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# President's Task Force on Environmental Health Risks and Safety Risks to Children



Coordinated Federal Action Plan  
to Reduce Racial and Ethnic  
Asthma Disparities



# Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities

Approximately 7 million children aged 0 to 17 in the United States have asthma, with poor and minority children suffering a greater burden of the disease.<sup>1</sup> Asthma persists into adulthood and the costs to society are high: medical expenses associated with asthma are estimated to be \$50 billion annually.<sup>2</sup> It is critical that we promote synergy across the numerous federal programs that affect asthma management in order to reduce this burden and these disparities. The magnitude of the problem of asthma disparities and the breadth of stakeholder involvement required to address it will necessitate enhancing the interagency coordination of partnerships that many of our federal programs already have with state and local health departments, nonprofit organizations, community asthma coalitions and asthma foundations. Preventable factors related to effective asthma management are well established. Coordinating our federal efforts will help us take appropriate actions to better address these known preventable factors in underserved populations.

In this plan, we propose to build on the strengths and lessons learned from past and existing federal asthma programs, combine efforts among federal programs at the community level, and develop collaborative strategies to fill knowledge gaps within existing resources. With clear evidence of broad commitment to reducing health disparities from federal, state, and local partners, the timing is right for this Coordinated Federal Action Plan to Reduce Racial and Ethnic Asthma Disparities (*Action Plan*) to accelerate actions that will reduce asthma disparities. The *Action Plan* presents a framework to maximize the use of our existing federal resources for addressing this major public health challenge during the next three to five years.

The *Action Plan* is founded on the following principles, which we believe offer the best foundation for effective and feasible federal efforts to address asthma disparities:

- Collaboration across federal agencies, other levels of government, and community partners.
- Utilizing existing federal resources and optimizing their impact through synergies.
- Emphasizing activities that address the preventable factors that impact asthma disparities.

The *Action Plan* reflects a broad-based consensus of federal agencies. It is an outcome of the collaborative interagency Asthma Disparities Working Group (see Appendix A), co-chaired by the U.S. Department of Health and Human Services (HHS), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Housing and Urban Development (HUD). The working group functions under the auspices of the President's Task Force on Environmental Health Risks and Safety Risks to Children, which has the objectives to identify priority issues of environmental health and safety risks to children that could best be addressed through interagency efforts, recommend and implement interagency actions, and communicate to federal, state and local decision makers information to protect children from risks. Representatives of the Asthma Disparities Working Group collected and synthesized recommendations of previous task forces and expert panels, along with input from members of the National Asthma Education and Prevention Program's (NAEPP) Federal Liaison Group on Asthma, extramural scientists, and leaders from national, regional and local community asthma programs. These recommendations were distilled into four overarching strategies, each of which is associated with several priority actions. The strategies and priority actions are described in detail below, starting on page 4.

The *Action Plan* aligns with federal initiatives, including Healthy People 2020 (see Appendix B), the HHS Action Plan to Reduce Racial and Ethnic Disparities,

<sup>1</sup>Akinbami, L.J., Mooreman, J.E., Bailey, C., Zahran, H., King, M., Johnson, C., & Liu, X. Centers for Disease Control and Prevention, National Center for Health Statistics. (2012). Trends in asthma prevalence, health care use, and mortality in the United States, 2001-2010. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db94.pdf>

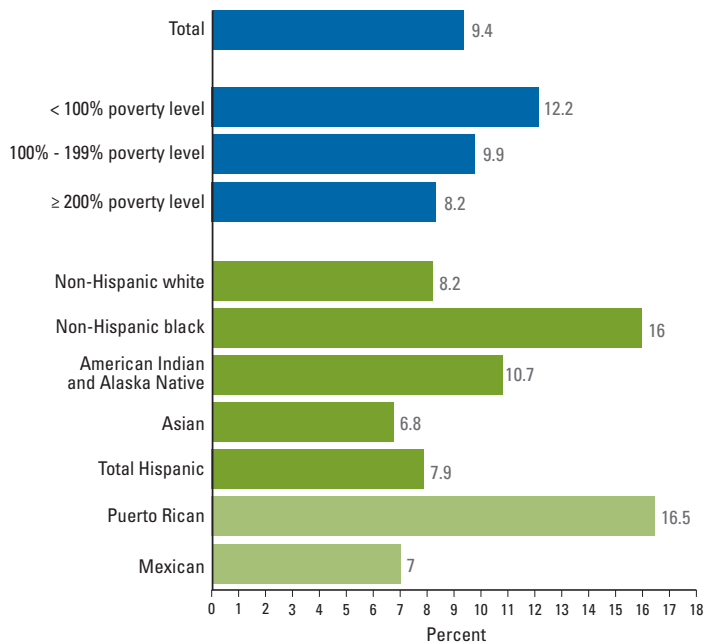
<sup>2</sup>Centers for Disease Control and Prevention (2011, May). Asthma in the U.S. Vital Signs. Retrieved February 13, 2012, from <http://cdc.gov/vitalsigns>

the National Stakeholder Strategy for Achieving Health Equity, the Surgeon General’s Call to Action to Promote Healthy Homes, the National Prevention Strategy and the environmental justice strategic plans of HHS, HUD and EPA (Plan EJ 2014). Professional societies, non-governmental organizations and foundations with a focus on asthma; state and local governments; school associations; health care providers and insurers; and community asthma coalitions also have asthma programs targeted to minority communities. The combination of federal initiatives and federal-private sector partnerships offers promising opportunities to advance this *Action Plan*.

