County Health Department Epidemiology Hurricane Response Toolkit

Bureau of Epidemiology
Florida Department of Health
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Acknowledgements

The County Health Department Hurricane Toolkit can be found in its entirety with all supporting documents on the Bureau of Epidemiology intranet site at:
https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/surveillance-systems/hurricane-toolkit/hurricane-toolkit.zip

The disaster email address for the Bureau of Epidemiology surveillance section is:
EPI.Event@flhealth.gov.

Table of Contents

I.   Introduction

Welcome to the Hurricane Response Epidemiology Tool Kit! This set of guidelines, documents, and files is intended to help you plan for and carry out the epidemiologic response to a natural disaster such as a hurricane. Every hurricane is different, and every community will have a different experience with the same hurricane. Thus, these tools are designed to be flexible and adaptable to a wide range of situations. Indeed, they should be useful beyond hurricanes, in case of widespread wildfires, flooding, tornadoes, or other natural disasters.

Sometimes there is fairly wide infrastructure damage after a hurricane, but most people remain in their homes, even if they are damaged, and most health care facilities are operating. However, the infrastructure damage may extend to the health care system, so that the only functioning sources of health care are temporary or emergency facilities. At times the county health department is functioning at close to a normal level, while at other times its own facilities and staff have been badly impacted and will require extensive outside assistance. Other times, the center of the hurricane impacted area is essentially depopulated for a time, with nowhere for people to live except shelters and other temporary facilities. *In each of these situations, there is a role for epidemiologic services in monitoring the health of the population of the area, detecting disease or injury problems that need response, and monitoring the unmet health and public health needs of the population*. The details of the response will differ, based on needs.

These tools are designed primarily for a county health department (CHD) that is functioning locally and trying to respond to health needs and concerns in a post-hurricane situation, perhaps with some staff augmentation from outside. They also are designed to be useful to an epidemiology team that has been brought into a community from outside, either to augment or to replace the functions of one or more county health departments after a storm. In this packet, you will find a variety of types of document that include:

- Recommendations and guidelines
- Sample forms
- Sample reports
- Sample spreadsheets with built-in calculations

We address:

- Roles and functions of Epidemiology Units in hurricane response
- Active surveillance
- Passive surveillance
- Outbreak investigation and management
- Infection control in group settings
- The Incident Command System
- Assistance available from headquarters epidemiology units

We hope you find these materials useful. Please contact the Bureau of Epidemiology, (850) 245-4401 with questions or suggestions for improvement. This is intended to be a flexible resource that changes as needed as experience is gained through its use.

Additionally, more resources can be found in the Environmental Health toolkit available at:
https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EH/EHpreparedness/2016%20Hurricane%20Season/EH%20Response%20Guide/2016_EH_PREP_Response_Guide_Final.pdf and addresses such issues as:

- Environmental Health Response Guide for 2012
- 2012 Precautionary Boil Water Notice Interagency
- Guide and Public Water System Letters
- Emergency Contacts
- Forms
- Personal Preparedness
- Emergency Plans
- Public Health Hazard and Vulnerability
- Strike Teams
- Pet Friendly Shelters
- Drinking Water Investigation Sampling Resources
- Environmental Health Resources

II.   Roles and Functions of the County Health Department Epidemiology Units in Hurricane Response

See Appendix A for Event Preparedness and Response Checklist/Worksheet that corresponds to Sections A & B below.

A. Pre-Event Roles

The pre-event roles and functions of county health department epidemiology unit's hurricane response is identifying and carrying out critical action items prior to a hurricane's landfall.   Items 1-13 below identify and describe some of these critical actions.

1.   Pre-Event State Health Office Contact

Pre-Event communication is an important component to be prepared for post-event actions. Prior to a hurricane's landfall, a conference call will be held between CHDs and the Epidemiology Team at the State Health Office. This conference call will focus on the CHD activities prior to, during, and after the storm. It may be useful to print out in advance a copy of the Bureau of Epidemiology and the Bureau of Environmental Health Contact List (and your neighboring local CHD contacts). CHD contacts can be found at http://www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/surveillance-and-investigation-guidance/_documents/chd-epi-contacts.pdf

Bureau of Epidemiology contacts can be found on the DOH SharePoint at https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/disease-reporting-guidance-and-response-resources/epi-contact-information/internal-epi-phone-list.pdf Additionally, more resources can be found in the Environmental Health toolkit is available at:

2.   Continuity of Operations Plan (COOP)

Each CHD should have a Continuity of Operations Plan in place, and epidemiology staff should be aware of what relocating operations post-disaster entails. There are several areas of focus that should be addressed in considering the COOP and in continuing operations at an alternative location:

Identify a relocation site
Epidemiology staff should work with CHD leadership to designate a primary and secondary alternate operating facility. Identify and list alternate operating facility phone numbers and fax machine numbers and distribute to community partners where applicable, so that disease reporting and other epidemiologic functions can readily continue at the alternate location.

Identify critical staff
Designate staff members who will be in charge of maintaining or re-establishing the epidemiology functions within your county health department. List critical CHD epidemiology functions such as disease reporting, surveillance, and outbreak response, and assign specific individuals to perform these functions where applicable (see checklist in Appendix A).

Identify Drive-Away-Bag Contents
Expect that you will be working at the relocation site. Drive-Away-Bags are kits that allow for continuity of operations and contain resources such as investigation forms, manuals, contact lists, laboratory sample supplies, computer files, laptops, video/photography equipment, health education materials, etc. Plan on bringing all the essential items needed to carry out your duties, including disease reporting and outbreak investigation. Plan to bring hard copies of critical documents. This hurricane toolkit as well as other supporting documents can be saved on a "thumb" (flash) drive in case access to computer networks normally accessible at the main CHD site of operations are not available.

Identify Support Equipment
List all the minimum equipment needed to carry out your functions (e.g. computers, chairs, phones, locking storage bins for storing confidential information, paper, disks, pen, etc.) that may not be part of a drive-away-bag or another preparedness tool box. Items such as basic furniture may be required at the new site (portable chairs and tables), as well as phones and phone lines, chargers, and electrical equipment for connecting computers, printers, and other electronic equipment used.

Identify Support Computer files and Programs
Shared or other network drives may not be accessible at the new site. Plan accordingly: list all necessary computer applications that should be installed on laptops (e.g. Excel, Access, SAS, SPSS, EpiInfo, etc.) prior to an event. Update all web addresses needed to complete the job (e.g. Everbridge, SERVFL, EpiCom, Merlin, ESSENCE-FL, EpiGateway, CDC, DOH, etc.). Ensure VPN's

are working and passwords for systems are saved in a location where they will be accessible at a new site.

Merlin	http://merlin.doh.ad.state.fl.us/merlin/MainMenu.aspx Merlin.Helpdesk@flhealth.gov
ESSENCE-FL	https://www.essencefl.com/ Essence.Help@flhealth.gov
EpiCom	Accessed via Everbridge/SERVFL; select EpiCom http://www.servfl.com/
Everbridge/SERVFL	http://www.servfl.com/
EpiGateway	https://www.epigateway.com/ epigatewayhelpdesk@flhealth.gov

3. Coordinate with Public Information Officer (PIO)

It is important that epidemiology staff review procedures and maintain contact with public information officers for the local health department. Meet with PIOs, and discuss how your CHD will disseminate public health information and press releases before, during, and after the storm. Also discuss how your CHD will notify providers about any changes in the reporting of reportable diseases or outbreaks.

4. Establish Communication with the Health Care Community

Inform the health care community (hospitals, health care providers, infection control nurses, emergency departments, urgent care centers, correctional facilities, and laboratory directors) as to how to reach the CHD epidemiology unit following the storm and/or instruct them about alternate disease reporting, if necessary.

5. Notify your nearest state laboratory and review inventory of laboratory collection specimen kits

Determine the operational status of the nearest state laboratory. *Before* the storm, order more of the following if necessary: collection materials for bacterial specimens, viral specimens, and ova and parasites; laboratory collection forms, shipping and packing materials, transport media; verify that Environmental Health has laboratory collection kits for animal heads in the event of possible rabies exposures. Make sure a cooler/cooler bag and all specimen collection and transport materials are available. Plan for keeping specimens cool (where required) by freezing gel packs in advance (where possible, freeze in a generator-supported location in case of power outage).

6. Establish Communication with local Environmental Health staff

Epidemiology and Environmental Health teams work closely prior, during, and after the hurricane to identify and resolve risks to the health of the public. It may be necessary to pre-determine roles and responsibilities so that an

understanding is reached in terms of what units will a) follow-up on events such as animal bites b) investigate shelter outbreaks, etc. Contact your Regional Food and Waterborne Disease Epidemiologist and establish contact with the Division of Business and Professional Regulation (DBPR) and the Department of Agriculture and Consumer Services (DACS) to coordinate the response to foodborne illness complaints following the storm. Make sure you of EH staff know the location of your Foodborne Disease Investigation kit and your Water Investigation kits.

7. Establish Communication with the local immunization unit

Epidemiology and Immunization personnel may need to work closely post-hurricane in the event that a vaccine preventable illness becomes a public health problem in the community (i.e. tetanus, rabies post exposure prophylax). There is often a surge in the need for requested tetanus shots due to the increase in injuries that often occur during post-storm clean-up activities.

8. Establish Communication with local TB, STD, and HIV/AIDS units

Identify other trained investigators that may be willing to assist with epidemiology/communicable disease investigations or surveillance, should the need arise.

9. Establish Communication with local Mosquito Control

Discuss plans for continuing surveillance following the storm as sentinel sites for arboviral surveillance may be damaged or destroyed. Standing water due to heavy rains can lead to an increased need for mosquito spraying and control activities.

10. Contact local Animal Control

Ensure animal bites are reported. Animal bites can be prevalent after a hurricane due to the number of animals that may be "new" strays. Establishing contact with Animal Control will help in the process of reporting and responding to animal bites. Include bite report forms and other supporting materials in the drive-away-bag.

11. Implement Post-Disaster Surveillance for Illness and/or Injury at Key Facilities

Prior to the storm evaluate the normal census data for local hospitals. Determine the baseline of reportable diseases in the county. Identify contacts at each facility (hospitals, nursing homes, acute care centers, shelters, correctional facilities). Determine when to distribute surveillance materials (See Section III) and instructions on how surveillance information will be sent to CHD from the reporting facility should electronic transmission of emergency department data into ESSENCE-FL be disrupted. Determine how the surveillance information will be distributed back to participating facilities in a usable or summarized form (i.e. site-specific updates or brief written reports). Obtain GIS maps of your local area prior to the storm in the event street signs are unavailable due to storm damage.

These maps will assist you in pinpointing surveillance locations of importance (schools, hospitals, shelters). Section III details the process of Post-Event syndromic surveillance and includes forms and templates that can be used to implement paper-based surveillance activities of this form at the local level.

12. Long Term Care Facilities

Establish communication with Long Term Care Facilities/Nursing Homes/Assisted Living Facilities and obtain a list of locations where they are evacuating residents.

13. Shelters

Establish communication with newly opening storm shelters via the local Incident Command System/EOC (Emergency Operations Center). Review disease reporting procedures and determine who will discuss infection control procedures with shelter staff following the storm. Coordinate with Environmental Health Specialists who will be conducting sanitation inspections of shelters and feeding stations. Continue to communicate with shelters (in person or over the phone) as needed or on a weekly basis during the response phase. Daily communication and monitoring is best for ensuring any community health issues or outbreaks can be addressed as soon as possible. Section VI contains guidelines and documents that may be beneficial to distribute prior to event impact (i.e. Shelter Flow Form, Infection Control Guidelines for Shelters).

B.   Post-Event Roles

After a major event, such as a hurricane, assessments should take place that help local epidemiology staff characterize the extent of impact on the unit's ability to function properly, as well as how other community partners are functioning post-event. The initial assessment should include contacting all potential epidemiology staff (including your regional environmental epidemiologist) to determine their availability, as well as to determine whether your facilities are safe and adequate for the purpose of working.

As detailed in Section A above, local epidemiology units should prepare to work from a different location if necessary, and planning for this contingency should occur prior to impact. Knowing what resources are available post-event will help determine the need for assistance from outside of your county, and possibly the deployment of an epidemiology strike team. If you know in advance that your typical epidemiology staff will be assigned to special needs shelter duty, then consider informing the Bureau of Epidemiology of this issue so that plans can be made to assist with epidemiologic activities.

At the post-event stage ascertain the impact of the event on health care and public health infrastructure. The County Emergency Operations Center (EOC) should have representatives that can provide information on the status of local health care facilities and hospitals. Also, determine from the EOC if federal disaster medical assistance teams (DMATs) and/or the United States Public Health Service (USPHS) Mobile Clinics have been deployed to your area. If so, obtain contact information for these units if this has not been done in advance of the event. The EOC should have information on the

status of local water and sewer systems, although local Environmental Health staff may also know this information.

Begin re-establishing contact with key disease control partners in the community. These include, but are not limited to: Environmental Health, infection control practitioners, emergency departments, urgent care centers, DMATs and USPHS mobile clinics (if deployed), Red Cross, local laboratories, the state laboratory (if one of the state laboratory facilities is nearby and has been impacted), and the courier service that typically transports laboratory samples/specimens for local laboratories. These partners were covered in Section II.A above, and contact information for each should be an integral part of the post-event resources or drive-away-bag.

Determine the extent to which these community partners are able to continue their usual communicable disease reporting responsibilities. If electrical and/or telephone service disruptions interrupt these activities for a period of time post-event, be prepared to establish alternative approaches for receiving this information as soon as possible. If feasible, visit representative local emergency departments and urgent care centers if contact is not able be made otherwise.

The major epidemiologic activities post-event will include:

1. Maintaining reportable disease surveillance activities with local public health partners (see Section III below);

2. Where applicable, establishing increased communicable disease surveillance and syndromic surveillance within particular hospitals, clinics, and the DMATs/USPHS Mobile Clinics deployed to the area;

3. Investigating disease outbreaks or increased incidence in community health events (such as communicable diseases or injuries)

Prepare descriptive reports of syndromic/enhanced surveillance data (# 2 above) daily, and communicate the information these data provide to the ICS, EOC and CHD leadership. If the resources for analysis are limited locally, establish a process for submitting this information to the Bureau of Epidemiology in Tallahassee for analysis. The Bureau of Epidemiology can provide support in compiling and analyzing surveillance data.

Anticipate that outbreaks of communicable diseases may occur post-event, but due to the general state of disruption to public health resources the investigation of these outbreaks may proceed differently than during non-disaster periods. More specific guidelines are provided for both post-event surveillance activities and outbreak investigations in Sections III and IV of this document.

An additional assessment to be made by local CHD epidemiology staff is the need for an epidemiology strike team. Epidemiology strike teams are small groups of public health epidemiologists assembled from areas generally outside the disaster affected area who can be deployed to assist or to even take the place of local epidemiology units where the disaster prohibits the functioning of the local health department.

Each Domestic Regional Security Task Force in the state (N=7) has established epidemiology strike teams. Currently the decision to place the strike team into the field after an event (hurricane or pandemic influenza) is done jointly between the CHD leadership in the impact area and the State Health Office in Tallahassee. Discuss the need for an epidemiology strike team with your ICS leadership (see Section VII for information on ICS and CHD epidemiology unit integration into the ICS organizational structure), and make the request through ICS via the ESF-8 Desk and EM Constellation program (an incident response and management program used for hurricane response). Epidemiology strike teams may already be deployed in adjacent areas affected by the disaster, and you may come into contact with these teams during the post-event response.

III.   Surveillance

A. Reportable Disease Surveillance/Passive Surveillance

Passive surveillance can be defined as the regular, non-active collection of health data from institutions, health care providers and laboratories for public health action. This includes the daily monitoring of reportable disease cases in the community, as well as outbreaks. Reportable disease surveillance is mandatory and is an indispensable part of public health practice especially important to maintain following a natural disaster such as a hurricane to monitor any changes in the incidence of common post-disaster public health events such as animal bites, enteric illnesses, and other reportable conditions. This information is crucial for making decisions about resource allocation, public health interventions, or outbreak investigation and control. Public health surveillance may even be required to actively track and manage known cases of infectious diseases (such as tuberculosis) in individuals that are no longer living at their current address or cannot be readily located following the disaster.

Among its many functions, passive surveillance can provide quantitative estimates of the magnitude of a post-disaster health problem, detect outbreaks, allow for immediate and long-term evaluation of disease control measures, monitor any changes in disease patterns post-disaster, and facilitate planning prior to, during, and after the disaster. *Regular reportable disease surveillance should never be disregarded in lieu of new activities and responsibilities following a public health disaster since surveillance is a critical component of the state's public health infrastructure and of post-disaster response.* CHD epidemiology staff should not be re-assigned to duties that would result in the temporary discontinuation of the system of public health disease surveillance unless contingency plans for continuance can be executed.

The Florida Department of Health, Bureau of Epidemiology, supports passive/reportable disease surveillance by maintaining a single, cohesive electronic reporting system throughout the state. The information technology platform for this system is the web-accessible program Merlin®. Although Merlin® is the electronic format for reporting reportable diseases and conditions, the Bureau of Epidemiology also supports the disease reporting process through training, technical support, and case definition development. During a natural disaster such as a hurricane, the Bureau of Epidemiology also can offer local CHDs support for maintaining passive surveillance through follow-up, investigation and analysis assistance.

Difficulties in maintaining passive surveillance post-event may arise for several reasons including interruptions to normal processes due to post-disaster assessments and related activities, lack of an immediate base of operations due to structural damage at the local health department, or staff absenteeism due to the event. In part, these difficulties can be alleviated through assistance from the DOH, Bureau of Epidemiology and the Epidemiology Strike Teams. To make a request of Bureau of Epidemiology for assistance, contact the Bureau of Epidemiology at (850) 245-4401. Requests for Epidemiology Strike Teams should go through the local ESF-8 desk to the state where the request can be coordinated.

B. Active Surveillance

1. Role, Types, Methods, & Locations of Active Surveillance Post-event

Active surveillance differs from passive or reportable disease surveillance in that it only occurs when there is ample reason to vigorously pursue 'case finding' or other enhanced forms of systematic community health monitoring. Typically, active surveillance in Florida post-hurricane response has involved a form of syndromic surveillance that involves DMATs (Disaster Medical Assistance Team), hospital emergency departments (ED), shelters, nursing homes, assisted-living, and correctional facilities. The process for this type of active surveillance is further described in Section III.B.2 below.

Active surveillance after hurricanes is a multi-faceted process. It might involve organization of a team with both epidemiology and environmental health expertise to monitor illness, injury and death related to the hurricane. The team can be composed of persons from different counties or the local health department or involve an epidemiology strike team.

Active surveillance should be focused; local epidemiology units or strike teams should quickly identify diseases, exposures or health conditions that can pose a threat to community health. The process should focus on areas not covered adequately by conventional reportable disease surveillance. The enhanced syndromic surveillance process has been set up to emphasize injuries, carbon monoxide (CO) poisoning, falls, gastrointestinal (GI) illnesses and complications of chronic conditions.

Shelters, nursing homes, assisted-living and correctional facilities are congregational settings where outbreaks related to food and poor environmental conditions might be expected. In those settings, the team should visit daily to detect any outbreaks of GI/diarrheal illness or other events. Again, coordinate with Environmental Health who will be inspecting these facilities on a daily basis. Telephone contact may be sufficient if prior contact has been established, the staff is competent and phones are working. Initially, a visit by the team should include an introduction to the charge nurse/infection control practitioner/medical director and a review of the surveillance form (as described in Section II).

Depending on the severity of the hurricane, the transition from the DMATs back to hospital ED operations may take place in 48-72 hours after landfall. One of the first steps therefore is to identify DMAT locations and establish surveillance at

those sites; typically DMATs only operate for several days while impacted hospitals re-establish the capability to see and triage patients.

The team charged with conducting active surveillance also will need to coordinate with the Bureau of Epidemiology in the event alternative surveillance needs to be established.

2. Post-Event Syndromic Surveillance

Florida has experienced several hurricanes in recent years and each has elicited a public health response that included enhanced surveillance for disease and injuries. This is an important aspect of the public health response to disasters that complements existing forms of surveillance such as reportable disease reporting, and allows detection and a rapid response to emerging health threats in the affected communities. In addition, rumors of disease outbreaks that exaggerate the impact or etiology of an increase in disease are common following a disaster. Ongoing, systematic surveillance for general health conditions is an effective means to inform the community, public health decision makers, and other community decision makers of the actual risks in the community. This type of surveillance can dispel false rumors of outbreaks and allow public health responders to allocate resources where they are most needed.

Post-event syndromic surveillance in Florida following hurricanes has typically been conducted with broad "case definitions," or syndrome categories, aimed at identifying general groupings of health events that might indicate an increase or decrease in community health problems necessitating a public health response. For example, one syndrome category typically used is "gastrointestinal symptoms," which might rapidly identify an emerging public health emergency such as a diarrheal disease outbreak in the community due to a contaminated food or water exposure. The syndrome definition is broad enough to detect outbreaks that might be caused by several etiologies such as norovirus, salmonella bacteria, giardia, or cryptosporidium.

