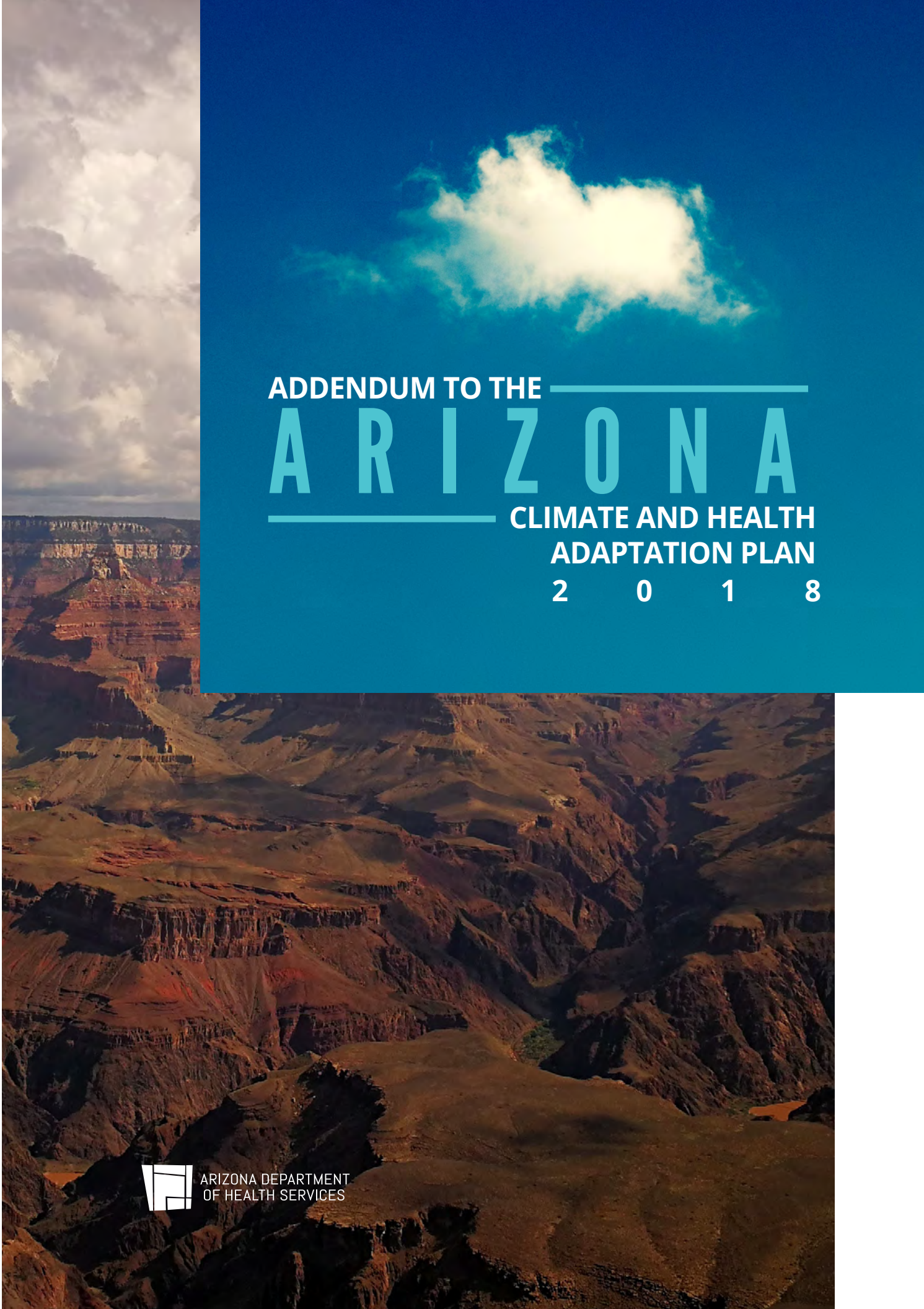


ADDENDUM TO THE ARIZONA CLIMATE AND HEALTH ADAPTATION PLAN 2018

ARIZONA DEPARTMENT OF HEALTH SERVICES

Douglas A. Ducey, Governor
State of Arizona

Cara M. Christ, Director
Arizona Department of Health Services

Arizona Department of Health Services
Bureau of Epidemiology and Disease Control
Office of Environmental Health
150 N 18th Avenue, Suite 140
Phoenix, Arizona 85007
(602) 364-3118

This publication was supported by Cooperative Agreement Number 5 NUE1EH001318-03-00, funded by the Centers for Disease Control and Prevention Climate Ready States and Cities Initiative. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.

Exectutive Summary

CONTENTS

PURPOSE

This addendum to the 2017 State of Arizona Climate and Health Adaptation Plan (ACHAP) describes the progress on specific preparedness activities that protect the health and well-being of Arizonans from current and future climate sensitive hazards. As a means for providing brief updates, the scope of this addendum does not focus on public health data regarding environmental hazards and health effects such as extreme heat, fires, floods, drought, and vector borne diseases affected by temperature and precipitation. More information about these topics are described in prior Arizona Department of Health Services (ADHS) reports published online. Rather, this addendum focuses on initiatives currently taking place within Arizona.