## THE PROBLEM

Although the causes of asthma are poorly understood, we can document that asthma disproportionately affects minority children and children with family incomes below the poverty level.<sup>3,4,5</sup>

### Current Asthma Prevalence Among Children, by percent of total population of 0 to 17 year olds, United States, 2007-2010



Source: CDC/NCHS, National Health Interview Survey, <http://www.cdc.gov/asthma/nhis/default.htm>

The prevalence of current asthma in the U.S. is 16 percent among non-Hispanic black children; 10.7 percent among American Indian and Alaska Native children; 6.8 percent among Asian; 8.2 percent among non-Hispanic white; and 7.9 percent among Hispanic children (16.5 percent among Puerto Rican children and 7 percent among Mexican children).

- Currently, 12.2 percent of children with a family income less than 100 percent of the federal poverty level have asthma – compared to 9.9 percent of children with a family income up to 200 percent of the federal poverty level, and 8.2 percent of children with a family income greater than 200 percent of the federal poverty level.
- On top of disparities in the prevalence, there are significant racial and ethnic disparities in asthma outcomes (e.g., measures of asthma control, exacerbation of symptoms, quality of life, health care utilization and death). Among children with asthma, black children are:
  - Twice as likely to be hospitalized.
  - More than twice as likely to have an emergency department visit.
  - Four times more likely to die due to asthma than white children.
- Minority children are less likely than white children to be prescribed or take recommended treatments to control their asthma, and are less likely to attend outpatient appointments.<sup>6</sup>

The burden of asthma also includes ripple effects in day-to-day life. For example, asthma affects the ability of children to fully engage in school and be physically active.

- In 2008, asthma accounted for 10.5 million missed school days.<sup>7</sup>
- Children with more severe asthma and/or nighttime symptoms are more likely to suffer academically than those with more mild symptoms.<sup>8</sup>

<sup>3</sup> Akinbami, L., Mooreman, J., Bailey, C., Zahran, H., King, M., Johnson, C., & Liu, X. Centers for Disease Control and Prevention, National Center for Health Statistics. (2012). Trends in asthma prevalence, health care use, and mortality in the United States, 2001-2010. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db94.pdf>

<sup>4</sup> Centers for Disease Control and Prevention, National Center for Health Statistics. Health Data Interactive. Retrieved from [www.cdc.gov/nchs/hdi.htm](http://www.cdc.gov/nchs/hdi.htm)

<sup>5</sup> Akinbami, L.J., Garbe P.L., Moorman J.E., & Sondik E.J. (2009). Status of childhood asthma in the United States, 1980-2007. *Pediatrics*, 123, S131-S145.

<sup>6</sup> Crocker, D., Brown, C., Moolenaar, R., et al. (2009). Racial and ethnic disparities in asthma medication usage and health care utilization. *Chest*, 136 (4), 1063-1071.

<sup>7</sup> Akinbami, L.J., Mooreman, J.E., Bailey, C., Zahran, H., King, M., Johnson, C., & Liu, X. Centers for Disease Control and Prevention, National Center for Health Statistics. (2012). Trends in asthma prevalence, health care use, and mortality in the United States, 2001-2010. Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db94.pdf>.

<sup>8</sup> Diette, G.B., Markson, L., Skinner, E.A., et al. (2000). Nocturnal asthma in children affects school attendance, school performance, and parents’ work attendance. *Archives of Pediatrics & Adolescent Medicine*, 154, 923-928.



- Children with asthma are more likely to be overweight and obese than children without asthma.<sup>9</sup>

## PREVENTABLE FACTORS THAT CONTRIBUTE TO DISPARITIES IN THE BURDEN OF ASTHMA

Although we do not yet have interventions to prevent the onset of asthma, and research is urgently needed in this area, we do have a clear understanding of how to prevent asthma morbidity and improve the control of asthma and quality of life for individuals who have the disease. The National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma establishes that effective asthma care must be comprehensive and include four key components: pharmacologic treatment, education to improve self-management skills of the patient and their family, reduction of environmental exposures that worsen asthma, and monitoring the level of asthma control to adjust a patient's management plan accordingly.<sup>10</sup> Thus, the major routes currently available for us to reduce asthma disparities will be to ensure that evidence-based, comprehensive asthma care is available to ethnic and racial minority children who have asthma. Barriers to delivery of this care have been identified as preventable factors that contribute to disparities in the burden of asthma. This *Action Plan* addresses the preventable factors that are described below.

### Barriers to the implementation of guidelines-based asthma care

- **Medical care factors**
  - Limited access to quality health care and asthma self-management education that is patient-centered and culturally sensitive.
  - Episodic and fragmented care, as a result of the type of care available and the affordability of care. This factor is also influenced by cultural norms regarding health care seeking behaviors.
  - Low levels of health literacy.
  - Barriers (including costs) to adherence to prescribed medications and to measures to control environmental exposures.

