Policy Position Statement on Body Mass Index (BMI) Surveillance and Assessment in Schools
September 2008

Position

The obesity epidemic in children is an enormous societal problem with far reaching consequences. Currently, 32% of children are obese and overweight, at or above the 85th percentile of the CDC growth charts.[1] Even more troubling, is that elevated body mass index (BMI) – a commonly used measure of adiposity – is associated with metabolic syndrome, reaching a 50% association in the most severely obese children.[2] Overweight and obese children also have higher rates of high blood pressure, abnormal insulin levels and dyslipidemias.[3] Childhood obesity persists into adulthood[4] threatening to reverse gains made in morbidity and mortality related to cardiovascular diseases and stroke. The American Heart Association (AHA) places a high priority on addressing the nation's childhood obesity epidemic and supports a more comprehensive surveillance system in the United States to support the goals of eliminating the epidemic burden of heart disease and stroke.[5] Within this context, BMI surveillance in schools -- where heights and weights are measured annually and data are collected longitudinally and there is public reporting of the aggregate data – may serve to expand the understanding of childhood obesity trends and help to determine the efficacy of obesity prevention programs and support program planning. The results will provide important population-based assessment and prevalence data. The programs should be adequately funded as there is a cost incurred by states and schools to conduct them. Additionally, in 2009, the National Committee for Quality Assurance has added weight assessment and counseling for nutrition and physical activity for children and adolescents in its Healthcare Effectiveness Data Information Set (HEDIS).[6] The HEDIS measures are used by the majority of America's health plans to measure performance on important dimensions of care and service. Hopefully, this first-time measure will drive improved diagnosis and treatment of childhood obesity in the healthcare environment.

However, BMI screening programs used for individual health assessment, where results are reported to parents, raise a number of concerns around measurement techniques, adequate training for those conducting the assessment, privacy protection, effective parental notification, and the importance of linking families and physicians to resources in the community that address prevention and treatment – nutrition, behavior change, and physical activity. There is inadequate information on the impact of BMI screening for the purpose of health assessment in schools on weight-related attitudes in children, self-concept, and the behavior of youth and families.[7,8] If a BMI assessment program is established for the purpose of individual health screening, and even for surveillance, then the following safeguards should be implemented: introduce the program to school staff and community members through open houses, local school board meetings, staff development opportunities, the district website, and other typical communication channels, obtain parental consent, train staff to administer the program effectively, and assure that the program is led by a highly-qualified staff member such as a school nurse. Other safeguards include obtaining and using accurate equipment, accurately calculating and interpreting the data,

developing efficient and confidential data collection procedures, not using BMI results to evaluate student or teacher performance, and regularly evaluating the program and its intended outcomes and particularly unintended consequences.[9,10,11] Through parental notification, programs should also recommend that results are shared with the students' health care providers.

Other measures of adiposity, such as waist circumference, are increasingly invoked as an indicator of insulin resistance, dyslipidemia and other comorbidities of obesity and may be useful to characterize risk in the obese child. However, because of the difficulty in measuring and the uncertainty of appropriate cut-offs in children, routine use is not recommended at this time.[12]

II. Background Rationale and Landscape

Responding to the childhood obesity epidemic, many states have already implemented or are considering implementing BMI surveillance/assessment programs. In 2007, eleven states enacted laws addressing student BMI measures and/or physical fitness assessments.[13] Arkansas was the first state to implement a program directed toward health assessment and surveillance. The Arkansas Center for Health Improvement, an independent entity, developed and validated a BMI measurement protocol, trained school staff on how to conduct BMI assessments, created a secure BMI database, and disseminated individual and confidential child health reports to parents.[14] Participation by schools and students has been high in the Arkansas program since there is significant collaboration between families and the health and education communities. The program and the initiative have allowed Arkansas to track the progress of the state's childhood obesity epidemic.[15] Pennsylvania has a similar growth screening program where school health professionals can monitor growth and development patterns of students in grades K-12, identify students who may be at nutritional risk, and notify parents/guardians of screening results with a recommendation to share the findings with the student's health care provider for further evaluation and intervention if necessary.[16] Within these kinds of BMI screening programs, it is important to link families and physicians to available community resources , so that obesity prevention and treatment activities can follow; this may require the development of increased provider capacity. In states like Arkansas and Pennsylvania, screening was only part of more comprehensive interventions that included increased access to healthier foods in schools and communities and physical activity initiatives.

