



# Research Brief

## Addressing the Needs of Students with Chronic Health Conditions: Strategies for Schools

### US Students and Chronic Health Conditions

Children and adolescents with chronic health conditions spend many hours in school and depend on trained school staff and a healthy school environment to help them manage these conditions. A good working partnership between students, school nurses, clinicians, school staff, and administrators, can help reduce absenteeism and improve academic achievement.

About 25% of children aged 2 through 8 years have a chronic health condition, including asthma, obesity, other physical conditions, and behavior or learning problems.<sup>1</sup> Although it is difficult to estimate and there is not one single source of information for chronic conditions in school aged children, various studies state that for children and teens younger than 18, about 16% have poor oral health conditions,<sup>2</sup> 7% to 10% have asthma,<sup>3-6</sup> 4% have food allergies,<sup>7</sup> 0.7% have seizure disorders,<sup>6,8,9</sup> and 0.3% have diabetes.<sup>6,10</sup>

Studies show that for some students, chronic health conditions are associated with lower academic achievement, but this finding varies by condition and can be influenced by other factors. Schools are responsible for helping students manage chronic health conditions for two reasons. First, students may rely on the school for clinical services, such as those provided by a school nurse or at a school-based health center, because of barriers to health care access. Second, federal and state regulations require schools to provide services and accommodations for students with chronic health conditions.

This brief describes strategies for school-based management of students' chronic health conditions, for example, seizure disorders/epilepsy, asthma, diabetes, poor oral health, and food allergies.

### Sources for Information in This Brief

This brief summarizes current scientific knowledge from a systematic literature review on the relationship between the role of school health services in the health and academic outcomes of students with chronic health conditions.<sup>11</sup> It also reflects position statements and guidelines from national organizations with expertise in school health, and the [Whole School, Whole Community, Whole Child](#) (WSCC) approach for comprehensive school health.<sup>12</sup> School districts and schools can use the following strategies and activities to address the needs of students with chronic health conditions.

#### ***Strategy 1. Plan and develop a coordinated system to meet the needs of students with chronic health conditions.***

A coordinated system based on the WSCC framework is one that reinforces the connection between health and learning. It can help facilitate collaboration across several disciplines—for example, nursing, mental health or

counseling services, nutrition services, and physical activity—to better support students with chronic health conditions. School districts and schools can:

- Assess existing school health policies and practices to determine strengths and weaknesses related to supporting students with chronic health conditions. CDC offers an easy-to-use online tool, the [School Health Index](#), for this purpose.
- Designate a leader at the district level to address policies and practices that meet the needs of students with chronic health conditions. Likely candidates include the school health coordinator or a nursing supervisor.<sup>13</sup> This person can help the school system coordinate and integrate policies and programs and can advocate for community resources that can benefit these students.
- Identify a person in the school building to coordinate the implementation of policies, practices, and systems that support students with chronic health conditions.<sup>13-15</sup>
- Ensure that policies and procedures are consistent with federal and state laws and regulations, such as the Individuals with Disabilities Education Act (IDEA), Section 504 of the Rehabilitation Act of 1973, Americans with Disabilities Act (ADA), Health Insurance Portability and Accountability Act (HIPAA), and Family Educational Rights and Privacy Act (FERPA).<sup>16</sup>
- Get support for policies, practices, and systems from school nurses, parents, administrators, and community members. Leveraging community resources can strengthen school-community connections and improve health and educational outcomes for students.<sup>17</sup>

### ***Strategy 2. Provide school-based health services and care coordination for students with chronic health conditions.***

Having access to school health services has been associated with better health, reduced absenteeism, and improved academic achievement for students.<sup>11</sup> School nurses who can screen students for asthma, for example, can refer them to physicians for diagnosis or changes in medications.<sup>18</sup> Direct clinical interventions, such as providing medications at school, can lead to improvements for students such as fewer symptoms during the day and at night, and fewer activity limitations or changes in their family's plans. Students with asthma who receive these services at school may also have fewer urgent physician office visits, visits to the emergency room, or hospitalizations.<sup>19-28</sup> Care coordination (sometimes called case management) by school nurses helps to create a strong connection between students, families, and primary health care providers.<sup>29</sup> School nurses keep track of health status updates and medications and ensure that students follow their overall health care plan during the school day. Some studies show that students in schools with case management have significantly fewer urgent care visits, emergency room visits, and hospitalizations.<sup>30,31,32</sup>

- Identify and regularly monitor students with chronic health conditions—students with unrecognized chronic conditions can benefit from having access to school health services, especially if they lack other resources for health care.
- Provide direct clinical interventions through school nurses, school-based health centers, or mobile clinics that deliver specialized services.
- Provide care coordination services to integrate management for students with chronic health conditions.