- **Physical and psychosocial environmental factors**

- Environmental exposures to allergens and pollutants in the home and school settings which exacerbate asthma.
- Lack of family resources and community support for appropriate asthma self-management behaviors.
- Higher levels of chronic stress and acute exposures to violence, which exacerbates asthma and impedes adherence to therapy.
- Competing family priorities, such as access to food or secure housing, that impact a family's ability to address asthma.

### Lack of local capacity to deliver community-based, integrated, comprehensive asthma care

- Lack of coordination across service delivery agents.
- Limited community-level activities to reduce outdoor air pollution.
- Limited models and cost benefit analyses for integrated community partnerships.

### Gaps in capacity to identify and reach children most at risk

- Variability in the data collected at local, state and national levels.
- Limited use of innovative technologies to identify populations at highest risk for poor outcomes.

The *Action Plan* identifies four strategies and priority actions that will address the preventable factors leading to asthma disparities that are listed above. The top priority actions for immediate attention are presented here and summarized in Appendix C. As they are implemented, the four strategies will reinforce each other, maximizing their impact. While this plan focuses on reducing asthma disparities among children, asthma disproportionately impacts people of all ages in minority and low income communities. Implementation of this plan will likely benefit people with asthma in all age groups and contribute to reducing disparities across life stages.

<sup>9</sup>Visness, C.M., London S.J., Daniels, J.L. et al. (2010). Association of childhood obesity with atopic and non-atopic asthma: results from the National Health and Nutrition Examination Survey 1999-2006. *J Asthma*, 47 (7), 822-829.

<sup>10</sup>National Heart, Lung, and Blood Institute, National Asthma Education and Prevention Program (2007). Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma, (NIH Publication No. 07-4051).

## THE PLAN



### Strategy One

#### Reduce barriers to the implementation of guidelines-based asthma management.

The National Asthma Education and Prevention Program (NAEPP) Guidelines for the Diagnosis and Management of Asthma emphasize an evidence-based comprehensive approach to asthma management. Implementation of the guidelines through federal agencies and federal/private partnerships has generated considerable improvements in asthma outcomes for patients across the country. For example, the number of deaths for all ages due to asthma has declined by 25% from 1987 to 2009 and hospitalizations stabilized; fewer patients who have asthma report limitations to activities; and an increasing proportion of people receive formal patient education.<sup>5,9,11</sup> However, the persistence of significant asthma disparities among racial and ethnic minorities reveals that there is more work to be done.

Three fundamental actions are required to extend the benefits of guidelines-based care to children most in need.

1. Support strategies that improve access to care that is consistent with NAEPP guidelines.
2. Use innovative technologies to reach, engage and educate patients and families in communities affected by racial and ethnic asthma disparities.
3. Institute policies and programs to reduce environmental exposures in federally assisted housing, child care facilities and schools.

Comprehensive asthma care reduces hospitalizations and emergency department visits. While there are no large-scale cost-effectiveness evaluations, comprehensive asthma care programs at the local level, including private hospitals' and health insurers'

programs, have shown sufficient success that they have been integrated into routine practice.<sup>12</sup> More studies are needed, including economic analyses to better understand what type of program, in what setting, offers the greatest value or cost savings. Given the strong evidence that guidelines-based asthma care is effective in reducing urgent care, hospitalizations and activity limitations, and in improving day-to-day asthma control and quality of life, we can expect reasonable value when programs are targeted to those patients at high risk of poor outcomes.

The specific actions below represent the Federal Government's unique role in extending the reach and impact of asthma programs delivering guidelines-based care.

#### Priority Actions:

**1.1 Explore strategies to expand access to asthma care services.** Services include patient education, home environment interventions, asthma medication, appropriate follow up and, after urgent visits, subspecialty services.

- Update federal guidance to health care purchasers and planners regarding the Key Clinical Activities for Quality Asthma Care.<sup>13</sup>
- Analyze information gathered from Centers for Medicare & Medicaid Services (CMS) activities (e.g., asthma quality improvement projects and demonstrations) to identify potential improvements to asthma care.

**Key Organizations Involved:** CDC, CMS, EPA and NIH (NHLBI).

<sup>11</sup> Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services. Healthy People 2010. Retrieved from <http://healthypeople.gov/2020/default.aspx>

<sup>12</sup> Hoppin P, Jacob M, Stillman L. Investing in best practices for asthma: a business case. 2010; retrieved from [www.asthmaregionalcouncil.org](http://www.asthmaregionalcouncil.org)

<sup>13</sup> Centers for Disease Control and Prevention. Key clinical activities for quality asthma care: recommendations of the National Asthma Education and Prevention Program. MMWR 2003;52 (No. RR-6):[1-9].

## THE PLAN *(continued)*

### 1.2 In health care settings, coordinate existing federal programs in underserved communities to improve the quality of asthma care.

- Train providers in primary care settings (including health centers funded by the Health Resources and Services Administration (HRSA), National Health Service Corps sites and hospital outpatient clinics) to practice NAEPP guidelines-based asthma care using knowledge management portals as training venues.
- Create collaborations among stakeholders (including health departments, Federally Qualified Health Centers, healthy homes projects, hospital outpatient clinics and environmental and housing inspectors, and programs that serve children with developmental disabilities given that these children may have asthma as a comorbidity) to share resources and facilitate comprehensive home visits for patients who have asthma.
- Promote quality asthma care for racial and ethnic minorities in Medicaid and the Children's Health Insurance Program (CHIP).
- Expand dissemination of demonstration project models for asthma quality improvement programs in primary care settings.
- Coordinate federal initiatives targeting other health and health care delivery improvements in underserved communities, such as:
  - Patient-provider communication.
  - Provider cultural competency.
  - Family health literacy.
  - Tobacco-free living.
- Facilitate the engagement of health care providers who have not been reached by traditional continuing medical education methods.

