

**Alabama Department of Public Health (ADPH)**  
**Emergency Preparedness (EP) Advisory Council**  
**Healthcare Sector Conference Call Minutes**

Date and Time of Call: Wednesday, January 26, 2011 - 0930 to 1030

Call Number: **1-888-776-3766**

Call Room Number: **3251726 press the star (\*) key before and after the room number**

*Please note this is a call-in number and call procedure, the call will not be answered by an operator, but by an automated attendant.*

1. Welcome, Identification of committee members in alphabetical order, Review of Agenda (Sallie Shipman)

1. Steve Anderson, Baptist World Mission
2. Zoe Baker, Black Belt Medical Reserve Corps
3. Stanley Batchelor, Human Services Branch Director, Alabama Emergency Management Agency (AEMA)
4. Valerie Cochran, Asst. State Nursing Director, ADPH
5. Charlie Crawford, Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP)/Medical Reserve Corps (MRC) Coordinator, ADPH, Center for Emergency Preparedness (CEP)
6. Tommy Dockery, EP Coordinator, ADPH, Area 3
7. Carter English, Indigent Drug Program Pharmacist, Alabama Department of Mental Health (ADMH) & Mental Retardation
8. Barbara Ethridge, EP Coordinator, ADPH, Area 7
9. Dr. Amy Freeland, Epidemic Intelligence Officer (EISO), CDC
10. Linda Freeman, Black Belt Medical Reserve Corps
11. Dr. Julia Gargano, EISO, CDC
12. Dr. Tom Geary, Medical Director and Interim Bureau Director Bureau of Health Provider Standards & ADPH Leader Healthcare Sector Committee, ADPH
13. Michael Henderson, Black Belt Medical Reserve Corps
14. Karen Holland, Director of Quality and Regulatory Compliance, Jackson Hospital & Clinic
15. Mary Hooks, Black Belt Medical Reserve Corps
16. John Hooper, EP Coordinator & CRI Coordinator, ADPH, Area 5
17. Sharon Howard, Chapman Healthcare Center
18. Betty Jowers, Surveillance Nurse Coordinator, ADPH, Area 7
19. Donna Keith, Safety Manager, St. Vincent's Birmingham
20. Monica Knight, Director of Disease Control, Mobile County Health Department
21. Ginger Letson, Surveillance Nurse Coordinator, ADPH, Area 2
22. Joe Lynch, Alabama Fire College
23. Stephan Mambazo, Emergency Preparedness Social Worker, ADPH, Bureau of Professional Support Services (BPSS)
24. Shila McKinney, Disease Intervention Specialist, Emergency Preparedness and Response, Jefferson County Health Department
25. Dr. Robert Moon, Medical Director, Office of Health Policy, Alabama Medicaid Agency
26. Dereck Morrison, Emergency Management Coordinator, Bryan Whitfield Memorial Hospital
27. Melissa Morrison, Career Epidemiology Field Officer, Office of Public Health Preparedness and Response, CDC
28. Benjamin P. Rackley, Director, Black Belt Medical Reserve Corps
29. Jane Reeves, CEP Nurse Manager, CEP Healthcare Sector Liaison, ADPH, CEP
30. Sallie Shipman, HVA Nurse Coordinator, Asst. CEP Healthcare Sector Liaison, ADPH, CEP
31. David Shultz, EP Administrator, Mobile County Health Department
32. Rita Tidwell, Chapman Healthcare Center
33. Pam Tony, North Alabama Medical Reserve Corps

2. Review and approval of minutes from October 19, 2010 Healthcare Sector Meeting (Sallie Shipman)

The minutes were approved as sent to the committee.

