



INTEGRATING
COMMUNITY
PEDIATRICIANS INTO
PUBLIC HEALTH
PREPAREDNESS AND
RESPONSE ACTIVITIES IN
PENNSYLVANIA

Pennsylvania Department of Health
PA Chapter, American Academy of Pediatrics
Center for Public Health Readiness & Communication,
Drexel University School of Public Health

June 2013



American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™



Pennsylvania Chapter



DREXEL UNIVERSITY
School of
Public Health
*Center for Public Health Readiness
and Communication*

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND

PREFACE	2
ACKNOWLEDGEMENTS	3
EXECUTIVE SUMMARY	5
INTRODUCTION	10
METHODS	11
OVERVIEW OF CHILDREN IN DISASTERS	12
PEDIATRICIANS IN DISASTERS AND COMMUNITY RESILIENCE	14

FINDINGS & RECOMMENDATIONS

I.	ROLES AND EXPECTATIONS FOR PEDIATRICIANS & PUBLIC HEALTH AGENCIES	15
II.	PREPAREDNESS NEEDS AND RECOMMENDATIONS FOR STAKEHOLDERS	19
1.	COOP PLANNING FOR PRACTICES	19
2.	SURGE CAPACITY PLANNING FOR PRACTICES	22
3.	COMMUNICATION BETWEEN PUBLIC HEALTH AGENCIES AND PEDIATRICIANS	24
4.	PENNSYLVANIA CHILD HEALTH DISASTER ADVISORY COUNCIL	27
5.	COMMUNICATION BETWEEN PEDIATRICIANS AND PATIENTS	29
6.	LEVERAGING THE ELECTRONIC MEDICAL RECORD	31
7.	TRAINING & EDUCATION	33
8.	CHILDREN WITH SPECIAL NEEDS	36
9.	INTEGRATING SCHOOLS AND CHILDCARE PROGRAMS INTO PREPAREDNESS	39

CONCLUSION

REFERENCES

In March, 2011, the Centers for Disease Control and Prevention (CDC) released new public health preparedness guidance focused on 15 capabilities. The document, titled “Public Health Preparedness Capabilities: National Standards for State and Local Planning,” provides a roadmap for the emergency preparedness efforts of state and local public health departments. The first capability, “Community Preparedness,” is defined as the ability of communities to prepare for, withstand and recover from – in both short and long terms – disasters that impact the public health. The capability emphasizes community partnerships and tasks public health agencies with engaging “community organizations to foster public health, medical and mental/behavioral health social networks” (CDC, 2011).

Ensuring the continuity of critical medical services to affected populations during and following a major disaster is a chief component of this capability, which includes a focus on at-risk populations, particularly children. To that end, the Pennsylvania Department of Health (PA DOH) engaged the Center for Public Health Readiness and Communication (CPHRC) at Drexel University School of Public Health to develop a plan for building a sustainable network of pediatric medical providers in ambulatory settings who can deliver healthcare to children throughout all phases of the emergency management cycle – mitigation, preparedness, response, and recovery – in partnership with public health and other stakeholders.



The Pennsylvania Chapter of the American Academy of Pediatrics (PA AAP) is the major professional society that represents the interests of practicing pediatricians in Pennsylvania and is a co-partner in this project. PA AAP has a long history of education, planning, and practice outreach related to many important issues affecting the health of children and pediatric practice across the commonwealth. PA AAP also has a tremendous reach within the state: 85% of general pediatricians are active members. CPHRC worked with PA AAP to

incorporate the views of community pediatricians, practice managers, public health agency leaders, school health professionals, stakeholders in childcare and early childhood education, healthcare system directors, experts in information technology and many other partners involved in the health of children in this strategic plan to ensure the delivery of medical services to children in community settings. The five counties in metropolitan Philadelphia were the initial focus for this plan and many of the thought leaders who contributed to this project are from this region. In addition, PA AAP reached out to Dr. Scott Needle, a pediatrician who serves on the national AAP Disaster Preparedness Advisory Council, where he represents the interests of community-based outpatient practices. Dr. Needle was a valued contributor.

Disasters and emergencies require extraordinary coordination, communication, and commitment from individuals whose job is to respond to those incidents. In order to plan effectively, it is imperative that these key players establish relationships prior to a disaster occurring. The audiences for this plan are community pediatricians, public health agencies, and the health professionals, teachers, and administrators in schools and childcare programs where children spend much of their time every day. And while these recommendations have been developed for the commonwealth of Pennsylvania, we hope that they are relevant for others who are engaged in the important work of caring for children during disasters.

ACKNOWLEDGEMENTS

This publication was supported by a grant from the PA DOH, with funding from Cooperative Agreement Number 2U90TP316967–11 from CDC. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.

Authors

Center for Public Health Readiness and Communication, Drexel University School of Public Health

Esther Chernak, MD, MPH

Tom Hipper, MSPH, MA

Hilary Kricun, MPH

PA Chapter, American Academy of Pediatrics

Suzanne C. Yunghans, MBMgt – Executive Director

Amy Wishner, MSN, RN

Scott Needle, MD - Consultant

Shannon Calluori, MA, Director of the Bureau of Public Health Preparedness (former), PA DOH, and Tracy Wilcox, Program Administrator of the Bureau, conceived of this project and provided guidance throughout. In addition, the authors would like to thank the following individuals who generously gave their time and thoughtful input through interviews, planning meetings, and reviews of draft documents:

Steve Alles, MD, Philadelphia Department of Public Health

Meredith Allen, DrPH, MS, ASTHO

Gregory H. Anderson, CIO, Connexin Software

Beth Bahn, RN, CSN, CRNP, PA DOH

Mike Baysinger, MPH, Montgomery County Department of Health

Eric Berger, MD, FAAP, Center City Pediatrics, LLC

Steven Berkowitz, MD, University of Pennsylvania

Steven Brown, MD, Independence Blue Cross

MaryAnne Canales, RN, MSN, Central Bucks Schools District

Lynn Cramer, RN-BC, Eden Park Pediatric Associates

Mary Cushionberry, Montgomery County Department of Health

Beth DelConte, MD, Pediatric Advisor to PA AAP ECELS Project

Hope Dwiggins, MLS, IBCLC, RLC, Int'l Lactation Consultation Assoc

Bradley Dyer, MD, FAAP, All Star Pediatrics

Norman Fienman, MD, FAAP, Retired

Malaya Fletcher, Philadelphia Department of Public Health

Molly Gatto, MHA, PA AAP

Andrew Garrett, MD, MPH, FAAP, ASPR

Judith Gutowski, BA, IBCLC, RLC, PA Breastfeeding Coalition

Trude Haecker, MD, FAAP, Children's Hospital of Philadelphia

Michael Harkness, MD, FAAP, Main Line Health System

Mary Heaton, Montgomery County Health Department

Devon Heberlig, PA Department of Public Welfare

Maureen Hennessey Herman, County of Delaware Intercommunity Health

Richard Hicks, PhD, College of Physicians of Philadelphia

Allison Horowitz, MD, FAAP, Pediatrics Plus

David Huston, Ham Radio

Dana Johnson, New Jersey Department of Health

Kirsten Johnson Moore, PA Emergency Medical Services for Children

Michael Kiley-Zufelt, American Red Cross of SE PA

Helen Koenig, MD, MPH, Hospital of the University of Pennsylvania

Susan Kressly, MD, FAAP, Kressly Pediatrics

Bruce Lockman, MD, FAAP, Lockman Lubell Pediatric Associates

Anthony Luberti, MD, FAAP, Children's Hospital of Philadelphia

Carmen Martin, PA Department of Public Welfare

Raj Maskay, Delaware Emergency Medical Services for Children

Christina Miller, MSS, Health Promotion Council

Jeff Miller, MD, MPH, Centers for Disease Control and Prevention

Naomi Mirowitz, Philadelphia Department of Public Health

Sheri Mountz, RN, PA Department of Health

Bonnie Offit, MD, FAAP, Retired

Steve Ostroff, MD, PA Department of Health (former)

Curt Parnes, MD, FAAP, Abington Pediatric Associates

Bob Pisch, PA Department of Health

Bruce Rapoport, Radnor Township School Board

Suzanne Redington, MPH, Bucks County Health Department

Kalyn Roberts, BSN, RN, Montgomery County Health Department

Mark Ross, Hospital Association of Pennsylvania

Wendy Ross, Autism Inclusion Resources & Center for Pediatric Development

Saul Rubin, Medical Student

Steven Shapiro, DO, FAAP, FACOP, Abington Memorial Hospital

Philip Siu, MD, FAAP, Greater Philadelphia Health Action

Robyn Slater, MPH, Chester County Department of Emergency Services

Kevin Smith, Montgomery County Department of Health

Renee Turchi, MD, MPH, FAAP St. Christopher's Hospital for Children, Drexel

Cathy Utz, Department of Public Welfare

Kirsten Waller, MD, PA Department of Health

Betsy Walls, RN, Chester County Department of Health

Auren Weinberg, MD, FAAP, Lower Bucks Pediatrics, PC

Todd Wolynn, MD, MMM, IBCLC, FAAP, Kids Plus Pediatrics

James Yannopoulos, PsyD, MBA, SPHR, Right College for Me, LLC

Kathleen Zitka, PA Department of Health



EXECUTIVE SUMMARY

Community preparedness has become a priority for disaster planners in public health departments and emergency management agencies across the country. The Centers for Disease Control and Prevention (CDC) lists community preparedness as the first of fifteen core public health emergency preparedness capabilities, one that depends on partnerships with community organizations and stakeholders. The goal of the capability is to foster public health, medical and mental/behavioral health social networks



that are sustainable and can support those services during disasters (CDC, 2011). In 2010, the National Commission on Children and Disasters recognized that the needs of children in disasters are a major gap in planning across the country. Planning for those needs is a priority element within this capability.

To improve community preparedness in Pennsylvania and build the commonwealth's capacity to care for children in disasters, PA DOH engaged the Center for Public Health Readiness and Communication (CPHRC) at the Drexel University School of Public Health and the Pennsylvania Chapter of the Academy of Pediatrics (PA AAP) to develop a plan to integrate community pediatricians into disaster preparedness efforts. The purpose of this project was to use a systems-based approach to identify the challenges that community pediatricians face with respect to preparedness and to formulate recommendations that redress those challenges. The emphasis was on pediatricians practicing in ambulatory settings, as most prior efforts to improve preparedness in healthcare systems have focused on the work of acute care hospitals and other inpatient facilities. It was thought that the planning relevant for community pediatricians would also provide a paradigm for working with other primary care physicians in community practices, all of whom are important public health partners working on the front-lines of patient care.

The CPHRC and PA AAP initiated a collaborative planning process with pediatricians, practice managers, government agency leaders, representatives from the school and childcare communities, and experts in health information technology in Southeastern Pennsylvania. Over three dozen interviews and two collaborative planning meetings provided information regarding the needs of pediatricians and public health agencies during disasters, and helped identify ways to improve the coordination of these sectors during incidents that impact the health of children. The issues that emerged were the need to bridge the separate worlds of public health and personal health, improve the understanding of how public health agencies and community medical practices operate, and clarify the respective expectations for each during public health emergencies. The following roles and responsibilities emerged from the interviews with government and pediatric stakeholders, and form the basis for a concept of operations and subsequent recommendations to improve the coordination of their efforts during disasters:

- Community pediatricians will function primarily in their routine practice setting during emergencies, providing critical medical services to ambulatory patients and families, offsetting the burden on hospital emergency departments, and facilitating the use of medical countermeasures (e.g., medications or vaccines) by children.
- Community pediatricians are an important source of clinical surveillance and other information that public health agencies need to monitor health outcomes and formulate public health policy during emergencies.
- Community pediatricians are a trusted source of information for the general public before and during public health emergencies. Their efforts to promote preparedness among their patients, particularly children with special healthcare needs, and their capacity to assist with risk communication are critical for community resilience.
- Local and state public health agencies lead government response efforts during public health emergencies and are responsible for critical activities such as the assessment of health threats and outcomes, formulation and implementation of disease control and health promotion measures, and public information and warning. Federal agencies such as CDC support local and state public health efforts.
- Public health agencies support healthcare systems following incidents that overwhelm healthcare resources and provide medical and public health services in mass care (sheltering) situations.
- Community pediatricians and public health agencies need to understand their respective roles and responsibilities so that their mutual expectations in public health emergencies are clearly defined, and they can coordinate their efforts for the optimal benefit of the community.