### ***Strategy 3. Provide specific and age-appropriate education to students and their families to improve self-management of chronic health conditions.***

Disease-specific education programs are associated with better school attendance and higher grades. For example, asthma education programs for children or their caregivers can increase asthma control, improve inhaler skills, and decrease hospital stays.<sup>33,34,35</sup> Education programs like Kickin' Asthma that focus on appropriate medication use, for example, when to take a reliever medication vs. a controller medication, lead to improvements in symptoms and decrease emergency room and inpatient admissions.<sup>36,37</sup>

- Offer bilingual or culturally appropriate education and programs for children and their families.<sup>38</sup>
- If in-person classes are not available, consider using web-based education or an external organization to monitor student gains in knowledge or application to their daily lives.<sup>39</sup>

- Provide psychosocial support for families when possible—this has been associated with a larger average gain in GPA when this need is met for individual students compared to when it is not.<sup>40</sup>

***Strategy 4. Provide professional development opportunities for school staff on improving health and academic outcomes of students with chronic health conditions.***

Students who are able to manage their chronic health conditions tend to have better academic outcomes.<sup>41</sup> School administrators and staff need to be aware of the connection between learning and health. In the case of asthma, for example, comprehensive education interventions that include training for staff, along with case management and education for students, have been associated with better control of symptoms.<sup>38,42</sup>

- Provide training for appropriate school staff on resources that support students with chronic health conditions.
- Consider allowing staff time to participate in off-site learning opportunities, e-learning modules, or webinars.

***Strategy 5. Provide appropriate counseling, psychological, and social services for students affected by chronic health conditions.***

In addition to addressing physical health, it is important to identify the mental health needs of students with chronic health conditions, who are at higher risk of bullying than other students—they may not want to draw attention to themselves or appear different from other students.<sup>43</sup>

- Identify and track students with emotional, behavioral, and mental health needs.
- Provide or refer students and families to school- and community-based counseling services.
- Help students with chronic health conditions during transitions such as changes in schools or in family structure.
- Promote a positive school climate where respect is encouraged and students can seek help from trusted adults.

***Strategy 6. Provide a safe physical environment with appropriate nutrition, physical education, and physical activity opportunities for students with chronic health conditions.***

Schools are responsible for the safety of their students during the school day. Students with certain chronic health conditions like asthma, for example, may have increased sensitivity to their surroundings. The school nutrition environment can help shape lifelong eating behaviors, and students with certain diet-related chronic health conditions, like food allergies or diabetes, should have the opportunity to make healthy choices while at school.

- Provide a safe physical environment, both outside and inside school buildings, for example, with proper cleaning and maintenance, ventilation, and limited exposure to chemicals and pollutants.
- Ensure that foods are labeled and that menus are available to students and their families. In addition, food allergens, such as peanuts, should be prohibited in the classroom.<sup>44-46</sup>
- Encourage all students to participate in physical activity, regardless of ability, unless medical needs prevent it.<sup>47</sup>
- Align activities with provisions in local wellness policies and with national or state physical education standards.<sup>48</sup>

## Conclusion

School health services and care coordination for students with chronic health conditions can improve health outcomes and academic achievement, and reduce absenteeism. Direct health education for students and their caregivers can have similar positive effects. Using a multi-tiered approach based on the WSCC model that includes mental health services, appropriate nutrition and physical activity, a safe physical environment, and appropriate staff professional development, can help students with chronic health conditions succeed.

