

January 17, 2019

The Honorable Alex M. Azar Secretary U.S. Department of Health and Human Services 200 Independence Ave SW Washington, DC 20201

## **Re: Public Comments on Healthy People 2030**

## Submitted electronically to <u>HP2030@hhs.gov</u>

Dear Secretary Azar:

On behalf of the Childhood Asthma Leadership Coalition (CALC),<sup>1</sup> thank you for the opportunity to provide comments on the Department of Health and Human Services' proposed Healthy People 2030 objectives.<sup>2</sup> As leading advocates and experts in childhood asthma, public health, environmental health, poverty, housing, health care, and health care economics, CALC members are concerned that the proposed objectives related to asthma are insufficient to capture the magnitude of the public health burden of asthma, or the impact of approaches to address it.

The proposed objectives include seven objectives related to asthma, fifteen fewer than were included in Healthy People 2020. We support the inclusion of the objectives proposed but urge you to restore a number of others to the final list of Healthy People 2030 objectives.

Our concerns and justification for inclusion are detailed below.

## Asthma Remains a Significant Public Health Problem

Asthma is the single most common chronic condition among children in the United States. More than six million children in the U.S. have asthma, with children from low-income families and children of color suffering disproportionately.<sup>3</sup> Annual direct healthcare costs of childhood asthma are estimated at \$5.92 billion,<sup>4</sup> and additional losses due to missed days of school and work place a significant burden on the economy, families, and children.<sup>5,6,7</sup>

It is well documented that asthma disproportionately affects children of color and lower-income children. According to the most recent data, prevalence of current and lifetime asthma was substantially higher for black (11.6%) and Puerto Rican (14.3%) children and adults than for white (8.3%) and Hispanic children and adults of other national origins (6.6%).<sup>8,9</sup> The poorest children have an asthma prevalence nearly one and a half times higher than that of higher-income children.<sup>10</sup> These populations are significantly more likely to face activity limitations, to miss work or school, and to suffer other negative effects as a result of having asthma.<sup>11,12, 13, 14</sup>

The connection between asthma and the environment is also well-established.<sup>15,16</sup> While those with asthma benefit greatly from medical interventions, it is also important that the areas in which they live, work, and play are free from environmental triggers.

Although progress has been made over the last decade to reduce the burden of asthma, a significant amount of work remains. According to the midway evaluation of Healthy People 2020, published in 2016, only two of 22 measures of asthma had achieved their goals, and only two others had improved from baseline.<sup>17</sup> Significant racial or ethnic disparities persist among many measures, including asthma deaths across all ages, and children and adults who missed school or work due to asthma; geographic disparities in the quality of care provided also persist.<sup>18,19</sup>

As a framework through which states and localities may set and track valuable public health data, Healthy People 2030 presents an important opportunity to set ambitious goals that drive progress towards reducing asthma impacts and disparities at the national level. We recognize that the objectives with the most potential to improve population health are often those addressing significant public health burdens and with reliable measurements for tracking. In many cases, it may be the case that the existence of a related objective is sufficient to create meaningful changes in another area.

Because asthma is caused and exacerbated by such a diverse array of sources such as indoor and outdoor air quality, exercise, genetics, and medical management, addressing asthma and reducing its burden requires a multifaceted approach. This approach should include consistent guidelines-based care and management, trigger reduction and avoidance of triggers in homes and schools, and the translation of best practices into public health practice. As such, asthma-related objectives can serve as proxies for other objectives in Healthy People 2030. Asthma data are valuable for evaluating various interventions related to the health care system and social determinants of health.

Excluding key asthma-related objectives from Healthy People 2030 would therefore forgo an opportunity to drive and track progress and challenges around one of the most prevalent, inequitable, and multi-factorial health issues currently faced by U.S. children and adults.

# CALC Supports Proposed Objectives in Healthy People 2030

We support the inclusion of the following objectives as proposed for Healthy People 2030.

