A NATIONAL STRATEGIC PLAN FOR PUBLIC HEALTH PREPAREDNESS AND RESPONSE

SEPTEMBER 2011





Centers for Disease Control and Prevention Office of Public Health Preparedness and Response

A National Strategic Plan for Public Health Preparedness and Response September 2011

Contents

Message from the Director of the Office of Public Health Preparedness and Response	2
Introduction	3
Vision, Mission, and Values	4
Objective 1: Prevent and/or mitigate threats to the public's health	4
Objective 2: Integrate public health, the healthcare system, and emergency management	5
Objective 3: Promote resilient individuals and communities	5
Objective 4: Advance surveillance, epidemiology, and laboratory science and service practice	5
Objective 5: Increase the application of science to preparedness and response practice	6
Objective 6: Strengthen public preparedness and response infrastructure	6
Objective 7: Enhance stewardship of public health preparedness funds	6
Objective 8: Improve the ability of the public health workforce to respond to health threats	7
Quick Wins	7
Implementation	8
Appendix A: Contributors	

Message from the Director of the Office of Public Health Preparedness and Response

Dear Colleagues,

Our nation's ability to prevent, protect, respond to, mitigate, and recover from threats to the public's health is critical. In the last five years alone, national and global health security¹ have been threatened by incidents including Hurricane Katrina, West Nile virus, the H1N1 influenza pandemic, bacterial contamination of food by *E. coli* and *salmonella*, the Deepwater Horizon oil spill, the Haiti earthquake and following cholera outbreak, and the Japanese tsunami and subsequent radiation release.

State and local health departments and individuals are first responders for public health emergencies, including outbreaks, intentional attacks, and environmental disasters. Citizens are becoming a trained resource by equipping themselves with the knowledge to combat emergent threats through nationally recognized programs such as the Citizen Corps². In addition, public health programs at all levels are enhancing the nation's ability to prevent and respond by implementing scientific and technological innovations and developing partnerships with other response agencies. For example, the Global Public Health Information Network, CDC's Global Disease Detection Operations Center, international influenza response networks, and use of the internet and other media assist in early disease detection every day and also provide core surveillance capabilities for large-scale public health threats³.

These are challenging economic times. We must sustain existing public health capabilities and infrastructure while developing solutions to build the public health systems of the future. Looking ahead towards the year 2020, projected pressures on public health include the increase of the U.S. population from 308 million to 336 million, more diversified age groups (including a 54% increase of citizens over 65, straining the already overburdened health care system⁴), socio-economic tensions, and mass migrations due to adverse weather events⁵. We also know that the advancement and diffusion of scientific technologies will pose threats to health security. Improvements in DNA technologies will increase our vulnerability to attacks from groups who have adapted microbes or created entirely new pathogens with the intent to harm the population. We also face the risk of individuals acting on their own, combining readily available chemicals and other materials to create improvised weapons. The increasing ease of global mobility means that bio-attacks, pandemics, and other health threats to our citizens can more easily travel across borders. Vigilance and forecasting are necessary to mitigate these scenarios and can only be done by sustaining and increasing public health capabilities.

Therefore, it is my privilege to present A National Strategic Plan for Public Health Preparedness and Response. This plan will stimulate scientific and technological innovations, raise the visibility of public health security, and promote the training of the next generation of public health leaders through initiatives such as the CDC Public Health Associates Program⁶. The strategic priorities described are a guide for CDC, the entire public health system, and its stakeholders to secure the health of our nation. I am grateful to the 375 experts from across government and partner organizations who offered input to this plan. CDC is committed to saving lives, protecting people, and saving money through prevention. To do this, it is essential that we continue our collective efforts to improve the nation's health security.

Sincerely,

Ali S. Khan, MD MPH Assistant Surgeon General (USPHS) & Director Office of Public Health Preparedness & Response DHHS/Centers for Disease Control and Prevention

¹ According to the National Health Security Strategy, health security is a state in which the nation and its people are prepared for, protected from, and resilient in the face of, health threats or incidents with potentially negative health consequences.