## References

- <sup>1</sup> Van Cleave J, Gortmaker SL, Perrin JM. Dynamics of obesity and chronic health conditions among children and youth. *J. Am. Med. Assoc.* 2010;303(7):623-630.
- <sup>2</sup> Dye BA, Tan S, Smith V, et al. Trends in oral health status: United States, 1988-1994 and 1999-2004. *Vital and health statistics. Series 11, Data from the national health survey.* 2007(248):1-92.
- <sup>3</sup> Akinbami LJ, Moorman JE, Bailey C, et al. Trends in asthma prevalence, health care use, and mortality in the United States, 2001–2010. *NCHS data brief.* 2012;94(94):1-8.
- <sup>4</sup> Barnett SBL, Nurmamagambetov TA. Costs of asthma in the United States: 2002-2007. *Journal of allergy and clinical immunology.* 2011;127(1):145-152.
- <sup>5</sup> Bloom B, Cohen RA, Freeman G. Summary health statistics for US children: National Health Interview Survey, 2009. *Vital and health statistics. Series 10, Data from the National Health Survey.* 2010(247):1-82.
- <sup>6</sup> Miller GF, Coffield E, Leroy Z, Wallin R. Prevalence and Costs of Five Chronic Conditions in Children. *The Journal of School Nursing.* 2016;32(5):357-64.
- <sup>7</sup> Liu AH, Jaramillo R, Sicherer SH, et al. National prevalence and risk factors for food allergy and relationship to asthma: results from the National Health and Nutrition Examination Survey 2005-2006. *Journal of Allergy and Clinical Immunology.* 2010;126(4):798-806. e714.
- <sup>8</sup> Russ SA, Larson K, Halfon N. A national profile of childhood epilepsy and seizure disorder. *Pediatrics.* 2012;129(2):256-264.
- <sup>9</sup> Boyle CA, Boulet S, Schieve LA, et al. Trends in the prevalence of developmental disabilities in US children, 1997–2008. *Pediatrics.* 2011;127(6):1034-1042.
- <sup>10</sup> Data-Resource-Center-for-Child-and-Adolescent-Health. 2012; <https://www.childhealthdata.org/> Accessed November 7, 2016.
- <sup>11</sup> Leroy Z, Wallin R, Lee S. The Role of School Health Services in Addressing the Needs of Students With Chronic Health Conditions: A Systematic Review. *The Journal of School Nursing.* 2017;33(1):64-72
- <sup>12</sup> Lewallen TC, Hunt H, Potts-Datema W, Zaza S, Giles W. The Whole School, Whole Community, Whole Child model: a new approach for improving educational attainment and healthy development for students. *Journal of School Health.* 2015;85(11):729-739.
- <sup>13</sup> Gereige RS, Zenni EA, American-Academy-of-Pediatrics-Council-on-School-Health. *School Health Policy & Practice.* Am Acad Pediatrics; 2016.
- <sup>14</sup> American-School-Health-Association. *Resolutions. District health councils and school-site health teams.* 2005.
- <sup>15</sup> Holmes BW, Sheetz A, Allison M, et al. Role of the School Nurse in Providing School Health Services. *Pediatrics.* 2016;137(6):e20160852.
- <sup>16</sup> Hodge JG, Gable L, Mair J. A CDC review of school laws and policies concerning child and adolescent health. *Journal of school health.* 2008;78:69-128.
- <sup>17</sup> Chiang RJ, Meagher W, Slade S. How the Whole School, Whole Community, Whole Child model works: creating greater alignment, integration, and collaboration between health and education. *Journal of school health.* 2015;85(11):775-784.
- <sup>18</sup> Yawn BP, Wollan P, Scanlon PD, Kurland M. Outcome results of a school-based screening program for undertreated asthma. *Annals of allergy, asthma & immunology : official publication of the American College of Allergy, Asthma, & Immunology.* 2003;90(5):508-515.
- <sup>19</sup> Halterman JS, Fagnano M, Montes G, et al. The school-based preventive asthma care trial: results of a pilot study. *The Journal of pediatrics.* 2012;161(6):1109-1115.
- <sup>20</sup> Halterman JS, Riekert K, Bayer A, et al. A pilot study to enhance preventive asthma care among urban adolescents with asthma. *The Journal of asthma : official journal of the Association for the Care of Asthma.* 2011;48(5):523-530.
- <sup>21</sup> Halterman JS, Szilagyi PG, Fisher SG, et al. Randomized controlled trial to improve care for urban children with asthma: results of the School-Based Asthma Therapy trial. *Archives of pediatrics & adolescent medicine.* 2011;165(3):262-268.
- <sup>22</sup> Halterman JS, Szilagyi PG, Yoos HL, et al. Benefits of a school-based asthma treatment program in the absence of secondhand smoke exposure: results of a randomized clinical trial. *Archives of pediatrics & adolescent medicine.* 2004;158(5):460-467.
- <sup>23</sup> Guo JJ, Jang R, Keller KN, McCracken AL, Pan W, Cluxton RJ. Impact of school-based health centers on children with asthma. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine.* 2005;37(4):266-274.
- <sup>24</sup> Lurie N, Bauer EJ, Brady C. Asthma outcomes at an inner-city school-based health center. *J Sch Health.* 2001;71(1):9-16.
- <sup>25</sup> Webber MP, Carpiniello KE, Oruwariye T, Lo Y, Burton WB, Appel DK. Burden of asthma in inner-city elementary schoolchildren: do school-based health centers make a difference? *Archives of pediatrics & adolescent medicine.* 2003;157(2):125-129.
- <sup>26</sup> Webber MP, Hoxie AM, Odlum M, Oruwariye T, Lo Y, Appel D. Impact of asthma intervention in two elementary school-based health centers in the Bronx, New York City. *Pediatric pulmonology.* 2005;40(6):487-493.
- <sup>27</sup> Patel B, Sheridan P, Detjen P, et al. Success of a comprehensive school-based asthma intervention on clinical markers and resource utilization for inner-city children with asthma in Chicago: the Mobile C.A.R.E. Foundation's asthma management program. *The Journal of asthma : official journal of the Association for the Care of Asthma.* 2007;44(2):113-118.