**Key Organizations Involved:** AHRQ, CDC, CMS, EPA, HRSA, HUD and NIH (NHLBI, NICHD, NIMHD).

### 1.3 In homes, reduce environmental exposures.

- Encourage federal grantees who conduct home visits for asthma to adopt the relevant Task Force on Community Preventive Services' Community Guide recommendations, and encourage federal partners who support home visit programs to do the same (<http://www.thecommunityguide.org/asthma/multicomponent.html>).
- Recommend that owners and managers of federally assisted housing implement building-wide practices and policies that reduce exposures to secondhand smoke, pests, mold and other asthma triggers.
- Encourage state and local governments to consider strategies to help reduce exposure to secondhand smoke, pests, mold and other asthma triggers in homes.

**Key Organizations Involved:** CDC, CPSC, DOE, EPA, HUD and USDA.

### 1.4 In schools and child care settings, implement asthma care services and reduce environmental exposures, using existing federal programs in collaboration with private sector partners.

- Promote the use of asthma action plans through outreach and education to schools, school districts, Head Start and child care providers.
- Deliver technical assistance and training to schools and child care centers, including Head Start, to foster implementation of programs and policies that improve environmental conditions as well as the health, physical activity and productivity of children with asthma.
- Develop and disseminate demonstration projects for school-based asthma case management.
- Train providers in school-based health care settings to practice NAEPP guidelines-based asthma care.

**Key Organizations Involved:** ACF, AHRQ, CDC, CPSC, ED, EPA, HRSA and NIH (NHLBI, NICHD, NIEHS).

## THE PLAN *(continued)*



### Strategy Two

#### Enhance capacity to deliver integrated, comprehensive asthma care to children in communities with racial and ethnic asthma disparities.

Programs that focus on a single preventable factor have demonstrated benefits, but their impact has been limited in magnitude and sustainability. A broader, systems-oriented approach is necessary – one that addresses the multi-factorial nature of asthma disparities through holistic, coordinated, community-wide interventions. Coordination among existing federal asthma programs will accelerate the development and implementation of community-based asthma care systems.

#### Priority Actions:

##### 2.1 Promote cross-sector partnerships among federally supported, community-based programs targeting children who experience a high burden of asthma.

- Disseminate effective methods (developed as an outcome of Strategy Three, detailed below) of identifying and tracking children most in need of comprehensive, integrated interventions (e.g., those with frequent school absences, emergency department visits and/or hospitalizations).
- Promote the use of data-sharing mechanisms, such as e-health records, among health care providers, case managers and supporting entities (e.g., hospitals, pharmacies, schools) with appropriate privacy protections.
- Encourage coordination with other health and housing programs targeting the same population to identify opportunities to improve asthma management, incorporate activities that will reduce environmental exposures, and encourage referrals of their clients to health services that provide comprehensive asthma management. Such complementary programs may include, for example:
  - Tobacco control.
  - Obesity prevention.

- Home environment interventions (e.g., healthy homes; weatherization; radon, lead and wood smoke reduction efforts).
- Programs serving children with developmental disabilities.
- Create opportunities for asthma programs and other organizations serving the same population (e.g., Federally Qualified Health Centers, local health departments, hospital emergency departments, outpatient clinics and community health programs) to meet and exchange ideas for improving collaboration, increasing community awareness about asthma care, and reducing barriers to care.
- Expand the use of practical implementation tools that link all elements of care (e.g., schools, families and health/social service providers).

**Key Organizations Involved:** AHRQ, CDC, CMS, DOE, ED, EPA, HUD, HRSA, all other HHS agencies and NIH (NHLBI, NICHD, NIEHS, NIMHD, NINR).

##### 2.2 In communities that experience a high burden of asthma, protect children from health risks caused by short- and long-term exposure to air pollutants.

National federal air environmental regulations will continue to form the foundation for environmental health protections nationwide. EPA will continue to use the best science to develop environmental regulations and will work closely with federal, state and local partners to ensure effective implementation of federal environmental statutes, with a particular focus on improving regional and local air quality. State and local policies and practices could build on this foundation to foster healthy and sustainable communities and neighborhoods. Federal guidance, technical assistance, and tools such as the Air Quality Index and EnviroFlash are available and will be



## THE PLAN *(continued)*

disseminated to state, tribal and local planning efforts to reach communities in need.

Focus on supporting communities in their efforts to address:

- Sustainable Transportation.
- School siting, new construction, renovations, repairs, operations and maintenance.
- Public awareness.

**Key Organizations Involved:** CDC, CPSC, DOT, EPA, HUD and NIH (NIEHS).

**2.3 Conduct research to evaluate models of partnerships that empower communities to identify and target disparate populations and provide comprehensive, integrated care at the community level.** To rigorously test the impact and sustainability of a systems-based approach to asthma care, a collaborative federal research effort will support the development and evaluation of models for community partnerships that provide care in clinical, home, child care and school settings, with appropriate linkages across all settings, for children at high risk of poor asthma outcomes. We believe that these models will empower children and their families to overcome barriers to asthma management, correct the preventable factors that contribute to poor asthma outcomes, and reduce disparities at a community level. The asthma partnership models should address the preventable factors in a coordinated manner and should examine the relative contribution of various social determinants of health to asthma disparities.