² http://www.citizencorps.gov/

³ Centers for Disease Control and Prevention. Ten Great Public Health Achievements—United States: 2001-2010. Morbidity and Mortality Weekly Report, 60(19);619-623. Available at: <u>http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6019a5.htm?s_cid=mm6019a5_w</u>

⁴ The National Health Security Strategy defines the healthcare system as the entire span of healthcare delivery, including pre-hospitals, hospitals, long term care, urgent care, community health centers, behavioral health, mental health, treatment, and other facilities, as well as the doctors, clinicians, physicians, nurses, technicians, and other professionals practicing in healthcare delivery.

⁵ World Health Organization. Health action in crises: Highlights No 288- 8-21 February 2010. Available at: http://www.who.int/hac/donorinfo/highlights/highlights_288_8_21february2010.pdf

⁶ http://www.cdc.gov/phap/

Introduction

CDC provides technical assistance and resources to state and local public health agencies to support their efforts to build prepared and resilient communities. CDC provides subject-matter expertise and assistance for domestic and global surveillance, laboratory, occupational health and epidemiology functions, and health threats including anthrax, smallpox, influenza and other infectious diseases, food-borne illness, and radiation, among others. CDC's Office of Public Health Preparedness and Response (OPHPR) leads the agency's preparedness and response activities by providing strategic direction, support, and coordination for activities across CDC as well as with local, state, tribal, national, territorial, and international public health partners.⁷

In the decade since September 11th and the anthrax attacks, significant investments have been made in the nation's public health system to respond to all-hazard threats.⁸ Public health departments at all levels of government can now quickly staff public health emergency operations centers; there is improved proficiency in laboratories testing for biological and chemical agents across the nation and the globe; and states can receive urgent disease reports and rapidly communicate information about health threats and related preventive and protective actions to the public. ⁹

As a result of these investments, CDC has responded to 296 incidents at the national and global levels. The global response to the 2009 H1N1 influenza pandemic that affected more than 214 countries and territories was the most rapid and effective response to an influenza pandemic in history. Investigations of the virus' origin, severity, and spread revealed those potentially at risk, and surveillance data were used to estimate the rate of illness and guide the response in real time. Within two weeks of detecting the virus, diagnostic tools were provided to laboratories in 146 countries resulting in over an 8-fold increase in specimen submissions¹⁰. Collaborative laboratory and clinical training was provided to more than 6,100 health professionals in 34 countries. Through an international donation program, the vaccine was made available to 86 countries. The lessons and experiences of the 2009 H1N1 influenza response continue to inform preparedness efforts for future influenza pandemics and other public health emergencies.

Federal and state budget cuts threaten these kinds of successes for the future. CDC's budget authority decreased by more than \$740 million in the 2011 fiscal year. Difficult funding decisions in preparedness research, education, and health department support are necessary in order to manage the budget decrease. In addition, we will also need to increase innovation and creativity to best use existing funds. Direct assistance in public health preparedness and response programs can be helpful in the short term, but is not sustainable over the long term. The continuous loss of a public health infrastructure runs the risk of eroding ten years of progress in preparedness and response.

3

⁷ Centers for Disease Control and Prevention. Office of Public Health Preparedness and Response. Available at: <u>http://www.cdc.gov/phpr/</u>

⁸ The Future of the Public's Health in the 21st Century. Institute of Medicine of the National Academies. Washington, DC: GPO 2003.

Public Health Preparedness: Strengthening the Nation's Emergency Response State by State: A report on CDC-funded preparedness and response activities in 50 states, 4 cities, and 8 U.S. insular areas. Available at: <u>http://www.bt.cdc.gov/publications/2010phprep/</u>

¹⁰ Jernigan, G. B. et al. Detecting 2009 Pandemic Influenza A (H1N1) Virus Infection: Availability of Diagnostic Testing Led to Rapid Pandemic Response. Clinical Infectious Diseases (CID), Oxford Journal, 2011, S36-S43.

Vision, Mission, and Values

CDC's preparedness vision for the nation is *people's health protected—public health secured*. This is consistent with the Presidential Policy Directive 8,¹¹ the Department of Health and Human Services' Healthy People 2020,¹² National Health Security Strategy¹³, and Strategic Plan,¹⁴ the Department of Homeland Security's National Response Framework,¹⁵ and other national preparedness and response plans and doctrine.

To achieve the vision by 2020, it is essential that partners and stakeholders across public health, healthcare, bio-defense, emergency management, and the private sector, work together. In the next decade, CDC will continue to lead partnerships in the public health system to carry out the public health preparedness mission to strengthen and support the nation's health security to save lives and protect against public health threats.