The remainder of the report describes the major preparedness needs in public health agencies and community pediatric practices and offers recommendations for realizing a coordinated, community-based response that optimizes their respective roles and capacity for collaboration. Where appropriate, specific action steps are proposed for public health agencies, pediatricians, and the PA AAP, respectively. In addition, in keeping with the systems-based approach to the health of children in communities, the report also includes specific recommendations for integrating schools and childcare centers into public health preparedness activities.

SUMMARY OF PREPAREDNESS NEEDS AND RECOMMENDATIONS FOR STAKEHOLDERS

- 1. Continuity of Operations Planning (COOP) is a challenge for most community-based pediatric practices and should become a priority in Pennsylvania.**
 - a. Practices should have basic plans in place that address continuity of critical office functions in all-hazards situations, such as communications, storage of vaccines, and maintenance of medical records.
 - b. Public health agencies can work with health insurance companies and the PA AAP to create incentives for practices to develop COOP plans.
 - c. PA AAP can develop simple, practice-focused COOP templates and guidelines using existing resources available through FEMA, CDC, national AAP, and other agencies.

- 2. Community pediatric practices need surge plans prior to disasters to accommodate an increased demand for clinical services (e.g., phone calls, patient visits) during public health emergencies.**
 - a. Public health agencies should clarify their expectations for practices to expand services and be prepared to provide supplies and equipment as needed, recognizing the limited capacity in most office-based practices for significant expansion of services.
 - b. PA AAP can develop and share template plans and best practices for surge.

- 3. Public health agencies and pediatric practices need greater capacity for bi-directional communication and information exchange to improve the coordination of response efforts between pediatricians and the public health system during disasters.**
 - a. Public health agencies should expand the reach of health alert networks and other communication platforms to enhance situational awareness among community pediatricians during emergencies and facilitate communication from pediatricians to public health agencies.

- 4. PA DOH should convene a Pennsylvania Child Health Disaster Advisory Council to create a forum for collaborative planning and decision-making that includes pediatric leaders, government agency decision-makers, representatives of schools and childcare programs, and other stakeholders in child health who can inform public health policy during disasters. This Council can take advantage of the state's considerable assets and expertise in clinical pediatrics, medical practice, education, and emergency management, to develop a comprehensive, thoughtful plan for meeting the needs of children in disasters.**
 - a. This council should include representatives from throughout the state who can be called upon to advise individual counties or regions of the state during incidents with local or regional impact. The council should also form a "rapid response team" that can convene (perhaps virtually or by conference call) within hours of an incident to provide immediate input when needed to inform public health policy and program implementation.

- 5. Community pediatric practices are an important source of health information for the public during emergencies. Practices should expand their capacity for proactive communication with patients during disasters.**
 - a. Public health agencies should acknowledge the important role that community physicians play in providing health information to the public and support this capability, incorporating this into their crisis and emergency risk communication plans.
 - b. PA AAP should develop a communications tool kit for practices to use for patient communication and share best practices and strategies.

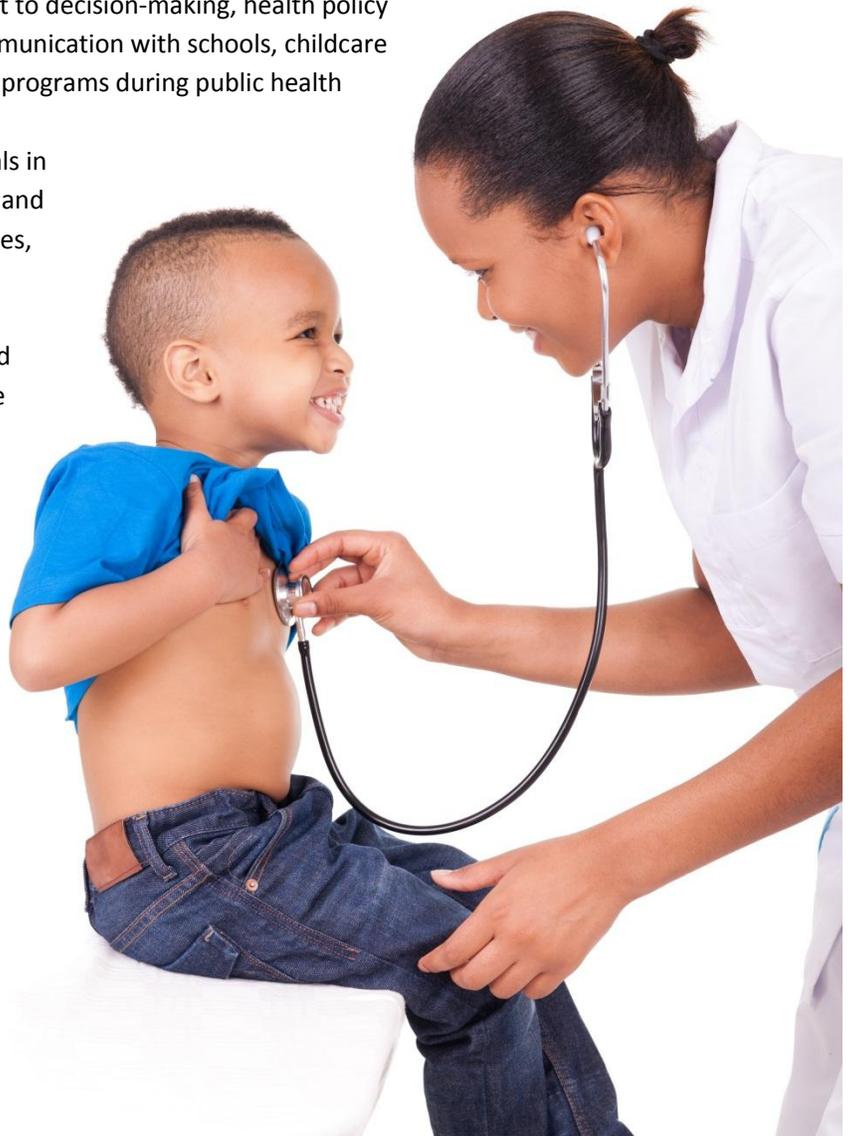
- 6. Community pediatricians and public health agencies should work together to leverage the capacity of electronic medical records (EMR) to provide clinical data for surveillance and long-term population health monitoring following public health emergencies. These planning efforts should also address ways to use the EMR to improve care coordination during disasters and facilitate communication between practices and patients.**

- 7. Because pediatric practices have limited time for disaster-related training, “pre-event” educational programs should focus on practice-related COOP and surge planning that is useful in all-hazards. Emergency preparedness educational efforts should ensure that there is adequate infrastructure and capacity for “just-in-time” training programs during disasters when pediatricians need relevant information for patient care.**
 - a. Public health agencies should work with PA AAP and community pediatricians to identify priorities for pre-event trainings and likely topics that will be useful after disasters, such as managing behavioral health conditions and psychological recovery.
 - b. Pediatricians should ensure that they are connected to training networks during disasters.
 - c. PA AAP can work with public health agencies to develop training infrastructure such as webinar technology and videoconferencing that can be used to reach large numbers of practitioners during emergencies.

- 8. Children with special healthcare needs are at risk for suffering severe consequences following disasters. Community pediatricians should play a key role in preparing and assisting families with high-risk children.**
 - a. Public health agencies should collaborate with community pediatricians and emergency management agencies to encourage pre-event preparedness among families with children who have special healthcare needs.
 - b. Pediatric practices should leverage EMR and other technology to create panels or registries of high-risk children to promote preparedness planning for patients, develop tools to improve care coordination, and target communications during and after incidents that jeopardize their health.
 - c. PA AAP can provide template plans for patients with special needs, and assist practices with developing and implementing those plans.

9. Schools and childcare programs are settings where children spend considerable amounts of time, and they have important roles to play during emergencies that impact their health. While they have facility-specific emergency plans, they are not integrated into community-wide planning nor are they connected to pediatricians.

- a. PA DOH should work with PA AAP and convene a leadership group of representatives from key bureaus within PA DOH, the Office of Child Development and Early Learning (OCDEL) in the Pennsylvania Departments of Education and Welfare, as well as key leaders involved in K-12 education, early child educational programs and the non-profit agencies that support them to develop and implement health policy prior to and during disasters that impact the health of preschool and school age children. This group should participate in the Pennsylvania Child Health Disaster Council but convene independently to address the unique impacts of health issues on the operations of schools and early child education.
- b. Members of this group should define protocols and clarify organizational responsibility with respect to decision-making, health policy implementation and communication with schools, childcare and early child education programs during public health emergencies.
- c. School health professionals in individual school districts and schools – physicians, nurses, psychologists – are important partners for public health agencies and should be engaged before disasters happen. They should be integrated into public health emergency preparedness and planning efforts at the local level and linked with the pediatric practices in their communities.



INTRODUCTION

Since September 11th, 2001, public health agencies and their partners in health and hospital systems in the United States have built tremendous capacity to prepare for and respond to public health emergencies. Despite these efforts, addressing the needs of children during and after major disasters remains a significant challenge for most communities (National Commission on Children and Disasters, 2010). Ensuring that hospitals and intensive care units have surge capacity, that medical countermeasures are available and used appropriately, and that communities have adequate capacity and expertise to manage the acute and long-term health effects of disasters are all tasks that require unique planning for children. Using a systems-based approach, the overarching goal of this project was to develop a strategy for creating a sustainable, coordinated network to assure continuity of medical services in the community to children during and following disasters. Working with stakeholders in government, non-profit agencies, and the pediatric practice, the CPHRC and PA AAP sought to develop a strategic plan for Pennsylvania with the following objectives:

1. Delineate the key roles of community-based pediatricians during public health and other disasters, and identify their needs related to emergency preparedness.
2. Identify the expectations of public health agencies for pediatric providers before, during, and after disasters.
3. Formulate specific recommendations for pediatricians, public health agencies, and PA AAP to improve the integration and coordination of pediatric providers into preparedness and response activities in the community.

This plan consists of three major sections:

- The first section describes the methods that were used to collect information and develop the concept of operations and proposed recommendations.
- The second section summarizes the findings from a literature review of the needs of children during and after disasters, the types of disasters that have the greatest impact on children, the importance of children in building community resilience, and the importance of engaging community pediatricians in disaster planning and response activities.
- The third section contains the major findings from interviews and planning meetings with stakeholders. It delineates specific roles and responsibilities for both public health agencies and community pediatricians during emergencies and offers specific recommendations for pediatric practitioners, public health agencies, and the PA AAP to prepare for and collaborate during disasters. A communications toolkit for pediatric practices and their partners in caring for children in the community has also been developed and is a companion resource to this plan.