With continued funding from the Centers for Disease Control and Prevention's Climate Ready States and Cities Initiative, ADHS collaborated with local health departments and universities to implement activities identified under the first iteration of the ACHAP. Stakeholders contributed success stories detailing how they collaborated across multiple sectors, implemented pilot projects, and evaluated their efforts over the past year. These stories are meant to help disseminate lessons learned with the aim of informing other jurisdictions to facilitate implementation of effective adaptation actions against future extreme weather challenges facing public health. Additionally, these success stories provide evidence of the public health sector planning and preparing for extreme weather threats to human health.

NEW SCIENCE AVAILABLE

Since the 2017 ACHAP, several federal and state level reports published help detail challenges and solutions for public health adaptation planning. In 2018, the federal government released the Fourth National Climate Assessment (NCA 4). This report specifically summarized climate impacts for the Southwest and to health. Within this report, specific health impacts in the Southwest include the implications of extreme heat, poor air quality, and changes in conditions to foster the spread of infectious pathogens. Efforts by ADHS and local stakeholders were highlighted in public health sections within the NCA 4, such as an evaluation of cooling centers used to protect vulnerable populations during the summer heat in Maricopa County and assessments on vector-borne diseases. Within Arizona, ADHS released two reports during the winter of 2017 about the health effects of these hazards. The first report was an **Assessment of Climate and Health Impacts on Vector-Borne Diseases and Valley Fever in Arizona** and the second report described the estimated **Projections of Climate Impacts on Vector-Borne Diseases and Valley Fever in Arizona.** In an effort to support continued work in understanding the implications of climate on health, in August 2017 Arizona became part of the National Environmental Public Health Tracking Network. Through this initiative, ADHS has implemented enhanced surveillance on the human health impacts of poor air quality, increased temperature, changes in precipitation, drought, and identifying vulnerable populations through 2022.

SUCCESS STORIES

Preparing for the health effects of climate-sensitive hazards is a challenging task for one agency or organization. The stories in this addendum highlight efforts local partners have taken to address this important issue in Arizona. Each partner provided project summaries, lessons learned, key partners, as well as vulnerable populations aided in the process of implementing these efforts. Our goal in compiling these success stories is to inspire replication of the work in other parts of Arizona as well as adoption for other regions facing similar challenges. Additionally, our hope is that each partner's evaluation efforts and lessons learned will help improve ongoing efforts within their jurisdiction. We appreciate their contributions to this report addendum by advancing efforts for protecting Arizonans against climate-sensitive hazards.

MARICOPA

From Surveillance to Stakeholder Partnerships to Celebrating Success and Champions

> *"Those of us who donate countless hours over many years to help educate, inspire and engage the community because we care, often go unnoticed, so this was a lovely surprise. I truly believe every single one of us has the opportunity to make a difference, big or small."*

STACEY CHAMPION, Maricopa County Department of Public Health, Climate and Health Champion Award Winner, Individual Category

Maricopa County Department of Public Health Staff Presenting Climate and Health Champion Award to Stacey Champion (Middle)

Threats to Health

Maricopa County (MC), Arizona experiences extreme weather, including heat waves, dust storms, drought, wildfires, flooding, and poor air quality events. These climate-sensitive hazards pose a threat to public health and can lead directly to illness, death, or worsen underlying health conditions. The Maricopa Department of Public Health (MCDPH) Office of Epidemiology has been conducting heat-related death and illness surveillance since 2006. MC experiences an average of 100 heat-related deaths and over 1,500 heat-related illnesses per year.

Adaptation in Action

Identifying Interventions

In 2016, MCDPH expanded their scope of heat surveillance andplanning activities to include climate-sensitive public health hazards beyond heat. Subsequently, a network of stakeholders with an interest in the health effects of climate-sensitive hazards was established as the Bridging Climate Change and Public Health (BCCPH) stakeholder group. A subset of key stakeholders formed the Strategic Planning Workgroup to develop the Maricopa County Climate and Health Strategic Plan in August 2017. This strategic plan identified a mission (adaptation and mitigation of climate-sensitive hazards to improve community health) and five priority actions to address environmental concerns affecting the health and well-being of the community; this adaptation in action focuses on one of those priority actions, celebrating success and champions.

On behalf of Pinnacle Prevention, Adrienne Udarbe accepting the Climate and Health Champion Award in the Organization Category from Maricopa County Department of Public Health

> *"Sustainability and the environment have always been at the forefront at Salt River Fields, as we are a LEED Gold Certified facility, and taking care of our environment is a critical mission for the Salt River Community and both of our teams. We are proud to be recognized as an environmental champion!"*

DAVE DUNNE
SALT RIVER FIELDS
(Picture Below)

MARICOPA

Successes

MCDPH and partner organizations designed and launched theClimate and Health Champions Recognition Program in 2017. Through this effort, BCCPH aims to build community awareness and knowledge about climate and health through sharing information about successful interventions. This countywide recognition program identifies and celebrates individuals, organizations, local youth, and businesses taking steps toward implementing sustainable solutions, ecofriendly practices, or policies aimed at improving health and health equity in the face of climate-sensitive hazards.