CDC will demonstrate leadership in public health preparedness and response by adhering to the following values:

- Making decisions with transparency and accountability
- Engaging partners and leveraging collaborations
- Championing effective communications and information sharing
- Basing decisions on the best available science
- Expanding the evidence base for public health security

Objectives

This plan describes eight strategic objectives. Each objective has a set of strategies to enable achievement of the objective. These objectives describe the outcomes needed to achieve the vision.

1) Prevent and/or mitigate

threats to the public's health

Immediate or emerging public health threats can cause significant harm. Scale, timing, or unpredictability of these threats can overwhelm routine public health system capabilities and have substantial impacts on domestic and global economies, as well as national security. The public health system prevents and responds



to health threats every day, but significant work remains to be done. CDC will work with domestic and international partners in infectious disease, environmental health, food safety, water safety, agriculture, emergency management, homeland security, global

¹¹ Presidential Policy Directive 8. Washington, DC, 2011. Available at: http://www.dhs.gov/xabout/laws/gc_1215444247124.shtm.

¹² U.S. Department of Health and Human Services. *Healthy People 2020 Summary of Objectives*. Washington, DC: GPO, 2010. Available at: http://www.healthypeople.gov/2020/topicsobjectives2020/pdfs/HP2020objectives.pdf.

¹³ U.S. Department of Health and Human Services. National Health Security Strategy of the United States of America. Washington, DC: GPO, 2009. Available at: <u>http://www.phe.gov/Preparedness/planning/authority/nhss/strategy/Documents/nhss-final.pdf</u>.

¹⁴ U.S. Department of Health and Human Services. U.S. Department of Health and Human Services Strategic Plan Fiscal Years 2010-2015. Washington, DC: GPO, 2010. Available at: <u>http://www.hhs.gov/secretary/about/priorities/strategicplan2010-2015.pdf</u>.

¹⁵ U.S. Deartment of Homeland Security. *National Response Framework*. Washington, DC: GPO, 2008. Available at: http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf.

migration, worker safety, animal health, and the private sector to prevent or mitigate the effects of both acute and longer-term environmental and other emerging threats to health. Specifically, CDC will focus on the following strategies:

- Increasing public health involvement in national and global health security efforts
- Advancing the ability to measure and address gaps in public health preparedness

2) Integrate public health, the healthcare system, and emergency management

Responding to public health threats and incidents requires public health, the healthcare system, and emergency management to work together under extraordinarily stressful conditions. CDC will collaborate with partners at the national, state, local, tribal, and territorial levels to prevent, protect, respond to, mitigate, prepare for, and recover from public health emergencies. Specifically, CDC will focus on the following strategies:

- Bolstering CDC grant and cooperative agreement coordination with federal and non-federal partners' grants and cooperative agreements
- Developing and promoting tools that enable integration of public health, the healthcare system, and emergency management

3) Promote resilient individuals and communities

Communities need to be resilient in the face of crises. Individuals and communities will be more resilient when they are informed ¹⁶ and empowered ¹⁷ to cope with public health threats. Resiliency can be achieved at the community level, in part, by increasing integration of the public health and healthcare system, and emergency management, as well as strengthening public health preparedness and response. Public health agencies must be prepared to prevent, detect, respond to, mitigate, and recover from a variety of public health threats. To enhance the capabilities of state and local governments to respond to these threats, CDC administers the Public Health Emergency Preparedness Cooperative Agreement ¹⁸ (PHEP). The PHEP supports preparedness by providing technical assistance and funding to public health departments to enable communities to make better public health preparedness and response decisions around the 15 PHEP capabilities to serve as national public health preparedness standards. Specifically, CDC will focus on the following strategy:

• Enhancing public health and healthcare system, and emergency management networks for community public health preparedness

4) Advance surveillance, epidemiology, and laboratory science and service practice

This objective enhances CDC's core public health mandate, including preparedness and response activities, by providing direction in health monitoring and surveillance, epidemiology (e.g., outbreak investigations), and laboratory science and service practices. CDC will work with state and local health departments, and other partners, to strengthen surveillance, epidemiology, and laboratory practices to improve integrated situational awareness, enabling decision makers at all levels take efficient and effective action. Specifically, CDC will focus on the following strategies:

- Integrating public health preparedness and response data reporting systems and processes
- Increasing surveillance, epidemiology, and laboratory science research, equipment, modeling, and tools

¹⁶ Informed individuals: understand their personal responsibilities; know where to turn to for information; know where and when to seek medical attention; have the means to take such action; and help others who need assistance. Likewise, informed communities know how to respond and with whom to collaborate both during preparedness planning and response.