## Respiratory Diseases

- "Reduce asthma attacks for people with current asthma"
- *"Reduce hospitalizations for asthma among children under age 5 years; children and adults age 5 to 64 years; and adults aged 65 years and older"*
- *"Reduce emergency department visits for asthma among children under age 5 years; and children and adults age 5 and older"*

## Educational and Community-Based Programs

• "Increase the percentage of middle and high schools that provide case management for chronic conditions"

# CALC Requests Clarification of these Proposed Healthy People 2030 Objectives

## Environmental Health

• "Reduce the number of days people are exposed to unhealthy air"

We support the inclusion of outdoor air quality as a measure in the Healthy People 2030 core objectives. However, we recommend that HHS provide clearer information about how this objective would be defined. The term "unhealthy air days" is frequently—but not always—used to refer to the

days when the Air Quality Index exceeds 100. The Healthy People 2020 objectives more clearly defined its objective to "Reduce the number of days the Air Quality Index (AQI) exceeds 100, weighted by population and AQI." While the draft version of the proposed objective cites the same sources as the Healthy People 2020 (Air Quality System (AQS) EPA), the language does not explain how the determination of an unhealthy air day would be made. We support the continued use of this definition, and request that Healthy People 2030 make this definition explicit in the objective.

"Reduce the amount of toxic pollutants released into the environment"

We support the inclusion of this objective in Healthy People 2030. However, we recommend that HHS provide a clear definition of "toxic pollutants" and that this definition include pollutants relevant to asthma.

Similar objectives set in Healthy People 2020 set specific goals for hazardous air pollutant (HAP) emissions outputs from both area and major sources of toxic air pollution, as measured by the National Emissions Inventory and Environmental Protection Agency. HAPs are chemicals, such as pesticides and volatile organic compounds that are dangerous to human health. However, these are not the only pollutants that are toxic to human health.

For people with asthma, it is particularly important to reduce the level of ground-level ozone  $(O_3)$  and particulate matter (PM), which can trigger asthma attacks released into the environment. In order to motivate actions that protect people with asthma from airborne triggers, we urge you to include  $O_3$  and PM among the "toxic pollutants" that this objective seeks to address.

# CALC Encourages Healthy People 2030 to Include Additional Objectives

We strongly encourage Healthy People 2030 to include the following asthma-related objectives, all of which were included in Healthy People 2020 and remain crucial to addressing asthma nationally:

# **Respiratory Diseases**

• *"Reduce asthma deaths among children and adults under age 35 years; adults age 35 to 64 years; and adults aged 65 years and older."* 

Currently, Healthy People 2030 objectives would eliminate the three age brackets included in the 2020 objectives in favor of a single measure of all ages. We are concerned that by condensing three measures into one, the proposed objective will not highlight disparities in asthma-related deaths among people in various stages of life.

For example, between 2007 and 2013, the total number of deaths among all age groups declined by 6.3 million. However, this was entirely due to a decline in deaths among older adults. In the same period, deaths among people over aged 65 had declined by 7.7 million, deaths *increased* by 0.3 million among young people under age 35, and by 1 million among adults ages 35 to 64.<sup>20</sup>

There is a significant risk that consolidating this measure could allow progress among one age group to obscure losses or stagnation among others. It is extremely important that asthma-related deaths are reduced among all ages, and we urge you to reflect this priority for the nation by setting goals across multiple age brackets as part of this objective in Healthy People 2030.

## "Reduce activity limitations among persons with current asthma"

Evidence strongly suggests that, by reducing physical activity, asthma subsequently affects other aspects of physical health, including obesity.<sup>21, 22</sup> Therefore, reducing activity limitations among people with asthma is an important step towards maximizing health and well-being.