Lessons Learned

This project taught that partner engagement and communication with a variety of partners in the community is necessary. Without these components it will be hard to make progress towards the five priority actions in the strategic plan.

Summary of Project

MCDPH brought together a network of stakeholders with an interest in the health effects of climate-sensitive hazards. This partnership culminated into a formalized BCCPH stakeholder group. A smaller Strategic Planning Workgroup of key stakeholders from the BCCPH group convened to work on a strategic plan. Five strategic priorities were identified. The effort of this partnership highlights, among other successes, the development of the Climate and Health Champions Recognition Program established in 2017. In 2018, BCCPH and MCDPH awarded champions in four categories: individual, organization, business and local youth. The first awards ceremony took place at the 3rd Annual BCCPH meeting held on November 9, 2018 with more than 90 participants.

Evaluation of Celebrating Success and Champions

To monitor success of the program, MCDPH collected data on several procedural and short-term outcome indicators. Information regarding the recognition program reached over 240 contacts. More than a quarter of the nominees were aware of the Maricopa County Climate and Health Champion Awards Recognition Program prior to receiving information regarding their nomination. This generated additional awareness and provided potential individual and organizational collaborators. Materials (email, newsletters, social media posts, and flyers) linking to the established Maricopa County Climate and Health Champion Awards Recognition Program webpage generated over 548 unique page views from initial launch to August 2018.

The 2018 Climate and Health Champions

> *Being given the Climate and Health Champion Award means the Trevor G. Browne S.T.A.N.D. students are recognized for making a positive impact in our community and we will continue to do so!*
>
> **SCHOOL COUNSELOR**

Trevor G. Browne High School Students accepting Climate and Health Champion Youth Category Award from Maricopa County Department of Public Health

Individual Category
Stacey Champion

Stacey Champion is a dedicated and passionate community and environmental advocate in the Valley. For nearly 20 years, she has dedicated her time and effort to protecting and improving the environment in Arizona.

Organization Category
Pinnacle Prevention

Pinnacle Prevention is an Arizona-based nonprofit organization dedicated to growing healthy families and communities. Pinnacle Prevention is a champion of improving health and the environment. Their team believes everyone should have access to healthy food, and that a food system can thrive when it is sustainable, local, and equitable.

Business Category
Salt River Fields at Talking Sticks

Salt River Fields at Talking Stick, owned and operated by the Salt River Pima-Maricopa Indian Community, partnered with Major League Baseball and Arizona State University to launch a "Recycle Rally" initiative to analyze waste stream practices within the ballpark. With input from sustainability partners, Salt River Fields at Talking Stick will continue to adopt ecofriendly best practices such as composting, recycling, and other zero waste strategies. Additionally, throughout the Spring Training Season, Salt River Fields had the unique opportunity to engage with over 300,000 fans from across the country by providing fun, interactive educational activities to promote recycling and waste reduction practices.

Youth Category
Trevor G. Browne High School Students Taking a New Direction (STAND) Coalition

Trevor G. Browne (TGB) STAND coalition members have been diligently working in their community since 2013 to bring change by shaping policy, systems and environment to foster clean air and healthy living.

Meeting Attendees at the Maricopa Department of Public Health Bridging Climate Change and Public Health Meeting (November 9, 2018)

Links to relevant resources

Maricopa County posted information on
Bridging Climate Change and Public Health
https://www.maricopa.gov/4640/Climate-Change-and-Public-Health

Champions Recognition Program
https://www.maricopa.gov/4641/Climate-and-Health-Champions-Recognition

Contributors

Erika Austhof MPH
Epidemiologist, College of Public Health, University of Arizona

Taylor Bednarz, MSPH
Epidemiology, Data Analyst, Office of Epidemiology, Maricopa County Department of Public Health

Jessica Bell PhD MPH
(Former) Epidemiology, Data Analyst, Office of Epidemiology, Maricopa County Department of Public Health

Vjollca Berisha MD MPH
Senior Epidemiologist, Office of Epidemiology, Maricopa County Department of Public Health

Brenna Garrett CPO MLT (ASCP)
Waterborne Disease Coordinator, Office of Infectious Disease Services, Arizona Department of Health Services

Aaron Gettel MPH
Epidemiologist, Office of Epidemiology, Maricopa County Department of Public Health

Kate Goodin MPH MS
Epidemiology & Data Services Program Manager, Office of Epidemiology, Maricopa County Department of Public Health

David Hondula PhD
Assistant Professor, School of Geographical Sciences & Urban Planning, Arizona State University

Anna Kellog BA BS
Epidemiology Data Analyst, Office of Epidemiology, Maricopa County Department of Public Health

Donna La Guardia
Administrative Specialist – Logistics and Finance, Office of Preparedness & Response, Maricopa County Department of Public Health

Matthew Roach MPH
Epidemiology Program Manager, Office of Environmental Health, Arizona Department of Health Services

