and cultural factors influence physical activity in a certain built environment. Data from this kind of research will provide evidence-based strategies that could influence future environmental interventions.

**Comment:** Changes in the environment clearly contribute to a sedentary lifestyle and the current pediatric obesity epidemic. Research on the effect of the environment on childhood obesity and development can provide pediatricians with data that can be used in advocating at local and state level for child- and pedestrian-friendly cities.

**Abstractor:** Alina Olteanu, MD, PhD - [aolteanu@tulane.edu](mailto:aolteanu@tulane.edu)



## Effect of School Breakfast and Lunch on BMI

**Source:** Gleason PM, Dodd AH. School Breakfast Program But Not School Lunch Program Participation is Associated with Lower Body Mass Index. *J Am Diet Assoc.* 2009;109:s118-s128.


**Contact:** Philip M Gleason, PhD - [PGleason@mathematica-mpr.com](mailto:PGleason@mathematica-mpr.com)

**Purpose:** This study tested the hypothesis that participation in the School Breakfast Program (SBP) and the National School Lunch Program (NSLP) affected students' weight status.

**Summary:** Data was utilized from the School Nutrition Dietary Assessment Study (SNDA-III) on a sample of 2,228 students grades 1-12, representative of the national population. Student and parent questionnaires along with 24 hour dietary and activity recall were used. A regression model was applied, notable for its detailed set of control and school-related variables that might play a role in a child's body mass index (BMI). The NSLP was not associated with BMI, overweight, obesity or BMI z-scores. But SBP participation was associated with lower BMI and a lower risk of overweight or obesity. The effect was significantly stronger for non-Hispanic white students. Daily participation in SBP was estimated to result in a lower BMI by 0.75 points, or approximately 4 lbs for a 5 foot tall child. The lower BMI is not accounted for by lower daily calories. The author's speculate that spreading calories over the day may be beneficial.

**Comment:** Participants in the SBP and NSLP have better daily nutrition relative to non-participants. Contrary to public opinion, the NSLP is not associated with higher rates of student obesity. Consistently, national studies have shown that eating daily breakfast lowers obesity risk. The SBP is far less utilized than the NSLP. Access to the SBP ought to be a national nutrition priority.

**Abstractor:** Robert Murray, MD, FAAP - [Robert.Murray@NationwideChildrens.org](mailto:Robert.Murray@NationwideChildrens.org)



## Fast Food Restaurants Near Schools

**Source:** Davis B, Carpenter C. Proximity of Fast-Food Restaurants to Schools and Adolescent Obesity. *Am J Public Health*. 2009;99(3):505-510.

**Contact:** [marketing\\_department@baylor.edu](mailto:marketing_department@baylor.edu)

**Purpose:** This study examines the relationship between fast-food restaurants near schools and obesity among middle and high school students in California.

**Summary:** Geocoded data (obtained from the 2002-2005 California Healthy Kids Survey) on over 500,000 youths and was used to estimate associations between adolescent obesity and proximity of fast-food restaurants to schools. The authors found that students with fast-food restaurants near (within one half mile of) their schools (1) consumed fewer servings of fruits and vegetables, (2) consumed more servings of soda, and (3) were more likely to be overweight than were youths whose schools were not near fast-food restaurants, after we controlled for student- and school-level characteristics. The result was unique to eating at fast-food restaurants (compared with other nearby establishments) and was not observed for another risky behavior (smoking). The authors conclude exposure to poor-quality food environments has important effects on adolescent eating patterns and overweight. Policy interventions limiting the proximity of fast-food restaurants to schools could help reduce adolescent obesity.

**Commentary:** This article documents the significant role that environment, proximity and easy accessibility of fast-food restaurants play in influencing adolescent student eating habits and consequent obesity. The authors suggests a way school districts and their communities, (zoning ordinances) might limit student access to poor diet choices.

**Abstractor:** Jeffrey Lamont, MD, FAAP - [lamont.jeffrey@marshfieldclinic.org](mailto:lamont.jeffrey@marshfieldclinic.org)

## New or Updated Policy/Position Statements

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### **American Academy of Pediatrics**

[http://aappolicy.aappublications.org/policy\\_statement/index.dtl](http://aappolicy.aappublications.org/policy_statement/index.dtl)

### **Committee on Adolescence and Committee on Child Health Financing**

Underinsurance of Adolescents: Recommendations for Improved Coverage of Preventive, Reproductive, and Behavioral Health Care Services. *Pediatrics*. 2009;123:191-196.

### **Committee on Bioethics**

Pediatrician-Family-Patient Relationships: Managing the Boundaries. *Pediatrics*. 2009;124:1685-1688.

Physician Refusal to Provide Information or Treatment on the Basis of Claims of Conscience. *Pediatrics*. Dec 2009; 124:1689-1693.

### **Committee on Environmental Health**

The Built Environment: Designing Communities to Promote Physical Activity in Children. *Pediatrics*. 2009;123:1591-1598.

### **Committee on Environmental Health, Committee on Substance Abuse, Committee on Adolescence, and Committee on Native American Child Health.**

Tobacco Use: A Pediatric Disease. *Pediatrics*. 2009;124:1474-1487.

### **Committee on Infectious Diseases**

Recommendations for the Prevention and Treatment of Influenza in Children, 2009–2010. *Pediatrics*. 2009;124:1216-1226.

### **Committee on Injury, Violence, and Poison Prevention**

Role of the Pediatrician in Youth Violence Prevention. *Pediatrics*. Jul 2009; 124: 393 - 402.  
Pedestrian Safety. *Pediatrics*. 2009;124:802-812.

### **Council on Children With Disabilities**

Supplemental Security Income (SSI) for Children and Youth With Disabilities. *Pediatrics*. 2009;124:1702-1708.

### **Council on Clinical Information Technology**

Using Personal Health Records to Improve the Quality of Health Care for Children. *Pediatrics*. Jul 2009;124:403-409.

### **Council on Communications and Media**

Media Violence. *Pediatrics*. 2009;124:1495-1503.

Impact of Music, Music Lyrics, and Music Videos on Children and Youth. *Pediatrics*. 2009;124:1488-1494.

### **Council on School Health**

Guidance for the Administration of Medication in School. *Pediatrics*. 2009;124:1244-1251.

School-Based Mental Health Services. *Pediatrics*. 2004;113(6):1839-1845. Reaffirmed August 1, 2009.

**American School Health Association**

<http://www.ashaweb.org/Resolutions>

*ASHA Encourages Healthy Fundraising Alternatives New 2009*

[http://www.ashaweb.org/files/public/Resolutions/ASHA\\_Encourages\\_Healthy\\_Fundraising\\_Alternatives.pdf](http://www.ashaweb.org/files/public/Resolutions/ASHA_Encourages_Healthy_Fundraising_Alternatives.pdf)

**2009 Revised Resolutions**

[\*Sexual Minority Youth in Schools\*](#)

[\*Quality Sex Education with Disabilities\*](#)

[\*Alcohol, Tobacco, and Other Drugs Education\*](#)

[\*School Health Education\*](#)

[\*ASHA Supports Fruit and Vegetable Intake in Schools\*](#)

[\*Leadership for Promoting Healthy Schools\*](#)

**National Association of State Boards of Education**

**Childhood Obesity: A School Health Policy Guide** by Colin Pekruhn, Director, Obesity Prevention Project, Center for Safe and Healthy Schools, National Association of State Boards of Education. Arlington, VA, 2009. Available at:

<http://www.rwjf.org/files/research/20090506nasbeguide.pdf>