Public health emergency preparedness efforts in the last decade have focused on hospitals that provide acute emergency and inpatient care and emergency medical services (EMS) providers. Primary care physicians who practice in community settings are critical partners in community-wide public health response efforts, particularly for disasters with long-term recovery periods and significant mental health impact. The

health needs of children pose their own challenges within communities. This project aims to redress both of those planning gaps, with the hope that this work with community pediatricians will benefit children and also offer a paradigm for collaborative planning with other primary care providers.

METHODS

PA AAP and CPHRC utilized several methods to meet the objectives of this project. First, a review of the literature was conducted in order to identify current best practices that integrate pediatricians into disaster preparedness planning and response. These best practices informed the strategic plan as well as the companion toolkit. Primary data were collected qualitatively from a broad spectrum of experts in child health and disaster preparedness in southeastern Pennsylvania. The most significant source of primary data collection was via semi-structured interviews with key thought leaders which were conducted between January and November 2012. Thirty-six interviews were conducted with key informants from the following groups: pediatricians, school physicians, practice managers, health system leaders, public health agency leaders, school nurses, childcare agency directors, emergency management agency planners, public health historians, communication experts (with expertise in Information Technology and Electronic Health Records), Disaster Medical Assistance Team members (DMAT), American Red Cross (southeastern Pennsylvania chapter) representatives, and ham radio operators.

Staff from PA AAP conducted the vast majority of the interviews; some were jointly conducted with CPHRC staff. Findings from all of the interviews were reviewed, categorized, and summarized by both PA AAP and CPHRC staff to identify current needs and to develop the specific recommendations proposed in the strategic plan. CPHRC and PA AAP received resource consultation from Dr. Scott Needle, a pediatrician and member of the national AAP organization who serves as a board member of the AAP's Disaster Preparedness Advisory Council (DPAC).

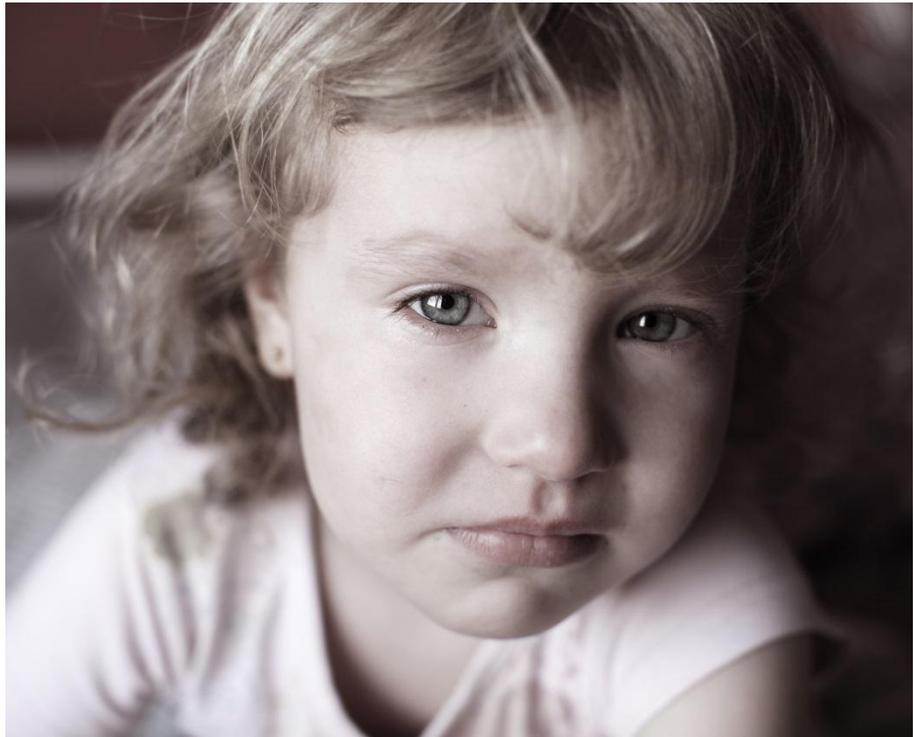
In addition to interviews with subject matter experts and key informants, CPHRC, PA AAP, and PA DOH convened two collaborative planning meetings with pediatricians, state and local public health leaders, and representatives from insurance companies, school health, childcare, Emergency Medical Services, hospitals and representatives from the Pennsylvania Departments of Education and Public Welfare. The first meeting was held in May 2012 and the second in October 2012. They were used to review interview and literature findings with the regional stakeholders, and to develop recommendations to redress gaps and improve systems that provide healthcare for children in the community. Each collaborative planning meeting provided an important networking opportunity for stakeholders. The input generated from the group discussions helped to shape the content included in this strategic plan that was developed by PA AAP and CPHRC and reviewed by state health officials and key leaders from pediatric practices in southeastern Pennsylvania.



CHILDREN IN DISASTERS – AN OVERVIEW

THE IMPACT OF DISASTERS ON CHILDREN

Children, who currently represent roughly 25% of the U.S. population, are one of the most at-risk populations during and following disasters (Department of Health & Human Services, 2011; National Commission on Children and Disasters, 2010). There are numerous reasons that children suffer disproportionately adverse health outcomes, chief among them that children are anatomically, developmentally, and physiologically different from adults in ways that predispose them to physical and psychological sequelae resulting from disasters. Due to their small size, smaller body fluid reserves, high metabolic rate, and immature immune systems, children develop dehydration, malnutrition, fatigue, and illness more easily than adults (American Academy of Pediatrics, 2008; Dolan & Krug, 2006). Children's unique characteristics also make the provision of medical treatment more complex. For example, in order to effectively administer medication, expertise in children's health is required, as children often require a dose adjustment, a different method of administration, or different antibiotics (National Center for Disaster Preparedness, 2007).



Children's developmental and/or cognitive abilities may hinder their ability to escape danger during a disaster (National Center for Disaster Preparedness, 2007). Even if a child is physically able to remove him or herself from danger, he or she may not have the cognitive ability to understand the presence of a threat and, as a result, may not know how to best escape the danger (Markenson & Reynolds, 2006). Additionally, experiencing a traumatic event at a time of rapid emotional and cognitive development can lead to academic failure, substance abuse, a series of adverse mental health outcomes such as anxiety, depression, and post-traumatic stress disorder (PTSD), and interrupt normal growth and development (Becker, 2006; National Commission on Children and Disasters, 2010). Children with special health and medical needs are a particularly high-risk subset of this already vulnerable population and, as a result, special consideration is needed to anticipate their needs (Dolan & Krug, 2006). As with adults, children can be affected by utility interruptions resulting from a disaster, which could inhibit the ability to refrigerate vital medications or to run essential life-sustaining medical equipment including oxygen, ventilators, and nebulizers.

While certain characteristics make children a vulnerable population, specific types of disasters may have a unique impact on children. Disasters that result in the separation of children from their adult caregivers are particularly problematic for children. Examples include unexpected weather events that occur on a school day, terrorism, war, or disease epidemics in which adult parents require hospitalization or die. Children's reliance on adults for basic requirements like food and protection means that separation from their caregivers can leave children at high risk for injury, illness, and exploitation (Becker, 2006). Separation from parents can also be terrifying to a child, which may lead to profound long-term mental health sequelae (Dolan & Krug, 2006). Given that children spend a significant amount of time away from their parents or caregivers while at school or child (day) care, separation and the potential ensuing effects are a distinct possibility. It is important to note that disasters which disrupt community childcare services can result in large numbers of displaced children, presenting a logistical challenge to first responders and healthcare providers and hindering their ability to enact their respective response roles effectively. Reunification is a major issue when planning for children and disasters.

An infectious disease outbreak is another type of disaster that is likely to affect children disproportionately. Developing or immature immune systems may increase the likelihood for infection. Higher respiratory rates can also increase children's risk in the event of the release of chemical or biological toxins, as they would be exposed to relatively higher doses of aerosolized particles such as anthrax, sarin, or chlorine (Markenson & Reynolds, 2006). Children are also more vulnerable to dehydration when exposed to agents that cause diarrhea and/or vomiting.

Disasters that are associated with a higher risk of adverse mental health outcomes such as terrorism or war, or disasters resulting in significant infrastructure damage, loss of property, or major economic disruption, are also more likely to impact children. As with adults, children are more likely to be affected by intentional, human-caused disasters, which are associated with higher distress levels (Hagan, 2005). Additionally, in the event that the care-giving adult is traumatized by an event, this can have a magnified effect on children for whom they care (Hagan). Children are extremely vulnerable to disasters that undermine the family structure, including those with long-term impacts such as adult unemployment or substance abuse. Children in households in Louisiana and Mississippi experienced significant mental health issues in the wake of the social and economic consequences of Hurricane Katrina and the Deepwater Horizon Oil Spill (Abramson & Redlener, IPRED 2012; Abramson et al., IPRED 2012).

As a result of their unique needs and vulnerabilities during disasters, children have been grouped into the broad category of at-risk populations. Though well-intentioned, inclusion in this category has led to lack of specific plans addressing the needs of children, despite the fact that many of these needs can be anticipated. In contrast, during the 2009 H1N1 influenza pandemic, CDC treated children as a distinct population group and created a Children's Health Team which offered national-level guidance to families, schools, and childcare providers (National Commission on Children and Disasters, 2010). The recommendations outlined in this paper aim to help key stakeholders consider children as a unique at-risk population and, as part of a community-wide network, anticipate and meet the needs of children during and following disasters.

THE IMPORTANCE OF PEDIATRICIANS IN DISASTERS AND COMMUNITY RESILIENCE

Given the unique needs and high vulnerability of children in disasters, pediatricians play an integral role in planning for and responding to disasters that impact the public health. Fagbuyi and Upperman (2009) state that, “Pediatricians are needed at all levels of disaster planning so that children’s unique needs are recognized, addressed, and incorporated into comprehensive community-focused disaster plans” (p. 156). Pediatricians’ expertise in the health and well-being of children and their intimate knowledge of their patients, including their social development and their cognitive, physical, and emotional levels, is crucial to



recognizing any emotional or psychological reactions the child has to a disaster and, subsequently, to helping the child adjust after a disaster occurs (American Academy of Pediatrics, 1999). The ability to identify and treat or refer a psychologically distressed child for appropriate mental health services can improve the outcome for a child exposed to a traumatic event (Hagan, 2005).

In public health emergencies, people want to receive information from physicians who understand the health issues at hand and with whom they have a medical relationship (Lasker, 2004). Pediatricians are a highly trusted source by families, and their expert advice is pivotal to ensuring that families prepare effectively for disasters and know how to seek the appropriate care for their child following a

disaster. (American Academy of Pediatrics, 2006; Redlener & Markenson, 2007). Moreover, pediatricians have a good understanding of the baseline functioning of their patients with special healthcare needs, important for encouraging their preparedness planning and for assessing outcomes if they are not doing well. Because of these factors, this project sought to integrate community-based pediatricians into coordinated disaster preparedness and response efforts.

Several experts have suggested that the degree to which children experience the impact of disasters may be a measure of community resilience and that their mental health in a post-disaster setting “can serve as a bellwether indicator of a successful recovery or a lagging indicator of system dysfunction and failed recovery.” (Abramson & Redlener, IPRED 2012). To address the significant mental health needs of children in disasters, several effective programs have been developed that use schools as “resilience builders.” Studies in both Israel and in the Gulf of Mexico region of the United States following Hurricane Katrina have demonstrated that schools can play an important role in providing clinically informed “teacher-delivered” interventions that promote resilience among children after mass trauma and disasters. (Baum, IPRED 2012; Hamiel et al., IPRED 2012; Novick, IPRED 2012; Slone & Hen-Gal, IPRED 2012; Wolmer, Hamiel, Barchas, Slone, & Laor, 2011). This work provides evidence that novel, community-based approaches to meeting the needs of children should inform disaster planning in the future.