Support for BMI assessment used for surveillance is fairly robust.[17,18,19] A recent study showed that the measurement of height and weight in schools by school nurses is a reliable means of surveillance and maintains student privacy.[20] The National Health and Nutrition Examination Study (NHANES) and the Youth Risk Behavior Surveillance System (YRBSS) provide population-based, cross-sectional state and national samples, however the YRBS data are self-reported. Studies comparing the YRBS self-report data with measured heights and weights have demonstrated that the self-reported data typically underestimate the prevalence of child and adolescent overweight and obesity.[21] There is a real need to have comprehensive, longitudinal, cohort state-wide or national assessment of childhood and adolescent obesity to track progression of the epidemic and evaluate interventions and there should be coordination of a national database that tracks this aggregate data..[22] Funding for national surveillance programs like NHANES and YRBS and BMI surveillance should be more robust.

The use of BMI assessment for individual health screening is less consistent. The Institute of Medicine does recommend annual school-based screening.[23] The CDC, on the other hand, issued cautionary guidance in 2007 around BMI assessment used for health screening purposes since the efficacy of these programs is not yet well-established and there are concerns that these programs might stigmatize students, lead to harmful behaviors, or that they may be ineffective or waste health promotion resources.[24] The U.S. Preventive Services Task Force concludes that there is not enough evidence to recommend for or against BMI screening programs for children to prevent obesity and poor health outcomes.[25] The American Academy of Pediatrics does support annual screening within the child's medical home as a strategy for assessing and combating childhood obesity.[26]

The AAP has several criteria for successful screening programs in schools: the screening test should be sensitive, specific and reliable, screeners must be well-trained, there should be a significant target population, those with positive results should be referred for additional evaluation and treatment, there should be effective treatment available and early intervention must be beneficial, the benefit should outweigh the expenses, the site should be appropriate for conducting the screening and communicating the results, and the program should be reviewed for its value and effectiveness.[27] BMI screening for health purposes in schools does meet several, but not all of these criteria and therefore should be approached with careful consideration of the potential concerns mentioned previously.

Summary Policy Recommendation:

1. The American Heart Association supports legislation and regulation that addresses BMI assessment in schools for the purpose of surveillance and to determine the efficacy of obesity prevention and intervention programs.

2. The American Heart Association does not recommend BMI assessment programs used for individual health screening purposes unless there is careful consideration of privacy issues, adequate training, measurement techniques, parental notification, adequate evaluation, and the importance of linking families/caregivers with resources in the community.

3. The AHA favors the development of a national database to compile, achieve and make available to researchers BMI surveillance data.

4. The AHA supports the development of adequate resources to diagnose and treat childhood obesity.

5. The AHA encourages research into the relative value of different measures of adiposity.

6. The AHA advocates for increased funding for more comprehensive and robust YRBS and NHANES surveillance.

References:

[1] Ogden CL. Carroll MD. Flegal KM. High body mass index for age among US children and adolescents, 2003-2006. *JAMA.* 2008;299(20):2401-2405.

[2] Weiss R, Dziura J, Burgert TS et al. Obesity and the metabolic syndrome in children and adolescents. N Engl J Med 2004;350:2362-74.

[3]Grundy, SM, Cleeman JI, Daniels SR, Donato KA, Eckel RH, Franklin BA, Gordon DJ, Krauss RM, Savage PJ, Smith SC, Spertus JA, Costa F. Diagnosis and management of the metabolic syndrome. *Circulation.* 2005;112:e285-e290.

[4]Freedman DS, Patel DA, Srinivasan SR, Chen W, Tang R, Bond MG, Berenson GS. The contribution of childhood obesity to adult carotid intima-media thickness: the Bogalusa Heart Study. *International Journal of Obesity* (Lond). 2008; 32(5):749-56.

[5] Goff DC, Brass L, Braun LT, Croft JB, Fiesch JD, Fowkes FGR, Hong Y, Howard V, Huston S, Jencks SF, Luepker R, Manolio T, O'Donnell C, Robertson RM, Rosamond W, Rumsfeld J, Sidney S, Zheng ZJ. Essential features of a surveillance system to support the prevention and management of heart disease and stroke. *Circulation*. January 2/9, 2007; 115:127-155.

[6]National Committee on Quality Assurance. Technical Resources. 2009 HEDIS. Accessed August 5, 2008 at http://www.ncqa.org/tabid/675/Default.aspx.

[7] Nihiser AJ, Lee SM, Wechsler J, McKenna M, Odom E, Reinold C, Thompson D, Grummer-Strawn L. Body mass index measurement in schools. *Journal of School Health*. 2007; 77:651-671.