The partnership models should:

- Identify children most in need of comprehensive, integrated care.
- Provide quality medical care based on NAEPP guidelines, and encourage establishment of medical homes for children in at-risk communities.

- Teach age-appropriate self-management skills and address family concerns about asthma and seeking health care.
- Coordinate with programs that conduct home visits for patients with asthma to reduce levels of environmental allergens and irritants and to reinforce asthma self-management education.
- Coordinate with child care and school programs to ensure support for children's asthma management plans, and to ensure communication with families and health care providers when asthma is not well-controlled in the child care or school setting.
- Link those who provide medical care and those who provide supportive services (e.g., self-management education, home visits), as well as child care providers and schools. As appropriate, link asthma programs with social service programs.
- Foster community-wide efforts to reduce environmental exposure to indoor and outdoor allergens and irritants, and link those efforts across the continuum of care.

**Key Organizations Involved:** ACF, AHRQ, CDC, EPA, HRSA, HUD and NIH (NHLBI, NIAID, NICHD, NIEHS, NIMHD).

**2.4 Examine the relative contribution and cost-effectiveness of different components of a system-wide partnership program.** Although it is likely that multi-component programs are necessary to implement meaningful, lasting changes in asthma disparities, it is not clear how resources should be apportioned to the different components. It will be important to evaluate different models and their relative success in order to guide future program planning.

**Key Organizations Involved:** ACF, AHRQ, CDC, EPA, HRSA, HUD and NIH (NHLBI, NIEHS, NIMHD).

THE PLAN *(continued)*

## Strategy Three

### Improve capacity to identify the children most impacted by asthma disparities.

Recent technological innovations, such as health geographic information systems (GIS), can be harnessed to identify disease clusters and determine variations in the cost, quality and outcomes of various policies and interventions. It is imperative that we extract greater value from existing data through this type of hot-spot analysis. We must also increase the specificity, uniformity and quality of data collection and reporting procedures. Achieving federal coordination and harmonization of definitions of asthma measures and outcomes, as well as data collection and reporting methodologies, will equip us to better identify subpopulations in need. Results of these efforts will be used to guide resource allocation decisions, target outreach efforts, assess program outcomes, and inform public health policy and program enhancement decisions.

#### Priority Actions:

**3.1 Investigate the added value of emerging technologies to enhance identification of target populations and risk factors.** Promote and evaluate mapping and spatial analysis to understand asthma occurrence and outcomes. Examples of technologies we propose to explore include health GIS, environmental exposure GIS, spatial epidemiology and hot-spot analyses. We encourage researchers to consider expanding spatial analyses to include socio-economic and contextual factors that may be associated with geographic regions and populations in need of enhanced interventions.

**Key Organizations Involved:** CDC, EPA, HRSA and NIH (NHLBI, NIAID, NIEHS).

**3.2 Standardize definitions, measures, outcomes and data/information collection methods, and maximize availability and use of collected data across federal asthma programs.** We anticipate that standardization will include developing greater depth and detail, increasing validity, and optimizing collection methods (with appropriate attention to privacy protections) to improve comparability and comprehensiveness of data/information.

- Develop standards. Apply standardization to four main areas:
  - Surveillance (health surveys, administrative data abstraction).
  - Research (clinical, epidemiologic and translational).
  - Asthma program monitoring and evaluation.
  - Health care provision.
- Adopt the recommendations of the NIH Asthma Health Outcomes Workshop Report for research and health care settings that collect and use clinical outcome data.<sup>14</sup>
- Ensure that federally conducted or supported health care, public health programs, activities, research, and surveys consistently use, collect and report data according to these standards, as appropriate.
- Disseminate data. Incorporate asthma disparities indicators into the National Environmental Public Health Tracking Network.
- Share data. Develop and implement data sharing policies across the federal government to maximize the impact of data and reduce redundant efforts.

**Key Organizations Involved:** AHRQ, CDC, CPSC and NIH (NHLBI, NIAID, NICHD, NIEHS).

<sup>14</sup> Standardizing asthma outcomes in clinical research: report of the asthma outcomes workshop. *J Allergy and Clinical Immunology*. 2012; 129 (3), Supplement.

## THE PLAN *(continued)*

### 3.3 Promote the use of standard definitions, measures, outcomes and information/data collection methods in state, local and community settings.

- Disseminate guidance on core indicators and measures through publications and non-federal partner organizations.

- Work with public health journals to encourage inclusion of core measures in asthma-related manuscripts.
- Promote the adoption of standards developed for federal programs across the network of state, local and community programs.

**Key Organizations Involved:** CDC, EPA and HRSA.



## Strategy Four

### Accelerate efforts to identify and test interventions that may prevent the onset of asthma among ethnic and racial minority children.