Jessica White DrPH MS MLS (ASCP) CM CPH
Public Health Scientist, Office of Epidemiology, Maricopa County, Department of Public Health

Pinal County Public Health Services District Implementation and Monitoring Strategy (IMS) for Heat-Related Illness

Pinal County Heat Relief Network volunteers loading water for distribution to hydration stations

Threats to Health

Pinal County Public Health Services District (PCPHSD) recognizes the unique challenges posed to its residents by extreme temperatures. Daily temperatures during summer 2018 reached 116˚F, with high temperatures oftentimes lasting for two or more consecutive days. Each year, the effects of heat-related illnesses (HRIs) and deaths are felt across Pinal County as residents are exposed to extreme heat inside their homes, at work, and outdoors during their daily commute. On average, Pinal County has 150-250 HRI emergency department visits or hospital admissions annually (48 cases per 100,000 residents).

Adaptation in Action

Identifying Interventions

PCPHSD plans to utilize baseline HRI data, and summer 2018 interview data to better understand HRI risk factors and risk populations. Following the completion of summer 2018 data analyses, PCPHSD plans to develop interventions and increase collaborations with key stakeholders. One intervention that was initiated is the Pinal County Heat Relief Network (HRN). The HRN is a collaborative effort between PCPHSD, United Way of Pinal County, and Central Arizona Governments. The key goal of the HRN is to provide heat relief to Pinal residents through four types of relief stations: hydration, daily heat relief, emergency heat relief, and water drop-off/storage. PCPHSD hopes HRI illness and death data can be used to improve the HRN by developing new partnerships and installing new heat relief stations in areas with high HRI. PCPHSD also hopes to improve HRI education and prevention efforts among Pinal County residents, employers, and schools.

Successes

Medical chart reviews (reading and understanding medical records of patients in the hospital) for HRI surveillance allowed PCPHSD to more effectively identify and assess cases. PCPHSD also improved the entire interview process by developing an improved HRI interview questionnaire, and developing an interview call and text attempt protocol. As a result, the response rate for interviews increased from 25% in 2017 to 53% in 2018. Other successes include the development of a HRI community resources packet (includes heat safety tips, utility assistance, and homelessness resources), the addition of 10 new HRN partners and heat relief stations, and English-Spanish translation efforts for interviews, text messages, and follow-up materials.

Lessons Learned

Additional staff and/or interns should be tasked with completing chart reviews and interviews for HRI cases. The time between HRI symptom onset/heat exposure and first call attempt may have affected the response rate. Interview attempts began one month after the start of the summer. As a result of the long delay, phone numbers were often disconnected and patients struggled to remember details surrounding their HRI event as the summer progressed.

"Heat-related illnesses are completely preventable, yet 168 Pinal County residents visited an Emergency Department for a heat-related illness this year, and 14 individuals have died within the county. Pinal County Public Health Services District is working very hard to prevent future HRIs and deaths by educating the public and utilizing syndromic surveillance to determine risk factors and risk populations to help determine where we should focus our interventions and prevention efforts."

DAMETREEA CARR

PINAL COUNTY PUBLIC HEALTH SERVICES DISTRICT

(Picture Above)

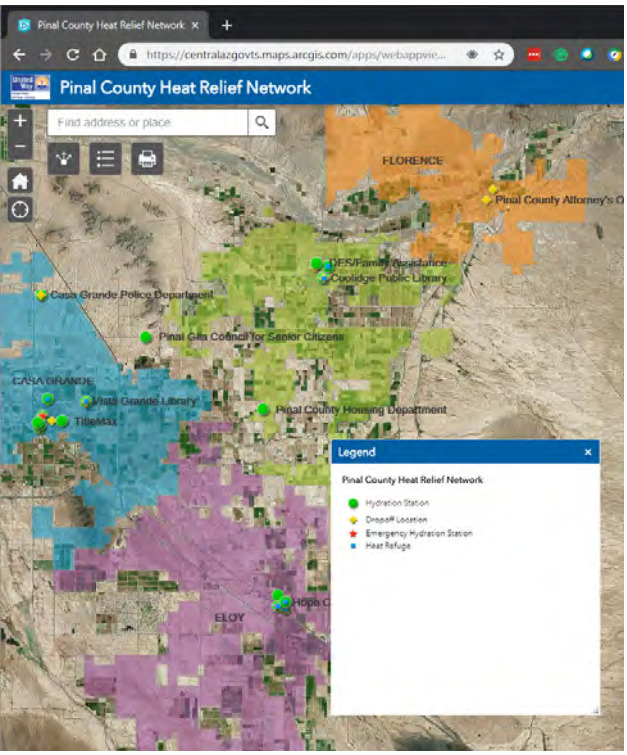
Summary of Project

PCPHSD conducted syndromic surveillance using the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE). ESSENCE is a product of the Centers for Disease Control and Prevention's (CDC) BioSense Platform, and was used to determine the burden of HRI among Pinal County residents, to better understand HRI risk factors/populations, and to develop effective interventions to reduce the annual number of HRI cases.