Data for this enhanced surveillance are typically collected "directly in the field" or through monitoring data through the existing Florida syndromic surveillance system ESSENCE-FL. When data are collected "directly in the field" epidemiology staff or teams go directly to the site of makeshift or functioning clinics, community emergency departments, and DMATs, as described above. When manual data collection is necessary, data are collected daily using the standard forms and electronic files described below, and are then compiled in a master data spreadsheet file or other database format. The data can then be summarized in graphs and tables that can answer basic questions about the current and recent health status of a community, detect potential outbreaks, assess increases in specific syndromes, or dispel rumors of disease outbreaks. These summaries can then be compiled into situation reports for other agencies, local health care providers, and incident command system (ICS) personnel to determine allocation of resources, response, and any interventions that might be required.

This type of response should be implemented whenever staff and resources are sufficient and post-disaster circumstances require enhanced public health surveillance and the data are determined to be useful by the Incident Commander. There is no "rule of thumb" that can help epidemiology staff determine when enhanced post-event surveillance should be implemented, but it has been implemented in the past in a) counties directly impacted by a hurricane path or landfall b) counties not directly in the path of a hurricane but had significant infrastructural damage that compromised the availability or delivery of health care in the community c) counties not directly in the path of a hurricane but experienced significant infrastructural damage that resulted in the sustained interruption of resources such as electrical power, potable water, and readily available food.

This section describes the process, tools, and requirements of operating a temporary enhanced surveillance system post-hurricane. The tools provided include standard forms and Excel files found in the Appendix Sections B.1- B.6 or online at https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/surveillance-systems/hurricane-toolkit/hurricane-toolkit.zip. The Excel data summary file must be downloaded.

Figure 1 shows a flowchart that outlines the basic daily process for conducting temporary enhanced surveillance post-disaster. All forms required to conduct enhanced surveillance are provided in Appendix B and are also available online at https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/surveillance-systems/hurricane-toolkit/hurricane-toolkit.zip

a. Surveillance should occur on a daily basis and starts with the collection of data from the primary sites of medical care (DMATs, EDs, clinics) using a detailed individual level data collection form (see Appendix B.2). Some medical care sites can provide data at an individual level (i.e. each individual that presents for medical care has corresponding information collected about chief complaint or diagnosis, age, sex, area of residence, etc.) and this is the preferred format for data provided to epidemiology teams. Data quality (and ability to stratify for demographic factors) is compromised, and limits the effectiveness of syndromic surveillance.

Epidemiology staff should be prepared to sustain an effort of going into the field on a daily basis to collect the information as well as summarize the information for several days to weeks if it cannot be electronically transmitted. The lead staff of the facilities (DMATs, EDs, etc.) providing data should be approached as soon as possible following the disaster event with the request of providing daily data to the health department team. Health department staff may need to manually enter data. Frequent staffing changes should be expected at the data collection sites. This can lead to variation or changes to the implemented surveillance effort and thus presents an additional

reason the health department should perform daily visits to the data collection sites.

b. Once the raw data are collected from the designated sites in the county or region, it can be entered into the standard summary Excel file (see Appendix B.6; download Excel spreadsheet provided at https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/surveillance-systems/hurricane-toolkit/hurricane-toolkit.zip). The Bureau of Epidemiology can assist in or perform any data analysis where CHD resources or capacity are not sufficient to sustain the effort. Each facility (whether facility is a DMAT, ED, or clinic) should have their individual-level information entered into the Total Facility Collection spreadsheet of the Total Data Workbook.

c. When data are entered in the worksheets, tables in the Data Analysis worksheet are automatically populated and filled in by the program. Also, the last tabbed worksheet in the workbook is automatically populated by a summary of all the data entered for Patient Data Collection worksheet. This provides an easy to use summary table and graphs which can be 'cut and pasted' into daily situation reports.

d. A template for daily written situation reports (see Appendix B.7) is provided. The template demonstrates how to structure a daily situation report and is the same format as those used in past hurricanes.

3. Electronic Syndromic Surveillance in Hospital Emergency Departments (ED) and Disaster Medical Assistance Teams (DMAT)

Post-storm syndromic surveillance data have been collected and transferred electronically on a statewide basis through the statewide Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE-FL). ESSENCE-FL has expanded since the initial implementation and now includes data from multiple sources. Whenever possible, utilization of ESSENCE-FL post storm is preferred to paper-based operations as it saves time and energy of both hospital and health department staff. ESSENCE-FL requires the hospital electronic medical record system of the facility to be operational and patients to be logged and entered into the system, as normal. Once a facility is participating in ESSENCE-FL, the system operates without creating any additional burden on the facility. CHDs should encourage all emergency departments (EDs) in the count to participate in ESSENCE-FL. Counties should conduct routine (ideally daily) surveillance using ESSENCE-FL. Understanding the ESSENCE-FL system and the county's data in advance is fundamental in being able to conduct post-storm surveillance using the system.

System Data Sources: The ESSENCE system in Florida now includes seven data sources. 1) Data from 245 ED and 58 urgent care centers representing ~98% of all ED visits in Florida (updated from once every 2 hours to once a day); 2) Reportable disease case data from the Merlin and PRISM systems (updated once an hour for Merlin data and once daily for PRISM STD data); 3) complete

Florida Poison Information Network consultation data (updated every 10 minutes); 4) complete Florida Office of Vital Statistics mortality data (updated once a day) and 5) data from Assistant Secretary Preparedness and Response (ASPR) missions such as DMATs *when* they are deployed in the state. 6) National Weather Station data uploaded once daily and 7) National Air Quality data uploaded once daily. Florida's system is one of the largest systems in the country, and is the only system to include reportable disease and mortality data in the same display and analytic environment

Note: ASPR data from DMATs were first transferred to ESSENCE-FL as a demonstration project during the Republican National Convention in August 2012. ASPR data were uploaded into ESSENCE-FL during Hurricane Matthew in October 2016. These data are typically event-specific medical visits and provide important post-storm surveillance. Data are transmitted every 15 minutes from the central ASPR servers to ESSENCE-FL

System Access: Access to ESSENCE-FL requires a username and password. Request through the ESSENCE-FL Help Desk at Essence.Help@flhealth.gov **New users need to complete a user access form. Note there are separate user access forms for DOH users and hospital-based users. The forms are available in the appendix.**

Users include state and local epidemiologists, staff of hospitals that contribute data (they can see only their own data), and some staff from specific health education programs. During times of activation, access is granted to state users from the Medical Monitoring Unit as a means of aiding in determining where patient transfers can occur if necessary; additionally if ASPR teams are deployed in the state, access will be granted to ASPR staff to allow ASPR as well as DOH staff the ability to monitor visits to ASPR sites. ESSENCE-FL is web-based and can be accessed anywhere an internet connection can be established.

ESSENCE-FL: Hurricane Surveillance (*October 11, 2016*) Training Tuesday Discussion covers how epidemiologists can use ESSENCE-FL in the context of post-storm or hurricane surveillance. This can be accessed via emailing the Merlin help desk at Merlin.Helpdesk@flhealth.gov.

For additional information and training on the system visit, the ESSENCE-FL User guide or contact the ESSENCE-FL help desk at Essence.Help@flhealth.gov or https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20D ocuments/epidemiology/surveillance-systems/essence-fl/florida-essence-user-guide.pdf

Electronic Syndromic Surveillance in Disaster Medical Assistance Teams (DMAT):

The Bureau of Epidemiology has partnered with the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) to implement a new process for conducting surveillance to monitor injury and illness for those presenting for care to Disaster Medical Assistance Teams (DMAT) sites. The DMAT sites are operational in the state following a disaster, other response event, or special event (e.g., a political

convention). ESSENCE-FL has been modified to receive automated data feeds from the ASPR electronic medical record system (EMR-S) *when deployed with federal response personnel during the Republican National Convention (RNC)*. ASPR data will be received at 15-minute intervals by ESSENCE-FL. During response events the Bureau of Epidemiology will collaborate with ASPR to initiate the data flow into ESSENCE-FL. The Bureau of Epidemiology will coordinate with CHDs to provide information regarding the data flow and coordinate access to the module in ESSENCE-FL. Paper data collection (see section IX Appendix, B. Syndromic Surveillance Forms and Documents) may still need to occur.

Pre ESSENCE-FL Electronic ED Syndromic Surveillance: Electronic hospital-based post-hurricane illness and injury surveillance was conducted during the 2004 and 2005 hurricane seasons using electronically transferred data from participating HCA (Hospital Corporation of America) Hospitals. Participating facilities included hospitals in affected counties. A standard data collection instrument, including demographic and clinical information, was utilized.

With the assistance of key information technology personnel from the HCA hospital system, data were collected electronically and e-mailed daily to the surveillance team in the Bureau of Epidemiology. Hospital data were imported into a SAS program which "parsed" chief complaints into illness and injury categories for analysis. Summary tables were produced and reviewed by an epidemiologist to monitor trends in illness and injury. Results were then provided regularly to participating hospitals, county health departments, and the state incident command structure.

Although this method of electronic syndromic surveillance has been replaced by ESSENCE-FL in many EDs, CHD staff should be aware that this form of surveillance has occurred. In addition, with the evolution in private provider electronic medical records, additional means for electronically collecting and monitoring health data post storm may become available.

Figure 1. Post-Event Surveillance *Process*: manual (non-ESSENCE-FL) collection of post-event 'syndrome' surveillance data from reporting facilities
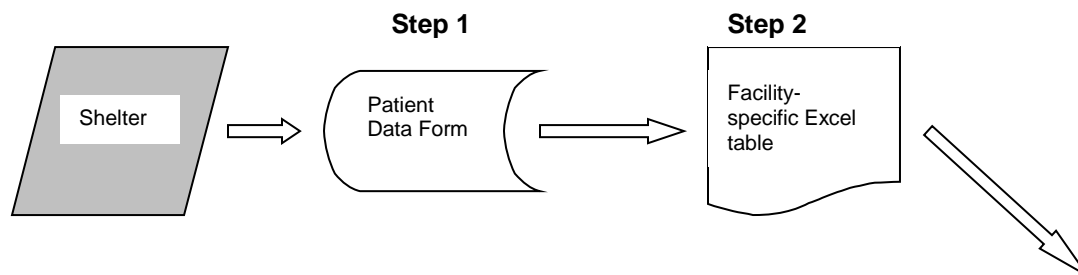
Step 1. Data are collected by Epi unit from various sites (DMATs, EDs, shelters) using 'Patient Data Collection' spreadsheet or printed form
Step 2. Data are entered into 'Patient Data Collection' spreadsheet or facility-specific workbook
Step 3. After workbook data refresh, tables and graphs automatically tallied into the 'Data Analysis' and 'Data Summary' spreadsheets.
Step 4. Data in 'Data Analysis' and 'Data Summary' spreadsheets used for daily written report (copy and paste graphs)

Step 1   **Step 2**

Shelter → Patient Data Form → Facility-specific Excel table

DMAT → Patient Data Form → Facility-specific Excel table → Multi-Facility Excel spreadsheet table (Daily Summary)

Step 3 (Automatic)

Figure 2. Steps in post-event surveillance using the individual based form (see Appendix graphs)

Hospital → Patient Data Form / Intake Form → Facility-specific Excel table

Daily Written [Aggregate] Report

Step 4

Facilities

Standard patient data spreadsheet or printed form

Individual facility daily data summary (Excel)

Florida HEALTH

17
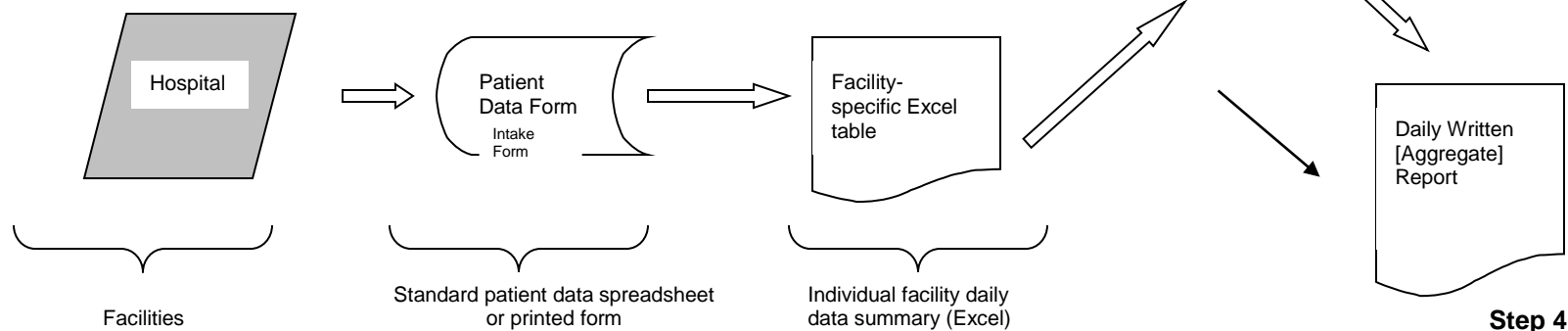
Step 1: Data is collected at the facilities and entered in their Patient Data Collection spreadsheet

Step 2: Refresh the data and use tables and graphs for analysis

Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence
Facility A	8/1/2015	5:00:00 AM	0001	Home	FL
Facility A	8/1/2015	4:00:00 PM	0002	Home	FL
Facility A	8/2/2015	6:00:00 AM	0003	Shelter	FL
Facility A	8/2/2015	11:00:00 AM	0004	Shelter	FL
Facility A	8/3/2015	1:00:00 AM	0005	Other	FL
Facility A	8/3/2015	3:00:00 AM	0006	Shelter	FL
Facility A	8/3/2015	4:00:00 AM	0007	Home	FL
Facility A	8/4/2015	8:00:00 AM	0008	Shelter	FL
Facility A	8/4/2015	3:00:00 PM	0009	Shelter	FL
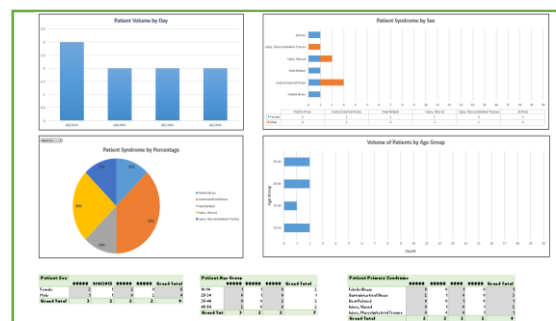
Step 3: Collect patent data from sites and enter them in the Total Facility Collection spreadsheet of the Total Data workbook

Step 4: Refresh the data and use tables and graphs for analysis

Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence
Facility A	8/1/2015	5:00:00 AM	0001	Home	FL

Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence
Facility B	8/1/2015	5:00:00 AM	0001	Home	FL

Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence
Facility C	8/1/2015	5:00:00 AM	0001	Home	FL
Facility C	8/1/2015	4:00:00 PM	0002	Home	FL
Facility C	8/2/2015	6:00:00 AM	0003	Shelter	FL
Facility C	8/2/2015	11:00:00 AM	0004	Shelter	FL
Facility C	8/3/2015	1:00:00 AM	0005	Other	FL
Facility C	8/3/2015	3:00:00 AM	0006	Shelter	FL
Facility C	8/3/2015	4:00:00 AM	0007	Home	FL
Facility C	8/4/2015	8:00:00 AM	0008	Shelter	FL
Facility C	8/4/2015	3:00:00 PM	0009	Shelter	FL

Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Res
Facility A	8/1/2015	7:00:00 AM	0001	Admitted	FL
Facility A	8/2/2015	1:00:00 AM	0002	Died	FL
Facility A	8/1/2015	5:00:00 AM	0001	Home	FL
Facility A	8/1/2015	4:00:00 PM	0002	Home	FL
Facility A	8/2/2015	6:00:00 AM	0003	Shelter	FL
Facility B	8/2/2015	11:00:00 AM	0004	Shelter	FL
Facility B	8/3/2015	1:00:00 AM	0005	Other	FL
Facility B	8/3/2015	3:00:00 AM	0006	Shelter	FL
Facility B	8/3/2015	4:00:00 AM	0007	Home	FL
Facility C	8/4/2015	8:00:00 AM	0008	Shelter	FL
Facility C	8/4/2015	3:00:00 PM	0009	Shelter	FL
Facility C	8/5/2015	5:00:00 AM	0010	Home	FL
Facility C	8/5/2015	7:00:00 AM	0011	Home	FL
Facility C	8/3/2015	3:00:00 AM	0012	Shelter	FL
Facility C	8/4/2015	6:00:00 AM	0013	Other	FL
Facility D	8/4/2015	11:00:00 AM	0014	Home	FL
Facility D	8/4/2015	2:00:00 PM	0015	Home	FL
Facility D	8/5/2015	3:00:00 PM	0016	Shelter	FL
Facility D	8/5/2015	5:00:00 PM	0017	Other	FL
Facility D	8/6/2015	7:00:00 PM	0018	Home	FL
Facility D	8/6/2015	9:00:00 PM	0019	Shelter	FL

Analysis: The summary tables and graphs provide an overview of all patient visits.

4. Medical Examiner Surveillance in Florida

As part of Florida public health surveillance following hurricanes, medical examiners (ME) track hurricane-related deaths (HRD). Based on the Medical Examiner's Act, Chapter 46 of the 2012 Florida Statutes, traumatic deaths, (which include hurricane-related deaths), deaths that occur under unusual or suspicious circumstances, and deaths associated with disease that pose a threat to public health must be referred to the local ME.[1] Review of hurricane mortality is important to evaluate disaster attributed health effects and determine the effectiveness of prevention policies and identify potentially preventable deaths. The Medical Examiners Act, Chapter 406, Florida Statutes, was enacted by the 1970 Legislature in order to establish minimum and uniform standards of excellence in statewide medical examiner services.

While there is no universally accepted definition of a HRD, it includes both *direct deaths* (those due to the physical forces of the storm, eg: winds, floods, tornados) and *indirect deaths* (those associated with unsafe or unhealthy conditions caused by the storm, eg: loss of services, personal loss, lifestyle disruption). The manner of death for HRD includes those that are: *accidental* – due to unintentional injury, *natural* – caused by exacerbation of a pre-existing medical condition due to storm stress, *suicide:* self-inflicted, *homicide-* intentionally inflicted fatal injury by another, *fetal -* death occurring prior to birth, or *undetermined -* death caused by uncertain circumstances.

All 67 Florida counties are covered by district ME offices (N=24, Figure 2). For the most part, these are organized according to state judicial circuits. When MEs receive death reports of public health importance, specifically those related to hurricanes, they report the information to the local Emergency Operations Center (EOC) and the Florida Medical Examiners Commission (FMEC). In turn, this information is provided to the Florida Department of Health Bureau of Epidemiology. During hurricane season (June 1–November 30), deaths associated with hurricanes are automatically reported twice daily. This mortality surveillance, in place since the beginning of the 2004 hurricane season, is part of the standard procedure for DOH hurricane response. Death reports are forwarded through FDLE and DOH Vital Statistics; summary information is compiled by the Bureau of Epidemiology and the FMEC at the end of each hurricane season. CHDs should consult with the Bureau of Epidemiology to determine the number of HRDs in their area. As electronic filing of death certificates is rolled out to additional counties across the state additional evaluation will need to occur to assess how this information can be monitored through ESSENCE-FL post storm.

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[1]http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0400-0499/0406/0406PARTIContentsIndex.html

a. Referral to district ME

Ideally, county health department epidemiologists will have established contact with their district ME office since any deaths of public health significance require a working relationship. They may request that MEs notify them directly about any HRDs or obtain this information from the EOC.