⁷ Empowered individuals have the information, skills, resources, and authorities they need to protect their health and safety. Empowered communities have the appropriate authorities they need to be able to prevent, prepare for, and respond to an emergency.

¹⁸ http://www.cdc.gov/phpr/capabilities/index.htm

5) Increase the application of science to preparedness and response practice

Because the current evidence/science base for public health preparedness is limited and insufficient, CDC will collaborate with partners and stakeholders to use evidence-based practice, applied research, and lessons learned to improve public health practice. The application of knowledge to practice has multiple components, including timely information distribution, diffusion, adoption, implementation, scalability, and sustainability. CDC will support and sustain research to build the evidence base for public health preparedness and response, including continuing a process through which research needs are continually identified and addressed. CDC will also collaborate with and enable partners and stakeholders to access and incorporate research findings into public health preparedness and response. Specifically, CDC will focus on the following strategies:

- Expanding knowledge that contributes to the reduction/mitigation of threats to the public's health
- Promoting tools and promising practices to improve public health preparedness and response practice

6) Strengthen public health preparedness and response infrastructure

CDC will support and enhance public health preparedness infrastructure. These efforts will include both physical and logistical capacity to prepare and respond to events. Physical infrastructure has multiple components, including communications, health information, and information technology infrastructures, emergency operations centers, and response and support staff. It is important to assess and assure the mobility and adequacy of this infrastructure continuously, as the risks of public health threats change over time. This objective, along with objectives seven and eight, forms the "resource base" that is necessary for public health security. Specifically, CDC will focus on the following strategies:

- Enhancing, global, national, state, local, tribal, and territorial preparedness and response capabilities (e.g., 15 PHEP capabilities, including but not limited to medical countermeasure dispensing, communications, and laboratory via the provision of resources, technical assistance, and training)
- Sustaining public health system capacities (e.g., laboratory, communications, health information, emergency operations centers, response and support staff, and information technology infrastructure) for preparedness and response, and continuously assessing the adequacy of the infrastructure and systems
- Enhancing the ability to redirect infrastructure, people, and systems when necessary to address a response in collaboration with partners

7) Enhance stewardship of public health preparedness funds

CDC will improve stewardship of public health preparedness funds. This effort includes leveraging resources, reducing duplicative expenditures, improving economic justification for investments in preparedness, and promoting the use of resources. Public health preparedness and response activities rely on continuous and adequate funding and resources. Appropriate use and availability of resources are critical components in all preparedness and response activities. Specifically, CDC will focus on the following strategies:

- Promoting effective use of public health preparedness and response funding
- Strengthening the effectiveness and timeliness of communicating the importance of preparedness to the public, elected officials, and other policymakers

¹⁹ Capability refers to effective use of knowledge obtained from research to improve practice, (e.g., effective use of epidemiologic and laboratory data for preparedness and response).

8) Improve the ability of the public health workforce to respond to health threats

Public health leadership will ensure that the public health workforce has the capacity and capability to prepare for, mitigate, respond to, and recover from emergencies. Gaps in worker competency and organization/system capabilities must be addressed. Competency-based training in preparedness and response for the public health workforce will be developed and implemented. Strategies will be employed to ensure that public health training systems support national health security and are based on relevant, available, and accessible science, evaluation, and quality improvement methods. These efforts will support the everyday functions of public health application. Internally, CDC will recruit competent public health professionals and retain and develop staff through training and incentives such as experiential and leadership opportunities. Specifically, CDC will focus additional efforts beyond its routine activities through the following strategies:

- Enhancing public health preparedness and response workforce competencies
- Identifying strategies for greater distribution capacity for and timely provision of medical countermeasures

Quick Wins

The strategies for each objective are supported by initiatives, or more specific activities and projects. While many remain under development, eight "quick win" initiatives are slated for completion in the coming months:

- 1. Provide targeted information to policymakers highlighting the contributions of public health preparedness as part of national security
- 2. Implement a communications campaign to raise awareness about public health preparedness and the role of citizens in preparedness
- 3. Develop a cadre of deployable CDC representatives to state emergency operations centers
- 4. Collaborate with the Federal Emergency Management Agency to define a position for health advisors in the Incident Command System²⁰
- 5. Provide science-based guidance for medical countermeasure use and dispensing of products (utilization policy)
- 6. Achieve Food and Drug Administration approval of a core set of laboratory response network rapid molecular tests used by CDC to detect disease
- 7. Develop a risk-based triage system for Etiologic Agent Import Permit requests²¹ to identify those that may require additional oversight activities such as on-site inspections
- 8. Develop and promote a toolkit for state and local public health departments around the 15 capabilities in the 2011 Public Health Emergency Preparedness Cooperative Agreement

In addition, there are examples of CDC-specific projects that will continue as ongoing and progressive efforts, including the following:

- 1. CDC will continue to conduct dose sparing/dividing studies for Anthrax Vaccine Absorbed with National Institutes of Health and Health and Human Services' Biomedical Advanced Research and Development Authority in order to evaluate the potential to expand the existing stockpile
- 2. CDC will continue to provide site-specific technical assistance to state and local public health departments with the 2011 Public Health Emergency Preparedness Cooperative Agreement to support their grant requirements
- 3. CDC will continue to collaborate with other federal partners to enhance laboratory biosafety and biosecurity to prevent and mitigate threats to the public's health

7

²⁰ http://www.fema.gov/emergency/nims/IncidentCommandSystem.shtm

²¹ http://www.cdc.gov/od/eaipp/docs/faqs.pdf

4. CDC will incorporate meta-leadership principles to enhance the communication and support with other federal agencies and organizations

Implementation

The National Strategic Plan for Public Health Preparedness and Response is the road map for preventing the erosion of existing capabilities and to ensure the public's health remains secured from all hazards. The plan will be updated biennially to assess progress related to the plan's objectives. CDC is furthering development of a detailed plan, which will include example initiatives and proposed measurements for each objective.

Appendix A: Contributors

Jerry Aben, CDC William J. Adams, CDC Peter Alvarez, CDC Glenn Amos, CDC Andrea Anason, CDC Fred Angulo, CDC Joe Annelli, USDA Kenneth Archer, CDC Aaron Arnold, CDC Janice Ashby, CDC J. Rex Astles, CDC Lynn A. Austin, CDC Mark E. Austin, CDC Christine Avers, CDC Heidi Avery, NSS Kerrethel Avery, CDC Francis A. Bader, CDC Frank Bailey, AARP Russell G. Baker, CDC Gerrit Bakker, ASTHO James Banaski, CDC Lori Bane, CDC Jackie L. Barnes, CDC Drue H. Barrett, CDC Mark M. Bashor, CDC Denise Beauvais, CDC Beth Bell, CDC Michael Bender, CDC Sherri Berger, CDC Joseph Bertuflo, CDC Laura Biesiadecki, ASPH Carolyn Black, CDC James Blaine, CDC James S. Blumenstock, ASTHO Steven F. Boedigheimer, CDC Sandra E. Bonzo, CDC Coleen Boyle, CDC Chris Braden, CDC Christine C. Bradshaw, CDC Robert Briley, CDC Jason E. Broehm, CDC

Jennifer Brooks, CDC Jae Brown, CDC Vance Brown, CDC Sherrie Bruce, CDC Jeff Bryant, CDC Jim Buehler, CDC David L. Bull, CDC Paula Burch, CDC George P. Burdell, CDC Bernadette Burden, CDC Greg Burel, CDC Kelly B. Burkitt, CDC Bruce Burney, CDC Lane Burris, CDC Karen Byers, AARP Debra Byrd, CDC Vince Campbell, CDC Kenneth G. Castro, CDC Doriel Chandler, CDC Mark A. Channer, CDC Tom Chapel, CDC Carl B. Chapman, CDC Joni S. Charme, CDC Frances D. Chichester-Wood, CDC Brandon R. Childress, CDC Glen Christie, CDC Joan Cioffi, CDC David W. Clark, CDC Bruce Clements, Texas DSHS Nina Cleveland, CDC Sharon R. Coleman, CDC Janet L. Collins, CDC Joanne Cono, CDC Barry Copeland, CDC Cristin Corcoran, CDC Toby Crafton, CDC James B. Crockett, CDC Sean Cucchi, CDC Cecilia Curry, CDC David Daigle, CDC Jason Dailey, CDC