Fortunately, we have seen progress in this measure over the last decade. By the midpoint evaluation, the nation had surpassed this Healthy People 2020 objective, with activity limitations reported by 9.5 percent of those with current asthma compared to 12.7 percent at baseline, and reductions seen across demographic groups. This is a commendable achievement. However, with still nearly one in ten people with asthma struggling to participate fully in activities that promote their health and wellbeing, we believe there is more progress to be made.

# "Reduce the proportion of persons with asthma who miss school or work days among children ages 5-17; and among adults ages 18-64"

Missing school and work can pose a substantial burden on children's ability to succeed later in life and on families' health in general. Between 2007 and 2013, the proportion of children and adults with asthma who missed school or work days increased.<sup>23</sup> According to the 2013 National Health Interview Survey, nearly half of all children with asthma missed at least one day of school because of asthma symptoms within the last year.<sup>24</sup> Meanwhile, the parents of these children missed 1.8 times more work days than parents of children without asthma.<sup>25</sup> These missed days of school and work combined cost \$3 billion per year, representing 5.2 million school days and 8.7 million workdays lost due to asthma.<sup>26</sup> Such losses are felt not only by these individuals and families, but by society overall. Reducing the proportion of children and adults who miss school and/or work days due to asthma is essential to reaching the Healthy People goal of promoting a fully-functioning, equitable society.

# • "Increase the proportion of persons with current asthma who receive appropriate asthma care, per National Asthma Education and Prevention Program (NAEPP) guidelines"

NAEPP guidelines provide recommendations on the full continuum of care to help ensure that asthma is not only diagnosed, but also properly treated and managed.<sup>27</sup> Guidelines-based care is essential to achieving asthma control and reducing negative outcomes associated with the disease. CDC has also recognized the importance of increasing the utilization of care based on the NAEPP guidelines by including this in its 6/18 initiative, which facilitates collaboration between healthcare providers, insurers, public health professionals and other stakeholders to address common and costly health conditions with proven interventions.<sup>28</sup> Improving access to care based on these guidelines will be essential to making progress on the other asthma-related objectives proposed for inclusion in Healthy People 2030, such as reducing asthma attacks, emergency room visits, hospitalizations and deaths related to asthma. Accordingly, it is important that Healthy People 2030 continue to include this measure to encourage and track the provision of this central component of asthma management and control. Encouraging guidelines-based care is one of the most central opportunities to ensuring that Healthy People 2030 meets its stated objectives around asthma.

# • "Increase the number of States, Territories, and the District of Columbia with a comprehensive asthma surveillance system for tracking asthma cases, illness, and disability at the State level"

Healthy People 2020 defined "a comprehensive asthma surveillance system" as having received funding through the National Asthma Control Program (NACP) or the Environmental Public Health Tracking Program, or having implemented the asthma call-back survey. Unfortunately, the number of states with such a system has declined from 47 at baseline to 37 in 2016. This means that fewer states are tracking data around one of the most prevalent public health issues in the U.S., making it not only more difficult to track progress and challenges at the state level, but towards all of the Healthy People 2030 objectives related to asthma.

The components of a comprehensive asthma surveillance system, as defined, provide valuable resources to improve population health outcomes. The NACP currently provides 24 states, Puerto Rico, and the District of Columbia funding and technical assistance to build state asthma surveillance systems. In those areas, the NACP has demonstrated success in implementing coordinated public health strategies to lower the cost of care, improve surveillance, and carry out asthma interventions.<sup>29</sup> In fact, by promoting home-, school-, and healthcare provider-based interventions targeting education, self-management, and trigger remediation, the NACP is expressly designed to help achieve Healthy People objectives.

Similarly, the Environmental Public Health Tracking Program currently provides 25 states and New York City with funding for local tracking programs and data networks for a variety of diseases and environmental factors of health. With the data collected, these states and localities are able to craft reports, interactive webtools, and other resources in furtherance of public health goals, including those related to asthma.<sup>30</sup>

By establishing an objective to increase the number of states that implement a comprehensive asthma surveillance system, Healthy People 2030 will emphasize the critical resource that these systems provide to those who work to improve public health.