Anyone may make a referral to the ME office, and it is typically first responders or law enforcement who make a determination to initiate this. However, in the aftermath of hurricanes, CHD strike teams or responders may be the first on a death scene due to assessment and surveillance activities. As such, they may need to make a HRD referral to a ME, as well as notifying legal authorities. In turn, the ME can accept the referral as a medical examiner case, or decline jurisdiction if it does not meet the criteria for their involvement. Because MEs may wish to visit the scene, this referral should be made before any disturbance occurs at the scene. This should occur in coordination with the Florida Department of Law Enforcement (FDLE) officials.

b. Figure 2. Florida Medical Examiner Districts
http://www.fldme.com/districtoneme/

Florida Medical Examiner Districts

DISTRICT ONE
Escambia
Okaloosa
Santa Rosa
Walton

DISTRICT TWO
Franklin
Gadsden
Leon
Liberty
Jefferson
Taylor
Wakulla

DISTRICT THREE
Columbia
Dixie
Hamilton
Lafayette
Madison
Suwannee

DISTRICT FOUR
Duval
Nassau
Clay

DISTRICT FIVE
Citrus
Hernando
Lake
Marion
Sumter

DISTRICT SIX
Pinellas
Pasco

DISTRICT SEVEN
Volusia

DISTRICT EIGHT
Alachua
Baker
Bradford
Gilchrist
Levy
Union

DISTRICT NINE
Orange
Osceola

DISTRICT TEN
Hardee
Highlands
Polk

DISTRICT ELEVEN
Dade

DISTRICT TWELVE
DeSoto
Manatee
Sarasota

DISTRICT THIRTEEN
Hillsborough

DISTRICT FOURTEEN
Bay
Calhoun
Gulf
Jackson
Washington
Holmes

DISTRICT FIFTEEN
Palm Beach

DISTRICT SIXTEEN
Monroe

DISTRICT SEVENTEEN
Broward

DISTRICT EIGHTEEN
Brevard

DISTRICT NINETEEN
Indian River
Martin
Okeechobee
St. Lucie

DISTRICT TWENTY
Collier

DISTRICT TWENTY-ONE
Glades
Hendry
Lee

DISTRICT TWENTY-TWO
Charlotte

DISTRICT TWENTY_THREE
Flagler
Putnam
St. Johns

DISTRICT TWENTY-FOUR
Seminole
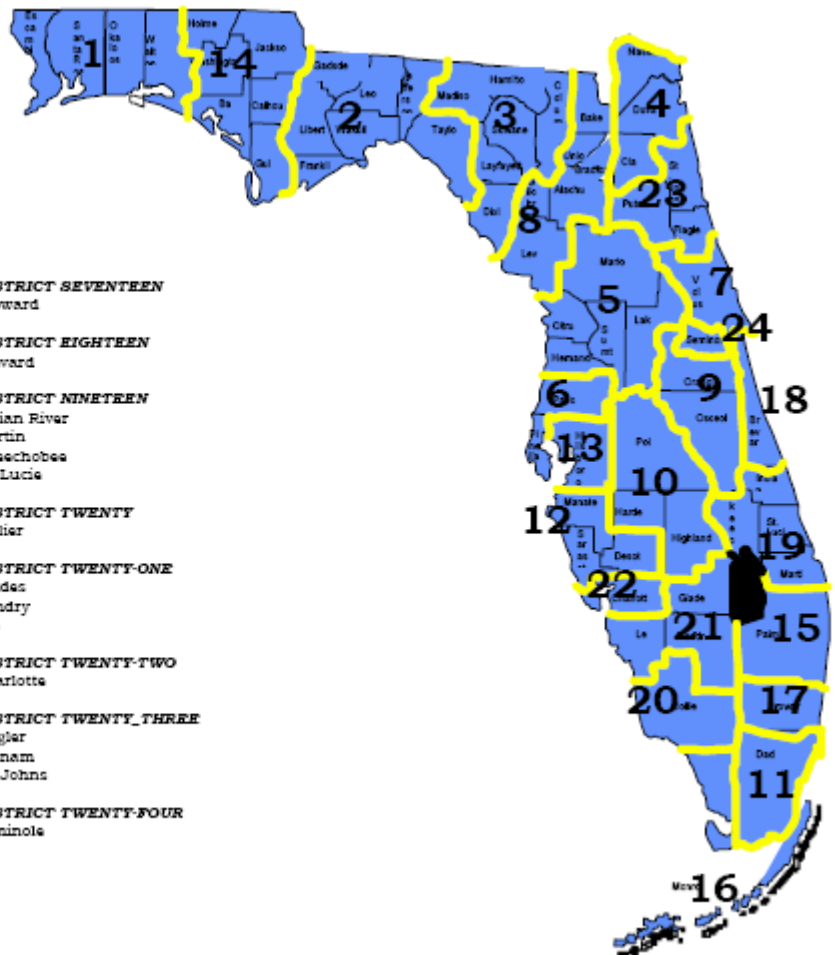
c. Florida District Medical Examiners

District	Chief ME	Counties Served	Phone	Email
1	A. Minyard, M.D.	Escambia, Okaloosa, Santa Rosa, Walton	(850) 416-7200	jmartin@fldme.com
2	D. Stewart, M.D.	Franklin, Gadsden, Jefferson, Leon, Liberty, Taylor, Wakulla	(850) 942-7473	stew@polaris.net
3	W. Hamilton, M.D.	Dixie (served by District 8)	(352) 273-9292	bedore@pathology.ufl.edu
	D. Stewart, M.D.	Madison (served by District 2)	(850) 942-7473	stew@polaris.net
	V. Rao, M.D.	Columbia, Hamilton, Lafayette, Suwannee (served by District 4)	(904) 630-0977	Vrao@coj.net
4	V. Rao, M.D.	Clay, Duval, Nassau	(904) 630-0977	Vrao@coj.net
5	B. Wolf, M.D.	Citrus, Hernando, Lake, Marion, Sumter	(352) 326-5961	Michael.Hensley@marioncountyfl.org
6	J. Thogmartin, M.D.	Pasco, Pinellas	(727) 582-6800	dbrenton@co.pinellas.fl.us
7	M. Herrmann, M.D.	Volusia	(386) 258-4060	meol@co.volusia.fl.us
8	W. Hamilton, M.D.	Alachua, Baker, Bradford, Gilchrist, Levy, Union	(352) 273-9292	bedore@pathology.ufl.edu
9	J. Garavaglia, M.D.	Orange, Osceola	(407) 836-9400	Sheri.Blanton@ocfl.net
10	S. Nelson, M.A., M.D.	Hardee, Highlands, Polk	(863) 298-4600	StephenNelson@polk-county.net
11	B. Hyma, M.D.	Dade	(305) 545-2400	BAHyma@MiamiDade.gov
12	R. Vega, M.D.	Desoto, Manatee, Sarasota	(941) 361-6909	rvega@fldist12me.com
13	M. Mainland, M.D.	Hillsborough	(813) 914-4500	mailto:mainlandm@hillsboroughcounty.org
14	J. Radtke, M.D.	Bay, Calhoun, Gulf, Holmes, Jackson, Washington	(850) 747-5740	medex@baycountyfl.gov
15	M. Bell, M.D.	Palm Beach	(561) 688-4575	mbell@pbcgov.com
16	T. Beaver, M.D.	Monroe	(305) 743-9011	d16meo@aol.com
17	C. Mallak, M.D.	Broward	(954) 327-6500	cmallack@broward.org
18	S. Qaiser, M.D.	Brevard	(321) 633-1981	sajid.qaiser@brevardcounty.us
19	R. Mittleman, M.D.	Indian River, Martin, Okeechobee, St. Lucie	(772) 464-7378	lcason@ircc.edu
20	M. Coburn, M.D.	Collier	(239) 434-5020	naplesme@colliergov.net
21	R. Hamilton, M.D.	Glades, Hendry, Lee	(239) 277-5020	pwheaton@leegov.net
22	R. Imami, M.D., Ph.D.	Charlotte	(941) 625-1111	ai786@aol.com
23	P. Bulic, M.D.	Flagler, Putnam, St. Johns	(904) 209-0820	medex23@co.st-johns.fl.us
24	M. Herrmann, M.D.	Seminole	(386) 258-4060	cboden@co.volusia.fl.us

IV.   Population-Based Statistical Sample of Health Needs

A Population-Based Statistical Sample of Health Needs (also known as *Community Rapid Needs Assessment*, or RNA) is a unique kind of surveillance designed to collect representative information about the health status and post-disaster living conditions in severely affected communities. This surveillance method is best performed with collaboration from the Bureau of Epidemiology and with the cooperation of the CDC (Centers for Disease Control and Prevention) in designing, implementing, and analyzing the survey. The survey should not be carried out independently by a CHD, since the capacity and technical support required is typically not available at the local level. However, county epidemiology staff should be aware of the general process, since their participation in this type of rapid needs study may be required by the incident commander of the post-storm response. CDC currently refers to this kind of rapid needs assessment as a Community Assessment for Public Health Emergency Response (CASPER). It has been developed by CDC's Division of Environmental Hazards and Health Effects (EHHE), Health Studies Branch (HSB).

The main objectives of CASPER are to:

- Produce household-based population estimates of needs for decision-makers.
- Determine the critical health needs and assess the impact of the disaster on the community.
- Characterize the population residing in the disaster area including any ongoing health effects.
- Evaluate the effectiveness of relief efforts using follow-up CASPER.

CASPER is not intended to deliver food, medicine, medical services or other resources to the affected area or to provide direct services to residents such as cleanup or home repair. To learn more information about CASPER, please visit the Health Studies Branch CASPER website at https://www.cdc.gov/nceh/hsb/disaster/casper/default.htm .

The Population-Based Statistical Sample of Health Needs is based on a cluster sampling technique originally used to estimate polio vaccine coverage in developing countries. This methodology has been adapted to survey communities after a hurricane landfall. It can estimate both the percentage of households with specific needs and number of people remaining in a specific area.

The door-to-door survey is ideally started in the first 24-72 hours after landfall, but may be done up to 8-10 days later, depending upon the circumstances. A team consisting of around 30 trained individuals administers the questionnaire to the households that have been selected using the cluster sampling method and GIS (Geographical Information Systems) mapping tools. Up-to-date and accurate census data and maps, handheld PDAs, and GIS mapping programs are ideal, and often necessary, for the sample selection and rapid completion of the surveys. The questionnaire is typically developed by a combination of local, state and CDC epidemiologists. Analysis is completed in the first 24 hours after the field teams have finished administering the questionnaire.

Issues to Consider	
Advantages	**Disadvantages**
☑ Provides vital information to assist in the post-disaster decision making process	☒ Requires mobilization of large team with cluster sampling expertise, data analysis experience, etc.
☑ Timely and accurate information	☒ Up-to-date census information, maps, and questionnaires needed
☑ Valid and precise estimates	☒ Field conditions and safety may be an issue
☑ Rapid turn-around time of results	☒ Infrastructure to address immediate needs must be in place

Conducting a Population-Based Statistical Sample of Health Needs is a labor-intensive form of surveillance that requires the efforts of many public health personnel including CDC staff with expertise in designing, implementing, and analyzing the survey and the data, state, county, and local health department and disaster management officials, and others involved in the post-hurricane response process.

Because the preparation and field work can be time consuming and because so many resources are needed to carry out this type of survey, it is not standard practice after hurricanes and other natural disasters to request one. Rather, it is only under certain circumstances that this type of assessment would be an appropriate, necessary, and useful method for gathering information about community needs and post-disaster living conditions.

When considering a Population-Based Statistical Sample of Health Needs in your community, it is imperative to first address the following questions:

Purpose

- *What is the goal of the survey?*
- *What information needs to be gathered?*
- *Why is this information needed?*
- *Could another source be used to acquire the same information?*

Resources

- *Is the use of resources justified to reach these goals?*
- *Which local resources can be contributed to this effort (field survey teams, tech support, etc.)?*
- *Realistically, how quickly can the survey begin and results be obtained?*
- *Will this time frame adequately meet our needs?*

Results

- *Who needs these results and for what purpose?*

- *How will the results improve our current disaster response?*
- *What will be done differently if the results show one outcome versus another?*

Ultimately, public health officials called upon to meet community health needs in the aftermath of hurricanes should determine the most pertinent and efficient method to address those needs. A Population-Based Statistical Sample of Health Needs is just one of the many tools that may be appropriate for response efforts depending upon the specific situation.

Some references that detail the RNA process include:

Centers for Disease Control and Prevention (CDC). Rapid needs assessment of two rural communities after Hurricane Wilma—Hendry County, Florida, November 1-2, 2005. MMWR Morb Mortal Wkly Rep. 2006 Apr 21;55(15):429-31.

Centers for Disease Control and Prevention (CDC). Rapid assessment of the needs and health status of older adults after Hurricane Charley--Charlotte, DeSoto, and Hardee Counties, Florida, August 27-31, 2004. MMWR Morb Mortal Wkly Rep. 2004 Sep 17;53(36):837-40.

V.   Outbreak Investigation and Management

A. Types of Outbreaks, Communicable Diseases, and Injuries Expected

Typically, after hurricane landfall, certain events will occur because of the interruption of electricity, refrigeration and the accumulation of debris. During the 2004 and 2005 seasons, increases in reports of food borne illness, diarrheal illness, carbon monoxide exposure, injuries and complications of chronic conditions in the elderly were detected with varying frequency. These types of illnesses and injuries can be expected to occur following a hurricane. Accidents and injuries commonly seen can include puncture wounds, blunt trauma, those related to falling debris and cleanup activities, electrical injuries, and exposures to pesticides, hydrocarbons and batteries. The need for medications, vaccinations, and home health maintenance needs are also frequently seen.

B. Outbreak Investigation

During any disaster event, the likelihood of outbreak rumors increases. Public health/epidemiology responders may spend substantial time investigating rumors of communicable diseases not regularly observed in the population affected by the disaster, addressing perceived sources of disease exposure which may not contribute to infectious disease transmission, and pursuing rumors of infectious disease outbreaks. Actual outbreaks are far less likely.[2] However, local epidemiology units should be prepared to investigate both purported and actual outbreaks. While outbreaks will occur during disasters just as they do during non-disaster periods, the practical aspects for investigating disease and outbreaks may differ from those in non-disaster periods.

In general, the steps below should be taken although some outbreaks will not follow this exact sequence of events, especially in disaster circumstances:

- Prepare for field work
- Confirm the existence of an outbreak—verify the diagnosis
- Define a case and conduct case finding
- Tabulate the data in terms of person, place, & time
- Take immediate control measures
- Formulate and test hypothesis
- Plan and execute additional studies
- Implement and evaluate control measures
- Communicate findings

1. Prepare for field work

Preparing to spend time in the field investigating an outbreak during a natural disaster is difficult. In addition to the ordinary items required in an outbreak investigation, additional considerations need to be addressed. In general, a field checklist such as that found in Appendix C is used to assemble items that are

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[2]Negligible risks for epidemics after geophysical disasters, Floret, Natalie, et al. Emerging Infectious Diseases (12)4:543-548, April 2006; http://www.cdc.gov/ncidod/eid/vol12no04/pdfs/05-1569.pdf

useful for a variety of outbreak investigations. Other questions to consider in a post-disaster/hurricane context include:

- How will communications be handled between investigators in the field and other CHD staff?
- Are there any restrictions on physical access to particular areas that need to be considered prior to leaving the office or base?
- What is the availability and location of gas when refueling is necessary?
- In the event of staff shortages post-disaster, what staff can be utilized for support?
- Has staff safety been addressed prior to going into the field?

2. Confirming existence of an outbreak

Since rumors commonly arise in a disaster situation, it is important to verify the existence of outbreak(s) to a) ensure a rapid response to actual outbreaks b) assure the public and/or public officials that health risks are being investigated or addressed, c) confirm that some events or perceived threats are not a danger to public health, and d) demonstrate effective use of epidemiology staff time and resources during a public health emergency.

There are several important questions to consider in confirming the existence of an outbreak, including:

- Is the reported case (or cases) actually a case of the specified disease or is it a misdiagnosis?

Medical records should be reviewed when available. Attending physicians may also be contacted, as well as infection control practitioners or nurses who have knowledge of the potential case(s). Available laboratory results should be reviewed promptly. Visiting the laboratory to determine the number and types of tests ordered with pending results can also be useful. When medical attention has not been sought by individuals reporting illness, they can be briefly interviewed to verify symptoms and possible exposures.

- Does the number of reported cases exceed the expected for a given area and/or time period?

This may be difficult to ascertain and in some cases a single observed case of rare or unusual illness is considered an outbreak (e.g. anthrax, measles). Public health/epidemiology responders can review existing baseline rates or numbers of cases of reportable diseases by accessing the Merlin® system (http://merlin.doh.ad.state.fl.us/merlin/default.aspx or reviewing the Merlin data in ESSENCE-FL, https://www.essencefl.com/) or by examining local information such as past outbreak reports. Requests also can be made to the Bureau of Epidemiology to determine baseline rates for specific reportable diseases.   *For reporting purposes, an outbreak is defined as two or more epidemiologically linked illnesses.*

- Do all the reported cases have a similar manifestation/presentation of illness (or have the same confirmed illness)?

For illnesses without a diagnosis, it is important to verify that there are similar manifestations of illness in persons associated with the reported outbreak. This can be accomplished by briefly interviewing potential cases and comparing the frequency of various symptoms across potential cases.

3. Define a case and conducting case finding

A case definition will be required to determine who has been or might be affected by the outbreak. A case definition can include information about the person-place-time context as well as laboratory findings and clinical symptoms. An example of a case definition is: "Any person with diarrhea or vomiting, with or without fever, nausea, headache, abdominal cramps, or muscle aches that visited or inhabited the Mosquito City Red Cross shelter post-hurricane". Start with a broad case definition, refining it as the outbreak investigation proceeds.

Once a case definition is determined, locate cases in the community. Active case finding is important when exposure may put other community members at risk.

4. Tabulate the data in terms of person, place, & time

Establishing a line list (see Appendix C) will facilitate the systematic collection of data. The basic line list used in outbreak investigation helps the investigator track ill or exposed persons, their contacts, and controls. The information also allows development of 'epi-curves' or other visual data aids to better understand outbreak development over time and control measures.

5. Take immediate control measures

It is not necessary to wait for lab results or a medical diagnosis before implementing measures to stop the spread of the illness under investigation. Immediate control measures involve basic public health recommendations to prevent the transmission of disease. However, some immediate control measures may not be evident to the investigator, and others may be difficult to implement during a post-disaster period. Appendix D details common infection control measures, and some geared specifically toward post-disaster environments.

6. Formulate and test hypothesis

As an informed guess, a hypothesis in an outbreak investigation is usually a testable statement about what the investigator believes the exposure or agent is, based on available evidence. The test of hypothesis may be positive lab results indicating the presence of disease or a simple statistical test such as an odd-ratio that suggests the investigator's hunch concerning exposure are correct (i.e. there is an increased risk associated with a particular exposure).

7. Plan and execute additional studies

During a post-disaster phase, immediate actions to prevent the transmission of disease are the top priority. However, the conditions under which an outbreak investigation occurs post-disaster may not be conducive to answering initial questions. Additional resources, personnel, and time may need to be allocated to answer any lingering questions about an illness or exposure, or to determine the nature of an illness or exposure when initial results do not interrupt the transmission of illness or determine the exposure causing it.

8. Implement and evaluate control measures

Effective outbreak control measures will prevent transmission of illness and result in decreased cases. Investigators should continue to monitor the population at risk for signs or symptoms of illness until the outbreak is under control. Special transmission-specific control measures may need to be implemented in addition to the initial immediate control measures.

9. Communicate findings

The findings of the investigation must be reported at some point. Recipients can include the event incident commander, agencies operating shelters, hospitals, DMATs, or other entities that have a stake or interest in control of the outbreak. Communicating findings will aid in implementing control measures, prevent further cases, and avert similar outbreaks in the future.

The Merlin® Outbreak Module (OM) can be utilized as an outbreak investigation and management tool. The OM can be used for collecting and maintaining information on cases and controls, tracking labs, and analyzing data (i.e. creating "epi curves" to determine mode of transmission and case distribution in time). In addition, multiple users can access and enter data at different levels (supervisor, data entry, etc.). The outbreak module can be accessed after initial user log-on to the Merlin® system.

C. Rumor Control

Rumors of outbreaks following a disaster are usually more prevalent than actual outbreaks. However, rumors can have detrimental effects and unintended consequences that can make public health and related responses difficult. Public health responders should take all necessary steps to dispel rumors or disease outbreaks. This involves some of the same initial steps as investigating an actual outbreak, such as verifying the diagnosis. In addition, the contact made with PIOs in the pre-event period will prove valuable to dispelling rumors that have garnered the attention of the media.

When investigating rumors of disease outbreaks, unusual illnesses or perceived exposures, there are a number of additional considerations to address the concerns of both the investigator and person reporting the event. For example:

- *Is anybody sick?* Rumors often give the impression that there may be illness when, in fact, there is no illness. Establishing whether there are ill

people or not will help decision-making as to the direction and immediacy
of an investigation.

- *Who is reporting the outbreak/case? Is it medical personnel? Shelter
  staff? Staff from another health public health agency? A community
  member?* This information should be recorded in addition to a brief
  summary of events in terms of person, place, and time (i.e. who is ill,
  where, and when did they become ill?). Contact information, including
  phone number of the person making the report of the outbreak should
  also be documented by the person receiving the initial call.

- *Is the reported situation an event that is already under investigation by
  the epidemiology staff?* In some circumstances, public health agency
  investigation of outbreaks may intensify concerns in the community and
  result in the outbreak being reported multiple times. Thus, new reports
  should be verified by the investigator.

- *Is the reported outbreak of an etiology that can be expected in the
  community?* An alleged outbreak of cholera would be unlikely in a Florida
  county; however, it may signal an outbreak of viral gastroenteritis or GI
  illness of another common etiology that may not be understood by the
  person reporting it.

- *Is the purported exposure to illness plausible? Is the purported outbreak
  plausible?* For example, community members may be concerned about
  the health risks posed by cadavers following a disaster, even though the
  risks are small and no greater than that of exposure to living persons.
  Again, the basis of rumors should be explored to rule out the existence of
  an actual outbreak.

VI.   Infection Control Procedures and Guidelines

The following guidelines are provided to help prevent and control infections in shelters. Shelters provide a unique environment for the spread of infectious disease. A large number of people of all ages are assembled in an often cramped environment that frequently has less than optimal sanitary facilities for various periods of time. The opportunity for spread of infectious agents begins as soon as the facility is occupied and increases with time, and changes in the sanitary conditions that can result from the storm and the duration of occupation.

Preparation for the prevention and control of infectious diseases should begin prior to shelter occupancy. Having a list of shelters, their location, capacity and contact information prior to hurricane season can save time in the event of an impending storm. The Shelter Flow Sheet (Appendix C.1) can be used as is or modified to collect basic data from each facility from pre-event preparation through the closure of the shelter. Some of the suggested pre-event tasks are listed below:

A. Pre-Event

    1. Secure (or develop) a list of all shelters in the county that includes:
        a. Location
        b. Capacity
        c. Type of facility
        d. Agency or group in charge of facility
        e. Contact information for each facility
        f. Number of daily occupants
    2. Pre-assign staff to monitor shelters for infection control and outbreaks.
    3. Have supplies available for post-event surveillance and interventions (outbreak investigation including laboratory supplies, intervention/control guidelines, and educational materials).
    4. Assure that shelter staff know how to contact the CHD and where to report outbreaks or communicable diseases.
    5. Establish chain of command for reporting status of shelters. (Coordinate with EH inspectors who will be conducting sanitary inspections of shelters daily).
    6. Start surveillance activities upon shelter occupancy.