3. Old Business (Subcommittee Co-chair or designee)

Discussion Items:

A. **Subcommittee Updates-**

**Healthcare Coordination/Operational Planning & Pharmacy Issues**

**Sallie Shipman**, HVA Nurse Coordinator, ADPH CEP

ADPH will continue to work to identify ways that we can assist healthcare facilities in their alternate care site (ACS) efforts. This is a continuation of last year's grant with the [Alabama Hospital Association](#) (AlaHA). One hospital per region (based on discharge rate) that developed or enhanced their ACS plan and this grant cycle, will be provided resources needed to ensure that the ACS will be operational. They will be given funds to purchase what they need, but the list of resources and cost of those resources will have to be approved by [CEP](#) before they receive the funds.

The update of the [Alabama Disaster Planning Guide](#) is still underway. Subcommittee members are working on specific issues within the guide.

The [County](#) and [Area](#) Emergency Support Function (ESF) 8 All-Hazard Assessments submissions are complete. The data derived from the assessments is extremely important to ADPH emergency preparedness planning efforts. [CEP](#) is in the process of interpreting the data and the areas and planning partners will be provided the information as soon as possible. The [Alabama Healthcare Disaster Planning Guide](#) is a companion document to the assessment tool. The documents are approved and available at [Preparedness A-Z](#).

Alabama is currently working towards establishing Closed PODs as an alternate method of dispensing medications in emergency event situations. A Closed POD is a business that has its own medical staff, including a licensed physician who will give the order for the medical staff to dispense to the employees of the facility. Examples of potential Closed PODs are hospitals, military installations, universities, pharmacies, large businesses that have self contained medical staff, etc. The alternate points of distribution (Closed POD) are extremely important to planning for distribution of medications to the community in a timely manner. ADPH Legal is continuing to work on a Closed POD agreement in preparation for the planned Closed POD training.

Mass Dispensing: Medications will have labels that will route the caller to either Auburn (AU) or Samford drug information centers,

or the Alabama Poison Control Center (APC). Discussions are ongoing regarding an exercise in the next grant cycle. The 800 number for patients to call for adverse effects when meds are dispensed in a mass POD by the Health department has been changed. The new toll free number is: 855-883-2481.

**Training and Exercise Planning – Sallie Shipman, HVA Nurse Coordinator, ADPH CEP**

**Please visit the [CEP Training](#) webpage for more information.**

**Legal Implication and Resources to Assist Community Healthcare Planning Efforts**

This program will be broadcast on February 15, 2011 and will broadly examine the role of government in implementing the CDC’s community social distancing standards for mitigating pandemic influenza. It will specifically discuss the practical limitations of enforcing social distancing and the authority and legal framework upon which enforcement may be based. The Alabama response to H1N1 and resources available to assist communities in healthcare planning efforts will also be discussed. Please view the [Flyer](#), [Registration](#), and [Course Details](#).

**Closed Point of Dispensing Training**

Public Health Area (PHA) Closed Points of Dispensing (POD) Training – scheduled during February/March 2011. Training will occur in each of the PHAs to prepare entities interested in operating as a Closed POD. The dates are as follows:

Date	PHA	Location
February 24, 2011	Area 2	U.S. Space and Rocket Center, Huntsville, AL
March 1, 2011	Area 10	Dothan Farm Center, Dothan, AL
March 8, 2011	Area 5	Convention Hall, Gadsden, AL
March 9, 2011	Area 7	Demopolis Civic Center, Demopolis, AL
March 10, 2011	Area 9	Poarch Creek Reservation
March 15, 2011	Area 6	AIDB – Talladega, AL
March 16, 2011	Area 4	Boutwell Auditorium, Birmingham, AL
March 22, 2011	Area 1	Florence Coliseum, Florence, AL
March 24, 2011	Area 3	Venue to be determined (TBD)
March 29, 2011	Area 11	Venue TBD
March 31, 2011	Area 8	Tentative Venue TBD