FINDINGS AND RECOMMENDATIONS

I. ROLES AND EXPECTATIONS FOR PEDIATRICIANS AND PUBLIC HEALTH AGENCIES DURING PUBLIC HEALTH EMERGENCIES

Recent events like the 2009 H1N1 influenza pandemic and weather-related emergencies like Hurricanes Irene and Sandy in the Mid-Atlantic states have illuminated preparedness challenges for both public health agencies and medical professionals in pediatrics. The first and perhaps most fundamental finding from the interviews and planning meetings was the recognition of the need to bridge the separate worlds of public health and personal health, improve the understanding of how public health agencies and community medical practices operate and clarify the respective expectations for each during public health emergencies. Pediatricians are the first stop for the medical assessment of children with illness and for families who want to understand the impact of a disaster on the health of their children and who have questions about disease control and public health measures.

Community-based primary care physicians are in a position to recognize illness early, manage the medical complications of public health threats, provide ongoing information about public health events to both government agencies and to the general public and identify and manage the long-term health consequences (physical and mental) of disasters that have a long-term recovery phase. They desire clear roles for themselves during incidents with public health consequences, as well as real-time situational awareness (prior to public dissemination of information through the media) so they can respond appropriately and support public health agency efforts.

Generally, the public health agency view of how pediatricians might function in public health emergencies is limited to providing vaccinations, reporting diseases, and participating in the Medical Reserve Corps. In fact, it is extremely difficult for physicians to close busy practices and volunteer for either short or long periods away from their offices. Pediatricians also have limited time and resources to devote to preparedness, but their subject matter expertise and knowledge of their patients and the community is critical during public health emergencies. Perhaps most significantly, public health agencies underestimate the public's need to receive health information from their own physician, particularly regarding children. Similarly, community pediatricians have little understanding of public health agency operations and organization, including the different responsibilities of local, state, and federal agencies. They underestimate the authority of state and local agencies with respect to conducting investigations of health threats and implementing control measures. Community pediatricians also have high expectations for public health agency performance with respect to identifying and monitoring health hazards, issuing relevant clinical and public health guidance, and providing real-time communications and situational awareness. They may not always appreciate the limited resources available to local and state public health agencies to perform these tasks.

“The biggest obstacle is probably just the confusion; having a clear-cut goal or mission in the face of a disaster, having a clear-cut job. Most people can put their nose to the grindstone.”

~Thought Leader, Pediatrician

Community pediatricians and public health agencies need to have clearly defined mutual expectations during a public health emergency so they can coordinate their efforts for the optimal benefit of the community. The following roles and responsibilities for each emerged from the interviews with government and pediatric stakeholders and form the basis for a concept of operations during disasters and subsequent recommendations for public health agencies, community pediatric practices, and the PA Chapter of the AAP:

1. The major role for community pediatricians during public health emergencies is in their routine practice setting, providing critical medical services to ambulatory patients and families and offsetting the burden on hospital emergency departments. Preparedness planning should be based on that assumption unless there is an incident that disrupts office infrastructure. In that event, community pediatricians need assistance to resume practice in another community-based office setting as close as possible to their original practice location.
2. Community pediatricians have important roles to play during mass prophylaxis programs (e.g., “medical countermeasure” distribution such as vaccines or medications), specifically outside of points of dispensing (PODs) after countermeasures have been distributed by public health agencies. Community pediatricians will be needed to encourage their patients to take the recommended vaccine or medication and to:
 - a. Assist with medication dispensing instructions, including home-suspension formulations, pill-crushing and dose adjustments for children.
 - b. Triage and deliver vaccines to children, particularly those with special health care needs.
 - c. Assist with follow-up and administration of subsequent medication/vaccination, if necessary.
 - d. Monitor and report adverse events and drug interactions following mass dispensing activities.
3. Community pediatricians are an important source of clinical surveillance and other information that public health agencies need to monitor health outcomes and formulate public health policy during emergencies:
 - a. Pediatricians are subject matter experts in the medical care of children.
 - b. They are in a position to recognize concerns and fears in the community, understand public perceptions, and hear and respond to rumors that might undermine public health response measures.



- c. They will be needed to report cases of disease, monitor outcomes, and detect new health issues related (or unrelated) to the disaster.
 - d. They use a family-centered approach to providing care and are often in a position to identify health issues in parents and siblings as well as individual patients.
4. Community pediatricians are a trusted source of information for the general public before and during public health emergencies. Their efforts to promote preparedness among their patients, particularly children with special healthcare needs, and their capacity to assist with risk communication during disasters are critical for community preparedness and resilience.
- a. They will be needed to reinforce publicly-available information such as when and where to obtain vaccine or medication, how to recognize symptoms of a disease, and where to present for medical care.
 - b. They will interpret information for individual patients and adapt it for individuals with special medical needs.
 - c. They are in the heart of the community and information they provide to families extends beyond the individual patient.
 - d. Pediatricians also provide subject matter expertise to childcare programs, schools, and social service organizations. They will be sought out for information, advice, and recommendations beyond just their patient population.
 - e. They will collaborate with other providers to coordinate scarce healthcare services.
 - f. They are an important source of culturally and linguistically appropriate healthcare resources for communities during emergencies:
 - i. Pediatricians who serve ethnic populations are often also aware of health-related resource agencies in the community and have the ability to translate information in an emergency situation.
 - ii. Additional resources that are culturally and linguistically appropriate need to be identified and developed, particularly for mental health needs.



5. Community pediatricians are likely to provide mental health-related services, particularly during long-term recovery situations:
- a. They will be needed to provide psychological first-aid in the early days of a disaster, and inform skills for long-term recovery during disasters with prolonged impact. Pediatricians are familiar to patients and families and can be an inherent source of stability and comfort.
 - b. They will need to recognize and manage anxiety, depression, changes in normal child development, and post-traumatic stress disorder in primary care settings and refer cases when appropriate (if specialty care is available).

- c. Their family-centered approach allows them to identify mental health problems in adult family members and siblings so they play an important role in building and maintaining community resilience during and after disasters.
6. Public health departments are the lead government agency during public health and medical emergencies, coordinating health and medical response efforts. It is local and state public health agencies who have the authority to assess health threats and outcomes in a community and formulate and implement control and remediation measures to protect health.
 - a. At the community level, local and state public health agencies have primary responsibility for the following:
 - i. Carrying out core public health functions, including community health assessment, health policy development, surveillance and investigation of health threats (infectious and non-infectious), and enforcement of laws protecting the public's health.
 - ii. Coordinating public health response efforts with the personal healthcare system and other public safety agencies.
 - iii. Informing public health partners and stakeholders to enable their timely and relevant participation in response efforts.
 - b. Federal agencies such as the Centers for Disease Control and Prevention support local and state public health efforts.
7. Public health agencies will formulate and implement disease control and mitigation measures for health hazards:
 - a. They will make recommendations for the use and distribution of medications and vaccines and provide access to them when necessary.
 - b. They will provide instructions for testing procedures, specimen collection, and processing/handling/transportation to local or state laboratories when needed.
 - c. They will make recommendations for non-pharmaceutical control measures or interventions to limit disease transmission or hazard impact (e.g., sheltering in place, cancellation of congregate activities).
8. Public health agencies support healthcare systems following incidents that overwhelm healthcare resources, and provide medical and public health services in mass care (sheltering) situations.
9. Public health agencies are responsible for environmental health assessment and surety, working with environmental agencies such as state Departments of Environmental Protection and the U.S. Environmental Protection Agency.
10. Public health agencies are responsible for emergency public information and warning during disasters with health impact. For optimal impact, this public information is coordinated with messaging from other partners who engage the public – healthcare professionals, emergency management, and other public safety agencies – so that public health messages are consistent. Spokespersons across the public health and healthcare sector speak with one voice to a public that may be frightened and/or confused by conflicting advice.

II. PREPAREDNESS NEEDS AND RECOMMENDATIONS FOR STAKEHOLDERS

A number of important gaps were identified by stakeholders that should be addressed to improve the ability of community-based pediatricians to take care of patients in an emergency, and work in an integrated fashion with government agencies and other stakeholders in child health. These gaps or challenges are presented below with specific action steps for public health agencies, pediatricians, and PA AAP, respectively.

1. CONTINUITY OF OPERATIONS PLANNING (COOP) IS A MAJOR CHALLENGE FOR COMMUNITY-BASED PEDIATRIC PRACTICES AND SHOULD BECOME A PRIORITY IN PENNSYLVANIA.

SUMMARY OF FINDINGS

COOP planning is a challenge for community-based medical practices that are busy with day-to-day patient care responsibilities and who lack both manpower and financial resources to devote to planning activities. There are few regulatory requirements for independently owned community practices to maintain emergency plans. Voluntary certification is available under the Joint Commission and the Accreditation Association for Ambulatory Health Care (AAAHC), but there are few apparent rewards for time, effort and expenses required to develop these plans. The Patient-Centered Medical Home model and compliance with Meaningful Use mandates provide some rewards, with some applicability to emergency preparedness. FEMA offers the “PS-PREP” program, an independent disaster certification program that is designed to improve the preparedness of non-profit and private sector businesses, but there is no reward for efforts to participate.

Incentives to encourage practices to develop and maintain basic plans for maintaining key operations during disasters are needed for most community practices. COOP planning efforts should focus on critical functions and core activities such as, but not limited to, maintaining information technology, preserving communication connectivity to patients and staff, and vaccine storage. Government planners and professional societies can utilize recent disasters that undermine practice operations to encourage practices to develop plans that might prevent future losses.

RECOMMENDED ACTION STEPS

Public Health Agencies

1. Clarify expectations regarding COOP for community practices and identifying priorities for focused planning that busy practices can realistically achieve.
 - a. Utilize existing resources such as the guidance for vaccine storage and other COOP elements developed by the national AAP and other federal agencies (e.g., Agency for Healthcare Research and Quality (AHRQ), Health and Human Services (HHS), Federal Emergency Management Agency (FEMA)).
<http://www.cdc.gov/vaccines/recs/storage/toolkit/storage-handling-toolkit.pdf>

2. Collaborate with AAP, other practice stakeholders, and emergency management agencies to develop or adapt continuity planning guidance for community practices and provide technical assistance through those partnerships.
 - a. Consult existing resources from FEMA, Pennsylvania Emergency Management Agency (PEMA), and local emergency agencies; the CDC and U.S. Department of Health and Human Services; AAAHC, AHRQ, and AAP.
 - b. Codify and formulate standards for the following:
 - i. Planning for power failure of vaccine storage units, vaccine transport, and storage in back-up facility in the event of power failure.
 - ii. Planning or proactive communication from practices to patients (via text, website, social media, on-call phone message, and other methods as feasible).
 - iii. Identification of sub-groups of high-risk patients (e.g., patients with asthma, patients requiring power for medical equipment) for targeted communication and planning.
 - iv. Planning for access of patient records off-site.
 - v. Planning for back-up of patient records.
 - vi. Exercise or testing of plans.
3. Work with AAP and other stakeholders to create incentives for practices to develop COOP plans for emergencies.
 - a. The PA and national AAP should explore possible “rewards” for certification, such as working with business overhead insurance or health insurance/payors to provide financial incentives for developing and maintaining plans that have key components or conform to specific standards.
4. Develop training programs in COOP planning to fulfill the Pennsylvania medical licensing requirement for Continuing Medical Education (CME) in risk management and patient safety. This can be done through collaboration with training partners such as the PA AAP (see below).
 - a. Work with the PA Department of State, PA AAP and credentialing agencies to explore offering CME credit for COOP plan development and exercising.
 - b. Offer CME programs in COOP planning through the PA DOH Learning Management System, and other web-based venues to facilitate completion.