As soon as the storm passes, re-establish contact with shelters as soon as possible. Determine the status of each shelter, the degree of damage, and note which facilities within each shelter are functioning and which are not. Also, if damage to a facility/shelter resulted in relocating the occupants, determine where they have been moved. Shelters open long term often change locations when the facility is reopened for its original purpose (i.e. school, community center, or business) or because of damage to the facility. An outline of some of the factors to consider post-event is found below:

B. Post-Event

    1. Reestablish contact with shelters and determine status of shelter including:

     a. Storm damage that might affect the operation or health of the shelter population

     b. Number and demographics of occupants including any illness

     c. Status of (coordinate with EH on this as they will be conducting sanitation inspections of shelters daily):

          1) Electricity
          2) Number and types of functioning toilets
          3) Hand washing facilities
          4) Showers
          5) Food preparation facilities
          6) Drinking water
          7) Sanitation facilities for disposal of waste including diapers

2. Start active surveillance of shelters. Contact all shelters daily to determine their status and the presence of infections with outbreak potential. If possible, try to collect data from all shelters at the same time each day for the last 24 hours (see Appendix D for the Shelter Flow Chart).

3. Outbreak Investigation and Management- investigate and control outbreaks where they occur.

4. Disease Specific Tools

     a. Gastrointestinal Illness – GI illnesses are the most frequent cause of outbreaks in shelters. Most of these are norovirus, which has a short incubation period. The incubation time for protozoa illness is typically too long for symptoms to develop while the shelter is open. Likewise, bacterial illness that may be transmitted in shelters may not appear before the shelter is closed.

     b. Norovirus is one of the most common causes of gastrointestinal outbreaks in shelters. Control activities include early identification and intervention. Some of the materials that may be useful during a norovirus outbreak include:

          1) Educational – Fact sheet
          2) Prevention and Control Guidelines
          3) Norovirus: Disinfection Procedures for Shelters, Comfort Stations, Feeding Stations and other Group Facilities

     c. Respiratory Illness – Outbreaks of respiratory illness are infrequent in shelters. The incubation time from exposure to symptom development typically exceeds the duration of time the shelter is open.

     d. Food and waterborne Illness – the Foodborne Illness Survey Complaint Form can be found in Appendix D. Contact your Regional Environmental Epidemiologist or the Food and Waterborne Disease Program in Tallahassee if you need assistance with these investigations. Forms and procedures are available in Chapter G and Appendices of the Environmental Health Programs Manual as well as the CHD foodborne outbreak investigation kit, or water investigation kit.

C. Infection Control Forms and Guidelines

1. Shelter Flow Sheet, Appendix D.1

The Shelter 'Flow Sheet' Form can be used to collect daily surveillance information from pre-event preparation to facility closure.

2. Guidelines for the Management of Acute Diarrhea, Appendix D.2

These are general guidelines for health care providers to evaluate and treat patients with acute diarrhea in post-disaster situations.

3. Technical Fact Sheet on Norovirus (adapted from CDC), Appendix D.3

This sheet provides general information from CDC about Norovirus, and can be distributed to facilities that experience outbreaks associated with this pathogen.

4. Norovirus Management in Shelters, Appendix D.4

This document contains disinfection procedures for shelters, comfort stations, feeding stations and other group facilities.

5. Recommended Disease Control Measures for Disaster Shelters, Appendix D.5

This document outlines general disease control measures for shelters.

6. Foodborne Illness Survey Complaint Form, Appendix D.6

The Foodborne Illness Survey Complaint Form can be used for the initial investigation of a suspected foodborne related illness. Each CHD also has a Foodborne Outbreak Investigation Kit and Water Investigation Kits in the event of an investigation. Each kit contains necessary forms and investigation tools (sampling utensils, etc.).

VII.   Incident Command System (ICS): The Epidemiology Unit's Integration into the ICS
Structure and the Role of Epidemiology Strike Teams

A. ICS

Nearly all disasters that occur in Florida, whether at the local level or regionally are
handled through an emergency management structure called "ICS", or the Incident
Command System. Epidemiology units in local health departments may find that
they have been incorporated into this structure to meet the needs and challenges of
the current situation. There are several implications to this, some of which include a)
epidemiology personnel may be assigned to a team that has a specific task to carry
out and report on b) the person you report to under the ICS system may not be your
regular supervisor c) non-local personnel may be assigned to perform local tasks.

Because of the importance of the Incident Command System in disaster response,
epidemiology staff should seek training in ICS prior to disaster response, and should
understand basis ICS principles.

1. What is ICS?

ICS was developed in the 1970s following a series of catastrophic fires in
California's urban interface. Property damage ran into the millions, and
many people died or were injured. The personnel assigned to determine
the causes of these outcomes studied the case histories and discovered
that response problems could rarely be attributed to lack of resources or
failure of tactics. Surprisingly, studies found that response problems were
far more likely to result from inadequate management than from any other
single reason.

The Incident Command System:
- Is a standardized management tool for meeting the demands of
  small or large emergency or nonemergency situations.
- Represents "best practices" and has become the standard for
  emergency management across the country.
- May be used for planned events, natural disasters, and acts of
  terrorism.
- Is a key feature of the National Incident Management System
  (NIMS).

The ICS is a management system designed to enable effective and
efficient domestic incident management by integrating a combination of
facilities, equipment, personnel, procedures, and communications
operating within a common organizational structure, designed to enable
effective and efficient domestic incident management. A basic premise of
ICS is that it is widely applicable. It is used to organize both near-term
and long-term field-level operations for a broad spectrum of emergencies,
from small to complex incidents, both natural and manmade. ICS is used
by all levels of government—Federal, State, local, and tribal—as well as
by many private-sector and nongovernmental organizations. ICS is also
applicable across disciplines. It is normally structured to facilitate activities

in five major functional areas: command, operations, planning, logistics, and finance and administration.

2. How ICS Functions: Essential Components

The 14 essential ICS features are listed below:

Standardization:

▪ **Common Terminology:** Using common terminology helps to define organizational functions, incident facilities, resource descriptions, and position titles.

Command:

▪ **Establishment and Transfer of Command:** The command function must be clearly established from the beginning of an incident. When command is transferred, the process must include a briefing that captures all essential information for continuing safe and effective operations.

▪ **Chain of Command and Unity of Command:** Chain of command refers to the orderly line of authority within the ranks of the incident management organization. Unity of command means that every individual has a designated supervisor to whom he or she reports at the scene of the incident. These principles clarify reporting relationships and eliminate the confusion caused by multiple, conflicting directives. Incident managers at all levels must be able to control the actions of all personnel under their supervision.

▪ **Unified Command:** In incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.

Planning/Organizational Structure:

▪ **Management by Objectives:** Includes establishing overarching objectives; developing strategies based on incident objectives; developing and issuing assignments, plans, procedures, and protocols; establishing specific, measurable objectives for various incident management functional activities and directing efforts to attain them, in support of defined strategies; and documenting results to measure performance and facilitate corrective action.

▪ **Modular Organization:** The Incident Command organizational structure develops in a modular fashion that is based on the size and complexity of the incident, as well as the specifics of the hazard environment created by the incident.

- **Incident Action Planning:** Incident Action Plans (IAPs) provide a coherent means of communicating the overall incident objectives in the context of both operational and support activities.

- **Manageable Span of Control:** Span of control is key to effective and efficient incident management. Within ICS, the span of control of any individual with incident management supervisory responsibility should range from three to seven subordinates.

Facilities and Resources:

- **Incident Locations and Facilities:** Various types of operational support facilities are established in the vicinity of an incident to accomplish a variety of purposes. Typical designated facilities include Incident Command Posts, Bases, Camps, Staging Areas, Mass Casualty Triage Areas, and others as required.

- **Comprehensive Resource Management:** Maintaining an accurate and up-to-date picture of resource utilization is a critical component of incident management. Resources are defined as personnel, teams, equipment, supplies, and facilities available or potentially available for assignment or allocation in support of incident management and emergency response activities.

Communications/Information Management:

- **Integrated Communications:** Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures.

- **Information and Intelligence Management:** The incident management organization must establish a process for gathering, analyzing, sharing, and managing incident-related information and intelligence.

Professionalism:

- **Accountability:** Effective accountability at all jurisdictional levels and within individual functional areas during incident operations is essential. To that end, the following principles must be adhered to:

- **Check-In:** All responders, regardless of agency affiliation, must report in to receive an assignment in accordance with the procedures established by the Incident Commander.

- **Incident Action Plan:** Response operations must be directed and coordinated as outlined in the IAP.

- **Unity of Command:** Each individual involved in incident operations will be assigned to only one supervisor.

- **Personal Responsibility:** All responders are expected to use good judgment and be accountable for their actions.

- **Span of Control:** Supervisors must be able to adequately supervise and control their subordinates, as well as communicate with and manage all resources under their supervision.

- **Resource Tracking:** Supervisors must record and report resource status changes as they occur.

- **Dispatch/Deployment:** Personnel and equipment should respond only when requested or when dispatched by an appropriate authority.

3. Organization of the Incident Command System

- **Command Staff:** The Command Staff consists of the Public Information Officer, Safety Officer, and Liaison Officer. They report directly to the Incident Commander.

- **General Staff:** The organization level having functional responsibility for primary segments of incident management (Operations, Planning, Logistics, Finance/Administration). The Section level is organizationally between Branch and Incident Commander.

- **Branch:** That organizational level having functional, geographical, or jurisdictional responsibility for major parts of the incident operations. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section. Branches are identified by the use of Roman Numerals, by function, or by jurisdictional name.

- **Division:** That organizational level having responsibility for operations within a defined geographic area. The Division level is organizationally between the Strike Team and the Branch.

- **Group:** Groups are established to divide the incident into functional areas of operation. Groups are located between Branches (when activated) and Resources in the Operations Section.

- **Unit:** That organization element having functional responsibility for a specific incident planning, logistics, or finance/administration activity.

- **Task Force:** A group of resources with common communications and a leader that may be pre-established and sent to an incident, or formed at an incident.

- **Strike Team:** Specified combinations of the same kind and type of resources, with common communications and a leader.

- **Single Resource:** An individual piece of equipment and its personnel complement, or an established crew or team of individuals with an identified work supervisor that can be used on an incident.

Epidemiology functions at the local level through the strike teams and county health departments. At the state level, a staff member for the Bureau of Epidemiology is

assigned as one of the content or subject matter experts within the planning or operations section of ICS. The subject matter experts assist incident command/ESF 8 at the emergency operations center with the content of daily reports, EpiCom postings, interfacing with statewide surveillance systems such as poison control and the medical examiners commission and coordinating requests for CDC resources.

ICS 100, Introduction to the Incident Command System, introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. Basic on-line course available from National Incident Management System (NIMS) FEMA ICS Resource Center: http://training.fema.gov/IS/NIMS.asp

B.   Interfacing with Host CHD: Epidemiology Strike Teams

After a hurricane, Epidemiology Strike Teams can be formed to assist affected counties with disease surveillance and investigations. Teams are usually posted at a non-affected CHD in close proximity to the affected areas, or may be deployed directly to an affected county. This section provides guidelines for strike teams in successfully interfacing with the host CHD during challenging post-hurricane deployments, outlines what CHDs might expect in receiving a strike team in their county and the basic criteria for CHDs requesting a strike team.

There are three basic conditions under which a strike team might be requested: a) the local CHD has sustained significant structural damage and staff shortages preclude the local epidemiology unit from fulfilling its public health role in surveillance/disease control; b) the local health department is functional but staff shortages, resource shortages or other conditions limit the ability of the local epidemiology unit in from fulfilling its public health role in surveillance/disease control; c) the local health department is functional and fully staffed yet there is a perceived need for limited technical assistance in carrying out some surveillance/disease control functions. In all instances, a strike team can be requested through the incident command system.

Through the ICS, Epidemiology Strike Teams are chosen and a team leader is appointed. Typically, teams consist of no more than 5-7 members. Although the decision to post a team at a CHD is made by the ICS, the team leader should call or e-mail the primary epidemiology contact in advance of arrival to facilitate planning. He/she should indicate the number of staff arriving so that suitable office space can be located. The team leader also should provide contact information for all team members to Epidemiology staff, including clerical staff, to assure that calls are routed efficiently.

Once in place, Epidemiology Strike Teams should invite local CHD Epidemiology staff to all team meetings. These meetings should occur, at a minimum, at the beginning of the day to make work assignments and at the end of the day to give reports and account for all staff members. The host CHD staff will be responsible for normal duties; however, they need to be aware of the surveillance and investigative efforts that are underway.

Epidemiology Strike Team members will have a cell or satellite phone, however, a dedicated land phone line should be available at the CHD. While phone lines are generally down post-hurricane; one phone number at the host CHD should be

designated solely for disease surveillance and reporting once phone service is re-established. Also, an alternate line may be necessary to handle the volume of calls. An Epidemiology Strike Team member should always be assigned to answer calls so that local staff are not overly burdened.

Epidemiology Strike Team members should bring laptops. Contact your local IT department prior to deployment to determine if the network and files will be available at a remote location. It is important to respect local CHD policies on network use; be sure to follow requirements for security patches and such before interfacing with a local network. Your local IT department can facilitate these permissions with the host CHD IT department.

Included in the Epidemiology-Go Kit should be enough standard office supplies to get set up without disrupting host CHD staff with paper, pen, and folder requests. It may be necessary to obtain supplies from the local CHD as the assignment progresses, but plan ahead to keep this to a minimum.

Per DOH and HIPPA guidelines, security and confidentiality of case files must be maintained at all times. Know the local security guidelines and safeguard case files in appropriately. A locked office may be available to secure files; alternatively, a locked file cabinet drawer can be utilized temporarily.

The Epidemiology Strike Team leader should make contact with the CHD laboratory supervisor prior to collecting and shipping specimens. Sufficient numbers of nasopharyngeal swabs and stool culture containers should be available to respond to a respiratory or gastrointestinal outbreak. Standard precautions and infection control procedures should be discussed with laboratory staff and followed at all times. Lab slips should be completed with the appropriate information to route the results to the Epidemiology Strike Team so that they are linked to the post-hurricane response and appropriate files.

Remember at all times that the Epidemiology Strike Team is a guest of the host CHD. Keep assigned work area clean and organized. Communicate closely with the local epidemiology staff to ensure that potential problems are recognized and addressed in a timely manner. Respect local CHD policies regarding noise levels, confidentiality, eating and drinking in work areas and access to secure areas.

At the completion of the Epidemiology Response Team assignment, allow sufficient time to close out pending case files then transfer them to the appropriate CHD and clean the work area. Contact all hospitals and shelters that were provided with the temporary reporting lines and confirm that calls and faxes will be forwarded per protocols established prior to the event. The team leader should meet with the epidemiology supervisor at the final exit interview to make sure that the host CHD knows the status of pending cases and has the contact information of Epidemiology Strike Team staff so that calls may be forwarded appropriately. Upon your return home, the team leader should send a thank-you note or email to the host CHD for their hospitality and support.

VIII.   Assistance Post-Storm

A. General Assistance

There are several areas post-storm where the Bureau of Epidemiology can offer
local CHDs assistance. Assistance with regular reportable diseases surveillance is
one area. In addition, counties may not have the capacity to collect and analyze
active (syndromic) surveillance data for public health response, yet need this
information and so may want to request assistance immediately post-storm.
However, the Bureau of Epidemiology can also offer counties longer term assistance
in completing the ongoing task of reportable disease surveillance in instances where
county infrastructure and health department infrastructure is severely limiting that
county's ability to carry out effective reportable disease surveillance and outbreak
investigation and control. The Bureau of Epidemiology and epidemiology strikes
teams have provided this sort of post-storm assistance in the past, both in
maintaining regular surveillance and assisting in the investigation and control of
disease outbreaks.

B. Assistance for Post-Event Syndromic Surveillance

Following hurricane landfall, particularly with those that damage medical facilities and
disrupt transportation and communication systems, syndromic surveillance of the
health status of affected populations is important. This surveillance includes daily
monitoring of functioning area hospital emergency departments (EDs), as well as
surveillance of any temporary medical units deployed to the region to provide
additional basic medical services and primary care. The Bureau of Epidemiology
can provide assistance to local CHDs in monitoring data through ESSENCE-FL,
coordinating the electronic receipt of DMAT data into ESSENCE-FL or assist CHD
that may need to implement a paper-based version of this type of surveillance (as
described in Section C). This includes assistance in technical and processual
aspects of the surveillance implementation.

Established syndromic surveillance via ESSENCE-FL will provide ongoing
surveillance if the facilities are able to transmit data and to continue to record new
patient visits electronically in the facilities electronic medical record system. Of
particular importance for post- hurricane surveillance are injuries, respiratory disease
(asthma), acute disease such as infectious disease (especially gastrointestinal,
respiratory, dermatologic disease and febrile illness), animal bites, insect borne
disease (acute neurologic), carbon monoxide poisoning/other poisoning, and disease
outbreaks. Additionally, chronic health conditions, health maintenance visits, mental
health conditions and other disease are typically monitored.

As part of the emergency response during the 2004-2005 hurricane seasons, the
Bureau of Epidemiology established working relationships with a number of the
larger health care systems and DMATs that were deployed to the impacted areas.
The first demonstration of automated data collection from DMATs into ESSENCE-FL
was conducted during the 2012 Republic National Convention. ASPR data were
uploaded into ESSENCE-FL during Hurricane Matthew in October 2016. These data
are typically event-specific medical visits and provide important post-storm
surveillance. The role of local CHD epidemiology staff or strike teams is crucial in

establishing ongoing daily contact with each ED or DMAT and facilitating the process, as well as providing on-site surveillance.

The Bureau of Epidemiology will provide data analysis and summary regional and statewide reports back to facility and the local county health department and regional incident command in a timely manner. Additionally, the Bureau of Epidemiology will provide assistance with county-specific surveillance as needed. Prior to the ESSENCE-FL ASPR module DMAT data was analyzed via SPSS or other statistical programs, which provided frequency and graphical data, as well as trend analysis if data collection extended over several days. However, the spreadsheet tools provided in Appendix C can also be used by counties and are meant for "stand alone" analysis to monitor the status of community health.

C. Poison Control Surveillance

Florida Poison Information Center Network (FPICN) consists of poison control centers in Jacksonville, Miami, and Tampa and a data analysis unit in Jacksonville. Health professionals and the public can contact FPICN by calling a toll-free hotline (1800-222-1222) available 24 hours a day. Specialists in poison information at each center collect exposure and substance information from callers and enter it into a local database; this information is then uploaded to a statewide database. The statewide database includes a case narrative and patient identification information provided by the individual caller or clinician from a health-care facility. Information is coded following American Association of Poison Control Centers (AAPCC) guidelines regarding harmful substances, circumstances of exposure, clinical findings, disposition, and follow-up. Florida Department of Health monitors FPICN call data for poisoning related to hurricane (e.g., carbon monoxide, food poisoning, bites/stings and snake bites) using FPICN data.

For previous examples during the 2004 hurricane season of data analysis of Poison Control data please see refer EpiCom in PowerPoint Slides (Figure 1).

To request specific county data please contact:

Typical Post-Storm Exposures Reported from Poison Control

Carbon Monoxide	Improper placement, ventilation, and maintenance of generators
Hydrocarbon fuels	Gasoline siphoning for fuel and lamp oils as alternative light sources.
Batteries and Fire/Matches/ Explosives	Dermal injuries related to the use of alternative power sources for lights and electronics
Bites/Stings, Snakes	Environmental exposure due to the loss of electricity and displacement rather than restoration of property.
Contaminated, polluted or sewage water	Storm surges, excessive rainfall, and electrical outages can disable lift stations necessary to transport sewage away from residential neighborhoods, leading to overflows and spills
Food poisoning	Inadequate refrigeration, storage, and undercooked food products

1. Template for Poison Control Summary Reports

STATEWIDE Florida Poison Control Information Center reports on Selected Categories. As is always inherent in using real time data, changes in the patient condition or history may cause updated information to replace outdated information. Therefore, all data is preliminary and is subject to change as further investigations are conducted. Data can be accessed via ESSENCE-FL.