**Psychology of Decision Making for First Responders**

The ADPH CEP and [Office of Emergency Medical Services and Trauma](#) (OEMST) is partnering with the University of Alabama Birmingham (UAB) [South Central Preparedness and Emergency Response Learning Center](#) to provide "Psychology of Decision Making for First Responders" trainings in March and April. This one

day course will focus on the psychological factors involved with first responder decision making during emergency response situations. The target audience is emergency response personnel including emergency medical services, law enforcement, fire service personnel, emergency managers, and emergency department nurses. The course will be presented in [Prattville](#), [Decatur](#), and [Orange Beach](#). There is no cost to attend the course but pre-registration is required. The link for on-line registration is as follows:

<http://www.southcentralpartnership.org/psychologydecisionmaking32011>

### **Pediatric Trauma and Disaster Course**

Pediatric Trauma and Disaster Courses will be conducted in April, 2011. The training is sponsored by the ADPH CEP, OEMST, and the University of Alabama Birmingham, (UAB) [South Central Preparedness and Emergency Response Learning Center](#). The instructor is Mark Baker, MD, MPH, FAAP. The course will be held in Huntsville on April 6, 2011, and in Montgomery on April 20, 2011. This one day course will focus on pediatric trauma care and hospital disaster preparedness and response. The target audience includes but is not limited to: physicians, first responders, first receivers, extended practice nurses, nurses and administrators working in community emergency departments who may respond to critically injured children or to a mass casualty event involving children. Please view the flyers for [Huntsville](#) and [Montgomery](#). There is no cost to attend the course but pre-registration is required. Participants may register online at:

<http://www.southcentralpartnership.org/pedsdisastertrauma42011>

### **Cities Ready Initiative and Strategic National Stockpile**

Cities Ready Initiative (CRI) and Strategic National Stockpile (SNS) - Distribution Training will adapt the CDC Receiving Staging Storage (RSS) Training Course to County Staging Areas. This training will cover the roles and responsibilities of key staff involved in the receiving and distribution process at the County Staging Areas. At the close of this training a Pick List Generation drill will be performed. This training is scheduled for June 15, 2011 at the Shelby Exhibition Center in Columbiana. For more information on CRI please visit: <http://www.bt.cdc.gov/cri/>.

### **Regional Distribution Site and Receiving Staging Storage Training**

Regional Distribution Site (RDS) distribution from the Receiving Staging Storage (RSS) Training is tentatively scheduled to occur in May 2011 where two training sessions will be conducted; one in Tuscaloosa and one in Montgomery. This is meant to test the distribution process from RSS to RDS.

### **Cities Ready Initiative Functional Exercise**

CRI Functional Exercise is scheduled during July 2011 in Shelby County. This exercise will test the current plans and policies for the initial requesting procedure through re-supply.

### **Faith Based/Community and Other Volunteers Sector –**

**Charlie Crawford**, ESAR-VHP/MRC Coordinator, ADPH CEP

ADPH CEP is still working to set the time and date for this year's Volunteer Symposium. The process of posting an Invitation to Bid for a new Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) system to the State Purchasing website is also underway. The desired system will give administrative access and expanded functionality features to Medical Reserve Corps (MRC) unit coordinators and ADPH CEP Emergency Coordinators.

#### 4. New Business (Sallie Shipman)

Discussion Items:

- A. *Morbidity and Mortality Weekly Report (MMWR) Findings from Cooperative Efforts Between Centers for Disease Control and Prevention (CDC) and ADPH during January 2010 Water Shortage -***  
**Melissa Ann Morrison**, Career Epidemiology Field Officer, Office of Public Health Preparedness and Response, CDC;  
**Barbara Etheridge**, Area 7, EP Coordinator;  
**Julia Gargano**, PhD, Epidemic Intelligence Officers (EISO), CDC; and  
**Amy Freeland**, PhD, EISO, CDC

On January 7, 2010, extreme freezing conditions caused a water shortage in two Alabama counties. Residents were without water and the Alabama Emergency Management Agency (AEMA) and ADPH responded on both state and local levels. ADPH requested assistance from the Centers for Disease Control and Prevention (CDC) to:

1. Assess the potential community health impacts.
2. Document alternative water sources used by households and institutions.
3. Evaluate the effectiveness of health communications messages.
4. Assist Alabama with assessing the effectiveness and coordination for the emergency response.