- <sup>28</sup> Liao O, Morphey T, Amaro S, Galant SP. The Breathmobile: a novel comprehensive school-based mobile asthma care clinic for urban underprivileged children. *J Sch Health*. 2006;76(6):313-319.
- <sup>29</sup> McClanahan R, Weismuller PC. School nurses and care coordination for children with complex needs: an integrative review. *The Journal of School Nursing*. 2015;31(1):34-43.
- <sup>30</sup> Pulcini J, DeSisto MC, McIntyre CL. An intervention to increase the use of Asthma Action Plans in schools: a MASNRN study. *The Journal of School Nursing*. 2007;23(3):170-176.
- <sup>31</sup> Levy M, Heffner B, Stewart T, Beeman G. The efficacy of asthma case management in an urban school district in reducing school absences and hospitalizations for asthma. *J Sch Health*. 2006;76(6):320-324.
- <sup>32</sup> Moricca ML, Grasska MA, M BM, Morphey T, Weismuller PC, Galant SP. School asthma screening and case management: attendance and learning outcomes. *The Journal of School Nursing*. 2013;29(2):104-112.
- <sup>33</sup> Kouba J, Velsor-Friedrich B, Militello L, et al. Efficacy of the I Can Control Asthma and Nutrition Now (ICAN) pilot program on health outcomes in high school students with asthma. *The Journal of School Nursing*. 2013;29(3):235-247.
- <sup>34</sup> Horner SD, Brown A. Evaluating the effect of an asthma self-management intervention for rural families. *The Journal of asthma : official journal of the Association for the Care of Asthma*. 2014;51(2):168-177.
- <sup>35</sup> Clark NM, Brown R, Joseph CL, Anderson EW, Liu M, Valerio MA. Effects of a comprehensive school-based asthma program on symptoms, parent management, grades, and absenteeism. *Chest*. 2004;125(5):1674-1679.
- <sup>36</sup> Magzamen S, Patel B, Davis A, Edelstein J, Tager IB. "Kickin' Asthma": School-Based Asthma Education in an Urban Community. *Journal of School Health*. 2008;78(12):655-665.
- <sup>37</sup> Patel Shrimali B, Hasenbush A, Davis A, Tager I, Magzamen S. Medication use patterns among urban youth participating in school-based asthma education. *Journal of urban health : bulletin of the New York Academy of Medicine*. 2011;88 Suppl 1:73-84.
- <sup>38</sup> DePue JD, McQuaid EL, Koinis-Mitchell D, Camillo C, Alario A, Klein RB. Providence school asthma partnership: school-based asthma program for inner-city families. *The Journal of asthma : official journal of the Association for the Care of Asthma*. 2007;44(6):449-453.
- <sup>39</sup> Tinkelman D, Schwartz A. School-based asthma disease management. *The Journal of asthma : official journal of the Association for the Care of Asthma*. 2004;41(4):455-462.
- <sup>40</sup> Engelke MK, Swanson M, Guttu M. Process and outcomes of school nurse case management for students with asthma. *The Journal of School Nursing*. 2014;30(3):196-205.
- <sup>41</sup> Taras H, Potts-Datema W. Chronic health conditions and student performance at school. *Journal of School Health*. 2005;75(7):255-266.
- <sup>42</sup> Rasberry CN, Cheung K, Buckley R, et al. Indicators of asthma control among students in a rural, school-based asthma management program. *The Journal of asthma : official journal of the Association for the Care of Asthma*. 2014;51(8):876-885.
- <sup>43</sup> Van Cleave J, Davis MM. Bullying and peer victimization among children with special health care needs. *Pediatrics*. 2006;118(4):e1212-e1219.
- <sup>44</sup> Barrett JC, Goodwin DK, Kendrick O. Nursing, food service, and the child with diabetes. *The Journal of School Nursing*. 2002;18(3):150-156.
- <sup>45</sup> United-States-Department-of-Agriculture-FNS. *Accommodating children with special dietary needs in the school nutrition programs: guidance for school food service staff*. 2001.
- <sup>46</sup> Centers-for-Disease-Control-and-Prevention. Voluntary guidelines for managing food allergies in schools and early care and education programs. *Washington, DC: US Department of Health and Human Services*. 2013:49-51.
- <sup>47</sup> Rice SG. Medical conditions affecting sports participation. *Pediatrics*. 2008;121(4):841-848.
- <sup>48</sup> Centers-for-Disease-Control-and-Prevention. US Department of Health and Human Services Physical activity guidelines for Americans. *Atlanta, GA: Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion*. 2008:6-17.