Frequency of Statewide Carbon Monoxide Exposures October 15-November 4, 2005
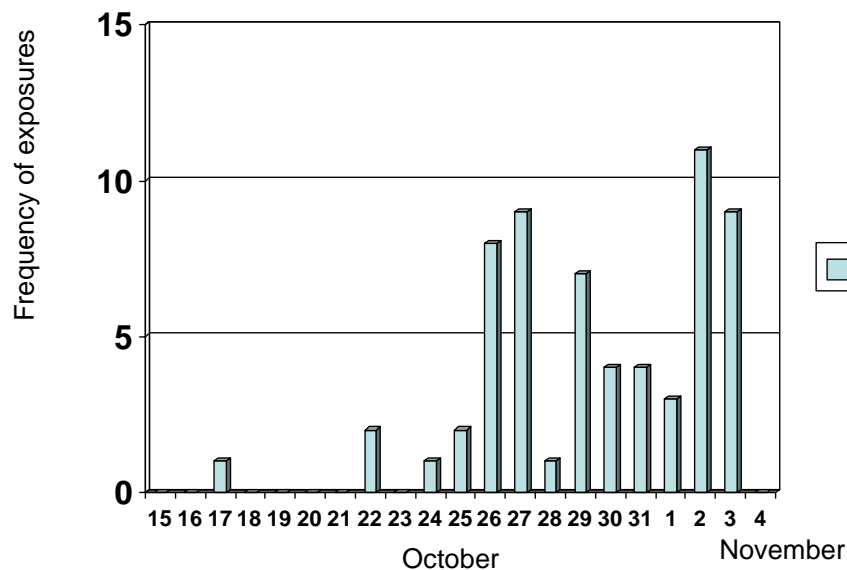
Source: Poison Control Data
11/04/2005 9:35am

D. Other Sources of Surveillance Data

It may be necessary to monitor other sources of data following a hurricane or other disaster events. Sources of data not typically used for the purposes of monitoring health in the community may pinpoint unknown problems such as unreported outbreaks.

The following sources of data can be used for these purposes, and contact information or URLs are provided where applicable. The Bureau of Epidemiology can provide local health departments with system-specific information, graphs, or data for the purposes of monitoring community health if local CHDs do not have access to these systems.

BioSense

BioSense is a CDC "early detection and event characterization" system is intended to provide the CDC, states and local county health departments with syndromic surveillance information that can characterize emerging public health threats. Currently, the system is limited to Department of Defense and VA facilities, but plans exist to expand to other hospitals in Florida via submitting a data feed from ESSENCE-FL. The system must be accessed through the CDC's Epi-X system (http://www.cdc.gov/epix/) that requires the potential user to request a digital certificate from the CDC.

E. Outbreak Response and Disease Prevention

Bureau of Epidemiology staff are available to assist with subject matter expertise in case investigations, outbreak response and disease prevention strategy development.

IX.   Appendix

A. Event Preparedness and Response Checklist/Worksheet

CHD Hurricane Toolkit

Event Preparedness and Response Worksheet and Checklist

This worksheet and checklist is for CHD epidemiology staff to utilize in all stages of preparedness and recovery when the probability of any impact on the local county health department is considerable. It is designed to provide a broad checklist of action items that can be tracked following a timeline of anticipated events involved in preparing for and responding to the impact of hurricanes. The actions items listed are not exhaustive and CHDs can add or remove items that may assist in the preparedness and recovery efforts at the local level. See the Hurricane Toolkit sections for specific descriptions of these action items.

Pre-Event: 72 to 24 hours before impact

Action Item	Person(s) responsible	Completed	Date and time of review or completion
Initiate contact with state health office or prepare for conference call between state health office and local epidemiology unit			
Review continuity of operations plan (COOP)			
Identify/recognize relocation site			
Identify critical staff and assure continuation plans for reportable disease surveillance and follow-up/outbreak investigations			
Identify drive-away bag contents/prepare contents			
Identify all support equipment			
Coordinate post-event communications with local PIO/ESF-8 communications			
Establish communication with local health care and distribute post-event syndromic surveillance data collection forms			
Establish communication with standing shelters and distribute shelter flow-sheet			
Establish communication with local EH staff			
Establish communication with local immunization staff			
Contact mosquito control and animal control			
Establish communication with district medical examiner			
Secure a list of shelters activated w/contact			

information			

Pre-Event: 24 hours to Impact/Landfall

Action Item	Person(s) responsible	Completed	Date and time of review or completion
Prepare copies of current call-down list and distribute to staff			
Assure staff understand assignments and roles in post-event response			

Post-Event: Response

Action Item	Person(s) responsible	Completed	Date and time of review or completion
Re-establish communication with staff & supervisors			
Assess capacity of CHD & Epidemiology Unit to function			
If additional staff/Epi Strike team required, submit tracker request through ICS			
Activate monitoring/surveillance activities in shelters			
Activate surveillance at health care sites (EDs, DMATs, etc.) if manual data collection is necessary			
Monitor other sources of surveillance data (EDs, DMATs, Poison Control, via ESSENCE-FL)			
Prepare situation reports (surveillance, etc.) as necessary			

B. Syndromic Surveillance Forms and Documents

The data collection and data summary forms provided here (Appendix B) are screen shots of the Excel spreadsheets that contain the automated versions of the data collection and summary forms. **Please visit the site below to download the Excel files.** The actual files in some cases contain pre-programmed formulas intended to simplify the analysis process.

https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/surveillance-systems/hurricane-toolkit/hurricane-toolkit.zip
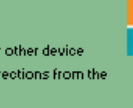
1. Facility & Patient Data Instructions and Workbook

Facility & Patient Data Workbook

Thank you for your partnership with the Florida Department of Health (DOH) to monitor illness and injury post event. We are eager to work with your surveillance site to collect this information to aid in our disaster response and public health decision making.

Sending Patient Data:

• If possible, patient data should be collected electronically and data collected one day would be sent by 9:00 AM the following day

    for example: data collected 08/05/2017 between the hours of 00:00-24:00 should be submitted by 9:00 AM on 08/06/2017

• If email is accesible, forms should be sent to the Bureau of Epidemiology at: Epi_Event@FLhealth.gov

• In the event that email is not accessible, DOH will have epidemiologists in the field that can collect data from a computer onto a flash drive or other device

• If there are considerable barriers to collecting data electronically, print the Patient Data collection worksheet to be complete by hand using directions from the

    Instructions worksheet and drop-down list options from the Data Management worksheet

• If faxing is required, forms should be sent to (850) 922-9299 ATTN: Janet Hamilton

• To print, select the worksheets that you want to print, click 'File' then 'Print' and you can adjust the 'Settings' to modify what the printed page

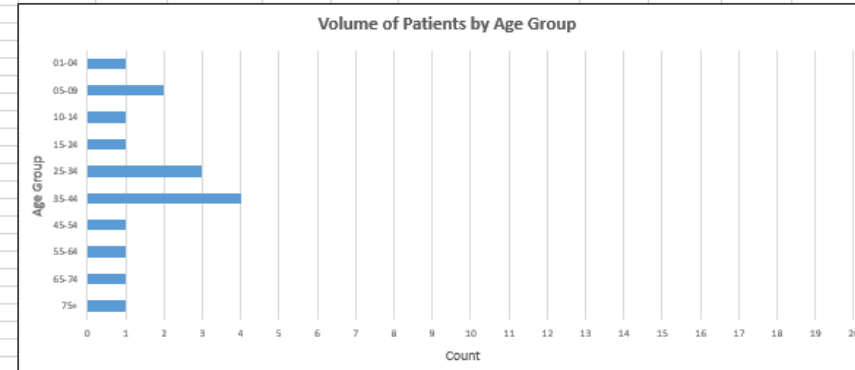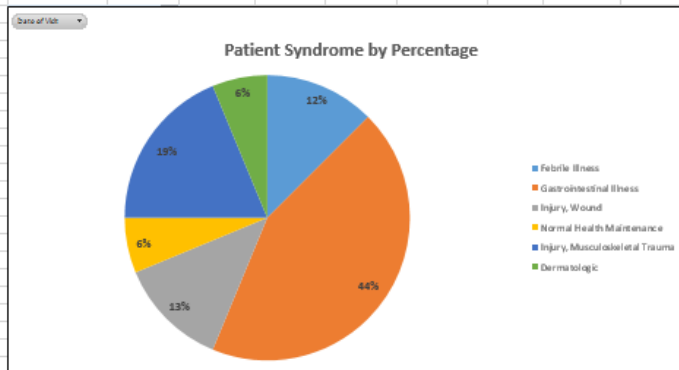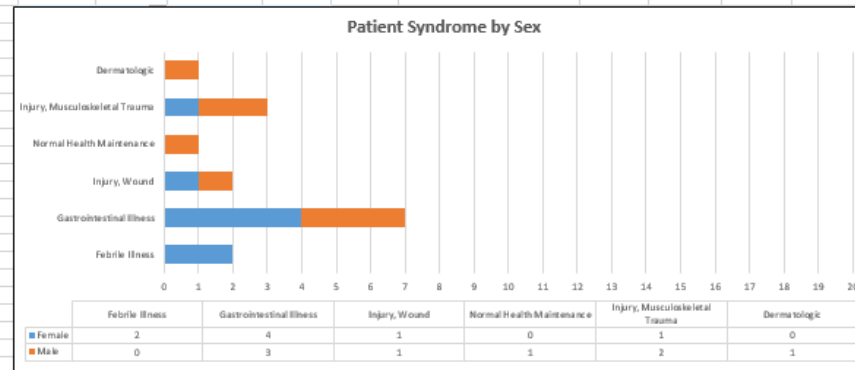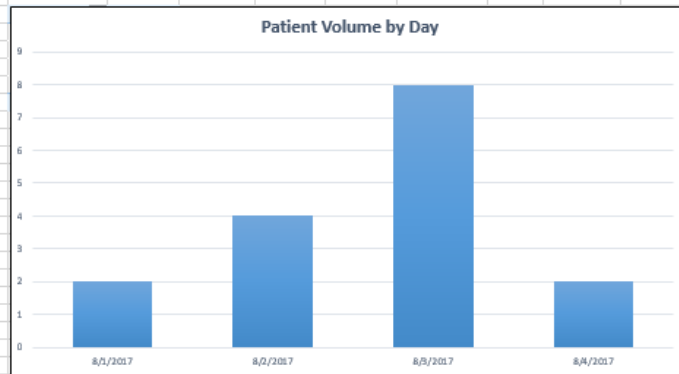   will look like before you click the 'Print' button

Data Collection

• **One record** (line/row) should be generated for *every* patient presenting for care

• A value should be recorded for **each field** and no field should be left blank. Every field has options for unknown or non-applicable information.

• Every column with a drop-down list has options for 'unknown' or 'non-applicable'

• Select the most appropriate option from the drop-down list

Field	Description
Facility Name [Column A]	Select the facility where you are treating the patient
Date of Visit [Column B]	Enter the date of patient visit
Time Seen [Column C]	Enter the hour that the patient was first examined
Patient ID [Column D]	Enter a unique patient ID number such as medical record number
Disposition [Column E]	Select the disposition (location patient was discharged to)
State of Residence [Column	Select the state of patient's primary residence
County of Residence	Select the county of patient's primary residence (if the patient is not a Florida resident then list their county of resident in the Chief Complaints
Age Group [Column H]	Select the appropriate age group for the patient
Sex [Column I]	Select the sex of the patient
Race [Column J]	Select the race of the patient

[Columns K and L] — Select the syndrome Category for patient's Chief Complaints:

Category	Description
Animal Bite	All bites excluding insect, *please specify the type of animal biting the patient* in the Chief Complaints field (Florida is a rabies endemic state)
Asthma	Chronic respiratory condition
Dermatologic	Rashes (including heat rashes), sores, infection (skin bases infections including cellulitis), insect bite, sunburn,
Febrile	Unspecified, fever of unknown origin
Gastrointestinal Illness	Any conditions relating to the stomach, gut, or colon
Heat Related	Heat exhaustion, heat stroke, dehydration, etc
Injury, Musculoskeletal Trauma	Fracture, sprain, strain, dislocation, etc
Injury, Wound	Abrasion, laceration, puncture, foreign body removal, burn, includes wound infection, etc
Mental Health	Anxiety/ stress, etc
Normal Health Maintenance	Blood pressure, blood glucose screening, prescription refills, vaccinations, etc
Other	Illness/injury/condition not fitting into one of the above categories
Poisoning, CO	Carbon monoxide (combustion related)
Poisoning, Other	Pesticides, gas/fumes, ingestions, (not CO-see above), etc
Respiratory, Lower	Cough, shortness of breath, pneumonia
Respiratory, Upper	Cold, sore throat

Triage Level [Column M] — Level of Severity of the patient's condition:

Level	Description
Nonurgent	prescription refill.
Less Urgent	Stable, with only one type of resource anticipated (such as only an X-ray, or only sutures). Such as a simple laceration or pain on urination.
Urgent	Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imaging). Such as abdominal pain or a high fever with cough.
Emergent	High risk of deterioration, or signs of time-critical problem. Such as a cardiac-related chest pain or asthma attack.
Resuscitation	Immediate, life-saving intervention required without delay. Such as a cardiac arrest or massive bleeding.

| **Chief Complaint [Column N]** | Brief description of patient's visit |

Note: Cases of reportable infectious disease should be reported to the local county health department or the epidemiology strike team deployed to the impacted area. If necessary, 24 hr epidemiological technical expertise can be reached by dialing the Bureau of Epidemiology at (850) 245-4401.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence	County of Residence	Age Group	Sex	Race	Primary Syndrome	Secondary Syndrome	Triage Level	Chief Complaint
2	Facility A	8/1/2015	5:00:00 AM	0001	Home	FL	Broward	25-34	Female	Black	Injury, Wound	Dermatologic	Urgent	Patient had deep cut on left leg, needs stitches and tetanus booster
3	Facility A	8/1/2015	4:00:00 PM	0002	Home	FL	Broward	10-14	Female	White	Febrile Illness	None	Nonurgent	Patient had slight fever, 99.7
4	Facility A	8/2/2015	6:00:00 AM	0003	Shelter	FL	Miami-Dade	35-44	Male	White	Injury, Musculoskeletal Trauma	Other	Urgent	Broken right radius
5	Facility A	8/2/2015	11:00:00 AM	0004	Shelter	FL	Broward	35-44	Male	White	Injury, Wound	Dermatologic	Less Urgent	Patient had small abrasion
6	Facility A	8/2/2015	3:00:00 PM	0005	Home	FL	Broward	25-34	Female	Black	Febrile Illness	Respiratory, Upper	Emergent	Patient with fever of 103 with severe, unproductive cough
7	Facility A	8/2/2015	6:00:00 PM	0006	Other	FL	Miami-Dade	35-44	Male	White	Gastrointestinal Illness	Febrile Illness	Less Urgent	vomiting and diarrhea for 1 hour, fever of 100.8
8	Facility A	8/3/2015	6:00:00 AM	0007	Shelter	FL	Miami-Dade	25-34	Female	White	Gastrointestinal Illness	Febrile Illness	Less Urgent	vomiting and diarrhea for 1 hour, fever of 101.2
9	Facility A	8/3/2015	8:00:00 AM	0008	Home	FL	Miami-Dade	01-04	Female	White	Gastrointestinal Illness	Febrile Illness	Less Urgent	vomiting for 2 hours, fever of 100.9
10	Facility A	8/3/2015	12:00:00 PM	0009	Home	FL	Broward	55-64	Male	Black	Normal Health Maintenance	Asthma	Nonurgent	Patient requested help with his inhaler
11	Facility A	8/3/2015	2:00:00 PM	0010	Home	FL	Miami-Dade	45-54	Female	American Indian	Gastrointestinal Illness	Febrile Illness	Less Urgent	Patient was nauseous, fever of 100.5
12	Facility A	8/3/2015	5:00:00 PM	0011	Home	FL	Miami-Dade	05-09	Male	White	Injury, Musculoskeletal Trauma	None	Nonurgent	patient had sprained right wrist
13														
14														

2. Facility Data Summary Instructions and Worksheet

Patient Volume by Day

Patient Syndrome by Sex

	Febrile Illness	Gastrointestinal Illness	Injury, Wound	Normal Health Maintenance	Injury, Musculoskeletal Trauma	Dermatologic
Female	2	4	1	0	1	0
Male	0	3	1	1	2	1

Patient Syndrome by Percentage

- Febrile Illness — 12%
- Gastrointestinal Illness — 44%
- Injury, Wound — 13%
- Normal Health Maintenance — 6%
- Injury, Musculoskeletal Trauma — 19%
- Dermatologic — 6%

Volume of Patients by Age Group

Patient Sex

Patient Sex	8/1/2017	8/2/2017	8/3/2017	8/4/2017	Grand Total
Female	2	1	4	1	8
Male	0	3	4	1	8
Grand Total	2	4	8	2	16

Patient Age Group

Patient Age Group	8/1/2017	8/2/2017	8/3/2017	8/4/2017	Grand Total
01-04	0	0	1	0	1
05-09	0	0	2	0	2
10-14	1	0	0	0	1
15-24	0	0	1	0	1
25-34	1	1	1	0	3
35-44	0	3	0	1	4
45-54	0	0	1	0	1
55-64	0	0	1	0	1
65-74	0	0	0	1	1
75+	0	0	1	0	1
Grand T	2	4	8	2	16

Patient Primary Syndrome

Patient Primary Syndrome	8/1/2017	8/2/2017	8/3/2017	8/4/2017	Grand Total
Febrile Illness	1	1	0	0	2
Gastrointestinal Illness	0	1	4	2	7
Injury, Wound	1	1	0	0	2
Normal Health Maintenance	0	0	1	0	1
Injury, Musculoskeletal Trauma	0	1	2	0	3
Dermatologic	0	0	1	0	1
Grand Total	2	4	8	2	16

3. All Facility Data Collection Instructions and Spreadsheet

Total Patient Data Collection Workbook

- Each facility should be submitting data at least once a day
- Electronic submition is ideal, however if facilities are limited to thumb drive collection or fax submition then that is also acceptable
- Review the Total Facility Collection data for blank cells as no cells in a patients record should be left blank
- To refresh a table or chart with newly added data, click the 'Data' tab at the top of the Excel sceen then "Refresh All"
- To print, select the worksheets that you want to print, click 'File' then 'Print' and you can adjust the 'Settings' to modify what the printed page will look like before you click the 'Print' button
- The Total Facility Collection worksheet can also be uploaded into statistical coding programs such as SAS for more in depth analysis.
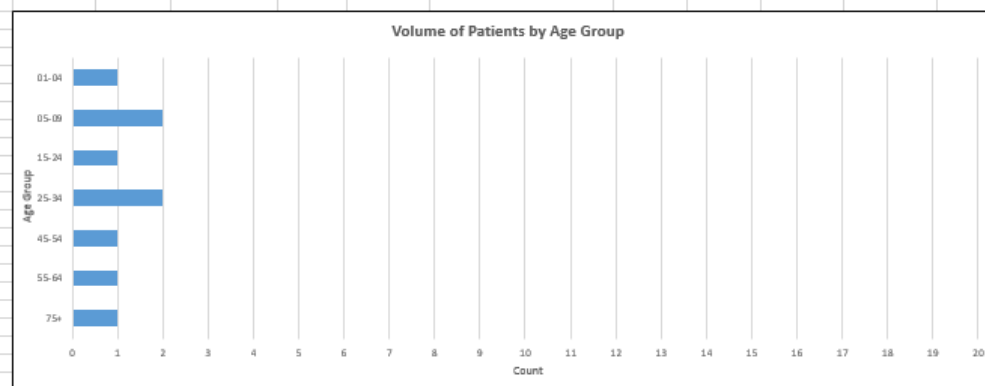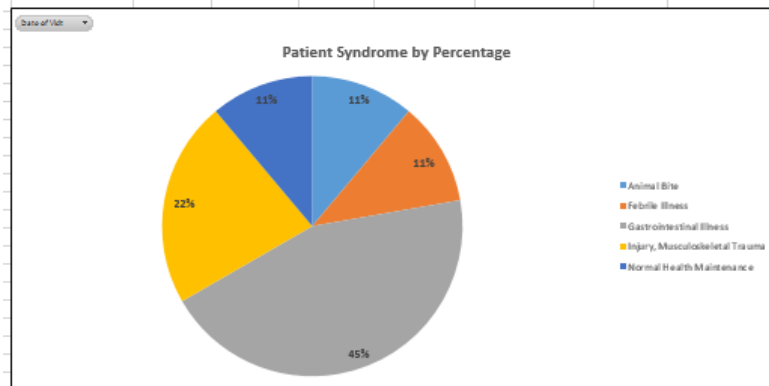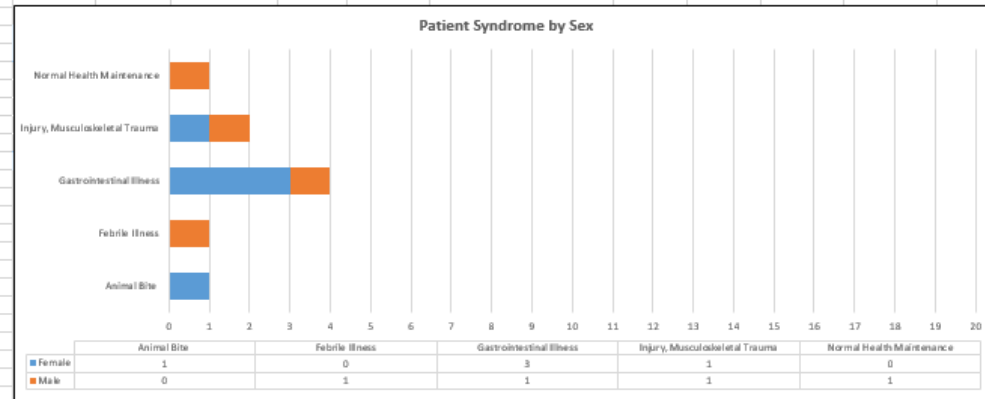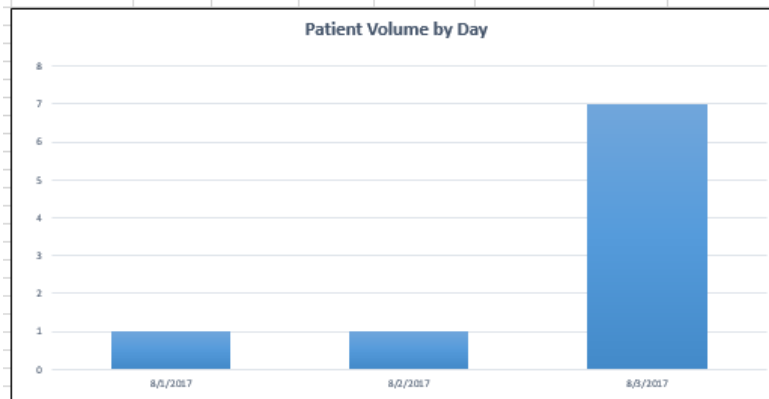
Data Collection