ADPH and CDC staff conducted a field investigation one month after the return of water service, including household surveys, focus group meetings, institutional surveys, and meetings with emergency responders and government agencies. The methods, survey material, focus group, and results details are available in the PowerPoint slides located at the end of the minutes.

**Conclusions from the field investigation noted:**

1. Increased prevalence of acute gastrointestinal illness (AGI) in affected households
2. Households and institutions were not prepared
3. Residents prefer information from official sources
4. Vulnerable populations had difficulty getting water
5. Emergency plans have been modified since the event

**Recommendations to ADPH:**

1. Develop water emergency response protocols
  - Notification procedures between agencies
  - Facility prioritization
  - List of facilities to be notified
2. Develop a water distribution plan
  - Identify priority populations
  - Create hierarchy of emergency water sources
  - Plan non-potable water for hygiene
3. Develop community communications toolkit
  - Notification templates
  - Dissemination plans
  - Targeted emergency messages
4. Provide guidance on household preparedness
  - Recommendation for water storage
  - Guidance for cold weather preparation for homes
5. Provide guidance for institutional preparedness
  - Written water plans
  - Clear protocols

**Overall Public Health Recommendations:**

1. Assess and remediate system vulnerabilities
2. Include plans for vulnerable populations
3. Use the CDC Drinking Water Advisory Toolbox for water emergencies (this toolbox has not been released, but will be forwarded to the HCS Committee upon release).

**B. Healthcare Sector Direction for 2011 –**

**Dr. W. T. Geary**, Healthcare Sector Leader

Dr. Geary led a segment to allow additional comments and discussion from the committee members. He offered committee members the opportunity to guide the committee direction for the coming year. Please consider sharing your thoughts and comments with us. You can email ideas, suggestions, new projects, new directions, etc. to Sallie Shipman at [sallie.shipman@adph.state.al.us](mailto:sallie.shipman@adph.state.al.us). During the April HCS Committee call, the responses along with a historical review of committee projects will be presented.

5. New Business, not identified on the agenda (Sallie Shipman)  
No new business was introduced on the call.
6. Review date and time of next call, **Tuesday, April 26, 2011** then to be held quarterly on the fourth Tuesday of the month from 9:30 a.m. until 10:30 a.m. (Sallie Shipman)
7. Other topics and announcements (All)  
No other topics and announcements were introduced on the call.
8. Adjourn

## Community Health Impact of an Extended Water Service Interruption – Alabama, 2010

Julia Gargano, PhD and LT Amy Freeland, PhD  
EIS Officers

Tuesday Morning Seminar  
November 2, 2010

National Center for Emerging and Zoonotic Infectious Diseases  
High-Consequence Pathogens and Pathology



### Outline

- Setting and Event
- Quantitative Investigation
  - Methods
  - Results
  - Limitations
- Qualitative Investigation
  - Methods
  - Results
  - Limitations
- Conclusions
- Recommendations

Setting and Water Emergency

## BACKGROUND

### Drinking Water Quality and Health

- **The quality of drinking-water is a powerful environmental determinant of health. Assurance of drinking-water safety is a foundation for the prevention and control of waterborne diseases.**



[http://www.who.int/water\\_sanitation\\_health/dwq/en/index.html](http://www.who.int/water_sanitation_health/dwq/en/index.html)



## Drinking Water Quality and Health

### ■ Aging water infrastructure

- ASCE water infrastructure grades: D-
- \$300-500 billion needed in next 20 years
- 250,000 water main breaks per year
- Low pressure transients and contamination



Staten Island Advance/Michael Oates  
Water is shooting out of the ground creating a lake on Richmond Terrace. 2008

### ■ Unknown burden of disease

- Low pressure events and diarrhea (United Kingdom)
- Breaks and maintenance work in water distribution system and gastrointestinal illness (Norway)