Pediatricians

1. Practices owned by a hospital or healthcare system should communicate with central administration to understand what resources are available for both planning and operations (e.g., temporary off-site vaccine storage, communication protocols with patients, including pre-existing emergency procedures).
2. Develop and exercise COOP plans prior to disasters and evaluate the utility of those plans and procedures following events that disrupt practice operations, to include:
 - a. Plan and conduct exercises for power failure of vaccine storage units, vaccine transport, and storage in back-up facility in the event of power failure.
 - b. Develop and test the practice's ability to communicate pro-actively with patients (via text, website, social media, on-call phone message, and other methods as feasible).
 - c. Develop and test the practice's ability to identify sub-groups of high-risk patients with special healthcare needs (e.g., patients with asthma, patients requiring power for medical equipment).
 - d. Develop and test the practice's ability to access patient records off-site.
 - e. Develop and test the practice's back-up of patient records.
 - f. Develop and test the practice's ability to contact staff.

PA AAP

1. Provide technical assistance for COOP planning through the development and provision of focused, succinct and easy-to-use template plans and other guidance documents that are targeted towards community pediatric practices.
 - a. Collaborate with PA DOH and other agencies and use resources available through HHS, FEMA, the Joint Commission, as well as specific guidance developed by CDC Vaccines for Children Program and others that address COOP elements, as listed above.
 - b. Collaborate with hospital and healthcare systems to ensure that organization-owned practices have access to COOP planning resources.
 - c. Publicize and share templates to pediatricians through websites, conferences, and other mechanisms.
2. Facilitate practiced-based COOP planning by providing CME training for pediatricians through webinars, conferences, and other forums.
3. Promote completion of COOP planning trainings as a mechanism to fulfill patient safety and risk management CME requirement for The Commonwealth of Pennsylvania.
4. Work with PA DOH to identify funding or other resources to assist practices in COOP planning and implementation.

2. COMMUNITY PEDIATRICIANS NEED SURGE PLANS TO ACCOMMODATE AN INCREASED DEMAND FOR CLINICAL SERVICES DURING PUBLIC HEALTH EMERGENCIES.

SUMMARY OF FINDINGS

Surge capacity in community-based practices varies considerably but, in general, is quite limited. Practices have little ability to expand office hours or increase the number of patients seen on a given day, and any surge efforts will be difficult to sustain for more than days at a time. Staff constraints, supply and space limitations all contribute to this inability to significantly expand services. In addition, there has been little communication between public health and other government agencies and community-practices regarding possible scenarios that might require an expansion of outpatient services and what might be asked of practices during public health emergencies.

Public health agencies should have reasonable expectations for the surge capacity of pediatric practices that take into account their constrained capacity to increase patient visits for medical examinations, vaccination, and counseling/education. As they have done with hospitals, public health agencies should work with practices to identify scenarios that might require an expansion of outpatient services and understand how they might support those efforts, perhaps with expanded access to information, or more tangibly, with additional supplies or technologies, or access to volunteer staff. Community pediatric practices need to plan for short-term modifications to practice operations that may be necessary to meet heightened demand for specific services for a limited period of time.



RECOMMENDED ACTION STEPS

Public Health Agencies

1. Clarify expectations that recognize the limited capacity (and duration) available in most practices for surge capacity in pediatric outpatient settings.
2. Collaborate with stakeholders such as PA AAP (and national office) and other agencies with expertise in this area (e.g., HHS Healthcare Preparedness Program, AHRQ, and CDC) to develop template plans and guidance for practices.

3. Facilitate integration of community pediatric practices into the “healthcare coalitions” that the Assistant Secretary for Preparedness and Response (ASPR) at HHS is now building at the state and local level to encourage integrated healthcare system preparedness. (See Healthcare System Preparedness Capability #1 (January, 2012) at <http://www.phe.gov/preparedness/planning/hpp/reports/documents/capabilities.pdf>)
4. Assist community practices with access to needed supplies and equipment to meet increased demand (e.g., PPE, vaccine, medications).
 - a. Review contents of current PA DOH-supported equipment and supply stockpiles and assess their suitability for the needs of community-based practices, as well as potential distribution strategies.
5. Assist community practices with reimbursement activities during and after disasters, including support for application to FEMA, HHS, Centers for Medicare and Medicaid Services (CMS), as well as usual mechanisms of payment for services (e.g. collaborate with insurers so coding documentation is clarified and payment is in place).
6. Coordinate healthcare service delivery to children in the community through the following:
 - a. Provide real-time situational awareness to practices (e.g., status of incident, number of cases or casualties, severity of illnesses, status of control measures, overall public health management plans, etc.). Explore the potential for GIS (Geographic Information Systems) mapping.
 - b. Convey clear requests regarding the types of services that are needed and who else may also be providing them:
 - i. Provide frequent updates regarding specific service needs during and after disasters, such as the need for practice-based vaccination efforts or support of public health–operated vaccine clinics, risk communication and disaster-specific health education, medical evaluation of symptomatic children, referral to acute care facilities, etc.
 - c. Provide links to community-based resources.

Pediatricians

1. Develop plans to expand services through extension of hours, including the re-assignment of staff to answer phones for both questions and triage, and expanding capacity for walk-in visits, vaccination or other services (e.g. rapid medical evaluation or counseling).
2. Cancel, reschedule, or limit routine well-child visits or other non-urgent appointments to accommodate influx of disaster-related visits.
3. Participate in communication channels with public health agencies, PA AAP, other intermediaries, and other practices to understand what services are needed.

4. Prepare staff with up-to-date information that can be shared with families.

PA AAP

1. Develop and share template plans for surge capacity tailored to community pediatric practices.
 - a. Collaborate with PA DOH, CDC, and other agencies that may have resources for surge planning.
 - b. Provide technical assistance to community practices.
 2. Provide technical support and guidance to practices to assist with reimbursement and access to emergency funding from FEMA, HHS, CDC, and other agencies including public and private insurers.
 3. Provide trainings prior to disasters as well as just-in-time trainings to outpatient practices regarding surge capacity operations and planning.
 4. Facilitate communication between government agencies and community practices to assist with community-wide coordination of response activities.
- 3. PUBLIC HEALTH AGENCIES AND PEDIATRIC PRACTICES NEED GREATER CAPACITY FOR BI-DIRECTIONAL COMMUNICATION TO IMPROVE THE COORDINATION OF THEIR EFFORTS DURING EMERGENCIES.**
-

SUMMARY OF FINDINGS

Community pediatricians require real-time situational awareness during public health emergencies, including information about the status of the incident and response efforts as well as succinct, child-focused guidance regarding medical and public health resources and recommendations. Early, direct communication from public health and other government response agencies is more helpful than information that pediatricians receive from the media. Direct communications from public health agencies enable pediatricians to be effective partners in crisis and in addressing the concerns of their patients and community. Situational awareness and guidance can be conveyed via the Health Alert Network, which should be expanded to reach more practicing physicians. Professional societies, healthcare system central offices, hospitals, and other intermediaries should also serve as “communication hubs,” forwarding Health Alerts and other important information to practitioners. Information in Health Alerts can also be augmented by websites that target healthcare professionals and make up-to-date incident-related information available. Other communication platforms such as webinars and conference calls are additional mechanisms to share information and offer the opportunity for practitioner feedback or commentary.



RECOMMENDED ACTION STEPS

Public Health Agencies

1. During public health emergencies, public health agencies should provide health alerts to community pediatricians that are timely, succinct, and child-focused. They should include incident information with local, state, and regional relevance.
2. Public health agencies should work to expand the network of health alert recipients:
 - a. PA DOH can partner with the PA Department of State to collect information regarding licensed physicians in the Commonwealth. This information can be used to evaluate current workforce capacity and augment communication through email, fax, and telephone.
 - b. Public health agencies should identify critical communication “hubs” that can serve as trusted intermediaries to relay or forward public health communications to community practices. Examples include healthcare system central offices and the PA AAP.
 - c. Public health agencies should expand Health Alert Network contact lists to include practice managers so that multiple pediatricians in a single practice setting will receive critical information.
3. Public health agencies should consider scheduling conference calls or webinars with community pediatricians to convey important information and directives regarding incident management and to receive information regarding the status or impact of the incident on children in community settings. These calls may be convened with key stakeholders such as the PA AAP or healthcare systems and should be archived for later viewing or reference.
4. Public health agencies should make a telephone number available for clinicians to report urgent conditions or other concerns during public health emergencies. This number may be integrated into a local or state Emergency Operations Center (e.g., health desk or child health desk).

“In general, medical training includes things useful for responding to emergencies: analyzing a situation, prioritizing patient needs, triage skills, working with what you have available, and knowing what else you need. We are not well-trained for interacting with public health and knowing where to go for information, direction, supplies, and additional storage for medications.”

~Thought Leader, Pediatrician

Pediatricians

1. Community pediatricians should ensure that they are registered to receive Health Alerts and other urgent communications from local and state public health agencies.
 - a. Pediatricians should ensure that they are informed regarding mechanisms for urgent communications to public health agencies, including telephone numbers and websites with status updates for healthcare professionals.
2. Community pediatricians should work with PA DOH and local health department representatives to inform efforts to streamline disease reporting and other communications, recognizing time limitations for both public health departments and busy clinicians, the current limitations of PA NEDSS (National Electronic Disease Surveillance System) and other systems, and the inevitable receipt of duplicate and overlapping information from various sources.
 - a. PA AAP should facilitate discussion and collaborative planning efforts to improve communications between pediatricians and public health agencies.



PA AAP

1. Collaborate with PA DOH to promote pediatrician registration for local and state Health Alert Networks in the commonwealth, as well as public health agency websites targeting healthcare professionals. Assist PA DOH with the identification of communication “hubs” such as healthcare systems and institutional IT offices or programs that can distribute alerts to staff physicians and other providers.
2. Serve as communication hub or intermediary to forward urgent health communications to community pediatricians and practices. PA AAP is viewed as a credible source by pediatricians. Said one thought leader, “It’s always better when we get our information from AAP. We are the ugly-step child. Most of the information that goes out is for adults. If it’s from AAP, it’s credible and we know it has been vetted for kids.”
3. Organize and facilitate conference calls and webinars with public health agencies and community pediatricians to provide and optimally exchange real-time information during public health emergencies. Encourage contact and collaboration before a public health emergency; work with PA DOH and local health departments to discuss ways to increase familiarity and trust.

4. THE PENNSYLVANIA DEPARTMENT OF HEALTH SHOULD ESTABLISH A CHILD HEALTH DISASTER ADVISORY COUNCIL TO ENSURE THAT EMERGENCY PREPAREDNESS PLANNING AND RESPONSE ADDRESSES THE COMPLEX HEALTH NEEDS OF CHILDREN ACROSS THE COMMONWEALTH.

SUMMARY OF FINDINGS

Planning for the impact of disasters on the health of children requires the coordinated efforts of hospitals, pediatric practices in the community, mental health experts, schools, early child education and childcare programs, and other stakeholders. Several states have convened multi-disciplinary advisory councils to inform disaster planning for children and build capacity across the spectrum of inpatient and outpatient care facilities. These councils provide a useful model that can be adapted in Pennsylvania, a state with tremendous medical resources in pediatric care, as well as experts in education, behavioral health, and disaster response. The input of experts in these fields is critical for preparedness planning, response, recovery, and mitigation, and the commonwealth should take advantage of its assets to develop a comprehensive approach to ensuring the health of children in the event of a disaster.