## Adolescent Health

• "Increase the proportion of students with access to a full-time school nurse"

For students with asthma, school nurses provide crucial care, helping students to both manage the disease and recover from an asthma emergency. School nurses provide skilled health care to students, assist families in developing and adhering to an asthma action plan to manage exacerbations, provide referrals to other providers, and are the first line of defense when a student suffers an asthma attack in school. Accordingly, students with asthma who attend schools with full-time nurses tend to have better health outcomes, including fewer school absences and emergency room visits. Yet, despite these benefits, inadequate funding continues to challenge the ability of schools to hire and retain sufficient full-time nursing staff. At present, only 33.7 percent of school districts have one or more full time school nurse, according to annual survey data collected by the US Dept. of Education Office of Civil Rights.<sup>31</sup> Setting the objective to increase the number of school nurses and monitor this indicator over the course of the next decade provides an important opportunity for states and localities to understand the health impact of budgetary decisions and set priorities that account for the health needs of their students.

## Environmental Health

• "Increase the proportion of students with access to a full-time school nurse"

As explained in greater detail above (see: Adolescent Health), it is important that children with asthma have access to a safe school environment. Such an environment includes a full-time school nurse who can assist that child with his or her health needs. Therefore, we strongly recommend that you include an objective to increase the proportion of students with access to a full-time school nurse.

• "Reduce indoor allergen levels"

Indoor asthma triggers are numerous, and include dust, mold, pet dander, extreme heat or cold, cleaning products, and pests such as cockroaches and mice.<sup>32</sup> With the average American spending up to 87 percent of their lives indoors, much of that at home, it is immensely important that the air they breathe within those homes is free of allergens and asthma triggers.<sup>33</sup> Fortunately, there has been widespread recognition of these asthma risk factors over the course of the last decade, and an increase in the number of home-based asthma services that attempt to remediate indoor asthma triggers.<sup>34</sup> These interventions provide both effective, evidence-based solutions to reducing indoor allergen levels as well as opportunities to track progress in this objective over the course of the next decade to ensure that more families have access to these services and are able to live in homes free of indoor airborne allergens.

• "Increase the proportion of the Nation's elementary, middle, and high schools that have an indoor air quality management program"

Similar to the previous objective, students spend up to eight hours a day inside of a school building. For children with asthma, especially, it is critically important that the air inside these buildings is free of asthma triggers and other allergens. Numerous interventions are available for schools that wish to improve their indoor air quality. Unfortunately, the proportion of schools with an indoor air quality management program decreased between 2006 and 2014.<sup>35</sup> Maintaining the objective to increase and track the proportion of schools that have an indoor air quality management program will help states and localities work to encourage their schools to improve their indoor air quality. It will also help monitor progress in this area and identify where additional policies and practices may be needed to bring their schools up to a national standard.

## <u>Tobacco</u>

• "Increase tobacco-free environments in elementary, middle, and high school facilities, property, vehicles, and school events"

While we strongly support the proposed Healthy People 2030 objective to "reduce the proportion of children, adolescents, and adults exposed to secondhand smoke," as well as those to increase the number of smoke-free policies in a variety of settings, we are concerned that the omission of an objective specific to schools could detract attention from this common-sense policy. For example, according to the Healthy People 2020 midpoint evaluation, while the proportion of tobacco-free middle and high schools increased from 2006 to 2014, the proportion of tobacco-free elementary schools decreased, increasing the risk of exposure among young children who are especially vulnerable.<sup>36</sup> Although it is important that fewer people are exposed to smoke while or because of attending school. Retaining the objective of increasing tobacco-free environments in schools offers an important guidepost for states and localities to create and enforce policies that reduce secondhand smoke exposure where it is particularly egregious.