## Water Crisis

January 7, 2010 / Front Page



### FROZEN!

Severe cold to last through the weekend.  
Freezing temperatures in [redacted] County this week froze water in pipes and turned standing water and outdoor water features into ice sculptures. [More...](#)

### Sonic's landlords seek new franchisee

By Adam McLean Egan  
The owners of the Sonic restaurant in [redacted] are currently seeking a new franchisee after the restaurant was closed, apparently without

### [redacted] Water Crisis Update - Free Access

Most of city without water.  
More than 95 percent of [redacted] and its populace is without water, and at an emergency meeting Monday morning, city officials could not guarantee when water would be back on. "We never felt so helpless," said Mayor [redacted]. [More...](#)

### Water cut off to most of city - state of emergency declared - Free Access

After [redacted] City Council declared a state of emergency today (Friday) due to severe water shortages in the [redacted] water system. During an emergency meeting Friday morning, Mayor [redacted] briefed the council on the situation. [More...](#)

Source: Community A Newspaper

## Request for CDC Assistance

1. Assess the potential community health impacts
2. Document alternative water sources used by households and institutions
3. Evaluate the effectiveness of health communications messages
4. Assist state with assessing the effectiveness and coordination of the emergency response

## Field Investigation

- February 22
  - 1 month after return of water service
- Field Team
  - 2 EISOs
  - 1 Epi Elective Student
  - 2 Environmental Health Services Staff
  - 1 Senior Statistician
- ADPH Team
  - 1 CDC assignee
  - ADPH staff from state, area, and county offices

Overview

## **METHODS**

### **Investigation Activities**

- Household Survey
- Focus Groups
- Institutional Survey
- Meetings with Emergency Responders and Government Agencies

Quantitative

## **METHODS**

### **Household Survey Methods**

- In-person, population-based, retrospective survey
- Sampling frame: E911 line listings
- Stratified Random Sample
- 450 addresses in each county
  - Communities A and B
  - Demographically similar, less affected areas

## PDA Programming and ADPH Field Staff Training

- PDAs programmed by CDC staff in DPDM
- 40+ ADPH staff trained
  - Basic survey methods
  - Questionnaire instrument
  - How to collect data on PDA
  - Use of visual aids



## Conduct of Survey

- 2/6 – 3/9 (10 days)
- Teams of 2 ADPH staff
- Multiple visits
- Household respondent
  - Age 18
  - Resident of home in January
  - Municipal water service
- Data collection
  - Visual aids
  - PDA



## Survey Topics

- Household Level
  - Normal water service
  - Water service interruption
  - Emergency preparedness
  - Communication
  - Emergency water
    - Sources
    - Treatment
    - Purposes

Water Service 4:08

**Water Service**

Now we would like to ask you about what water you used during the shortage.

What were all of the water sources that you used during the water shortage?

Water from faucet (tap)

Well water (private)

Bottled water (bought, tap)

AEMA bottled water

Health Dept Water (ADPH)

National Guard

Other  Don't know/Ref

<< Back TESTUNIT-2 Next >>

Menu

## Survey Topics

- Household level
  - Normal water service
  - Water service interruption
  - Emergency preparedness
  - Communication
  - Emergency water
    - Sources
    - Treatment
    - Purposes
- Individual level
  - Demographics
  - Illness
  - Activity interruptions

## Definitions: Illness Outcomes

- Calendar for visual prompt
  - January 4 until end of month
- Acute Gastrointestinal Illness (AGI):
  - New onset of diarrhea or vomiting
  - **Diarrhea =  $\geq 3$  loose stools in 24 hour period**
- Acute Respiratory Illness (ARI):
  - New onset of cold/flu symptoms like cough, runny or stuffy nose, headaches, or muscle or body aches