- **One record** (line/row) should be generated for *every* patient presenting for care
- A value should be recorded for **each field** and no field should be left blank
- Every column with a drop-down list has options for 'unknown' or 'non-applicable'
- Select the most appropriate option from the drop-down list

Facility Name [Column A]	Select the facility where you are treating the patient
Date of Visit [Column B]	Enter the date of patient visit
Time Seen [Column C]	Enter the hour that the patient was first examined
Patient ID [Column D]	Enter a unique patient ID number such as medical record number
Disposition [Column E]	Select the disposition (location patient was discharged to)
State of Residence [Column	Select the state of patient's primary residence
[Column G]	Select the county of patient's primary residence (if the patient is not a Florida resident then list their county of resident in the Chief Complaint
Age Group [Column H]	Select the appropriate age group for the patient
Sex [Column I]	Select the sex of the patient
Race [Column J]	Select the race of the patient

Syndrome Categories — Select the syndrome category for the patient's chief complaints:

Animal Bite	All bites excluding insect, *please specify the type of animal biting the patient* in the Chief Complaints field (Florida is a rabies endemic state)
Asthma	Chronic respiratory condition
Dermatologic	Rashes (inclucing heat rashes), sores, infections (skin bases infections including cellulitis), insect bites, sunburn, etc
Febrile	Unspecified, fever of unknown origin
Gastrointestinal Illness	Any conditions relating to the stomach, gut, or colon
Heat Related	Heat exhaustion, heat stroke, dehydration, etc
Injury, Musculoskeletal Trauma	Fracture, sprain, strain, dislocation, etc
Injury, Wound	Abrasion, laceration, puncture, foreign body removal, burn, includes wound infection, etc
Mental Health	Anxiety/ stress, etc
Normal Health Maintenance	Blood pressure, blood glucose screening, prescription refills, vaccinations, etc
Other	Illness/injury/condition not fitting into one of the above categories
Poisoning, CO	Carbon monoxide (combustion related)
Poisoning, Other	Pesticides, gas/fumes, ingestions, (not CO-see above), etc
Respiratory, Lower	Cough, shortness of breath, pneumonia
Respiratory, Upper	Cold, sore throat

Triage Level [Column M] — Level of Severity of the patient's condition:

Nonurgent	Stable, with no resources anticipated except oral or topical medication, or prescriptions. Such as rash or prescription refill.
Less Urgent	Stable, with only one type of resource anticipated (such as only an X-ray, or only sutures). Such as a simple laceration or pain on urination.
Urgent	Stable, with multiple types of resources needed to investigate or treat (such as lab tests plus X-ray imagin). Such as abdominal pain or a high fever with cough.
Emergent	High risk of deterioration, or signs or time-critical problem. Such as a cardiac-related chest pain or asthma attack.
Resuscitation	Immediate, life-saving intervention required without delay. Such as a cardiac arrest or massive bleeding.

Chief Complaint [Column N]	Brief description of patient's visit

Note: Cases of reportable infectious disease should be reported to the local county health department or the epidemiology strike team deployed to the impacted area. If necessary, 24 hr epidemiological technical expertise can be reached by dialing the Bureau of Epidemiology at (850) 245-4401.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence	County of Residence	Age Group	Sex	Race	Primary Syndrome	Secondary Syndrome	Triage Level	Chief Complaint
11	Facility B	8/3/2015	3:00:00 PM	B0001	Home	FL	Brevard	25-34	Female	Black	Mental Health	None	Green (Mild)	Anxious person
12	Facility B	8/3/2015	7:00:00 PM	B0002	Admitted	FL	Brevard	55-64	Male	White	Febrile Illness	Respiratory, Upper	Yellow (Moderate)	Flu
13	Facility B	8/3/2015	1:00:00 PM	B0003	Shelter	FL	Brevard	15-24	Female	Black	Febrile Illness	Respiratory, Upper	Yellow (Moderate)	Flu
14	Facility B	8/4/2015	9:00:00 AM	B0004	Shelter	FL	Clay	15-24	Male	White	Injury, Musculoskeletal Trauma	None	Green (Mild)	Broken elbow from fall
15	Facility B	8/4/2015	10:00:00 AM	B0005	Shelter	FL	Brevard	65-74	Female	White	Heat Related	None	Green (Mild)	
16	Facility B	8/5/2015	5:00:00 PM	B0006	Shelter	FL	Brevard	75+	Male	Other	Normal Health Maintenance	None	Green (Mild)	
17	Facility B	8/5/2015	8:00:00 PM	B0007	Shelter	FL	Walton	15-24	Female	White	Respiratory, Upper	Febrile Illness	Green (Mild)	Flu
18	Facility B	8/5/2015	10:00:00 AM	B0008	Home	FL	Bay	01-04	Male	Other	Dermatologic	None	Green (Mild)	Small cut on child's leg
19	Facility C	8/3/2015	Unknown	C0001	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Animal Bite	Unknown	Unknown	Person had small animal bite and refused treatment
20	Facility C	8/3/2015	3:00:00 AM	C0002	Shelter	FL	Brevard	45-54	Male	White	Febrile Illness	None	Yellow (Moderate)	
21	Facility C	8/3/2015	7:00:00 AM	C0003	Home	FL	Brevard	25-34	Female	American Indian	Gastrointestinal Illness	Febrile Illness	Red (Severe)	
22	Facility C	8/3/2015	9:00:00 AM	C0004	Admitted	FL	Clay	65-74	Male	White	Gastrointestinal Illness	Febrile Illness	Green (Mild)	
23	Facility C	8/3/2015	10:00:00 AM	C0005	Home	FL	Brevard	15-24	Male	White	Gastrointestinal Illness	None	Green (Mild)	
24	Facility C	8/4/2015	5:00:00 PM	C0006	Shelter	FL	Brevard	15-24	Female	Black	Gastrointestinal Illness	Febrile Illness	Green (Mild)	
25	Facility C	8/4/2015	1:00:00 AM	C0007	Shelter	FL	Walton	10-14	Female	White	Mental Health	None	Green (Mild)	
26	Facility C	8/4/2015	5:00:00 AM	C0008	Shelter	GA	Out Of State	45-54	Female	Other	Normal Health Maintenance	None	Green (Mild)	Decatur resident
27	Facility C	8/4/2015	8:00:00 AM	C0009	Shelter	AL	Out Of State	15-24	Male	White	Febrile Illness	Respiratory, Upper	Yellow (Moderate)	Mobile resident
28	Facility C	8/4/2015	2:00:00 PM	C0010	Shelter	FL	Brevard	25-34	Female	Black	Gastrointestinal Illness	None	Unknown	
29	Facility C	8/5/2015	8:00:00 AM	C0011	Home	FL	Martin	55-65	Male	Black	Gastrointestinal Illness	Febrile Illness	Yellow (Moderate)	
30	Facility C	8/5/2015	11:00:00 AM	C0012	Other	FL	Brevard	55-65	Female	White	Normal Health Maintenance	None	Green (Mild)	
31														
32														

4. All Facility Data Summary Instructions and Worksheet

Patient Volume by Day

Patient Syndrome by Sex

	Animal Bite	Febrile Illness	Gastrointestinal Illness	Injury, Musculoskeletal Trauma	Normal Health Maintenance
Female	1	0	3	1	0
Male	0	1	1	1	1

Patient Syndrome by Percentage

- Animal Bite
- Febrile Illness
- Gastrointestinal Illness
- Injury, Musculoskeletal Trauma
- Normal Health Maintenance

Volume of Patients by Age Group

Patient Sex	8/1/2017	8/2/2017	8/3/2017	Grand Total
Female	0	1	4	5
Male	1	0	3	4
Grand Total	1	1	7	9

Patient Age Group	8/1/2017	8/2/2017	8/3/2017	Grand Total
01-04	0	0	1	1
05-09	0	1	1	2
15-24	0	0	1	1
25-34	1	0	1	2
45-54	0	0	1	1
55-64	0	0	1	1
75+	0	0	1	1
Grand Total	1	1	7	9

Patient Primary Syndrome	8/1/2017	8/2/2017	8/3/2017	Grand Total
Animal Bite	0	1	0	1
Febrile Illness	1	0	0	1
Gastrointestinal Illness	0	0	4	4
Injury, Musculoskeletal Traum	0	0	2	2
Normal Health Maintenance	0	0	1	1
Grand Total	1	1	7	9

5. Data Management Instructions and Spreadsheet for Facility and All Facility Excel Files

Instructions for Changing a Drop-Down List
- To add an item to a drop-down list, go to the end of the list and type the new item
- To remove and item from a drop-down list, right click its cell, click Delete, and then click OK to shift the cells up
- Go to the Total Facility Collection Sheet, select a cell that has the drop-down list that you're changing
- Click the 'Data' tab at the top of the Excel screen then 'Data Validation'
- On the Settings tab, to the right of the Source box, click the button that has a picture of a red arrow to collapse the dialog box, and then on the Data Management worksheet select all of the cells containing the entries you want for the drop-down list that you're changing
- Click the button with the red arrow to expand the dialog box
- Check 'Apply these changes to all other cells with the same settings' box then click 'Okay'

Facility Name	Date of Visit	Hour Seen	Patient ID	Disposition	State of Residence	County of Residence	Age Groups	Sex	Race	Primary Syndrome	Secondary Syndrome	Triage Level
Facility A	8/1/2017	0:00		Admitted	AL	Alachua	<1	Female	Asian/Pacific	Animal Bite	Animal Bite	Nonurgent
Facility B	8/2/2017	1:00		Died	AK	Baker	01-04	Male	American Indian	Asthma	Asthma	Less Urgent
Facility C	8/3/2017	2:00		Home	AZ	Bay	05-09	Other	Black	Dermatologic	Dermatologic	Urgent
Facility D	8/4/2017	3:00		Other	AR	Bradford	10-14	Unknown	White	Febrile Illness	Febrile Illness	Emergent
Unknown	8/5/2017	4:00		Shelter	CA	Brevard	15-24		Other	Gastrointestinal Illness	Gastrointestinal Illness	Resuscitation
	Unknown	5:00		Unknown	CO	Broward	25-34		Unknown	Heat Related	Heat Related	Unknown
		6:00			CT	Calhoun	35-44			Injury, Musculoskeletal Trauma	Injury, Musculoskeletal Trauma	
		7:00			DE	Charlotte	45-54			Injury, Wound	Injury, Wound	
		8:00			FL	Citrus	55-64			Mental Health	Mental Health	
		9:00			GA	Clay	65-74			Normal Health Maintenance	Normal Health Maintenance	
		10:00			HI	Collier	75+			Other	Other	
		11:00			ID	Columbia	Unknown			Poisoning, CO	Poisoning, CO	
		12:00			IL	DeSoto				Poisoning, Other	Poisoning, Other	
		13:00			IN	Dixie				Respiratory, Lower	Respiratory, Lower	
		14:00			IA	Duval				Respiratory, Upper	Respiratory, Upper	
		15:00			KS	Escambia				Unknown	Unknown	
		16:00			KY	Flagler					None	
		17:00			LA	Franklin						

6. Data Analysis Instructions and Tables for both Facility and All Facility Excel Files

Hurricane Toolkit Analysis Tables
- To refresh this page after adding new patients to the Total Facility Collection worksheet, click 'Data' at the top of the Excel screen then 'Refresh All'
- There are filters to the right of each summary table to adjust what data is displayed
- Multiple items can be selected in each filter by holding the 'Shift' button as you make your selections
- To clear the filters, click the red "X" at the top, right corner of the filter box

Age Group by Date

	8/1/2017	8/2/2017	8/3/2017	Grand Total
01-04	0	0	1	1
05-09	0	1	1	2
15-24	0	0	1	1
25-34	1	0	1	2
45-54	0	0	1	1
55-64	0	0	1	1
75+	0	0	1	1
Grand Total	**1**	**1**	**7**	**9**

Filters for Age Group Table

Facility Name	Time Seen	State of Residence	County of Reside...
Facility A	1:00:00 AM	FL	Alachua
Facility C	6:00:00 AM	AL	Broward
Facility D	7:00:00 AM	GA	Miami-Dade
Facility B	8:00:00 AM	Unknown	Baker
(blank)	12:00:00 PM	(blank)	Bay
	2:00:00 PM		Brevard
	5:00:00 PM		Clay
	8:00:00 PM		Martin

Primary Syndrome by Date

	8/1/2017	8/2/2017	8/3/2017	Grand Total
Animal Bite	0	1	0	1
Febrile Illness	1	0	0	1
Gastrointestinal Illness	0	0	4	4
Injury, Musculoskeletal Trauma	0	0	2	2
Normal Health Maintenance	0	0	1	1
Grand Total	**1**	**1**	**7**	**9**

Filters for Syndrome Table

Facility Name	State of Residence	County of Reside...	Age Group
Facility A	FL	Alachua	01-04
Facility C	AL	Broward	05-09
Facility D	GA	Miami-Dade	15-24
Facility B	Unknown	Baker	25-34
(blank)	(blank)	Bay	45-54
		Brevard	55-64
		Clay	75+
		Martin	10-14

The All Facility Data Analysis spreadsheet also has a graph for Primary Syndrome

Primary Syndrome Frequency by Day
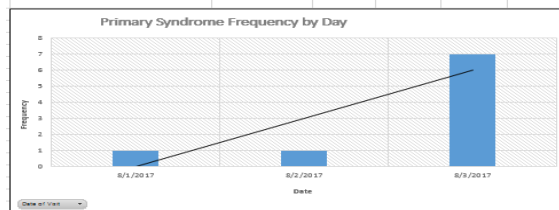
Filters for Syndrome Chart

Primary Syndrome	Facility Name	Age Group	State of Residence
Animal Bite	Facility A	01-04	FL
Febrile Illness	Facility C	05-09	AL
Gastrointestinal Illn...	Facility D	15-24	GA
Injury, Musculoskel...	Facility B	25-34	Unknown
Normal Health Mai...	(blank)	45-54	(blank)
Dermatologic		55-64	
Heat Related		75+	
Injury, MS Trauma		10-14	

7. Template for Surveillance Summary

FLORIDA DEPARTMENT OF HEALTH
Hurricane XX Enhanced Surveillance Summary: XXX County
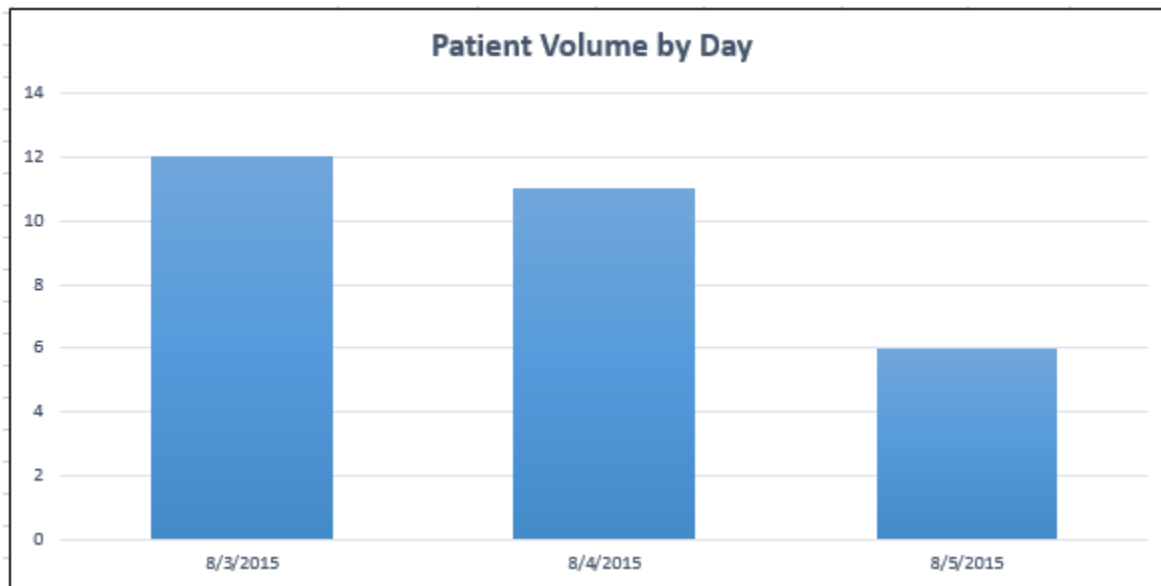Date of Surveillance:
Date of Report:

System Background: _____County Health Department (CHD) has partnered with
hospitals, urgent care centers and outpatient clinics to conduct enhanced illness and injury
surveillance post Hurricane _____. Participating facilities report information on a daily
basis regarding patient visits. Information is captured in 16 different illness and injury
categories. This prospective surveillance is a proactive step intended to supply information
to the _____CHD that will aiding in public health decision making post storm impact. This
surveillance is meant to supplement (not replace) standard reportable disease surveillance.
Additionally, this type of surveillance will provide an early detection method for any
outbreaks of acute illness. _____CHD appreciates the partnership with participating
agencies as they work to provide needed care and services to community members.

Data Summary for mm/dd/yyyy: There were _____of ____ participating facilities that
provided surveillance data for mm/dd/yyyy. The total patient census for mm/dd/yyyy was
_____. Most patients presenting for care were in the ____ age group. __ percent of
patients seen were female and ____ % were male. Data was collected on 15 different chief
complaint syndrome categories. The majority of patients presenting for care fell into the _
syndrome category, followed by ____ syndrome category. Please refer to graphs below for
further information.

Patient Volume by Day

C. Outbreak Investigation Forms

1. Facility Data Collection Spreadsheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Facility Name	Date of Visit	Time Seen	Patient ID	Disposition	State of Residence	County of Residence	Age Group	Sex	Race	Primary Syndrome	Secondary Syndrome	Triage Level	Chief Complaint
2	Facility A	8/3/2015	4:00:00 PM	A0001	Home	FL	Brevard	25-34	Male	White	Injury, Wound	None	Green (Mild)	Person had small abrasion
3	Facility A	8/3/2015	7:00:00 PM	A0002	Shelter	FL	Brevard	05-09	Female	White	Febrile Illness	None	Yellow (Moderate)	Child with cold
4	Facility A	8/3/2015	10:00:00 PM	A0003	Home	FL	Brevard	10-14	Female	Black	Febrile Illness	Respiratory, Upper	Yellow (Moderate)	Child with cold
5	Facility A	8/4/2015	9:00:00 AM	A0004	Admitted	FL	Clay	45-54	Male	White	Injury, Musculoskeletal Trauma	None	Yellow (Moderate)	
6	Facility A	8/4/2015	10:00:00 AM	A0005	Home	FL	Brevard	10-14	Female	White	Heat Related	None	Green (Mild)	
7	Facility A	8/4/2015	5:00:00 PM	A0006	Shelter	FL	Brevard	45-54	Female	Black	Mental Health	None	Green (Mild)	Person concerned about her cat left at home
8	Facility A	8/4/2015	7:00:00 PM	A0007	Shelter	FL	Walton	10-14	Female	White	Normal Health Maintenance	None	Green (Mild)	
9	Facility A	8/5/2015	5:00:00 AM	A0008	Shelter	AL	Out Of State	65-74	Male	Other	Febrile Illness	Respiratory, Upper	Green (Mild)	Mobile resident; Child with cold
10	Facility A	8/4/2015	8:00:00 AM	A0009	Shelter	AL	Out Of State	10-14	Male	White	Febrile Illness	Respiratory, Upper	Yellow (Moderate)	Mobile resident; Child with cold
11	Facility A	8/5/2015	6:00:00 AM	A0010	Home	FL	Brevard	45-54	Female	Black	Injury, Musculoskeletal Trauma	None	Yellow (Moderate)	Person injured ankel, possible fracture; recommended x-ray at ED
12	Facility A	8/4/2015	3:00:00 PM	A0011	Shelter	FL	Clay	25-34	Male	White	Febrile Illness	Respiratory, Upper	Green (Mild)	Person with fever, cough and congestion
13	Facility A	8/4/2015	7:00:00 PM	A0012	Shelter	FL	Brevard	35-44	Male	White	Gastrointestinal Illness	None	Green (Mild)	Person vomited, no continuation of symptoms afterwards
14														
15														

2. Laboratory Specimen Tracking Log

LABORATORY SPECIMEN TRACKING LOG						
PRE-ASSIGNED TRACKING #	SPECIMEN TYPE	DATE SPECIMEN COLLECTED	DATE SPECIMEN SHIPPED	RESULTS	DATE CLOSED	NOTES