# "Increase comprehensive Medicaid insurance coverage of evidence-based treatment for nicotine dependency in States and the District of Columbia"

Tobacco use and exposure to secondhand smoke can trigger asthma, so it is important for asthma patients that they and their families do not smoke. Medicaid enrollees smoke at over twice the rate of those enrolled in private insurance. Coverage of tobacco cessation treatments in Medicaid is important for those individuals trying to quit.<sup>37</sup> Yet, according to the Healthy People 2020 Midcourse Review, this objective was not fully realized: only nine of 51 states had achieved the recommended coverage.<sup>38</sup> Maintaining the objective to increase coverage of tobacco cessation treatments and

helping Medicaid enrollees quit smoking has the potential to make a large impact on asthma patients as well as the population at-large.

. . . . . .

Healthy People has contributed to significant advancements in public health over the past four decades. It continues to provide influential objectives and create access to data on changes to population health and the factors that influence it for state and local decision-makers. Asthma remains a prevalent condition and requires ongoing goal-setting, monitoring, and attention at every level. Because asthma is often viewed as the "canary in the coal mine" for problems in our healthcare delivery system and environments, as well as serious disparities in how certain individuals and communities are affected by these problems, robust goal-setting and tracking of data around asthma presents an invaluable opportunity for Healthy People 2030. Absent these objectives, we are deeply concerned that important factors of asthma incidence and morbidity will be overlooked or neglected as public health priorities over the next decade. Therefore, we appreciate the inclusion of key asthma objectives in Healthy People 2030 and urge the restoration of the more comprehensive range of asthma objectives that had been included in Healthy People 2020.

Thank you for your consideration of these comments. If you have any questions, please feel free to contact Katie Horton at (202) 994-4129 or khorton@gwu.edu.

Thank you,

Advocacy Council of ACAAI American College of Allergy, Asthma & Immunology (ACAAI) American Lung Association Association of Asthma Educators Asthma and Allergy Foundation of America Families USA Green & Healthy Homes Initiative Health Resources in Action Healthy Schools Campaign Healthy Schools Network National Association of School Nurses National Center for Healthy Housing Not One More Life, Inc. Regional Asthma Management and Prevention

<sup>3</sup> Zahran HS, et al. Vital Signs: Asthma in Children — United States, 2001–2016. *MMWR*. 2018; 67: 149–155.

<sup>&</sup>lt;sup>1</sup> For more, please see: <u>http://www.childhoodasthma.org/</u>

<sup>&</sup>lt;sup>2</sup> Department of Health and Human Services, "Proposed Objectives for Inclusion in Healthy People 2030" (Dec 20, 2018). Available at <u>https://www.healthypeople.gov/sites/default/files/ObjectivesPublicComment508.updated%2012.20.2018.pdf</u>

DOI: http://dx.doi.org/10.15585/mmwr.mm6705e1.

<sup>&</sup>lt;sup>4</sup> Sullivan, Patrick W., et al. The national burden of poorly controlled asthma, school absence and parental work loss among school-aged children in the United States. *Journal of Asthma*. 2018; 55(6). Available at: https://www.tandfonline.com/doi/abs/10.1080/02770903.2017.1350972

<sup>&</sup>lt;sup>5</sup> Id

<sup>&</sup>lt;sup>6</sup> Witt, Whitney P., Weiss, Audrey J., and Anne Elixhauser. Overview of Hospital Stays for Children in the United States, 2012. HCUP Statistical Brief #187. *Agency for Healthcare Research and Quality*. December 2014. Available at: <u>https://www.hcup-us.ahrq.gov/reports/statbriefs/sb187-Hospital-Stays-Children-2012.pdf</u>

<sup>&</sup>lt;sup>7</sup> Sullivan, Patrick W., et al. School Absence and Productivity Outcomes Associated with Childhood Asthma in the USA. *Journal of Asthma*. Feb 2018; 55(2): 161-168. Available at: <u>https://www.tandfonline.com/doi/full/10.1080/02770903.2017.1313273</u>