## Definitions: Water Exposures

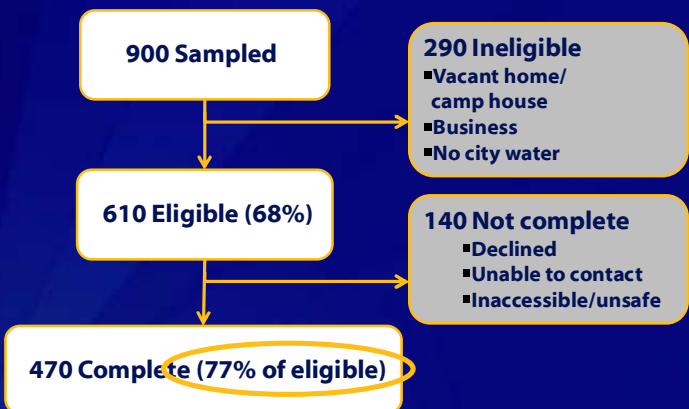
- Loss of service: water completely stopped working
- Loss of pressure: water came on but pressure low
- Duration (number of days)
- Water sources, treatment, and uses
- Non-recommended water for potable purposes\*
  - Unboiled tap water in affected household
  - Water provided by National Guard
  - Water from sources unknown to officials before investigation

\*Potable purposes defined as drinking, cooking, or brushing teeth.

Quantitative

## RESULTS

## Household Survey Response



### Individuals in Study Population (N=1283)

- Age
  - Mean 37 years
  - Range 0 to 94 years
- 54% female
- Race
  - Overall : 55% African-American, 44% white
  - County A: 46% African-American, 53% white
  - County B: 81% African-American, 18% white
- County-level demographics comparable to census

### Prevalence of AGI, ARI and Water Exposures

- Acute Gastrointestinal Illness (AGI) 7.6%
- Acute Respiratory Illness (ARI) 14.8%
- Household water exposures not uniform
  - Loss of service 41%
  - Loss of pressure 53%
  - Consumed unboiled tap water 23%
  - Consumed any non-recommended water 28%

### AGI Summary

- Increased odds of AGI associated with exposure to water service interruption
  - Loss of service and pressure
  - Extended loss of service
  - Extended loss of pressure
  - Ingesting non-recommended water
  - Dose response effects
    - Duration of loss of service
    - Duration of loss of pressure

### Household Survey Limitations

- ~~Can't determine which event~~-related factors primarily responsible for increased AGI
  - Consumption of contaminated water
  - Alterations in hygiene and sanitation practices
  - Changes in activities (school closures, work absences)
- Timing of exposures and illnesses uncertain
- No biologic samples to corroborate illness or identify pathogen
- Recall bias

## Challenges

- Vacant lots, missing addresses, non-existent homes
- Impassable and unmarked roads
- Gated properties
- Safety concerns
- No cell phone service



## QUALITATIVE INVESTIGATION

## Qualitative Methodologies

- Data collection activities
  - Focus groups
  - Institutional surveys
    - Businesses
    - Schools/daycares
    - Healthcare facilities
  - Emergency response meetings
- Main topics
  - Community health impacts
  - Health communications
  - Emergency preparedness
  - Emergency response

Qualitative

## METHODS

## Focus Groups Methods

- ADPH determined target populations
  - 3 groups per community
    - Senior citizens
    - Parent/teacher association
    - Members of a civic club
    - Volunteer fire fighters
- CDC trained local ADPH facilitators
- Semi-structured, open-ended questions to assess:
  - Household impact
  - Emergency preparedness
  - Suggestions for future events
- Transcripts analyzed using Atlas TI

## Institutional Surveys Methods

- Conducted by local environmental health sanitarians
- Institutions included:
  - Restaurants
  - Schools/daycares
  - Medical facilities
- Questions focused on:
  - Impact of water service interruption
  - Emergency preparedness
  - Actions taken during and after the boil water advisories



## Emergency Response Meetings Methods

- ADPH organized meetings in each county
  - Local public health officials & sanitarians
  - Water utility/water board members
  - Local elected officials
  - EMA coordinators
- Facilitated by CDC environmental health officer
- Participants asked to:
  - Evaluate pre- event water emergency preparedness
  - Review emergency events and response
  - Explore lessons learned
  - Share plan modifications



Qualitative

## RESULTS



## Main Topics

- Community health impacts
- Health communications
- Emergency preparedness
- Emergency response

## Community Health Impacts

Household Survey

Focus Groups

Institutional  
Surveys  
Emergency  
Response Mtg.