Community pediatricians can and should inform public health agency plans during emergencies, providing pediatric subject matter expertise to the formulation of response efforts and conveying community concerns to public health decision-makers. In addition, community pediatricians working on the frontlines of medical care also understand the fears and concerns of families, especially during emergencies. A medical advisory group that can provide insight into pediatric medical care as well as the challenges that families face in times of crisis could be extremely valuable for individual county health departments and for Pa DOH when they are making difficult public health policy decisions and formulating strategies for risk communication during disasters.

RECOMMENDED ACTION STEPS

Public Health Agencies

1. PA DOH should convene a Child Health Disaster Advisory Council to address child health concerns prior to, during, and following disasters. This council can be piloted as a Southeastern Pennsylvania (SEPA) regional program, with eventual expansion to the entire commonwealth so that the group becomes a statewide asset.
2. This advisory group should include representatives from throughout the SEPA counties (and eventually the entire state), enabling local public health agencies to convene county-focused or regional representatives when only local input is needed.
 - a. The group should consist of primary care and specialty practice representatives, hospitals, and partners in school and childcare institutions so that key stakeholders who work in the broad field of child health are included. Participants should include (but are not limited to):
 - i. Community pediatricians from throughout the SEPA region (and eventually, entire commonwealth for state-wide input for incidents)

- ii. Local and state public health representatives
 - iii. Hospital and health system representatives (pediatric)
 - iv. School medical directors/physicians (school nurses, superintendent)
 - v. PA AAP (including Early Childhood Education Linkage System (ECELS))
 - vi. Representatives and stakeholders from childcare/preschool community
 - vii. Representatives from PA Departments of Education and Public Welfare including the Office of Child Development and Early Learning
- b. Plans should include the ability to convene the group with short-notice and via virtual mechanisms (e.g., telephone, webinar) to ensure input during emergencies.
- i. The Advisory Council can consist of sub-committees of members who might address specific issues (e.g., medical issues, early childhood issues, regional issues) and who can be called upon as needed to inform public health planning, without necessarily convening the larger council.
 - ii. The Advisory Council should have a sub-set of members who function as a “rapid response team,” inclusive of appropriate stakeholders who can represent the interests of children and institutions who serve them (e.g., schools, childcare programs, etc.). This team should be ready to convene in person or virtually to inform public health policy and support critical decision making in a disaster.

Pediatricians

1. Pediatricians from primary care and specialty settings across the commonwealth should participate in a Child Health Disaster Advisory Council, to inform government policy and response efforts during public health emergencies that affect children.
 - c. There should be sufficient representation from large counties and population centers, particularly counties with independent health departments, so that pediatrician support and expertise is available for local public health agencies when needed for small-scale or confined incidents that impact children.
 - d. A sub-set of members should volunteer for “rapid response,” providing advice and expertise on pediatric issues when needed for urgent decision-making in a public health emergency.

PA AAP

1. Assist PA DOH and local health departments with the identification of potential participants from community pediatric practices, pediatric hospitals, and key stakeholder groups (including PA AAP) from SEPA counties, with eventual expansion throughout the commonwealth.
 - e. Ensure inclusion of key representatives and stakeholders from all counties (and eventually regions of the state) so that the group has sufficient participation to allow for regional meetings and input to government agencies.
 - f. Bring information and technical assistance from the national AAP DPAC to the discussions.

2. Assist PA DOH and local public health agencies with convening meetings of the Advisory Council during and following public health emergencies.

 5. **COMMUNITY PEDIATRIC PRACTICES ARE AN IMPORTANT SOURCE OF HEALTH INFORMATION FOR PATIENTS AND THE GENERAL PUBLIC DURING A DISASTER: PUBLIC HEALTH AGENCIES NEED TO BUILD HEALTHCARE PROFESSIONALS INTO THEIR RISK COMMUNICATIONS PLANS AND PRACTICES SHOULD EXPAND THEIR CAPACITY FOR COMMUNICATION WITH PATIENTS.**
-

SUMMARY OF FINDINGS

During emergencies and disasters that have an impact on health, the public wants health information from physicians, particularly their own physician whom they trust and who is familiar with their health issues. All of the pediatricians and practice managers who participated in this study described the tremendous demand from their own patients for personalized, specific information regarding health threats during

“My patients want to know what I think they should do – not what CDC tells them do to.”

~Thought Leader, Pediatrician

emergencies. They recognized the need to have access to easy to use communications systems that allowed them to communicate quickly with patients, particularly patients with special medical needs. Patient demand for information and medical consultation from pediatricians is high and will only increase during public health incidents, with the potential to overwhelm communications systems and staff. An effective communication strategy is important to reduce the stress on both the public health and personal healthcare systems.

Community pediatricians serve as important risk communicators to a concerned public, especially when the health of children is at stake. Public health and other government agencies should recognize that community pediatricians and other primary care providers serve as multipliers for effective risk communication messages to the public. It is critical that they have current information and clear public health guidance so that their communications with patients are consistent with messages from government agencies.

“Our biggest need is the ability to communicate with patients. Where to go, what to do, what our office could do for them.”

~Thought Leader, Pediatrician

RECOMMENDED ACTION STEPS

Public Health Agencies

1. Public health agencies should recognize the critical role that community pediatricians play with respect to risk communication and the dissemination of health information during emergencies. Public health agencies should support and integrate this capability into public health response plans.
2. Public health agencies can support the ability of pediatricians to care for their patients and convey accurate information to them and to the community during emergencies by providing real-time, pediatric-specific information and status reports. They should also work to integrate the input of community pediatricians into risk communication and public information during disasters.
3. Public health agencies can provide medical and public health guidance documents, fact sheets, triage algorithms, and other tools that can save practices valuable time so they can focus on patient care.
 - a. Public health agencies can collaborate with PA AAP to provide child-focused resources to practices.
 - b. They can also develop materials and methods to reach individuals who do not speak English, individuals with visual and hearing disabilities, and individuals with limited literacy.
4. Public health agencies should consider providing support for technical assistance to practices to assist them with developing their ability to communicate with patients.

Pediatricians

1. Pediatric practices should prepare to provide information to patients in multiple ways during public health emergencies and disasters:
 - a. Provide information on practice website.
 - b. Provide fact sheets, posters, and pamphlets in waiting areas.
 - c. Record disaster-related information on telephone answering system and voice mail (e.g. Disease information, when to call the physician, when to go to the Emergency Department).
 - d. Provide frequently asked questions (FAQs) and talking points to designated staff who answer phones.
2. Pediatric practices should explore mechanisms to proactively communicate with patients, taking advantage of electronic medical records and other technologies for urgent communications, including text messaging and use of social media.

“People trust us. People want to call you and get the right answer.”

~Thought Leader, Pediatrician

3. Pediatric practices should use patient portals to facilitate bi-directional communication with patients (e.g., MyChart).

PA AAP

1. PA AAP should share the communications tool kit “A Communications Toolkit for Public Health Emergencies that Impact Children: Resources for Pediatric Practices, Schools, and Childcare Programs,” with community pediatric practices to facilitate management of patients and patient communication during disasters. The toolkit can be obtained from the PA Chapter, American Academy of Pediatrics, and includes:
 - a. Fact sheet templates (with defined components: basic disease information, mechanism of transmission, treatment, prevention, what the practice is doing, what patients can do).
 - b. Phone scripts and templates for recorded messages.
 - c. Patient messaging protocols and templates.
 - d. Protocols for phone triage and office triage.
 - e. Templates for web site postings (see proposed template components above).
 - f. Templates for use of social media to reach patients.
2. PA AAP should provide technical guidance to community pediatricians regarding public health and medical management of disaster-related morbidity.
3. PA AAP should provide technical assistance for practices to use technology to communicate proactively with patients, as well as share best practices and communication strategies.

6. PUBLIC HEALTH AGENCIES AND PEDIATRIC PRACTICES SHOULD LEVERAGE THE POTENTIAL OF THE ELECTRONIC MEDICAL RECORD TO FACILITATE DATA COLLECTION AND ENHANCE COMMUNICATION BETWEEN PRACTICES, PATIENTS, AND HEALTHCARE PARTNERS.

SUMMARY OF FINDINGS

Clinical data from pediatric practices can assist public health epidemiologists with the ongoing assessment of a disaster’s impact on children and with the identification of emerging public health issues. The current PA NEDSS is challenging for individual practitioners to use for reporting individual cases or even perceived trends in specific conditions. Enhancements to its usability would improve the system and encourage its use for this purpose.



The Electronic Medical Record (EMR) has tremendous potential to support public health data collection needs during disasters, assist with planning and care coordination for medically complex patients, and facilitate direct communication between practices and patients, including targeted communication to subsets of patients with special needs. These uses of EMR technology can be assets during public health emergencies and will likely satisfy future, if not current iterations of “meaningful use” standards. (See http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Meaningful_Use.html).

The next 5-10 years will be a period of considerable change in medical informatics. Practices throughout the country are investing in EMR technology to comply with mandates for meaningful use, and the platforms and systems for electronic data collection and information exchange are evolving rapidly. This is an opportune time for public health agencies, the practice community, and information technology professionals to work together to ensure that as EMR products are being developed, they meet the information and communication needs during times of emergency response and recovery.

RECOMMENDED ACTION STEPS

Public Health Agencies

1. PA DOH should convene an ad-hoc task force with community practices, information technology (IT) stakeholders, and local public health agencies to take advantage of the widespread implementation of EMR technology and evolving meaningful use requirements and practices. Because the implementation of EMR technology and compliance with meaningful use requirements across community-based practices is developing over a period of years, it will be important to convene this group on an ongoing basis throughout this time, as technology will change as practices comply with meaningful use requirements. An ad-hoc task force comprised of key stakeholders can ensure that the adoption of EMR technology by practices across the state serves the needs of patients and practices as well as public health objectives.
2. Public health agencies should identify medical conditions and outcomes that are likely to be important for community assessment and monitoring before, during, and after disasters. These conditions will likely include notifiable diseases and conditions, indicators of psychological morbidity (e.g., depression, anxiety, stress-related illness), and long-term disability. It may also be useful to monitor the overall volume of healthcare encounters in different settings. Defining these information needs is important to identify specific data elements in EMRs, call centers, and other systems whose data can be mined to detect and report items of interest.
3. Public health agencies should work with community pediatric practices and IT experts supporting EMRs to identify key data elements and data transfer mechanisms that can support electronic surveillance efforts. (See related recommendation re: ad hoc task force, below)
 - a. See the International Society for Disease Surveillance "[Electronic Syndromic Surveillance Using Hospital Inpatient and Ambulatory Clinical Care Electronic Health Record Data: Recommendations from the ISDS Meaningful Use Workgroup](#)" (November 2012).

Pediatricians

1. Pediatricians should work with PA DOH and local public health agencies to understand the data requirements of public health agencies during and following disasters, and ensure that EMR implementation efforts in practices can support those requirements electronically in order to minimize manual reporting and data transfer.
2. Pediatricians should participate in an ad-hoc task force with PA DOH, local public health agencies, AAP and IT stakeholders to ensure that there are coordinated efforts to understand the data needs of public health agencies and to inform public health agencies re: meaningful use requirements and current capacity and EMR implementation efforts in practices across the commonwealth.
 - a. See the International Society for Disease Surveillance "[Electronic Syndromic Surveillance Using Hospital Inpatient and Ambulatory Clinical Care Electronic Health Record Data: Recommendations from the ISDS Meaningful Use Workgroup](#)" (November 2012).