Debra D'Alfonso, CDC Richard Danila, CSTE Nick Davidson, South Carolina DHEC Harry L. Davis, CDC Xiaohong Mao Davis, CDC Drew Dawson, DOT Kevin DeCock, CDC Scott Deitchman, CDC Lisa Delaney, CDC Lynda Delaney, CDC David DeSantis, CDC Yvette Diallo, CDC Pamela Diaz, CDC Kelly Dickinson, CDC Ed Dieser, CDC Sue Dietz, CDC Bill Digioia, CDC John Donahue, CDC Adrienne Donner, CDC Scott Dowell, CDC Diane E. Dubinsky, AAP Emily Eisenberg, CDC Barbara Ellis, CDC Adele R. Etheridge, CDC Rick Ehrenberg, CDC Daniel B. Fagbuyi, AAP Kenneth D. Farrey, CDC Tony Fauci, NIH Lindsay J. Feldman, CDC Peg Fenner, CDC Kevin Fenton, CDC Norm Fikes, CDC V. Scott Fisher, NACCHO Shannon Fitzgerald, Pennsylvania DOH Aaron Fleischauer, CDC Lynda Flowers, AARP Donald A. Flowers, CDC Tina Forrester, ATSDR Mark Frank, CDC Rodrick Frazier, CDC John E. Fredenberg, CDC

Renee Funk, CDC Kevin Gallagher, CDC Donna Garland, CDC Alex Garza, DHS Jean A. Gaunce, CDC Jane Getchell, APHL Neelam D. Ghiya, CDC Paul Giannone, CDC Jerilyn Gilbert, CDC Randy Glascock, CDC Carol Glazer, NOD Tonica Gleaton, CDC Tom Gomez, USDA Richard A. Goodman, CDC Jesse Goodman, FDA Erin K. Grasso, CDC Michael Grayson, CDC Margaret Griffin, CDC Linnet P. Griffiths, CDC Margaret Grimes, CDC Stephanie Griswold, CDC John Halpin, CDC Douglas H. Hamilton, CDC Derek Hardy, CDC Joe Henderson, CDC Sarah Henderson, CDC Roy A. Herman, CDC John Herring, CDC Jack Herrmann, NACCHO Allen Hogan, CDC Daniel Holcomb, CDC Laura Holgate, NSS John Horan, CDC Jennifer Hornsby-Myers, CDC Harvey Howard, CDC **Richard Hunt, CDC** Ed Hunter, CDC Robin Ikeda, CDC John Iskander, CDC Annette Jacek, Pennsylvania DOH Bassam M. Jarrar, CDC Michael F. Jelley, CDC Matthew Jennings, CDC

Daniel B. Jernigan, CDC Laura Jevitt, LRN Alison Johnson, CDC Elise Johnson, FDA Rudy Johnson, CDC Alison Johnson, CDC LaBrina M. Jones, CDC Brian Kamoie, NSS: Resilience Directorate Theresa Kanter, CDC Kathi Kellar, CDC Mim Kelly, CDC Veronica Kennedy, CDC David N. Kennedy, CDC Rima Khabbaz, CDC Ali S. Khan, CDC Ron Kinney, South Carolina DHEC Margaret Kitt, CDC **Richard Klomp, CDC** Bob Kobelski, CDC Howard Koh, HHS Denise Koo, CDC Chris Kosmos, CDC Michael Kurilla, NIH Derrick Lake, CDC Randy Langston, South Carolina DHEC Gregory Paul Lanman, CDC Mike Latham, CDC Max Learner, South Carolina DHEC Sherline Lee, CDC John R. Lehnherr, CDC Laura Leidel, CDC Dennis D. Lenaway, CDC Deborah A. Levy, CDC Dara Alpert Lieberman, TFAH Kim Lindsey, CDC Joe Little, CDC Patty Lolas, South Carolina DHEC Patrick Ludford, CDC Nicole Lurie, HHS Pamela Lutz, CDC Kevin W. Lyday, CDC Carmen Maher, FDA