The cause or causes of asthma, and of the racial and ethnic disparities in the prevalence of asthma, are not fully understood. Available evidence indicates that asthma is caused by an interaction of genetic factors and environmental exposures, and recent advances suggest that exposures *in utero* and during early childhood (e.g., allergens, environmental tobacco smoke, viral respiratory infection) can be critical.<sup>15,16</sup> To date, there are no evidence-based interventions to recommend for preventing the onset of asthma. However, a strong association has been identified between smoking and wheezing illness in infants, which, although not certain, may influence the development of asthma. Other targets for potential preventive strategies have been identified (e.g., the microbiome, nutritional deficiencies). Research is urgently needed to better understand the factors that lead to asthma development and test primary prevention interventions that appear to be the most promising based on current knowledge.

### Priority Actions:

**4.1 Reduce exposure to maternal smoking and environmental tobacco smoke (ETS; also known as secondhand smoke) among pregnant women and infants.** There is evidence of an association between maternal smoking and ETS exposure during pregnancy and the development of wheezing illness and asthma in young children, although a causal relationship is not established. Reducing exposure to ETS may reduce the risk of wheezing in infants, which may influence the development of asthma or the progression of asthma severity later in childhood. Steps that can be taken, which also have other known health benefits, include:

- Promote smoke-free living in federally assisted housing.
- Provide information about the association of prenatal exposure to environmental tobacco smoke and wheezing in infants to federal

<sup>15</sup>National Research Council. Clearing the Air: Asthma and Indoor Exposures (2000). Institute of Medicine, National Academy Press.

<sup>16</sup>Yeatts, K., Sly, P., Shore, S. et al., (2006) A brief targeted review of susceptibility factors, environmental exposures, asthma incidence, and recommendations for future asthma incidence research. Environmental Health Perspectives 114(4): 634-640.

## THE PLAN *(continued)*

programs that promote tobacco-free living among pregnant women (e.g., through brochures, public service announcements, community health programs).

**Key Organizations Involved:** ACF, CDC, EPA, HUD and NIH (NICHD).

### **4.2 Establish priorities and collaborations for research across federal agencies to test interventions that may prevent the onset of asthma and reduce disparities in the incidence of asthma.**

The research will examine:

- The contributions of prenatal exposures, early life exposures and cumulative exposures (e.g., aero-allergens, environmental tobacco smoke, respiratory infections, residential location, and air pollutants).
- The role of cultural and social determinants.
- The interaction of genetic factors and environmental exposures.

- The impact of low birth weight.
- The basis for disparities in asthma prevalence.
- The impact of comprehensive asthma management for pregnant women who have asthma on reducing risk of asthma in their children.

**Key Organizations Involved:** DOE, EPA, HUD and NIH (NHLBI, NIAID, NICHD, NIEHS, NIMHD).

**4.3 Coordinate asthma research programs across federal agencies that support observational follow up of birth cohorts.** Coordination will enable agencies to identify opportunities for harmonization of data, the pooling of data, and collaboration in data analysis to better understand the potential mechanisms of the origins of asthma. Coordination should also include collaboration, as appropriate, with the National Children's Study.

**Key Organizations Involved:** EPA and NIH (NHLBI, NIAID, NICHD, NIEHS, NIMHD).



## IMPLEMENTATION OF ACTION PLAN

Through the release of this *Action Plan*, the President's Task Force on Environmental Health Risks and Safety Risks to Children commits to the federal coordination, collaboration and communication that will be necessary for realizing the full impact of the activities outlined in this plan.

While some actions are already underway, complete implementation of this plan will require ongoing collaboration and monitoring among federal agencies. The plan will be implemented incrementally and will evolve, dependent on the availability of resources, to encompass new activities, translate research findings into policy and public health interventions, and leverage emerging opportunities for collaboration and coordination among federal agencies.

The Asthma Disparities Working Group established an organizational structure to support progress for each of the strategies in this plan. The key organizations that have been listed for the action items within each strategy will comprise a strategy group. These groups will be responsible for coordinating specific activities to advance each action. The groups will develop specific implementation plans with performance metrics and timelines for the implementation of actions. The groups will report to an Asthma Disparities Working Group Coordinating Team which will meet at least semi-annually to oversee implementation of the *Action Plan* and report to the Task Force Steering Committee.

This *Action Plan* lays out a framework for implementation activities over the next three-five years.

Progress from individual activities will be documented semi-annually and made publically available at [www.epa.gov/childrenstaskforce](http://www.epa.gov/childrenstaskforce)

### Conclusion

A multi-level approach is required to address racial and ethnic disparities in asthma. Coordinated federal action will be necessary to achieve this, but is not sufficient by itself. Professional societies, non-governmental organizations and foundations with a focus on asthma; state and local governments; school associations; health care providers and insurers; and community asthma coalitions share a concern about asthma disparities. Many organizations already have programs targeting different aspects of the problem and have provided insights that shaped this *Action Plan*. All of them can contribute essential perspectives and services to share in its implementation. Each strategy group will identify specific opportunities to engage non-federal partners in implementing the *Action Plan*.

The time is now promising: there is a federal focus on health disparities that this *Action Plan* will leverage. The Affordable Care Act, the HHS Disparities Action Plan to Reduce Racial and Ethnic Disparities, the National Stakeholder Strategy for Achieving Health Equity, and the EPA, HHS and HUD environmental justice strategic plans signify broad senior leadership and commitment across federal agencies to make reducing disparities a federal priority. The blueprint presented here turns planning into action.