Project activities included a descriptive epidemiological analysis of HRI cases from historical hospital discharge data, syndromic surveillance and mortality surveillance of HRI cases among county residents during May-September of 2018, medical chart reviews, and interviews with cases who visited an emergency room or were admitted to a hospital for HRI. The purpose was to understand the burden of HRI within the county, as well as characterize factors associated with HRI (e.g. occupational, recreational, and economic). From May 1st to September 30th, 2018, maximum temperatures reached 116°F. During these months, ESSENCE identified 212 HRI cases. 168 cases were confirmed as true HRI following thorough chart reviews.

Evaluation

Demographic, awareness, location, and economic data were collected as a part of this project. Descriptive statistics were conducted to identify high-risk populations and additional analyses are currently being conducted to determine if other factors (e.g. occupation, homelessness, and other illnesses) play a role in the occurrence of HRI among Pinal County residents. Over the course of the summer, 10 HRN partners were added to PCPHSDs communications list, 8 Excessive Heat Warnings were sent to 40 HRN partners, and a community resources packet was developed (includes 13+ heat-safety resources).



Pinal County Heat Relief Network Map for Hydration Stations, water drop-off locations, heat refuge, and emergency hydration stations

Note on Vulnerable Populations & Health Equity

Initial analyses for data collected from May to September 2018 show the majority of HRI cases in Pinal County are non-Hispanic White (61.2%), male (75.7%), and range in age from 20-59 years (71.8%). Nearly 1/3 of heat-related incidents occurred in Casa Grande and majority of cases (86.4%) visited an emergency department located in Pinal County. Banner Casa Grande Medical Center was the most frequently visited facility. The majority of cases occurred in July (51 cases) and June (41 cases). On a single day in July when the temperature low and high was 94°F and 111°F, respectively, 5 cases occurred.

This information will be used to identify target interventions and public health responses for these vulnerable groups, including targeted public health messaging to HRN partners. In order to reach all residents within Pinal's jurisdiction, 29.1% of whom are of Hispanic or Latino descent, interview and educational materials in Spanish were developed, made available for distribution, and included in the communication plan. Project results and key information will be shared with relevant stakeholders in the future as public health interventions are identified to reduce the burden of HRI in Pinal County.

Links to relevant resources

Pinal County Heat Relief Network information and sign-up
https://www.unitedwayofpc.org/heatrelief

Interactive map of Pinal County heat relief stations
http://centralazgovts.maps.arcgis.com/apps/webappviewer/index.html?id=27a2c9d344ef4a89933f0b7812eac1e8

Heat relief community resource guide: local resources from this guide are listed on page 12.

Pinal Community Resources

Cooling Centers and Heat Refuge

The Heat Relief Network
Includes hydration stations and cooling centers that community members can visit to seek relief from the heat. A list of relief locations is available on the next page. A map of relief locations is available online: **http://centralazgovts.maps.arcgis.com/apps/webappviewer/index.html?id=27a2c9d344ef4a89933f0b7812eac1e8**

Arizona Crisis Response Network
Statewide homelessness resources including shelter beds, water, and cooling can be found by calling **211** or **800-352-3792**.

Additional information available online:
https://211arizona.org/

Arizona Department of Health Services
Sign-up on ADHS's website to receive heat alerts:
https://public.govdelivery.com/accounts/AZDHS/subscriber/new?qsp=AZDHS_2

ADHS 24-hour information line:
602-364-4500 or **800-314-9243**

Utility Programs and Assistance

Budget Billing and Payment Plans
Budget billing and payment plans are available through utility providers. Contact your provider to ask about their utility assistance services:

SRP: 602-236-8888 or **800-258-4777**
(Spanish) **602-236-1111**

APS: 602-371-7171 or **800-253-9405**
(Spanish) **602-371-6861**

SW Gas: For English and Spanish, call **877-860-6020**

Home Energy Assistance
Provides home energy assistance for qualified households (seniors, disabled, low-income). Assistance available through these organizations:

Community Action Human Resources Agency (CAHRA):
520-466-1112

Low Income Home Energy Assistance Program (LIHEAP):
602-542-4446

Open Hands Outreach Program:
866-721-6983

Arizona Weatherization Assistance Program:
602-771-1000

PEPP Rural Institute
Provides assistance with rent, mortgage, and/or utilities. For assistance and additional information, call **520-622-3553**.

Arizona Crisis Response Network
Includes numerous resources for assistance with utility bills, mortgage, rent, and other basic life needs. Additional information available online:
https://211arizona.org/food-clothing-bills-pinal/
To speak with someone, call 211.