PA AAP

1. Provide technical assistance and access to national AAP experts and official recommendations to public health agencies, EMR vendors, and pediatric practices regarding use of EMR technology to support data collection needs and communication objectives during public health emergencies.
 2. Assist PA DOH and local public health agencies with facilitating an ad-hoc task force to explore the potential of EMR technology and the meaningful use requirements to serve public health preparedness and response objectives during emergencies.
 - a. Identify subject matter experts in pediatric practice, IT, and EMR technology who can inform these efforts.
 7. **TRAINING FOR COMMUNITY PEDIATRIC PRACTICES IN EMERGENCY PREPAREDNESS SHOULD FOCUS ON ALL-HAZARDS CONTINUITY OF OPERATIONS AND SURGE PLANNING. PRIORITY SHOULD BE PLACED ON ENSURING INFRASTRUCTURE FOR TRAININGS DURING DISASTERS WHEN PEDIATRICIANS NEED RELEVANT INFORMATION FOR PATIENT CARE.**
-

SUMMARY OF FINDINGS

Training and education related to disaster preparedness is necessary but community pediatricians have limited time to devote to topics that may not have immediate, direct relevance to their practice. Preparedness-related trainings prior to disasters should focus on planning for COOP and surge capacity, which will be important for practices regardless of the nature of the disaster and have everyday utility. Planning should focus on building infrastructure and content for educational programs that can be delivered during disaster response and recovery periods when interest and demand for disaster-specific training is high. Disaster-specific training can be delivered just-in-time, during events, when clinicians need and want

“Regarding mental health, we could all use some help in this area. We are all caring and compassionate people, but people will come to us and expect that we have training.”

~Thought Leader, Pediatrician

information to provide appropriate patient care. Clinicians need a way to convey their training needs to agencies that can provide or facilitate that training. Training related to mental health issues in disasters, particularly during disasters with long-term recovery periods that disrupt family functioning, can be anticipated and should be planned for. Optimally, respected experts with pediatric expertise who are viewed as credible by the pediatric community should provide training.

Pediatricians who participated in this study had mixed views of the value of exercise participation. Many felt that they had participated in drills that were not relevant to the practice of pediatrics or how they would function during an emergency. They also reported the absence of appropriate follow-up activities to redress lessons learned or improve their integration into community-wide planning. There was significant interest on the part of both public health agencies and practices to engage in community-wide exercises that would test and reinforce ways in which ambulatory-based physicians would interact with government and the public health system during public health disasters.

RECOMMENDED ACTION STEPS

Public Health Agencies

1. Public health agencies should work with PA AAP and pediatric practices to identify priorities for pre-event training related to emergency preparedness. Topics such as COOP planning, including vaccine storage and surge capacity planning, are relevant for all hazards and should be emphasized. Mental health needs are another cross-cutting issue that is relevant for preparedness for many different incidents.
2. PA DOH should work with PA AAP and academic health centers and appropriate government partners to develop CME programming related to disaster preparedness that can fulfill criteria mandated for medical license renewal in patient safety and risk management.
3. PA DOH and local public health agencies should work with PA AAP and academic partners to develop infrastructure for just-in-time trainings during disaster response and recovery phases.
 - a. Invest in webinar and other technologies that can be employed quickly and can reach large numbers of practitioners.
 - b. Identify likely content and appropriate expert pediatric speakers (local and nationally) who will be able to teach that content (e.g., vaccine experts, mental health experts).
4. Public health agencies should collaborate with community-based practices to develop and conduct exercises using scenarios that are realistic and that would assess and reinforce the types of response

measures and communications capabilities that are important for a community-wide response to a public health threat.

5. Public health agencies have responsibility for local Medical Reserve Corps (MRC) training, coordination, and deployment. They should ensure that MRC members receive periodic training in pediatric issues and the care of children during disaster and recovery. Local pediatricians and the PA AAP can provide expertise and resources.

Pediatricians

1. Pediatricians should prioritize training needs and inform PA AAP and public health agency plans for just-in-time training, including training methods and times.
2. Pediatricians should recognize the need for training in all-hazard elements of practice-related emergency preparedness, such as COOP, surge capacity planning, and mental health care that can be provided in primary care practice settings.
3. Pediatricians should collaborate with local and state public health agencies to develop and participate in drills and exercises that clarify and assess the roles and capabilities of practices to function during public health emergencies.

PA AAP

1. PA AAP should work with public health agencies and community pediatricians to develop and implement training programs prior to and during emergencies.
 - a. Develop training modules with national AAP and academic partners that can be delivered on-line prior to disasters.
 - b. Develop educational programs related to emergency preparedness for regional and national meetings of AAP members, as well as the PA AAP's EPIC (Educating Providers In their Communities) Program.
 - c. Identify a marketing strategy that helps pediatric practices recognize the need for this type of training.
2. PA AAP should identify potential speakers for pediatrician audiences who can address likely disaster-related healthcare needs, including mental health.
 - a. Identify experts in child psychiatry who can provide training for primary care pediatricians in psychological first aid, skills for psychological recovery, as well as the identification of behavior that represent an abnormal reaction to disaster events.
 - b. Identify experts in CBRNE (chemical, biological, radiological, nuclear, explosive) issues, such as toxicologists, infectious disease specialists, radiologists, and trauma specialists.
3. PA AAP should facilitate just-in-time training implementation, including use of webinar and other technologies.

4. PA AAP should provide technical assistance to practices and public health agencies regarding drills and exercises for community practices, and facilitate partnerships between practices and government agencies to conduct those exercises and improve practice understanding of public health structure and organization.

8. COMMUNITY PEDIATRICIANS SHOULD MAKE SPECIAL EFFORTS TO PREPARE AND ASSIST FAMILIES WITH HIGH-RISK CHILDREN WHO HAVE SPECIAL HEALTHCARE NEEDS.

SUMMARY OF FINDINGS

Children with special healthcare needs are especially vulnerable in disasters. Community pediatricians understand the unique needs of children with chronic medical conditions and play an important role in their care prior to and during disasters. Preparedness is critical for children who rely on chronic medications, durable medical equipment (particularly equipment that requires ongoing power source), and/or who have intellectual or developmental disabilities.

Families in general are more likely to develop disaster preparedness plans when encouraged by their pediatrician to do so.

In general, physicians and their patients have little understanding of the services that exist in communities during emergencies for all individuals with special medical needs, including children, and do not know how they should prepare. Counties across the SEPA region have different approaches to government-maintained special needs registries (some county governments maintain them, others do not), and what services or guarantees they entailed for persons on the list. Similarly, healthcare providers do not know what plans exist for transporting or sheltering individuals with special medical needs, and cannot advise their patients how to best anticipate or prepare for an evacuation that might displace them from their homes. There was little understanding of other services that might be available (e.g., “enhanced 911” services that allow households to provide information to 911 call centers regarding special medical considerations in household members). Many providers had a general sense or expectation that government agencies (e.g., emergency management, police, and fire) have specific plans and services



ready for people with special needs during disasters, although these may not actually exist in many jurisdictions.

Current trends in the practice of community pediatrics can be used to assist these families during disasters. The evolving Patient-Centered Medical Home model offers an opportunity to provide additional assistance to children with special needs particularly in utilizing a patient registry. EMRs can be used to support additional planning and communication that can benefit these families during emergencies. EMRs can also be used to generate copies of patient-specific care plans and other documents (e.g., a problem and medication list) that can be given to patients and healthcare partners involved in their care to facilitate coordination of care.

RECOMMENDED ACTION STEPS

Public Health Agencies

1. Public health agencies should understand the additional health risks that children (and adults) with special needs face, and incorporate their needs into public health emergency preparedness planning.
2. Public health agencies should provide targeted planning information to both the public and to medical providers who care for children with special needs.
3. Public health agencies should collect available information regarding current public safety plans and services that are available for individuals with special healthcare needs across the commonwealth and share that information with patients and providers.
 - a. Examples include but are not limited to jurisdictions with “Enhanced 911” services and special needs registries, priority service lists for utility companies, and specific plans for shelter services for persons with special medical needs.
4. Public health agencies should collaborate with community pediatricians, PA AAP, social service agencies, and other stakeholders and develop new plans and response measures for children with special healthcare needs in disasters.

Pediatricians

1. Pediatricians should develop the practice’s ability to identify patients with specific diagnoses or medically complex conditions for the purpose of tailored communication with or outreach to those families (an example of meaningful use of EMR technology). Pediatricians should test the system periodically to ensure the practice can transmit messages including from offsite and that patients and families can receive the information.
2. Pediatricians should use template plans, encourage families with special needs children to have preparedness plans in place prior to disasters and provide referrals for special services that might be available to them.

3. Pediatricians should extend the Patient Centered Medical Home (PCMH) model to include preparedness-related planning and response for high risk, medically complex patients identified via the practice's patient registry.
4. Pediatricians should help parents to develop and use coordinated care plans that can be shared with hospital-based clinicians as well as schools and childcare programs.
 - a. This is a feature of many electronic medical record systems.
 - b. The AAP Emergency Form may be a useful tool for both practices and families.
<http://www2.aap.org/advocacy/chfdataform.pdf>

PA AAP

1. PA AAP can facilitate preparedness planning for children with special needs by providing template plans to practices that can be shared with patients.
2. PA AAP can assist PA DOH and other public health agencies with the dissemination of information regarding local and state resources for disaster planning and response for children with special needs.
3. PA AAP can facilitate implementation of the PCMH model in pediatric practices across the commonwealth and integrate a focus on preparedness for medically complex children.
4. PA AAP can provide technical assistance to pediatricians assisting children with special needs during and after disasters and share best practices.
5. PA AAP can collaborate with developmental pediatricians and others in the development of social stories and strategies to help families whose children are on the autism spectrum, have cognitive delays, or have other preexisting behavioral conditions to prepare for emergencies.



9. SCHOOLS, EARLY CHILD EDUCATION, AND CHILDCARE PROGRAMS SHOULD BE INTEGRATED INTO COMMUNITY-FOCUSED PUBLIC HEALTH PLANNING FOR CHILDREN IN DISASTERS.

SUMMARY OF FINDINGS

Schools and child care centers are places where children spend a considerable amount of time. They are settings where physical and behavioral illnesses may manifest themselves and they are important venues for disease recognition, referral for medical care, and occasionally, disease management. Because they are also places where contagious diseases may be transmitted from person to person, plans for their long-term closure may be integrated into pandemic preparedness plans as an important non-pharmaceutical control measures. In many communities, plans designate schools as sites for emergency medication or vaccine distribution to students and the larger community (points of dispensing or PODs), as well as evacuation shelters. While schools and childcare programs have facility-focused emergency plans for their own operations, these are not integrated into community-wide plans for public health emergencies, nor are they linked to pediatric practices in the community.

“Schools and child care programs are so important, particularly for children with parents who are less engaged. They know, understand, and can monitor these kids, so they must be integrated.”

~Thought Leader, Pediatrician

School administrators, teachers, and childcare center directors are key partners in disaster response and recovery, including psychological recovery (Terrorism & Disaster Center, 2007). Mental health issues in children may be recognized and addressed in childcare programs and schools. Psychological symptoms in children often reflect stress or instability in families and in the larger community. In communities in Israel that have experienced terror attacks, and in the Gulf Coast of the United States after Hurricane Katrina, schools have been used to build community resilience, training teachers to recognize post-traumatic stress and employ psychological resilience-enhancing activities in the classroom. Schools and childcare centers are also important venues for the dissemination of health information and educational materials to parents and family members.

School districts in Pennsylvania employ part-time medical directors who are often pediatricians or family medicine physicians who practice in the local community. These individuals, as well as school nurses, play an important role in decisions pertaining to health policies and health related activities in schools. In addition, community pediatricians interact with schools and childcare programs on a daily basis, providing vaccination for school entry and medical clearance for children to return to school after an illness, accepting referrals for medical evaluation from school nurses who recognize the signs of serious illness in a student, and often advising families of students during health crises that may or may not directly involve schools. Community pediatricians should be integrated into school-based planning and messaging during public health emergencies.