 <sup>8</sup> Centers for Disease Control and Prevention. Current Asthma Prevalence Percents by Age (2016). 2016 National Health Interview Survey (NHIS) Data. Table 3-1. Available at: <u>https://www.cdc.gov/asthma/nhis/2016/table4-</u>
<u>1.htm#modalIdString\_CDCTable\_0</u>
<sup>9</sup> Centers for Disease Control and Prevention. Figure 15.7—Sex-adjusted prevalence of current asthma among persons of all ages,

<sup>9</sup> Centers for Disease Control and Prevention. Figure 15.7—Sex-adjusted prevalence of current asthma among persons of all ages, by age group and race and ethnicity: United States, 2017. National Health Interview Survey (NHIS) Data. Available at: https://public.tableau.com/profile/nhis6957#!/vizhome/FIGURE15\_6/Dashboard15\_6

<sup>10</sup> Centers for Disease Control and Prevention. Current Asthma Prevalence Percents by age (2016). 2016 National Health Interview Survey (NHIS) Data. Table C1-a. Available at:

https://ftp.cdc.gov/pub/Health\_Statistics/NCHS/NHIS/SHS/2016\_SHS\_Table\_C-1.pdf

<sup>11</sup> Chen, Zhanghua, et al. Effects of Childhood Asthma on the Development of Obesity among School-aged Children. *American Journal of Respiratory and Critical Care Medicine*. May 2017; 195(9).

12 https://www.cdc.gov/nchs/data/hpdata2020/HP2020MCR-C36-RD.pdf

<sup>13</sup> National Health Interview Survey, 2003 and 2013. Cited by National Center for Environmental Health. Vital Signs. *Centers for Disease Control and Prevention*. Feb 2018. At: <u>https://www.cdc.gov/vitalsigns/pdf/2018-02-vitalsigns.pdf</u>

<sup>14</sup> Sullivan, Patrick W., et al. The national burden of poorly controlled asthma, school absence and parental work loss among school-aged children in the United States. *Journal of Asthma*. 2018; 55(6). Available at:

https://www.tandfonline.com/doi/abs/10.1080/02770903.2017.1350972

<sup>15</sup> Guarnieri, M., & Balmes, J. R. (2014). Outdoor air pollution and asthma. *Lancet*, 383(9928), 1581–1592. doi:10.1016/S0140-6736(14)60617-6

<sup>16</sup> Asthma and the Environment. *Centers for Disease Control and Prevention* [website]. Available at: <u>https://ephtracking.cdc.gov/showAsthmaAndEnv</u>

<sup>17</sup> National Center for Health Statistics, Chapter 36: Respiratory Diseases. Healthy People 2020 Midcourse Review. Hyattsville, MD. 2016. Available at: <u>https://www.cdc.gov/nchs/data/hpdata2020/HP2020MCR-C36-RD.pdf</u>

<sup>18</sup> President's Task Force on Environmental Health Risks and Safety Risks to Children. Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities. *Environmental Protection Agency*. May 2012.

<sup>19</sup> https://www.cdc.gov/nchs/data/hpdata2020/HP2020MCR-C36-RD.pdf

<sup>20</sup> Supra n11 (midpoint evaluation)

<sup>21</sup> National Health Interview Survey, 2003 and 2013. Cited by National Center for Environmental Health. Vital Signs. *Centers for Disease Control and Prevention*. Feb 2018. At: <u>https://www.cdc.gov/vitalsigns/pdf/2018-02-vitalsigns.pdf</u>

<sup>22</sup> Sullivan, Patrick W., et al. The national burden of poorly controlled asthma, school absence and parental work loss among school-aged children in the United States. *Journal of Asthma*. 2018; 55(6). Available at:

https://www.tandfonline.com/doi/abs/10.1080/02770903.2017.1350972

<sup>23</sup> RD-5.1 and RD-5.2: Search The Data: Healthy People 2020. *Centers for Disease Control and Prevention*. At: https://www.healthypeople.gov/2020/data-search/Search-the-Data#topic-area=3503;

<sup>24</sup> Zahran, Hatice S., et al. Vital Signs: Asthma in Children — United States, 2001–2016. *Morbidity and Mortality Weekly Report*. Feb 2018; 67(5): 149-155.