Appliance Usage and Reduction
Learn how to reduce the amount of energy used in your home to lower your monthly bill. Additional information available online: **https://www.aps.com/en/residential/savemoneyandenergy/homeappliance/Pages/appliance-usage.aspx**

Pinal County Assistance Programs
Additional resources and crisis assistance programs are available online (includes crisis assistance for bills, rent, housing, food, and more)
https://www.aps.com/en/residential/accountservices/assistanceprograms/Pages/crisis-bill-assistance.aspx

Contributors

Erika Austhof MPH
Epidemiologist, College of Public Health, University of Arizona

Heidi Brown PhD MPH
Assistant Professor, College of Public Health, University of Arizona

Dametreea Carr MPH
Epidemiologist, Infectious Disease and Epidemiology Section, Pinal County Public Health Services District

Krystal Collier BA
Health Program Manager I, Electronic Disease Surveillance Program, Arizona Department of Health Services

Clancey Hill MPH
Public Health Manager, Infectious Disease and Epidemiology Section, Pinal County Public Health Services District

Matthew Roach MPH
Epidemiology Program Manager, Office of Environmental Health, Arizona Department of Health Services

Rachel Zenuk MPH
Assistant Director of Public Health, Community Health Division, Pinal County Public Health Services District

Implementation and Monitoring Strategy for Vector-Borne Disease

Pinal County Vector Control Program staff monitoring mosquito breeding

> *"Our community health and well-being is essential. The goal of our vector control program is to use evidence-based surveillance of disease and disease vectors to determine our abatement response in a proactive and preventive manner, reducing morbidity and mortality to residents and visitors within Pinal County."*
>
> **CHRISTOPHER REIMUS**
> **PINAL COUNTY PUBLIC HEALTH SERVICES DISTRICT**

Threats to Health

Changes in climate will affect the distribution of vector-borne diseases in Arizona through effects on mosquito and other vector populations. West Nile virus (WNV), a mosquito-borne arbovirus, is likely to be impacted by temperature and precipitation changes with a lengthening (earlier start and later end) to the mosquito season in Arizona. Vector control at the Pinal County Public Health Services District (PCPHSD) often rely on experience to initiate the start and end of their vector control seasons including spraying and messaging campaigns to reduce mosquito habitats. However, recognizing that experience is becoming increasingly less reliable as the baselines shift, there is a need for deciding when to initiate and end the vector control season and when to send public health alerts to the community.

PCPHSD has a unique challenge for controlling WNV. As in most US states, WNV occurs in urban and suburban areas. These suburban areas, however, are isolated in this primarily rural county. For example, at the county level, the population density is 80 persons per square mile, but almost 30% of the population lives in just 2 cities, which are 25 miles apart. Optimizing vector control in this urban/rural landscape is a need identified by Pinal County.

Adaptation in Action

Identifying Interventions

The Arizona Department of Health Services (ADHS), PCPHSD, and the Mel and Enid Zuckerman College of Public Health at the University of Arizona (MEZCOPH) developed a plan to identify temperature thresholds associated with mosquito abundance and WNV case onset in Pinal County, AZ. These thresholds will aid in allocation of resources for mosquito surveillance and control, and optimize timing of public health alert releases to the public. This collaboration will identify and implement WNV-related adaptations suitable for a suburban/rural county setting.

Pinal County Vector Control Program staff setting up a mosquito trap for monitoring