3. General Case Investigation Worksheet

GENERAL
INVESTIGATION WORKSHEET

Incident Name:_____

FOR EPI USE ONLY

Input Date _____
Update DB _____
Report Week_____
Not Reportable_____
Linked_____
ICD Code_____
DX Status_____
Lname_____
DOB_____
Sex_____Race_____His_____
Zip Code_____
Event Date_____
Event Type_____
Imported_____
Outbreak_____
Occup_____
DCC_____
Form_____
Reviewed_____

Date Received: _____

Reporter's Name: _____ Phone #: _____

DISEASE: _____ **CONFIRMED**: _____

PATIENT SPECIFIC INFORMATION

NAME: _____ **SSN**: _____

IF CHILD, PARENT'S OR GUARDIAN'S NAME: _____

ADDRESS: _____

CITY: _____ ZIP: _____ PHONE: _____

DOB: ___/___/___ RACE: __ White __ Black __ Asian __ Am. Indian __ Unknown Other _____

ETHNICITY: ___Hispanic ___ Non-Hispanic SEX: ___ Male ___ Female

OCCUPATION: _____

Employer Name/Address: _____ Phone: _____

List Daycare / School / College: _____ Phone: _____

PHYSICIAN: _____ PHONE: _____ FAX: _____

ADDRESS / CENTER: _____ Date MD Visit: ___/___/___

Hospitalization: Yes No Hosp Name: _____ MRNO: _____

ER Only ____ Admission ___/___/___ Discharge ___/___/___ Status: _____

LABORATORY DATA

DATE	SPECIMEN	ORGANISM
___/___/___	_____	_____
___/___/___	_____	_____

Other Laboratory Findings:
_____
_____

SYMPTOMS: Date Onset ___/___/___
_____
_____
_____

TREATMENT: _____
_____

HEALTH

9-3-04

4. Facility Outbreak Investigation Worksheet

Corresponding General Info Form #:
_____

FACILITY OUTBREAK
INVESTIGATION WORKSHEET

FACILITY INFORMATION:

DATE_____   OUTBREAK ID NUMBER_____

TYPE OF FACILITY (SETTING)_____

FACILITY_____

ADDRESS_____CITY_____ZIP_____

TELEPHONE #_____ FAX#_____

REPORTED BY_____

CONTACT PERSON_____

CLINICAL INFORMATION:

ONSET DATE_____

DESCRIPTION OF ILLNESS_____

_____

_____

DURATION OF ILLNESS_____

TREATMENTS GIVEN_____

LAB TESTING PERFORMED BY HEALTH DEPARTMENT_____

_____

LAB SPECIMENS TO CDC FOR CONFIRMATION_____

_____

FAMILY MEMBERS OF PATIENT AND STAFF INFECTED?_____

_____

TOTAL # OF CASES_____   TOTAL # EXPOSED_____   ATTACK RATE (AR)_____

TOTAL # OF RESIDENT CASES_____   TOTAL # RESIDENTS EXPOSED_____   AR_____

TOTAL # OF STAFF CASES_____   TOTAL # OF STAFF EXPOSED_____   AR_____

DEATHS _____   #HOSPITALIZATIONS_____

EPI CURVE INFORMATION

DATE	# ILL
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

CASE DEFINITION:
_____
_____
_____
_____

HYPOTHESES (Include Type of Outbreak, e.g. Common Source, Propogated, Bioterrorism):

_____

_____

_____

_____

OTHER METHODS:_____

CONTROL AND PREVENTION MEASURES INSTITUTED:

_____

_____

_____

_____

RECOMMENDATIONS:

_____

_____

_____

CONCLUSIONS:

_____

_____

_____

_____

DATE & TIME OF NOTIFICATIONS:

AHCA
_____

ENVIRONMENTAL
_____

FSHD
_____

EMERGENCY MANAGEMENT
_____

FBI
_____

CDC
_____

OTHER
_____

_____

_____

5. State Laboratory Requisition Form:
http://www.floridahealth.gov/programs-and-services/public-health-laboratories/forms-publications/_documents/DH1847--rev-5-13.pdf

6. Epidemiology Basic Field Gear Checklist

BASIC FIELD GEAR CHECKLIST-OUTBREAK INVESTIGATION

Description	Quantity
Personal Protective Equipment	
Gloves(Small, medium, large, and latex free)	1 box each
Gowns	10
Face Masks (N95 Respirators)	1 box
Safety Goggles	2 pairs
Shoe Booties	1 box
Wader Boots	2 pairs
Bottle of Sunscreen	1-2 bottles
Insect Repellant	1-2 cans
Hand Sanitizer	4
First Aid Kit	1
Office Supplies	
Clipboards	5
Pens/Pencils	2 boxes of each
Paper	1 reem
Graph Paper	1- (12 pack)
Black Permanent Marker	4 markers
Scissors	2 pairs of scissors
Binder Clips	1- (box 24 ct)
Phone Message Pads	1 message book
White Out	2 white out
Push Pins	1 box (100ct)
Index Cards	2 (250 ct)
Tape Dispenser	1
Tape	2 rolls of tape
Post-It Posts	1 pack
Pocket Folders	1-box 100 ct
Notebooks	2
Stapler	2
Paper Clips	1 box (100 ct)
Rubber Bands	1 box
Calculator and Batteries	1
Portable Locking File Cabinet with Lock	2
File Folders	1 box
Hanging File Folders	1 box
Trash Bags	1 box
Jump Drive/Thumb Drive	1

Resources	
Control of Communicable Disease Manual	2
Red Book	1
CDC Acute Diarrhea Management Guidelines	1
Investigations Worksheets	
Enteric Investigation	
Hepatitis A	
Hepatitis B and C	
Meningitis/ Encephalitis	
Rash Illness	
General Investigations	
Rabies	
Respiratory Disease	
Foodborne Illness/Survey Complaint Form	
Line List	
Phone Log	
Laboratory	
Bacterial Specimen Kit	
Viral Specimen Kit	
Ova and Parasite Kit	
Transport Media	
Laboratory Specimen Collection Guidelines	
Ice Pack	
Laboratory Submission Form	
Biohazard Bags	
Shipping and Packaging	
Cooler for Lab Specimens	
Specimen Collection Log	
Medical Supplies	
Thermometer	
Stethoscope	
Other	
Car Power Source for Laptops	1
Laptop Computers	
Cell phones/Blackberries	
Portable Printer	
Chargers: Land and Car Chargers and Cords for Laptops, Printer, and Cell Phones	

D. Infection Control

    1. Shelter Flow Sheet Form

Shelter Flow Sheet

Name of Shelter _____ Street _____ City _____

Type of facility shelter is located in: _____ Maximum capacity of Shelter _____

Agency Responsible for the Shelter _____

Contact information for Shelter_____ Phone # _____ Cell _____

Special characteristic or population:

_____

Date Shelter occupied: _____ Date Shelter Closed _____

Days Occupied	Date	Total # of occupants	# Diaper Age	Electricity (Y/N)	Municipal Water (Y/N)	# Functioning Toilets	Type and # of Hand washing facilities	Sanitation	# GI Illness in last 24 hours	# of fevers in last 24 hours
1										
2										
3										
4										
5										
6										
7										
8										
9										
1										
10										

Notes: If possible try to collect illness data at the same time each day to standardize the data. The total number of occupants includes staff. Electricity if on generator code as YG for yes on generator. Distinguish between portable and fixed toilets, Sanitation code as Good, Fair and Poor based environment such as disposal of diapers, food preparation area, etc.

2. Guidelines for the Management of Acute Diarrhea

FOR HEALTHCARE PROVIDERS: GUIDELINES FOR THE MANAGEMENT OF ACUTE DIARRHEA

Increased incidence of acute diarrhea may occur in post-disaster situations where access to electricity, clean water, and sanitary facilities are limited. In addition, usual hygiene practices may be disrupted and healthcare seeking behaviors may be altered. The following are general guidelines for healthcare providers for the evaluation and treatment of patients presenting with acute diarrhea in these situations. However, specific patient treatment should be determined based on the healthcare provider's clinical judgment. Any questions should be directed to the local health department.

CHILDREN

Indications for medical evaluation of infants and toddlers with acute diarrhea

- Young age (e.g., aged <6 months or weight <18 lbs.)
- Premature birth, history of chronic medical conditions or concurrent illness
- Fever ≥38 °C (100.4 °F) for infants aged <3 months or ≥39 °C (102.2 °F) for children aged 3—36 months
- Visible blood in stool
- High output diarrhea, including frequent and substantial volumes of stool
- Persistent vomiting
- Caregiver's report of signs consistent with dehydration (e.g., sunken eyes or decreased tears, dry mucous membranes, or decreased urine output)
- Change in mental status (e.g., irritability, apathy, or lethargy)
- Suboptimal response to oral rehydration therapy already administered or inability of the caregiver to administer oral rehydration therapy

Principles of appropriate treatment for INFANTS AND TODDLERS with diarrhea and dehydration

- Oral rehydration solutions (ORS) such as Pedialyte ® or Gastrolyte ® or similar commercially available solutions containing sodium, potassium and glucose should be used for rehydration whenever patient can drink the required volumes; otherwise appropriate intravenous fluids may be used.
- Oral rehydration should be taken by patient in small, frequent volumes (spoonfuls or small sips); see attached table for recommended volumes and time period.
- For rapid realimentation, an age-appropriate, unrestricted diet is recommended as soon as dehydration is corrected
- For breastfed infants, nursing should be continued
- Additional ORS or other rehydration solutions should be administered for ongoing losses through diarrhea
- No unnecessary laboratory tests or medications should be administered

FOR HEALTHCARE PROVIDERS: GUIDELINES FOR THE MANAGEMENT OF ACUTE DIARRHEA
(continued from previous page)

- The decision to treat with antimicrobial therapy should be made on a patient-by-patient basis, on clinical grounds, which may include
  - Fever
  - Bloody or mucoid stool
  - Suspicion of sepsis

OLDER CHILDREN AND ADULTS

Indications for medical evaluation of children > 3 years old and adults with acute diarrhea

- Elderly age
- History of chronic medical conditions or concurrent illness
- Fever ≥39 °C (102.2 °F)
- Visible blood in stool
- High output of diarrhea, including frequent and substantial volumes of stool
- Persistent vomiting
- Signs consistent with dehydration (e.g., sunken eyes or decreased tears, dry mucous membranes, orthostatic hypotension or decreased urine output)
- Change in mental status (e.g., irritability, apathy, or lethargy)
- Suboptimal response to oral rehydration therapy already administered or inability to administer oral rehydration therapy

Principles of appropriate treatment for ADULTS with diarrhea and dehydration

- Oral rehydration solutions (ORS) such as Pedialyte ® or Gastrolyte ® or similar commercially available solutions containing sodium, potassium and glucose should be used for rehydration whenever patient can drink the required volumes; otherwise appropriate intravenous fluids may be used.
- Oral rehydration should be taken by patient in small, frequent volumes (spoonfuls or small sips); see attached table for recommended volume and time period.
- For rapid realimentation, unrestricted diet is recommended as soon as dehydration is corrected
- Additional ORS or other rehydration solutions should be administered for ongoing losses through diarrhea
- No unnecessary laboratory tests or medications should be administered
- Antimotility agents such as Lomotil ® or Immodium ® should be considered only in patients who are NOT febrile or having bloody/mucoid diarrhea. Antimotility agents may reduce diarrheal output and cramps, but do not accelerate cure.
- The decision to treat with antimicrobial therapy should be made on a patient-by-patient basis, on clinical grounds, which may include

  - Fever
  - Bloody or mucoid stool
  - Suspicion of sepsis

FOR HEALTHCARE PROVIDERS: GUIDELINES FOR THE MANAGEMENT OF ACUTE DIARRHEA
(continued from previous page)

Treatment based on degree of dehydration

Degree of dehydration	Rehydration therapy	Replacement of ongoing losses	Nutrition
Minimal or none	Not applicable	<10 kg body wt.: 60-120 mL oral rehydration solution (ORS) for each diarrheal stool or vomiting episode >10 kg body weight: 120-240 mL ORS for each diarrheal stool or vomiting episode	Continue breast feeding or resume age-appropriate normal diet after initial rehydration, including adequate caloric intake for maintenance
Mild to moderate	ORS, 50-100 mL/kg body weight over 3-4 hours	Same	Same
Severe	Ringers lactate Lactated Ringers solution or normal saline * in 20 mL/kg body weight intravenous amounts until perfusion and mental status improve: then administer 100 mL/kg body weight ORS over 4 hours or 5% dextrose ½ normal saline intravenously at twice maintenance fluid rates	Same: if unable to drink, administer through nasogastric tube or administer 5% dextrose ¼ normal saline with 20 mEq/L potassium chloride intravenously	Same

* In severe dehydrating diarrhea, normal saline is less effective for treatment because it contains no bicarbonate or potassium. Use normal saline only if Ringers lactate solution is not available, and supplement with ORS as soon as the patient can drink. Plain glucose in water is ineffective and should not be used.

NOTE: Restrictive diets should be avoided during acute diarrheal episodes. Breastfed infants should continue to nurse ad libitum even during acute rehydration. Infant too weak to eat can be given breastmilk or formula through nasogastric tube. Lactose-containing formulas are usually well-tolerated. If lactose malabsorption appears clinically substantial, lactose-free formulas can be used. Complex carbohydrates, fresh fruits, lean meats, yogurt, and vegetables are all recommended. Carbonated drinks or commercial juices with a high concentration of simple carbohydrates should be avoided.

3. Technical Fact Sheet on Norovirus

Noroviruses (genus *Norovirus*, family *Caliciviridae*) are a group of related, single-stranded RNA, nonenveloped viruses that cause acute gastroenteritis in humans. Norovirus was recently approved as the official genus name for the group of viruses provisionally described as "Norwalk-like viruses" (NLV). This group of viruses has also referred to as caliciviruses (because of their virus family name) and as small round structured viruses, or SRSVs (because of their morphologic features). Another genus of the calicivirus family that can cause gastroenteritis in humans is *Sapovirus*, formerly described as "Sapporo-like virus" (SLV) and sometimes referred to as classic or typical calicivirus.

Noroviruses are named after the original strain "Norwalk virus," which caused an outbreak of gastroenteritis in a school in Norwalk, Ohio, in 1968. Currently, there are at least four norovirus genogroups (GI, GII, GIII and GIV), which in turn are divided into at least 20 genetic clusters.

Clinical Presentation

The incubation period for norovirus-associated gastroenteritis in humans is usually between 24 and 48 hours (median in outbreaks 33 to 36 hours), but cases can occur within 12 hours of exposure. Norovirus infection usually presents as acute-onset vomiting, watery non-bloody diarrhea with abdominal cramps, and nausea. Low-grade fever also occasionally occurs, and vomiting is more common in children. Dehydration is the most common complication, especially among the young and elderly, and may require medical attention. Symptoms usually last 24 to 60 hours. Recovery is usually complete and there is no evidence of any serious long-term sequelae. Studies with volunteers given stool filtrates have shown that asymptomatic infection may occur in as many as 30% of infections, although the role of asymptomatic infection in norovirus transmission is not well understood.

Virus Transmission

Noroviruses are transmitted primarily through the fecal-oral route, either by consumption of fecally contaminated food or water or by direct person-to-person spread. Environmental and fomite contamination may also act as a source of infection. Good evidence exists for transmission due to aerosolization of vomitus that presumably results in droplets contaminating surfaces or entering the oral mucosa and being swallowed. No evidence suggests that infection occurs through the respiratory system.

Noroviruses are highly contagious, and it is thought that an inoculum of as few as 10 viral particles may be sufficient to infect an individual. During outbreaks of norovirus gastroenteritis, several modes of transmission have been documented; for example, initial foodborne transmission in a restaurant, followed by secondary person-to-person transmission to household contacts. Although presymptomatic viral shedding may occur, shedding usually begins with onset of symptoms and may continue for 2 weeks after recovery. It is unclear to what extent viral shedding over 72 hours after recovery signifies continued infectivity.

Immunity to Norovirus

Mechanisms of immunity to norovirus are unclear. It appears that immunity may be strain-specific and lasts only a few months; therefore, given the genetic variability of noroviruses, individuals are likely to be repeatedly infected throughout their lifetimes. This may explain the high attack rates in all ages reported in outbreaks. Recent evidence also suggests that susceptibility to infection may be genetically determined, with people of O blood group being at greatest risk for severe infection.

Disease burden of Norovirus Gastroenteritis

CDC estimates that 23 million cases of acute gastroenteritis are due to norovirus infection, and it is now thought that at least 50% of all foodborne outbreaks of gastroenteritis can be attributed to noroviruses.

Among the 232 outbreaks of norovirus illness reported to CDC from July 1997 to June 2000, 57% were foodborne, 16% were due to person-to-person spread, and 3% were waterborne; in 23% of outbreaks, the cause of transmission was not determined. In this study, common settings for outbreaks include restaurants and catered meals (36%), nursing homes (23%), schools (13%), and vacation settings or cruise ships (10%).

Most foodborne outbreaks of norovirus illness are likely to arise though direct contamination of food by a food handler immediately before its consumption. Outbreaks have frequently been associated with consumption of cold foods, including various salads, sandwiches, and bakery products. Liquid items (e.g., salad dressing or cake icing) that allow virus to mix evenly are often implicated as a cause of outbreaks. Food can also be contaminated at its source, and oysters from contaminated waters have been associated with widespread outbreaks of gastroenteritis. Other foods, including raspberries and salads, have been contaminated before widespread distribution and subsequently caused extensive outbreaks.

Waterborne outbreaks of norovirus disease in community settings have often been caused by sewage contamination of wells and recreational water.

Diagnosis of Norovirus

In the last 10 years, diagnosis of norovirus illness in outbreaks has improved with the increasing use of reverse transcriptase polymerase chain reaction (RT-PCR). Currently, 27 state public health laboratories have the capability to test for noroviruses by RT-PCR. RT-PCR can be used to test stool and emesis samples, as well as to detect the presence of noroviruses on environmental swabs in special studies. Identification of the virus can be best made from stool specimens taken within 48 to 72 hours after onset of symptoms, although good results can be obtained by using RT-PCR on samples taken as long as 5 days after symptom onset. Virus can sometimes be found in stool samples taken as late as 2 weeks after recovery.

Older methods for diagnosis include direct and immune electron microscopy of fecal specimens, and detection of a fourfold increase of specific antibodies in acute- and convalescent-phase blood samples. An enzyme-linked immunosorbent assay for detection of virus in stools is under development.

Sequencing of noroviruses found in clinical samples has helped in conducting epidemiologic investigations by linking cases to each other and to a common source and by differentiating outbreaks that were mistakenly connected. Sequences can be entered into CaliciNet, a database used to store the different sequences of norovirus that cause disease throughout the United States, thereby allowing rapid assessment of the relationships between strains.

In addition to microbiological techniques, several epidemiologic criteria have been proposed for use in determining whether an outbreak of gastroenteritis is of viral origin. Kaplan's criteria for this purpose are as follows: 1) a mean (or median) illness duration of 12 to 60 hours, 2) a mean (or median) incubation period of 24 to 48 hours, 3) more than 50% of people with vomiting, and 4) no bacterial agent previously found. Although quite specific, these criteria are not very sensitive, and therefore the possibility of a viral etiology should not be discarded if the criteria are not met.

Assays to detect virus in food need to be adapted for each food substance; these have been rarely used, with the exception of assays to detect virus in shellfish. Water can be tested for noroviruses by using RT-PCR to detect virus when large volumes of water are processed through specially designed filters.

Management of Norovirus Infection

No specific therapy exists for viral gastroenteritis. Symptomatic therapy consists of replacing fluid losses and correcting electrolyte disturbances through oral and intravenous fluid administration.

Prevention

Prevention of foodborne norovirus disease is based on the provision of safe food and water. Noroviruses are relatively resistant to environmental challenge: they are able to survive freezing, temperatures as high as 60°C, and have even been associated with illness after being steamed in shellfish. Moreover, noroviruses can survive in up to 10 ppm chlorine, well in excess of levels routinely present in public water systems. Despite these features, it is likely that relatively simple measures, such as correct handling of cold foods, frequent hand washing, and paid sick leave, may substantially reduce foodborne transmission of noroviruses.

Surveillance of Norovirus Infection in the United States

CDC currently does not conduct active surveillance to monitor outbreaks of gastroenteritis caused by noroviruses. Outbreaks are reported to CDC's Viral Gastroenteritis Section, Respiratory and Enteric Viruses Branch, Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID) when states send specimens for testing or sequencing, or outbreaks are reported

directly by states to the database maintained by the Foodborne Diarrheal Diseases Branch, Division of Bacterial and Mycotic Diseases, NCID.

Recently, a system called CaliciNet has been developed on the basis of the PulseNet model. CaliciNet is a database of norovirus sequences identified from outbreaks of norovirus that can then help to determine links between outbreaks.

4. Norovirus Management in Shelters

Norovirus Management in Shelters

Norovirus illnesses often occur when large numbers of people are crowded together in one location such as shelters. Since in a shelter situation it will be impossible to immediately determine whether diarrhea is caused by this virus it is best to consider any diarrhea syndrome as "probably" caused by it. Norovirus is easily transmitted from person to person and then can eventually become food or waterborne.

The primary action for Norovirus management in shelters should focus on stopping further transmission from suspected Norovirus cases to others. This would include isolating ill persons as much as possible from others and using effective and appropriate disinfection measures immediately. Follow these steps to control for disinfection:

Wear gloves and, if possible, a protective mask (A standard isolation mask is OK; an N95 mask is not necessary) for your mouth and nose.