<sup>25</sup> Sullivan, Patrick W., et al. The national burden of poorly controlled asthma, school absence and parental work loss among school-aged children in the United States. *Journal of Asthma*. 2018; 55(6).

<sup>26</sup> Nurmagambetov, Tursynbek, Kuwahara, Robin, and Paul Garbe. The Economic Burden of Asthma in the United States, 2008-

2013. Annals of the American Thoracic Society. Mar 2018, 15(3). https://doi.org/10.1513/AnnalsATS.201703-259OC

 $^{27} https://www.nhlbi.nih.gov/sites/default/files/media/docs/asthma_qrg_0_0.pdf$ 

<sup>28</sup> <u>https://www.cdc.gov/sixeighteen/asthma/index.htm</u>

<sup>29</sup> Successes of the National Asthma Control Program, 2009-2014. Stories from "Addressing Asthma from a Public Health Perspective" Grantees. *Centers for Disease Control and Prevention*. Available at:

https://www.cdc.gov/asthma/pdfs/Success Stories Final 508.pdf

<sup>30</sup> About the Program, National Environmental Health Public Tracking. *Centers for Disease Control and Prevention*. Available at: <u>https://www.cdc.gov/nceh/tracking/about.htm</u>

<sup>31</sup> National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of Adolescent and School Health. Results from the School Health Policies and Practices Study. *Centers for Disease Control and Prevention*. 2016. Available at: <u>https://www.cdc.gov/healthyyouth/data/shpps/pdf/shpps-results\_2016.pdf</u>

<sup>32</sup> The Community Guide. Asthma: Home-Based Multi-Trigger, Multicomponent Environmental Interventions – Children and Adolescents with Asthma. *US Department of Health and Human Services*. June 2008. [and] Asthma Control: Home-Based Multi-Trigger, Multicomponent Environmental Interventions for Children and Adolescents with Asthma: Task Force Finding and Rationale Statement. *Community Preventive Services Task Force*. Sept 23, 2013.

<sup>33</sup> Klepeis, Neil E., et al. The National Human Activity Pattern Survey (NHAPS): a resource for assessing exposure to environmental pollutants. *Journal of Exposure Analysis and Environmentl Epidemiology*. 2001; 11: 231-252.

<sup>34</sup> Malcarney, Mary-Beth, et al. Case Studied in Healthcare Financing of Healthy Homes Services. *National Center for Healthy Housing*. Sept 2016. Available at: <u>https://nchh.org/resource-library/Case-Studies-in-Healthcare-Financing-of-Healthy-Homes-Services\_Bundle\_Asthma.pdf</u>

<sup>35</sup> EH-16.1 Increase the proportion of the Nation's elementary, middle, and high schools that have an indoor air quality management program. *Healthy People*. Available at: <u>https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4292</u>; Available at: https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=4292;

 <sup>&</sup>lt;sup>36</sup> TU-15.1 Increase tobacco-free environments in elementary school facilities, property, vehicles, and school events. *Healthy People*. Available at: <u>https://www.healthypeople.gov/2020/data-search/Search-the-Data#objid=5320</u>;
<sup>37</sup> Jamal A, Phillips E, Gentzke AS, et al. Current Cigarette Smoking Among Adults — United States, 2016. MMWR Morb

Mortal Wkly Rep 2018;67:53–59. DOI: http://dx.doi.org/10.15585/mmwr.mm6702a1 <sup>38</sup> Centers for Disease Control and Prevention. Healthy People 2020 Midcourse Review. January 11, 2017. Available at: https://www.cdc.gov/nchs/healthy\_people/hp2020/hp2020\_midcourse\_review.htm