## Community Health Impacts

Household Survey – Increased AGI in affected households  
– 7.6% used “other” water

Focus Groups

Institutional  
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Emergency  
Response Mtg.

## Community Health Impacts

Household Survey – Increased AGI in affected households  
– 7.6% used “other” water

Focus Groups – Water safety concerns: Community B

Institutional  
Surveys  
Emergency  
Response Mtg.



### Community Health Impacts

**Household Survey** – Increased AGI in affected households  
– 7.6% used “other” water

**Focus Groups** – Water safety concerns: Community B  
– Some had trouble getting water  
– Old age  
– Disability  
– Inability to carry water  
– Transportation limitations

**Institutional Surveys**

**Emergency Response Mtg.**

### Community Health Impacts

**Household Survey** – Increased AGI in affected households  
– 7.6% used “other” water

**Focus Groups** – Water safety concerns: Community B  
– Some had trouble getting water  
– Old age  
– Disability  
– Inability to carry water  
– Transportation limitations  
– Hygiene was biggest difficulty  
– Showering  
– Hand washing  
– Toilet flushing

**Institutional Surveys**

**Emergency Response Mtg.**

### Alternative Water Sources



Artesian well  
Community A

Tap in local park  
Community B

### Community Health Impacts

**Household Survey** – Increased AGI in affected households  
– 7.6% used “other” water

**Focus Groups** – Water safety concerns (Community B)  
– Some had trouble getting water  
– Hygiene was biggest difficulty  
– Alternate water sources identified

**Institutional Surveys**

**Emergency Response Mtg.**

– No increase in AGI or ARI visits

## Community Health Impact

- Household Survey** – Increased AGI in affected households  
– 7.6% used "other" water
- Focus Groups** – Water safety concerns (Community B)  
– Some had trouble getting water  
– Hygiene was biggest difficulty  
– Alternate water sources identified
- Institutional Surveys** – No increase in AGI or ARI visits
- Emergency Response Mtg.** – Healthcare facilities prioritized

## Health Communications

- Household Survey**
- Focus Groups**
- Institutional Surveys**
- Emergency Response Mtg.**

## Health Communications

- Household Survey** – <50% heard at beginning of event  
– Most prefer telephone notification  
– <5% used internet for information
- Focus Groups**
- Institutional Surveys**
- Emergency Response Mtg.**

## Health Communications

- Household Survey** – <50% heard at beginning of event  
– Most prefer telephone notification  
– <5% used internet for information
- Focus Groups** – Many heard information informally  
– Some information inaccurate  
– Prefer information from officials
- Institutional Surveys**
- Emergency Response Mtg.**

## Health Communications

- Household Survey** –<50% heard at beginning of event  
–Most prefer telephone notification  
–<5% used internet for information
- Focus Groups** –Many heard information informally  
–Some information inaccurate  
–Prefer information from officials
- Institutional Surveys** –Non-permitted facilities not notified  
–Prefer information from officials
- Emergency Response Mtg.**

## Health Communications

- Household Survey** –<50% heard at beginning of event  
–Most prefer telephone notification  
–<5% used internet for information
- Focus Groups** –Many heard information informally  
–Some information inaccurate  
–Prefer information from officials
- Institutional Surveys** –Non-permitted facilities not notified  
–Prefer information from officials
- Emergency Response Mtg.** –Advisories created during event  
–Post-graduate reading level  
–Believed informal notification best  
–Few used internet for information

## Emergency Preparedness

- Household Survey**
- Focus Groups**
- Institutional Surveys**
- Emergency Response Mtg.**