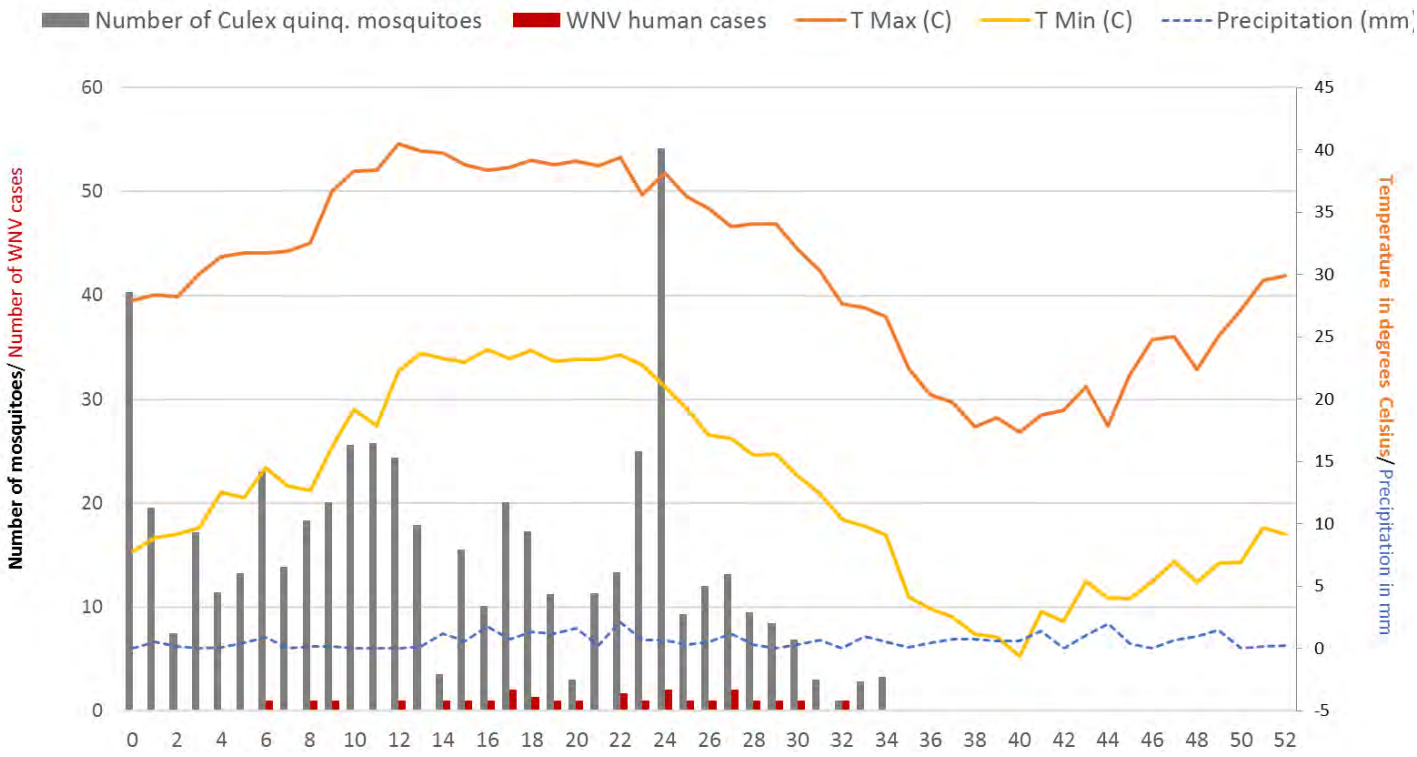
PINAL VECTOR

Summary of Project

The team met in April 2018 to discuss the available data for this project. The mosquito trap data include location, date, species collected, and results from WNV testing. Using their mathematical model, MEZCOPH supplemented the actual mosquito trap data by creating an estimate of daily mosquito numbers for two different mosquito species important in the County. Human case data for 2012-2017 was provided by ADHS. Weather data was acquired for stations in Pinal County from the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI).

The analyses plan aimed to identify

1. Temperature threshold indicating the beginning of mosquito season surveillance.
2. Temperature threshold indicating the end of mosquito season triggering the end of mosquito surveillance.
3. Temperature threshould indicating the start of public health messaging.



Weekly average of mosquitoes (Culex quinquefasciatus) trapped and human cases reported in Pinal County in relation to temperature (in °C) and precipitation (in mm) (2012-2018).

PINAL VECTOR

Evaluation

This project is just beginning. The analysis team members (ADHS and UA) have monthly calls to check in on progress and necessary support to Pinal County. The team plans to evaluate if the identified thresholds help Pinal County take appropriate action and reduce issues in the future.

Note on Vulnerable Populations & Health Equity

Based on the most recent United States Census Bureau data (2017), 30.9% of the Arizona population and 29.4% of the Pinal County population is Hispanic or Latino. Therefore, educational materials will be made available in both English and Spanish for public health messaging.

Contributors

Erika Austhof MPH
Epidemiologist, College of Public Health, University of Arizona

Heidi Brown PhD MPH
Assistant Professor, College of Public Health, University of Arizona

Thomas Moore MS
PhD Student, College of Public Health, University of Arizona

Chris Reimus MS
Assistant Director, Environmental Health Services, Pinal County Public Health Services District

Matthew Roach MPH
Epidemiology Program Manager, Office of Environmental Health, Arizona Department of Health Services

Irene Ruberto PhD MPH
Vector-borne & Zoonotic Disease Epidemiologist, Office of Infectious Disease Services, Arizona Department of Health Services

Kara Tarter MPH
Epidemiology Program Manager, Office of Infectious Disease Services, Arizona Department of Health Services

Rachel Zenuk MPH
Assistant Director of Public Health, Community Health Division, Pinal County Public Health Services District

YUMA HEAT

Battling Arizona Heat with Cooling Centers in Yuma County

Heat relief supplies prepared by Yuma County Public Health Services District to distribute to heat vulnerable populations

> *"We are not done, not by a long shot. There is quite a bit of opportunity to increase our cooling centers and water sites as well as opportunity to promote them to the public. We also need to explore creating a network of the centers so they can communicate with one another about ideas and needs and opportunities."*

LYNN HARLOW-SMITH

EMERGENCY PREPAREDNESS PLANNER

Threats to Health

Yuma County experiences temperatures of 100°F and higher for most of the summer between the months of May through September. High temperatures experienced by residents and visitors put them at increased risk for heat-related illness and death.

Adaptation in Action

Identifying Interventions

The Yuma County Public Health Services District (YCPHSD), the Arizona Department of Health Services (ADHS), and researchers from Arizona State University developed a strategy to reduce the number of hospitalizations and deaths related to heat by increasing the effectiveness of cooling centers in Yuma County. The first step in this strategy was to use multiple evaluation techniques including surveys, observations, and interviews to understand the role of cooling centers in mitigating heat related illnesses and deaths. A team of public health officials and researchers conducted surveys at known gathering places of individuals who might benefit from cooling centers, including homeless shelters and public parks. The surveys included questions about cooling center accessibility and use and heat-related knowledge and behaviors. Subsequently, the project team interviewed cooling center facility managers to better understand current practices, resource constraints, and perceived challenges and opportunities for delivering heat-protective services to those in need.