Pennsylvania has a total of 500 school districts in 67 counties. The Pennsylvania Department of Education (DOE) has an important coordinating and leadership role with those districts when schools are impacted during public health emergencies. Collaboration between the DOH and DOE at the highest levels of state government will be important for the smooth implementation of policy and operations in schools at the local level. In addition, county and municipal public health agencies will need to coordinate with the superintendents and district physicians in school districts within their jurisdictions. School nurses already work closely with PA DOH through the Office of School Health and local health departments have working relationships with nurses at individual schools. However, school district physicians and medical directors are often unknown to local and state officials despite their important position during public health incidents that affect school-age children.

The universe of out-of-home care for pre-school age children in Pennsylvania is complex, as it is in most states. It includes childcare centers of varying capacity that are regulated by state government, home-based (“family”) group care programs that register with state government, formal preschool programs



including Pennsylvania Head Start, and informal home-care arrangements of which government agencies may not even be aware. The majority of programs do not have licensed healthcare professionals on staff nor are they affiliated with larger systems that might have access to healthcare resources. Yet, there are a number of critical and effective stakeholders in the commonwealth who can provide health and medical guidance and training to early childhood educators and providers, as well as administrative and technical support. In addition, the Office of Child Development and Early Learning is a joint venture operated by the PA Departments of Education and Public Welfare, which oversees all aspects of early childhood programs in the commonwealth, including regulation and optional quality improvement systems. This office and the stakeholders who serve the childcare community are important partners who can engage and assist these programs during public health emergencies that impact very young children.

RECOMMENDED ACTION STEPS

Public Health Agencies

1. PA DOH should convene a working group of key agency leaders and stakeholders to address the likely public health issues that will affect schools, preschools, and childcare programs. This group

should clarify roles and responsibilities for collaborative decision-making, and outline a concept of operations for emergency response activities that may impact schools and childcare programs. This group should be comprised of representatives from PA DOH, the Pennsylvania DOE, the Office of Child Development (OCDEL), local public health agencies, and other stakeholders in education and childcare across the commonwealth, including but not limited to:

- a. PA AAP, the Pennsylvania State System of Higher Education, college and university student health agencies, and other agencies that support schools (for K-12 and older children).
 - b. Pennsylvania Head Start and local Head Start agencies, Keystone Babies, Southeast Regional Key (SERK), Pennsylvania and Delaware Valley National Association for the Education of Young Children (AECY), PA AAP ECELS, and other organizations who support the education and care of young children.
 - c. This group should address:
 - i. Real-time communication and training with school and childcare program staff during emergencies that affect the health of children.
 - ii. The responsibilities of school health physicians and nurses during public health emergencies.
 - iii. Plans for possible closure of schools and childcare programs, or use of school buildings/facilities for non-instructional purposes (e.g., shelters or medication distribution).
 - iv. Policies for exclusion from and return to school and childcare.
 - v. Surveillance of health conditions in school settings.
 - vi. Opportunities and programs in schools and early child education settings for provision of mental and behavioral health service to students after a disaster.
 - d. This group, or a subset of its members, should participate in the Pennsylvania Child Health Disaster Advisory Council.
2. PA DOH should work with members of this group to develop communication protocols for disseminating public health information during public health emergencies that affect children in schools and childcare settings.
- a. These protocols should ensure that decision-makers in key agencies, the administrative chain of command in schools and school districts, and other key stakeholders are involved in the dissemination of information to critical staff in schools and childcare programs, including superintendents, health professionals working in schools, front-line staff in schools (e.g., teachers and aides) and childcare program directors and teachers who work with children on a daily basis.
 - b. These protocols should ensure that communications to schools and childcare programs from disparate information sources are coordinated and consistent.
 - c. Communication protocols should include a bi-directional component to ensure that school medical directors and nurses and representatives from childcare programs have the ability to communicate with public health agencies at the state and local level.
 - d. PA DOH and local health departments should anticipate the need to inform community pediatricians of incidents that impact children in schools and in childcare settings, and ensure that they are integrated into communications to those entities.

3. PA DOH should work with PA AAP and other stakeholders to ensure capacity to develop and deliver just-in-time and pre-disaster trainings for the child care and preschool community. They should anticipate the need for ongoing training and situational awareness during disasters, as well as the need for dissemination of health education materials to child care program leadership and staff, and to families engaged in childcare and preschool programs.
 - a. The National Resource Center for Health and Safety in Childcare and Early Education is an existing resource in this area (see “Caring for our Children” standards available at <http://nrckids.org/CFOC3/>). The Childcare Planning Toolkit, developed by the PEMA, is another.

Pediatricians and other school health professionals

1. Healthcare professionals who work for schools (e.g., school medical directors and school nurses) should be engaged in public health activities. They should be integrated into public health emergency planning activities long before actual disasters happen so that they understand their roles in an emergency and have the opportunity to form relationships with local, regional, and state public health authorities:
 - a. School nurses and physicians should participate in public health surveillance activities and when necessary, disease control interventions, particularly those involving schools. This engagement should be in place prior to emergencies and disasters.
 - b. School personnel involved in the Student Assistance Program (SAP) should be aware of mental health concerns following a disaster for monitoring and intervention, as needed.
 - c. School health professionals (including school medical directors and nurses) should participate in pre-disaster training activities and be prepared to participate in “just-in-time” educational programs during disasters.
2. Pediatric practices should be public health partners for county and state health officials and childcare centers/preschools. They should participate in pre-event preparedness planning as well as response activities during incidents that impact the health of young children and/or affect childcare or pre-school operations where their patients attend. Pediatricians should develop professional relationships with local childcare and preschool directors and be available for consultation to improve the health and facility conditions for children. PA AAP ECELS program has been a resource to pediatricians for over 20 years in Pennsylvania and can support this consultative role.
3. Pediatric practices should participate in pre-event training activities and just-in-time educational programs during disasters.
4. Pediatric practices should work with PA DOH and PA AAP to clarify expectations for community pediatricians with respect to childcare and preschool programs, including communication mechanisms.

PA AAP

1. PA AAP can work with PA DOH and county public health agencies to develop training programs for school staff, school health professionals, and early childhood education professionals that can be implemented during disasters.
2. PA AAP can serve as a communications hub, forwarding training materials, health alerts, and other urgent information from public health agencies to childcare programs and to pediatric practices.
3. PA AAP can participate in collaborative planning with public health agencies, schools, and early child education and childcare programs, on behalf of community pediatricians.
4. PA AAP can work with the PA DOH and DOE to identify school health professionals (including medical directors and school physicians) in each district, and can share this information.
5. PA AAP should facilitate communication between childcare and preschool programs, public health agencies, and community pediatricians.
6. PA AAP should participate in collaborative planning with public health agencies, childcare and preschool programs, and K-12 schools on behalf of community pediatricians.
7. PA AAP should assist childcare programs with utilizing the PA AAP ECELS resources and developing as-needed communications for health-related incidents that affect their students or their operations, and that require information dissemination to staff and to families.
8. PA AAP should work with state and local public health (and other government) agencies to identify childcare and preschool centers in each PA AAP member's community.

CONCLUSION

The care of children in disasters requires the participation of many different stakeholders from medical practices, hospitals, schools and early child education programs, government agencies, and non-profit organizations. Community-based pediatric practices have a major role to play, providing healthcare services in outpatient settings, offsetting the burden on emergency departments, providing vaccines and other “medical countermeasures,” and serving as trusted sources for health information and risk communication to families. Following disasters that disrupt communities and families, community pediatricians will provide mental healthcare in addition to their usual responsibilities, especially when recovery is a long-term process. A systems-based approach to integrating community-pediatricians into emergency preparedness efforts can improve the coordination of the public health and personal health system to benefit children across the Commonwealth of Pennsylvania, and provide a paradigm or engaging other community-based primary care providers.

REFERENCES

- Abramson, D., & Redlener, I. Children as bellwethers of recovery. Abstract presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012.
- Abramson, D., Redlener, I., Stehling-Ariza, T., Sury, J. J., Banister, A., & Park, Y. S. Perceived and anticipated impacts of the Deepwater Horizon oil spill. Abstract presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012.
- American Academy of Pediatrics, Committee on Pediatric Emergency Medicine, Committee on Medical Liability, Task Force on Terrorism. (2006). The pediatrician and disaster preparedness. *Pediatrics*, 117, p. 560-565.
- American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. (1999). How pediatricians can respond to the psychosocial implications of disasters. *Pediatrics*, 103(2), p. 521-523.
- American Academy of Pediatrics Disaster Preparedness Advisory Council. (2008). *The youngest victims: Disaster preparedness to meet children's needs*.
- Baum, N. L., Pat-Horenczyk, R., & Brom, D. Resilience building in schools in the aftermath of war, terrorism and natural disaster. Abstract presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012
- Becker, B. M. (2006). Children in disaster. In (Ed.) G. R., Ciottane, *Disaster Medicine*. Mosby Elsevier: Philadelphia, PA. (p. 51-58).
- Berger, R. Enhancing children and adolescents' resiliency to deal with major disasters: The ERASE-Stress model. Abstract presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012.
- Centers for Disease Control and Prevention. (2011). *Public Health Preparedness Capabilities: National Standards for State and Local Planning*.
- Department of Health & Human Services. (2011). *Update on children and disasters: Summary of recommendations and implementation efforts*.
- Dolan, M. A., & Krug, S. E. (2006). Pediatric disaster preparedness in the wake of Katrina: Lessons to be learned. *Clinical Pediatric Emergency Medicine*, 7, 59-66.
- Fagbuyi, D. B., & Uppermann, J. (2009). The role of pediatric healthcare providers. *Pediatrics and Emergency Medicine*, 10(3), 156-158.
- Hagan, J. F. (2005). Psychosocial implications of disaster or terrorism on children: A guide for the pediatrician. *Pediatrics*, 116, 787-795.
- Hamiel, D., Versano-Eisman, T., Wolmer, L., Spirman, S., Dror, M., & Laor, N. Teacher-Delivered Intervention: boosting the resilience and preparedness of children's communities at risk of imminent war. Abstract

presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012.

Lasker, R. D. (2004). *Redefining Readiness: Terrorism Planning Through the Eyes of the Public*. New York, NY: The New York Academy of Medicine.

Markenson, D., & Reynolds, S. (2006). The pediatrician and disaster preparedness. *Pediatrics*, 117, 340-362.

National Commission on Children and Disasters. (2010). *Report to the President and Congress*. AHRQ Publication No. 10-M037. Rockville, MD: Agency for Healthcare Research and Quality.

National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University. (2007). *Pediatric preparedness for disasters and terrorism*. National Consensus Conference, March 2007.

Novick, R. Schools as resilience builders: an important pre-and post-trauma resource. Abstract presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012.

Redlener, I., & Markenson, D. (2003). Disaster and terrorism preparedness: What pediatricians need to know. *Advances in Pediatrics*, 50, 1-37.

Slone M., & Hen-Gal, S. Evaluation of a school-based resilience intervention to enhance resilience after war. Abstract presented at 2nd International Conference on Preparedness and Response to Emergencies and Disasters, Tel Aviv, Israel, 2012.

Terrorism and Disaster Center, National Child Traumatic Stress Network. (2007). Building community resilience for children and families.

Wolmer, L., Hamiel, D., Barchas, J. D., Slone, M. and Laor, N. (2011), Teacher-delivered resilience-focused intervention in schools with traumatized children following the second Lebanon war. *J. Traum. Stress*, 24: 309–316.