[8]Kumanyika SK. Obarzanek E, Stettler N, Bell R, Field A, Fortmann SP, Franklin BA, Gillman MW, Lewis CE, Walker CP, Stevens J, Hong Y. Population-based prevention of obesity: the need for comprehensive promotion of healthful eating, physical activity, and energy balance. *Circulation Circulation*. 2008;117:000-000**.**

[9]Nihiser AJ, Lee SM, Wechsler J, McKenna M, Odom E, Reinold C, Thompson D, Grummer-Strawn L. Body mass index measurement in schools. *Journal of School Health*. 2007; 77:651-671.

[10] Crawford PB, Woodward-Lopez, Ikeda JP. Weighing the risks and benefits of BMI reporting in the school setting. Center for Weight and Health: 2006. Available at nature.berkeley.edu/cwh/PDFs/BMI_report_cards.pdf. Accessed August 7, 2006.

[11] Scheier LM. School health report cards attempt to address the obesity epidemic. *Journal of the American Dietetic Association. 2004; 104(3):341-344.*

[12] Barlow SE and the Expert Committee. Expert Committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report. Pediatrics 2007;120(Suppl 4):S164-S192.

[13]Robert Wood Johnson Foundation. Balance Issue 6: 2007 End of the Year Report: A report on state action to promote nutrition, increase physical activity and prevent obesity. June 9, 2008. available at: http://www.rwjf.org/childhoodobesity/product.jsp?id=31471&pid=1138&c=EMC-CA138.

[14] Ryan KW, Card-Higginson P, McCarthy SG, Justus MB, Thompson JW. Arkansas fights fat: translating research into policy to combat childhood and adolescent obesity. *Health Aff (Millwood).* 2006;25(4):992-1004.

[15]Justus MB, Ryan KW, Rockenbach J, Katterapalli C, Card-Higginson P. Lessons learned while implementing a legislated school policy: body mass index assessments among Arkansas's public school students. *Journal of School Health. 2007; 77(10):706-13.*

[16] Pennsylvania Department of Health. Pennsylvania's growth screening program**.** Available at http://www.dsf.health.state.pa.us/health/lib/health/Growthmanual061604.pdf**.**

[17]Hoelscher DM, Day RS, Lee ES, Frankowski RF, Kelder SH, Ward JL, Scheurer ME. Measuring the prevalence of overweight in Texas schoolchildren. *American Journal of Public Health*. 2004; 94(6):1002-8.

[18]Lewis RD, Meyer MC, Lehman SC, Trowbridge FL, Bason JJ, Yurman KH, Yin Z. Prevalence and degree of childhood and adolescent overweight in rural, urban, and suburban Georgia. *Journal of School Health*. 2006; 76(4):126-32**.**

[19]The TRENDS Project: development of a methodology to reliably monitor the obesity epidemic in childhood. *Arch Dis Child*. 2006; 91(4):309-911.

[20]Stoddard SA, Kubik MY, Skay C. Is school-based height and weight screening of elementary students private and reliable? *Journal of School Nursing*. 2008; 24(1):43-48.

[21]Kolbo JR, Penman AD, Meyer MK, Speed NM, Molaison EF, Zhang L. Prevalence of overweight among elementary and middle school students in Mississippi compared with prevalence data from the Youth Risk Behavior Surveillance System. *Prev. Chronic Disease*. 2006; 3(3):A84.

[22]Overweight among students in grades k-12: Arkansas, 2003-04 and 2004-05 school years. *MMWR Morbidity and Mortality Weekly Report.* 2006; 55(1):5-8.

[23] Institute of Medicine. Preventing childhood obesity: health in the balance. Washington, DC: The National Academies Press; 2005.

[24] Nihiser AJ, Lee SM, Wechsler J, McKenna M, Odom E, Reinold C, Thompson D, Grummer-Strawn L. Body mass index measurement in schools. *Journal of School Health*. 2007; 77:651-671.

[25] US Preventive Services Task Force. Screening and interventions for overweight and children and adolescents: recommendations statement. *Pediatrics.* 2005; 116(1):205-209.

[26] American Academy of Pediatrics. Policy statement: prevention of pediatric overweight and obesity. *Pediatrics*. 2003; 112(2):424-430.

[27]American Academy of Pediatrics, Committee on School Health. School health: policy and practice. 6th edition. Elk Grove, IL: American Academy of Pediatrics. 2004.