## APPENDIX A: ASTHMA DISPARITIES WORKING GROUP

<b>Council on Environmental Quality</b>	Erin Fitzgerald
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National Institute of Food and Agriculture	Herb Bolton*, Ph.D.
<b>Department of Health and Human Services</b>	
Center for Disease Control and Prevention	
National Center for Health Statistics	Lara Akinbami *, M.D.
National Center for Environmental Health	Paul Garbe *, D.V.M., M.P.H. Elizabeth Herman *, M.D., M.P.H.
National Center for Chronic Disease Prevention and Health Promotion	Rebekah Buckley, M.P.H., C.R.T., A.E.-C.
Food and Drug Administration	Sally Seymour, M.D.
Health Resources and Services Administration	
Office of Special Health Affairs	Terry Adirim, M.D., M.P.H.
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## APPENDIX B: HEALTHY PEOPLE 2020

The *Action Plan* supports the following Healthy People 2020 objectives (for full text of the Healthy People 2020 objectives, see [www.healthypeople.gov](http://www.healthypeople.gov)).

<b>Access to Health Services</b>	
AHS-5	Increase the proportion of persons who have a specific source of ongoing care.
AHS-6	Reduce the proportion of individuals who are unable to obtain or delay in obtaining necessary medical care, dental care or prescription medicines.
<b>Education and Community-based Programs</b>	
ECBP-1	Increase the proportion of preschool Early Head Start and Head Start programs that provide health education to prevent health problems in the following areas: unintentional injury; violence; tobacco use and addiction; alcohol and drug use; unhealthy dietary patterns; and inadequate physical activity, dental health and safety.
ECBP-5	Increase the proportion of the nation's elementary, middle and senior high schools that have a full-time registered school nurse.
ECBP-10	Increase the number of community-based organizations (including local health departments, tribal health services, nongovernmental organizations and state agencies) providing population-based primary prevention services.
<b>Environmental Health</b>	
EH-3	Reduce air toxic emissions to decrease the risk of adverse health effects caused by airborne toxics.
EH-13	Reduce indoor allergen levels: cockroach, mouse.
EH-16	Increase the proportion of the nation's elementary, middle and high schools that have official school policies and engage in practices that promote a healthy and safe physical school environment.
<b>Health Communication and Health Information Technology</b>	
HC/HIT-1	(Developmental) Improve the health literacy of the population.
<b>Maternal, Infant and Child Health</b>	
MICH-11	Increase abstinence from alcohol, cigarettes and illicit drugs among pregnant women.
MICH-18	Reduce postpartum relapse of smoking among women who quit smoking during pregnancy.
<b>Respiratory Disease</b>	
RD-1	Reduce asthma deaths.
RD-2	Reduce hospitalizations for asthma.
RD-3	Reduce hospital emergency department visits for asthma.
RD-4	Reduce activity limitations among persons with current asthma.
RD-5	Reduce the proportion of persons with asthma who miss school or work days.
RD-6	Increase the proportion of persons with current asthma who receive formal patient education.
RD-7	Increase the proportion of persons with current asthma who receive appropriate asthma care according to National Asthma Education and Prevention Program (NAEPP) guidelines.
RD-8	Increase the numbers 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.
<b>Tobacco Use</b>	
TU-6	Increase smoking cessation during pregnancy.
TU-11	Reduce the proportion of nonsmokers exposed to secondhand smoke.
TU-14	Increase the proportion of smoke-free homes.
TU-15	Increase tobacco-free environments in schools, including all school facilities, property, vehicles and school events.



## APPENDIX C: HIGHLIGHTS OF PRIORITY COORDINATED FEDERAL ACTIONS

### Strategy 1:

#### Reduce barriers to the implementation of guidelines-based asthma management.

##### Priority Actions\* (see *Action Plan* for more details):

- CDC, CMS, EPA and NIH (NHLBI) will explore strategies to expand access to asthma care services.
- AHRQ, CDC, CMS, EPA, HRSA, HUD and NIH (NHLBI, NICHD, NIMHD) will coordinate existing federal programs in health care settings in underserved communities to improve the quality of asthma care.
- CDC, CPSC, DOE, EPA, HUD and USDA will expand their collaborative efforts to reduce environmental exposures in homes.
- ACF, AHRQ, CDC, CPSC, ED, EPA, HRSA and NIH (NHLBI, NICHD, NIEHS) will implement asthma care services and reduce environmental exposures in schools and child care settings, using existing federal programs in collaboration with private sector partners.

### Strategy 2:

#### Enhance capacity to deliver integrated, comprehensive asthma care to children in communities with racial and ethnic asthma disparities.

##### Priority Actions\* (see *Action Plan* for more details):

- AHRQ, CDC, CMS, DOE, ED, EPA, HUD, HRSA, all other HHS agencies and NIH (NHLBI, NICHD, NIEHS, NIMHD, NINR) will promote cross-sector partnerships among federally supported, community-based programs targeting children who experience a high burden of asthma.
- CDC, CPSC, DOT, EPA, HUD and NIH (NIEHS) will collaborate to protect children from health risks due to short- and long-term exposure to air pollutants by promoting tools such as the Air Quality Index and EnviroFlash, and supporting communities in their efforts to address sustainable transportation, school siting, new construction, renovations, repairs, operations and maintenance; and public awareness.
- ACF, AHRQ, CDC, EPA, HRSA, HUD and NIH (NHLBI, NIAID, NICHD, NIEHS, NIMHD) will conduct research to evaluate models of partnerships that empower communities to identify and target disparate populations and provide comprehensive, integrated care at the community level.
- ACF, AHRQ, CDC, EPA, HRSA, HUD and NIH (NHLBI, NIEHS, NIMHD) will examine the relative contribution and cost-effectiveness of different components of a system-wide partnership program.