Vulnerable Population

In Yuma County, there were 139 heat-related deaths between 2003 and 2017. Furthermore, in 2017 alone, there were also 229 heat-related illness emergency department visits. Local public health and emergency management officials have identified access to air conditioned space as an important protective factor against heat-related illness and death for heat vulnerable populations, including individuals experiencing homelessness and senior residents who cannot keep their homes sufficiently cool.

Lessons Learned

YCPHSD anticipates being able to provide new guidance and better allocate resources to support access to cooled space across Yuma County.

In November 2018, the project team returned to Yuma and conducted open-ended interviews with managers of five sites that acted as a cooling center or water site during the summer of 2018. The team learned that most of the sites that participate as cooling centers or water sites are non-profit organizations, which rely heavily on donations and volunteers for their operations. As a result, these locations have a widely varying amount of available resources to support heat relief and water distribution. In addition to operating as a cooling center or water site, managers identified that users were often also looking for a facility that provided meals and entertainment. Facility managers also mentioned that they would like to offer cooling towels, reusable water bottles, hats, sunscreen, lip balm, and maps of cooling centers in both Spanish and English to cooling center and water site visitors.

Arizona Department of Health Services Staff conducting interview with a Yuma County Cooling Center Facility Manager

Summary of Project

In May 2018, YCPHSD, ADHS, and researchers from ASU completed surveys with those experiencing homelessness to gather information about their needs, behaviors, and knowledge regarding heat and cooling centers. The primary goals of this survey were to gather information regarding residents' awareness and use of cooling centers, and information about any factors that limit the use of cooling centers or their effectiveness. This survey also aimed to gauge respondents' knowledge and awareness of heat.

Evaluation

The project team offered water bottles, cooling towels, and heat safety education materials to everyone they approached and successfully administered 76 complete surveys across six different locations in Yuma. A majority of respondents (71%) said that they did not have a regular home on the survey date. Less than half of respondents knew what a cooling center was (46%) or were able to identify where cooling centers were located in Yuma County (40%). Of those familiar with the cooling centers, respondents most commonly reporting learning about their location through word of mouth and from local organizations. Only 41% of respondents felt that their health was in danger on hot days despite 60% of respondents reporting experiencing medical symptoms related to heat. Approximately two thirds of respondents did recall hearing about heat warnings during the summer of 2017 and 79% of those who remembered receiving the warning reported changing their behavior as a result. Respondents who reported changing their behaviors in response to heat warning messages often cited drinking fluids and avoiding the outdoors as their most common protective actions.

Yuma County Public Health Services District Staff distributing heat safety outreach materials and conducting interviews for improving heat response efforts with residents

Team photo of volunteers from Yuma County Public Health Services District, Arizona State University, and the Arizona Department of Health Services.

Preparing for the 2019 Heat Season

In early 2019, YCPHSD, ADHS and ASU will continue to analyze and disseminate results from the resident surveys and manager interviews to prepare recommendations for cooling center and water site improvements for summer 2019. The team is also preparing to conduct a second survey with a focus on elderly residents to better understand the needs of an additional heat-vulnerable population that could benefit from improvements to cooling centers, water sites, and other interventions in Yuma County.

Contributors

Lynn Harlow-Smith
Emergency Preparedness Planner, Yuma County Public Health Services District

David Hondula PhD
Assistant Professor, School of Geographical Sciences & Urban Planning,. Arizona State University

Matthew Roach MPH
Epidemiology Program Manager, Office of Environmental Health, Arizona Department of Health Services

Kaitlyn Snyder MPH
Epidemiologist, Office of Infectious Disease Services, Arizona Department of Health Services

ACKNOWLEDGMENT

Coordinating Lead Author

Matthew Roach MPH
Epidemiology Program Manager
Office of Environmental Health
Arizona Department of Health Services

Contributing Authors

Erika Austhof MPH
Epidemiologist, College of Public Health, University of Arizona

Vjollca Berisha MD MPH
Senior Epidemiologist, Office of Epidemiology
Maricopa County Department of Public Health

Heidi Brown PhD MPH
Assistant Professor, College of Public Health, University of Arizona

Dametreea Carr MPH
Epidemiologist, Infectious Disease and Epidemiology Section, Pinal County Public Health Services District

Lynn Harlow-Smith
Emergency Preparedness Planner, Yuma County Public Health Services District

David Hondula PhD
Assistant Professor, School of Geographical Sciences & Urban Planning, Arizona State University

Kaitlyn Snyder MPH
Epidemiologist, Office of Infectious Disease Services, Arizona Department of Health Services

Suggested Citation

M. Roach, E. Austhof, V. Berisha, H. E. Brown, D. Carr, L. Harlow-Smith, D. Hondula, and K. Snyder. (2018). Addendum to the Arizona Climate and Health Adaptation Plan. A report prepared for the United States Centers for Disease Control and Prevention Climate-Ready States and Cities Initiative.

Contact

For more information, email ExtremeWeather@azdhs.gov or call (602) 364-3118.