Beth Maldin Morganthau, New York Cit DOHMH Chris N. Mangal, APHL David L. Maples, CDC Betty A. Marshall, CDC Lise Martel, CDC Gordon May, CDC Lisa McCants, CDC Vondguraus McClee, CDC Janice McMichael, CDC Nabiha Megateli-Das, ICF Macro Michael Melneck, CDC Chuck Menchion, CDC Toby Merlin, CDC Joy Miller, HHS Lee T. Miller, CDC Mark A. Miller, CDC Yoon Miller, CDC Judith A. Monroe, CDC Margaret Moore, CDC Glenn Moore, CDC Lorenzo Moore, CDC Robert Morris, CDC Eric Morrisey, CDC Melanie A. Moser, CDC Tony Moulton, CDC Dara L. Murphy, CDC Nia Murphy, CDC Shivani Murthy, CDC Phil Navin, CDC Lew K. Newlin, CDC Glen Nowak, CDC Matthew Nunn, CDC Jennifer Nuzzo, UPMC Ann O'Connor, CDC Jean O'Connor, CDC Ralph O'Connor, CDC Stephen Papagiotas, CDC Sarah Park, Hawaii DOH Anita Patel, CDC Don Peace, South Carolina DHEC Harry Peagler, CDC Amy B. Peeples, CDC

Nicki Pesik, CDC Ted Pestorius, CDC Paula Peters, CDC Todd Piester, CDC Harald Pietz, CDC Jim Pirkle, CDC Jennifer Pitcher, Indiana DOH Kristin Pope, CDC **Diane Porter, CDC** William Porter, CDC Diane Porter, CDC Bill Porter, CDC Joe Posid, CDC Michael J Primeau, New York State DOH Beverly Pritchett, Washington, D.C. DOH Nathan Pyles, CDC Patricia Quinlisk, CSTE Marilyn Radke, CDC Steve Redd, CDC Andy Rein, CDC Steven L. Reynolds, CDC Bill Rich, CDC Cyndi Rilling, CDC George Roark, CDC Shawn T. Robinson, CDC Terri L. Rodney-Brown, CDC Henry Rolka, CDC Cassandra Rolle, CDC Kenneth Rose, CDC Jason Rothbard, CDC Lisa Rotz, CDC Edward N. Rouse, CDC Tom Russo, South Carolina DHEC Peter Rzeszotarski, CDC Michael H. Sadagursky, CDC Michael J. Sage, CDC Cecelia Sanders, CDC Lee Sanderson, CDC James Scales, CDC Laurie Schnepf, CDC Anne Schuchat, CDC Tina Scott-Morgan, CDC Laura Segal, TFAH

Dean Seneca, CDC **Rick Serino, DHS** Trina R. Sheets, NEMA Charles Shepherd, CDC Craig Shepherd, Tennessee DPH Reed Sheridan, CDC Pattie Simone, CDC Jennifer Sinibaldi, ASTHO Tom Sinks, CDC Thomas W. Skinner, CDC Jessica Smith, CDC Duane Smith, CDC Lee Smith, CDC Gray Smithson, CDC Robyn Sobelson, CDC Dan Sosin, CDC James S. Spahr, CDC Joseph Spalviero, CDC Ross Spears, CDC Scott Sproat, Oklahoma DPH Raffi L. Standifer, CDC Jason Stear, CDC Lander Stoddard, CDC David Strickland, DOT Felicia A. Suit, CDC Mark Swanson, CDC Todd Talbert, CDC Robert V. Tauxe, CDC Mark Teachman, USDA Stephen B. Thacker, CDC Rene Tharpe, CDC John Theofilos, CDC Craig Thomas, CDC Eric Toner, UPMC Jonathan Trapp, CDC Tracee Treadwell, CDC Dana Tulis, EPA Richard M. Turner, CDC James Tyson, CDC Joe Vital, CDC Steven Wagner, Ohio Dept. of Health Lisa Walker, CDC Eli W. Warnock, CDC

Carolyn M. Washington, CDC Keith West, CDC Rob Weyant, CDC Jamie White, CDC Gamunu Wijetunge, DOT Sarah D. Wiley, CDC Craig Wilkins, CDC Gail Williams, CDC Janet Williams, CDC Kristin N. Williams, CDC Mildred M. Williams-Johnson, CDC Angela Wood, CDC **Rick Woolman, DHS** Mark T. Wooster, CDC Brenda Wyatt, CDC Andrea Young, CDC Robert L. Young, CDC Stephanie Zaza, CDC Beth Zimmerman, DHS

iii