\* Key organizations involved are listed in alphabetical order.

## Strategy 3:

**Improve capacity to identify the children most impacted by asthma disparities.**

**Priority Actions\*** (see *Action Plan* for more details):

- CDC, EPA, HRSA and NIH (NHLBI, NIAID, NIEHS) will investigate the added value of emerging technologies to enhance identification of target populations and risk factors.
- AHRQ, CDC, CPSC and NIH (NHLBI, NIAID, NICHD, NIEHS) will promote standardization of definitions, measures, outcomes and information/data collection methods, and will maximize availability and use of collected data across federal asthma programs.
- CDC, EPA and HRSA will promote standard definitions, measures, outcomes and information/data collection methods in state, local and community settings.

## Strategy 4:

**Accelerate efforts to identify and test interventions that may prevent the onset of asthma among ethnic and racial minority children.**

**Priority Actions\*** (see *Action Plan* for more details):

- ACF, CDC, EPA, HUD and NIH (NICHD) will reduce exposure to maternal smoking and environmental tobacco smoke (ETS; also known as secondhand smoke) among pregnant women and infants.
- DOE, EPA, HUD and NIH (NHLBI, NIAID, NICHD, NIEHS, NIMHD) will establish priorities and collaborations for research across federal agencies to test interventions that may prevent the onset of asthma and reduce disparities in the incidence of asthma.
- EPA and NIH (NHLBI, NIAID, NICHD, NIEHS, NIMHD) will coordinate asthma research programs across federal agencies that support observational follow-up of birth cohorts.

\* *Key organizations involved are listed in alphabetical order.*

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## GLOSSARY OF TERMS

**Built Environment:** The built environment includes all of the physical parts of where we live and work (e.g., homes, buildings, streets, open spaces and infrastructure).

**Community Guide Recommendations:** The Task Force on Community Preventive Services recommends the use of home-based, multi-trigger, multicomponent interventions with an environmental focus for children and adolescents with asthma based on evidence of effectiveness in improving asthma symptoms and reducing the number of school days missed due to asthma. ([http://www.cdc.gov/asthma/interventions/community\\_guide.html](http://www.cdc.gov/asthma/interventions/community_guide.html))

**Disparities:** Differences in health outcomes that are closely linked with social, economic and environmental disadvantages. (<http://www.minorityhealth.hhs.gov/npa/templates/content.aspx?lvl=1&lvlid=33&ID=285>)

### **HHS/NAEPP Guidelines: NAEPP Expert Panel**

**Report:** Clinical guidelines for the diagnosis and management of asthma. The guidelines are issued by the National Asthma Education and Prevention Program (NAEPP) of the National Heart, Lung, and Blood

Institute (NHLBI) and the Department of Health and Human Services (HHS); the guidelines are also updated periodically. (<http://www.nhlbi.nih.gov/guidelines/asthma/>)

**Integrated Pest Management (IPM):** IPM relies on a combination of current, comprehensive and common-sense practices to manage pest damage and impacts by the most economical means, and with the least possible hazard to people, property and the environment. (<http://www.epa.gov/pesticides/factsheets/ipm.htm>)

**Key Clinical Activities for Quality Asthma Care:** A joint publication by the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) that provides guidance on the essential components of asthma management for purchasers and payers of health services. (<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5206a1.htm>)

**Social Determinants of Health:** The conditions in which people are born, grow, live, work and age, including the health system. ([http://www.who.int/social\\_determinants/en/](http://www.who.int/social_determinants/en/))

## LIST OF ACRONYMS

<b>ACF</b>	Administration for Children and Families	<b>NHLBI</b>	National Heart, Lung and Blood Institute
<b>AHRQ</b>	Agency for Healthcare Research and Quality	<b>NIAID</b>	National Institute of Allergy and Infectious Diseases
<b>CDC</b>	Centers for Disease Control and Prevention	<b>NICHD</b>	National Institute of Child Health and Human Development
<b>CMS</b>	Centers for Medicare and Medicaid Services	<b>NIEHS</b>	National Institute of Environmental Health Sciences
<b>CPSC</b>	Consumer Product Safety Commission	<b>NIH</b>	National Institutes of Health
<b>DOE</b>	Department of Energy	<b>NIMHD</b>	National Institute on Minority Health and Health Disparities
<b>DOT</b>	Department of Transportation	<b>NINR</b>	National Institute of Nursing Research
<b>ED</b>	Department of Education	<b>USDA</b>	Department of Agriculture
<b>EPA</b>	Environmental Protection Agency		
<b>HHS</b>	Department of Health and Human Services		
<b>HRSA</b>	Health Resources and Services Administration		
<b>HUD</b>	Department of Housing and Urban Development		







[www.epa.gov/childrenstaskforce](http://www.epa.gov/childrenstaskforce)