## Emergency Preparedness

- Household Survey** –Dependent on public water supply  
–70% drink tap  
–3% have a well
- Focus Groups** –45% had water stored  
–<10% stored >5gallons  
–>20% had burst pipes
- Institutional Surveys**
- Emergency Response Mtg.**

## Emergency Preparedness

**Household Survey** – Dependent on public water supply  
– 45% had water stored  
– >20% had burst pipes

**Focus Groups** – Few store water  
– Stored water not enough

**Institutional Surveys**

**Emergency Response Mtg.**

## Emergency Preparedness

**Household Survey** – Dependent on public water supply  
– 45% had water stored  
– >20% had burst pipes

**Focus Groups** – Few store water  
– Stored water not enough

**Institutional Surveys** – 13% stored water  
– <25% of businesses had a plan  
– Few health facilities had water plans

**Emergency Response Mtg.**

## Emergency Preparedness

**Household Survey** – Dependent on public water supply  
– 45% had water stored  
– >20% had burst pipes

**Focus Groups** – Few store water  
– Stored water not enough

**Institutional Surveys** – 13% stored water  
– <25% of businesses had a plan  
– Few health facilities had water plans

**Emergency Response Mtg.** – Not planned for water interruption  
– Modified plans after event  
– Plans for water to vulnerable people

## CONCLUSIONS AND RECOMMENDATIONS

## Conclusions

- Increased prevalence of AGI in affected households
- Households and institutions not prepared
- Residents prefer information from official sources
- Vulnerable populations had difficulty getting water
- Emergency plans modified since event

## Recommendations to ADPH

1. **Develop water emergency response protocol**
  - Notification procedures between agencies
  - Facility prioritization
  - List of facilities to be notified
2. **Develop water distribution plan**
  - Identify priority populations
  - Create hierarchy of emergency water sources
  - Plan non-potable water for hygiene

## Recommendations to ADPH

3. **Develop community communications toolkit**
  - Notification templates
  - Dissemination plans
  - Targeted emergency messages
4. **Provide guidance on household preparedness**
  - Recommendation for water storage
  - Guidance for cold weather preparation for homes
5. **Provide guidance for institutional preparedness**
  - Written water plans
  - Clear protocols

## Overall Public Health Recommendations

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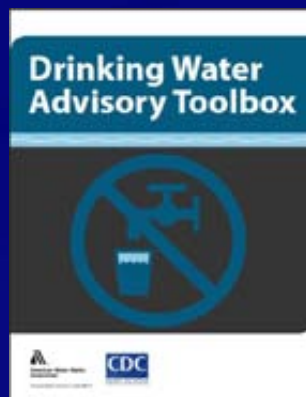
- Assess and remediate system vulnerabilities

## Overall Public Health Recommendations

- Assess and remediate system vulnerabilities
- Include plans for vulnerable populations

## Overall Public Health Recommendations

- Assess and remediate system vulnerabilities
- Include plans for vulnerable populations
- Use Drinking Water Advisory Toolbox for water emergencies



## ADPH Data Collection Team

- |                      |                       |                    |
|----------------------|-----------------------|--------------------|
| ■ Teresa Porter      | ■ Tina Syphrit        | ■ Hugh Railey      |
| ■ Daniel Wysmulek    | ■ Stephen Wood        | ■ Jenny Pope       |
| ■ Jamie Bender       | ■ Byron Webb          | ■ Ricky Elliott    |
| ■ Michael Woodfin    | ■ Jason Roley         | ■ Ruth Underwood   |
| ■ David Kelly        | ■ Kevin Kiser         | ■ Chad Kent        |
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**Julia Gargano, PhD**  
[jgargano@cdc.gov](mailto:jgargano@cdc.gov)

**Amy Freeland, PhD**  
[afreeland@cdc.gov](mailto:afreeland@cdc.gov)

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Division of Communication and Emergency Response  
Department of Emergency Preparedness and Response