1) First wipe up vomitus and feces with disposable materials such as paper towels, disposable diapers or disposable bed pads. Place the materials in a plastic bag.
2) Place soiled bedding and clothing in a plastic bag and store them away from clean areas.
3) Using disposable materials wash the contaminated surfaces clean with water and a detergent and place the materials in a plastic bag.
4) Disinfect the surfaces using the following formula:

Formula for sanitizing surfaces to manage Norovirus in shelters:
- Use Household bleach and BE SURE TO READ THE LABEL to determine the percentage of sodium hypochlorite needed IN 1 GALLON of water to achieve the 1000ppm that is needed to inactivate Noroviruses.

For 1 GALLON of water:

- Use 2 ounces of 6% sodium hypochlorite (most household bleach brands are 6%)
- Use 11 ounces of 1% sodium hypochlorite,
- Use 6 ounces of 2% sodium hypochlorite,
- Use 22 ounces of 0.5% sodium hypochlorite

Note: 2 ounces = 5 capfuls using the large (1 inch wide by ¾ inch deep) cap from the bleach bottle
       2 ounces = 8 capfuls using the small (1 inch wide by ½ inch deep) cap from the bleach bottle

It is recommended to use spray bottles to apply the disinfectant to contaminated surfaces such as toilets, sinks, floors, tables water fountains or any areas where a symptomatic (especially vomiter) has been. Don't try to sanitize the whole shelter it is not necessary, just the areas of contamination.

5) Allow the disinfectant to remain on the surfaces for 2 minutes and then either wipe dry with a disposable towel or simply allow it to dry on the surface.
6) Place your gloves and mask in a plastic bag and wash your hands thoroughly with soap and water.

5. Disease Control Measures for Disaster Shelters

Recommended Disease Control Measures for Disaster Shelters

1. Assessments: Assess all patients for dehydration, discomfort, and general well-being. Note specific symptoms indicating infection.

2. Recording information: Maintain a log (ILLNESS REPORT FOR SHELTER) of ill residents and staff.

3. Reporting: In the event of 2 or more cases with similar symptoms, please contact public health officials.

4. Diagnostics: Notify the resident's personal physician. Request laboratory testing to identify the agent responsible for resident's illness.

5. Notification of outbreak: In the case of an outbreak advise all staff, residents, families and visitors of the situation—post notices on all entrances to the shelter and in places visible to the shelter residents.

6. Observe Standard Precautions.
Placement:
- Ill shelter residents should be placed with other individuals who are having the same symptoms. Syndrome complexes which should be cohorted (kept together) include:
  - Diarrhea - acute diarrhea, fever, nausea and vomiting
  - Respiratory - fever and cough
  - Rash - either petechial/ecchymotic, Vesicular, or maculopapular (with cough, coryza & fever) Each type of rash indicates a different possible infection.
  - Skin/Wound infection - abscesses or draining wound that cannot be covered
- If there is only one symptomatic individual, the person should be kept away from healthy people.
- Limit ill individuals' mobility as much as possible. If separate rooms are not available, it may be helpful to designate a specific area for the ill individuals.
- If the shelter has rooms, designate one room as a clinic area and keep healthy individuals out.

Personal Protective Equipment (PPE):
- Health care workers should wear gloves and/or gowns when in direct patient contact or in contact with items in the patient's environment and change gloves between patient contacts.

- Attention to proper removal of PPE is important. Used, soiled PPE must be carefully discarded as close to the point of use as possible.
- If possible, health care workers should wear a mask when cleaning areas grossly contaminated by feces or vomitus.
- Masks should be worn whenever there is a possibility of aerosolization of the contaminated materials.

Recommended Disease Control Measures for Disaster Shelters (page 2)

7. Cleaning of contaminated areas/equipment to prevent transmission of microorganisms/germs:
- Avoid sharing patient care equipment (e.g. bedside commodes). If such items must be shared, they should be cleaned and disinfected before reuse.
- Devise a schedule to ensure cleaning of shelter common areas (e.g. handrails and doorknobs), shelter bathrooms and dining facilities, if they exist.
- Paper towels or a disposable mop and soap or detergent should be used to completely clean up feces, vomitus or and body fluid.
- After complete cleaning a 10% bleach solution (or equivalent commercial product) should be used for terminal (environmental) disinfection.

8. Hand washing:
- Enforce proper hand washing for all health care workers and shelter residents.
- Whenever possible use running water and soap for hand washing.
- Alcohol gel preparations may be used for hand sanitization when hands are not grossly soiled.
- Hold a "town hall meeting" to discuss the importance of proper hand washing and give a demonstration.
- Post signs in visible areas reminding individuals to wash hands thoroughly.

9. Work restrictions: Do not let ill health care workers care for other individuals. All ill workers should be excluded from the shelter environment until 24-48 hours after the cessation of symptoms.

6. Foodborne Illness Survey Outbreak Investigation Form
https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EPI/Shared%20Documents/epidemiology/food-and-waterborne-disease/appxe-foodborne-2017.doc?d=w629893bc638744e2911e7ae3500ea178

E. Communication with the Bureau of Epidemiology

1. Below are two examples of a "situation report" that can be used as a template by local CHD epidemiology units or epidemiology strike teams, to provide information to EOC, ICS, & Bureau of Epidemiology personnel. These types of reports cover the tasks the epidemiology team has carried out in the field, as well as informs about the current situation of community health problems identified and resolved while in the field. Epidemiology strike teams may be expected by ICS leadership to produce a "Sit Report" on a daily basis while in the field. CHD epidemiology personnel may want to develop daily or weekly Sit Report as a means of communicating with leadership or other agencies about the actions carried out by the local epidemiology unit during the post-event response.

(Example 1: Epidemiology Situation Report)

Date: 10/30/05

Conducted Epidemiology Assessment Hospital Site Visit:
Collected information regarding average daily ED pre-storm census, census post storm, information regarding normal number of patients typically seen for GI related illness. Collected information regarding opening and closing of facility related to storm impact. Met with hospital lab staff to review lab orders post storm to determine any anomalies.

Hospital _____, City_____ –Normal census pre-storm approx n=18, seeing about the same number post-storm. No unusual increase in GI reported. Seeing lacerations, falls, injuries, SOB. Met with head of lab, only one stool culture pending, no increase in stool testing orders. Never really closed for the storm, sheltered many staff during storm. Had a DMAT strike team post storm for one day - 10/25.
ED information: 10/24 n=6, 1 pt ab pain chief complaint; 10/25 DMAT strike team, pts not recorded in regular hospital system and no census info available; 10/26, 17 pts, 1 NVD; 10/28 21 pts seen, 2 NVD; 10/29 14 pts seen, 1 NV; 10/30 none at time of mid day epi review.

Medical Center_____, City_____: Normal census pre-storm n=40-60. Possible spike in pediatric GI on 10/28 and 10/29. None seen 10/30. Unable to verify ED daily census post storm due to lack of staff able to access the record system. Lab staff reported 6 stool culture orders for 10/28 and 10/29. Normally see 0-4 stool culture orders per day so this amount is within the normal range. Three of 6 bacterial cultures are no growth finals, ova and parasites pending.

Conducted Epidemiological Assessment Pharmacy Site Visits:
Assessed n=6 of n=9 Pharmacies. Two pharmacies were unable to be assessed as they are not open on weekends. One pharmacy was closed before I arrived on-site. Collected information relating to pharmacy operation post storm (closing/opening), days particular pharmacist worked. Pharmacist reported no unusual increase in sales of over-the counter medications to treat GI, or prescriptions used to treat nausea, vomiting, diarrhea (NVD). No report of increase in number of questions from the public regarding the treatment of NVD. One pharmacist noted and increase

in the number of skin irritation related questions, another in overall orders for antibiotics.

_____Pharmacist reported possible increase in number of GI treatment related questions from the public and an increase in number of prescriptions for Cipro. Unable to quantify the amount.

_____Clinic: Patient daily census n=22. No cases of GI. Have been seeing approx 20 per day since opening post storm. Seeing mostly injury related cases.

_____Clinic: : Patient daily census n=22. No cases of GI. Several cases impetigo.

(Example 2: Epi Sit Report)

Met with _____CHD director to review epi plans and approach to surveillance issues post storm. Participated in _____County call with partner agencies such as law enforcement, transportation, hospitals, etc.

Met with _____to finalize approach to surveillance in hospitals and clinics. Completed surveillance tool. _____CHD will manage the data collection. Conducted Epi assessments and began surveillance tool implementation.

Met with _____Medical Center ICP and infectious disease specialist. No further reports of GI illness yesterday or today. ICP will use the illness and injury surveillance tool to retrospectively review ED data post storm to provide more detailed information regarding the reported spike in pediatric GI on Friday and Saturday. The ICP will review the ED records daily and fax the surveillance form to ___ ___CHD. ICP reported one case of Salmonella and a patient with wound infection – wound culture result: Vibrio alginolyticus, V. parahaemolyticus, and Staph.

Partnered with CHD Epi to implement the injury and illness surveillance form in the following locations: _____ _____ . All facilities agreed to participate and will send information daily to _____CHD.

Met with_____, EH director to review feeding locations and inspections. Today will be the second inspection for the feeding stations that remain open – many of the original 8 have closed. EH staff are able to complete necessary inspections and at this time they do not feel they need any additional assistance.

Developed talking points for _____to discuss injury and illness surveillance.

2. Example of an EpiCom posting following Hurricane Wilma. These postings can be used as an example for local CHD epidemiology units or epidemiology strike teams. EpiCom is the Florida Department of Health outbreak communications and notifications system, and should be used to alert health departments and local hospital personnel when an emerging public health threat or exposure is evident. EpiCom is useful tool for informing partners around the state (other CHDs, agencies, hospitals) about an affected

county's status following a hurricane. EpiCom is accessible at
http://servfl.com where users can log in, or potential users can register.

XXXXXXX on October/30/2005 at 12:47 PM	User Profile 🔍Search 📝Edit 🗑Delete

Message Title : **Palm Beach County-update**   Criticality : **NOTIFICATION**

All of Palm Beach County was affected by Hurricane Wilma, but most affected areas are southern county cities of Boca Raton, Delray, and western areas of Belle Glade, Pahokee, and Canal Point.

In many areas there is still no electricity or telephone service. On Tuesday October 25, 2005, we started ER visits surveillance. We contacted all of our 14 hospitals to report hurricane related symptoms. A surveillance form was sent by fax. Initially hospitals were reporting twice a day but later started reporting once a day.

We have set up surveillance at three of the health centers who started seeing patients on Thursday, October 27, 2005.

The special care unit and the Red Cross shelters have reported no GI and respiratory illness or any outbreaks. Currently we have 3 Red Cross shelters open.

As of October 28, 2005, 28 cases of CO poisoning, 40 car crashes, 25 animal bites have been reported.

Our Environmental Health team visited or contacted nursing homes, ACLF's and day care centers. If they found a problem they contacted the Emergency Operation Center.

XXXXXXX on October/28/2005 at 3:15 PM	👤User Profile 🔍Search 📝Edit 🗑Delete

Message Title : **Post Hurricane Update-Collier County**   Criticality : **NOTIFICATION**

POST HURRICANE WILMA AFTERMATH EPIDEMIOLOGICAL SURVEILLANCE

Information being sent on behalf of Mark Crowley, Collier County HD

As you are aware, Collier took a direct hit on 10/23-24/05 from Hurricane Wilma in the mostly underpopulated Everglades areas. That said, presently 23% of all Collier Co. households are still without electricity. This translates into a population of 42,000. Epidemiologically we are obviously concerned about the potential increase in enterics and the number of CO poisonings. Analysis of our syndromic surveillance data shows no abnormalities, yet we are

very early in this process. The number of reportable sporadic enteric diseases for this week remains well within the expected range. The Epidemiology Division's system of obtaining information on CO incidents through EMS and the 3 ERs in the county as of 10/28/05 yielded the following: no CO incidents at ____Community Hospital, 9 CO incidents at ____Hospital (a subsidiary of ____), and no CO reports from ____Clinic. The fact that only ____Hospital has seen CO poisonings is widening our analysis of ____City since_____the Hospital services____City and that community was extremely devastated by the storm. The enteric and other reportable events are considered representative of the county since they are reported through the ____lab which provides service for 90% of the county's health care providers. The____lab data is provided to the Epidemiology Division through____lab reporting system online to the Health Dept. We also receive hard copy backup of these reports. Most of the county's population is receiving water services, however boiling water notices are still in effect for Immokalee and the City of Naples. The Division of Environmental Health is currently performing assessments of the Immokalee area and on group and food licensed facilities throughout the county. Again, we are concerned that due to the widespread loss of utilities, that the risk of consuming spoiled food is high.

HURRICANE WILMA MORTALITY DATA

As of 10/27/05, there have been 3 resident deaths related to Wilma in Collier Co. (data provided via district twenty medical examiner's office): 1). a 65 yo W/F resident of Immokalee died while attempting to flee her home as it was being destroyed by Hurricane Wilma and was struck by debris; 2) a 67 yo W/M surveying damage to his property subsequent to Hurricane Wilma collapsed and died from coronary artery disease; 3) a 55 yo W/M attempting to conduct repairs on a gate adjacent to a dumpster that was damaged by Wilma was struck by a concrete pillar. All 3 of these resident deaths have received autopsies.

Our Division will continue to keep you updated in the future as more data and information becomes available.

XXXXXXX on November/01/2005 at 11:39 AM	👤User Profile 🔍Search 📝Edit 🗑Delete

Message Title : **Miami-dade-Hurricane Wilma**   Criticality : **NOTIFICATION**

Miami-Dade County Hurricane Wilma Update

11/1/05

Biosense Monitoring

On a daily basis, the Miami-Dade County Health Department (MDCHD)monitors syndromic surveillance data obtained via the CDC Biosense System. This system includes syndromic data for the Miami-Ft. Lauderdale metropolitan region from three data sources: ordered Labcorp tests, Department of Defense ambulatory procedures and diagnoses, and Department of Veterans Affairs ambulatory procedures and diagnoses. Data from all three data sources is combined to generate syndromic-specific alerts if statistical thresholds are reached.

For the period from 10/24/05 to 10/31/05, there were no increases in gastrointestinal or respiratory illness. There was a febrile illness alert on 10/29/05 due to an increase in the number of Labcorp tests ordered on that day. This syndrome returned to baseline levels on 10/30/05.

Emergency Department Surveillance

The MDCHD monitors selected syndromes using data electronically transmitted from participating hospitals.   There was no electronic transmission from participating hospitals from 10/24/-10/27.   From 10/28-10/30 there were no increased reports of gastrointestinal illness, respiratory illness, or fever.

Carbon Monoxide Exposures (Based on Poison Control reports posted in Epicom as of 11/1/05 9 a.m.)

No carbon monoxide exposures were reported in Miami-Dade County from 10/18/05 to 10/23/05.   For the period from 10/24/05 to 10/31/05, the following number of carbon monoxide cases were in Miami-Dade County

- ☐ 3 Suspected Cases
- ☐ 6 Probable Cases
- ☐ 1 Confirmed Case

Case classification

- ☐ *Suspected*: A case in which a potentially exposed person is being evaluated by health-care workers or public health officials for poisoning by a particular chemical agent, but no specific credible threat exists.
- ☐ *Probable*: A clinically compatible case in which a high index of suspicion (credible threat or patient history regarding location and time) exists for carbon monoxide exposure, or an epidemiologic link exists between this case and a laboratory-confirmed case.
- ☐ *Confirmed*: A clinically compatible case in which laboratory tests on biologic samples have confirmed exposure.

Food and Group Care:
- • 95% of Nursing Homes have been inspected with no problems reported
- • All Hospitals are running on full electrical power
- • Only a few stop sales have been issued in Nursing homes and larger ALFs
- • Facilities using generators have been provided with a safe-use brochure and further instructed on safe-use by the inspectors
- • All detention facilities and large ALFs with food service have been inspected, with smaller ALFs expected to be completed by the end of the week
- • Feeding sites will be inspected today

Water
- • There are 5 trailer parks on bottled/boiled water advisories; all except one are on the southside of the county

• One facility has provided a letter requested by the USDA inspector for meat and other food establishments for their files stating that utilities serving them did not lose pressure before or after the storm and that all tests indicate no coliform bacteria present, MCLs have been met for potable water.
• 5 inspectors are in the field assessing the primary lists for PWS systems, this is ongoing
• Main plants continue to be on full power
• Opa-Locka water samples on Fri and Sat were good, they are re-sampling today as a precaution on one road.
• Complaints-none reported at this time, but _____ has reported general inquiries from the public regarding potability of water in various areas, he reports less than a dozen of these calls
• Water distributed cl2 pills at 2 facilities to approximately 10 Individual duplex units and 21 other individual homes with wells. Each was given 6 strips of 10 pills with instruction sheets.

Swimming Pools
• Swimming pool staff are being utilized to assist in ALF inspections
• No complaints have been reported

Biomedical Waste
• Staff have been assigned to assist with ALF inspections

Beach Monitoring
• Samples collected on 10/26 and reported 10/27 all came back with good water quality. One sample had moderate results (Enterococci Geometric means at 29.37), but no need to issue an advisory
• Samples were collected again today with results expected tomorrow.

Sentinel Chickens
• Sampling continues as scheduled

Neighborhoods
• 14 sewage complaints were received and investigated
• 6 lift stations failed
• Inspectors have investigated 3 rodent complaints, 1 overflowing septic tank, and one dead bird complaint
• 29 Trailer parks have been inspected since 10/26/05, most reporting no power, but had city water and/or sewage

F. Population Based Statistical Sample of Health Needs (Rapid Needs Assessment)

The form below details the questions that are addressed by the typical RNA. This type of surveillance should not be carried out independent of CDC/Bureau of Epidemiology as it requires special data collection, sampling, and analysis methods. The form is provided

to give CHDs an indication of the kind of questions that can be answered by the RNA method.

Rapid Community Needs Assessment—Data Collection Form

Please circle or check appropriate responses.

Cluster *(1-40)*:	Housing unit *(1-5)*:
Date: ____/____/2005	Interviewer Initials:

| 1. **Type of Structure (pre-hurricane):**

[1] Mobile home
[2] Single family house,non-mobile
[3] 2-5 family units
[4] ≥6 units
[5] Migrant camp
[6] Other | 2. *If ≥2 family units*—

a. Total floors in building:

_____

b. Floor level of interviewed unit:

_____ | 3a. **Would you describe damage to your home as:**

READ RESPONSES; MARK ONLY ONE

[1] None or minimal
[2] Damaged/habitable
[3] Damaged/uninhabitable

3b. *If damaged*, **Do you need a tarp?**

[1] Yes   [2] No |

First we would like to ask you some general questions about your household.

4. How many people lived in this home before the hurricane? _____ persons

5a. How many people slept here last night?: _____ persons

  b. How many of these are 65 or older?: _____

  c. How many are less than 2 years old?: _____ → **d.** *If 1 or more*, Do you have access to enough diapers and formula for 3 days?   [1] Yes   [2] No

Now, we would like to ask about the <u>current</u> status of your household utilities.

6. Do you currently have running water?		[1] Yes [2] No [3] DK	
7a. Where are you getting your drinking water?	[1] Well [2] Public Utility	[3] Bottled [4] DK	
7b. If bottled water—Do you have enough bottled water for 3 days?		[1] Yes [2] No [3] DK	
8. Do you have a working toilet?	[3] Never Had	[1] Yes [2] No [4] DK	
9. Do you have a working telephone?	[3] Never Had	[1] Yes [2] No [3] DK	
10a. Do you have electricity from the utility company?		[1] Yes [2] No [3] DK	
10b. If no—Are you using a generator?		[1] Yes [2] No [3] DK	
10c. If yes—Where is the generator located?	[1] Inside [2] Garage	[3] Outside [4] Other [5] DK	
11. Do you have a working carbon monoxide monitor?		[1] Yes [2] No [3] DK	
12. Do you currently have regular garbage pick-up?		[1] Yes [2] No [3] DK	

Next, we would like to ask about how you and your household are doing since Hurricane Wilma?

13. Has anyone in this residence become ill or been injured since the hurricane?		[1] Yes [2] No [3] DK
14. Has anyone in this residence needed and been unable to obtain medical care since the hurricane?	[3] None needed	[1] Yes [2] No [4] DK
15. Do the people in this residence who normally need prescribed medication every day, have enough for the next 3 days?	[3] None needed	[1] Yes [2] No [4] DK
16. Do you have access to enough food for everyone in the residence for the next 3 days?		[1] Yes [2] No [3] DK

17. In the past week, have you received <u>any</u> disaster relief such as food, water, ice, or shelter?   [1] Yes   [2] None needed   [3] Needed, but could not get it   [4] Did not know it was available

18a. In the past week, did you get any information about how to stay safe when cleaning up after the hurricane (e.g, using a chainsaw properly, ladder or roof safety, preventing carbon monoxide poisoning)?   [1] Yes   [2] No   [3] DK

18b. *If **yes**—*Did you get this information through: **READ RESPONSES; MARK ALL THAT APPLY**

[1] Flyer   [2] Talking to people   [3] Internet   [4] Newspaper   [5] Radio   [6] TV   [7] Other, *specify*:

19. Are emotional concerns, thinking, or memory problems preventing you from taking care of yourself or people depending on you?   [1] Yes   [2] No   [3] DK

20. Was your household affected by any hurricanes other than Wilma during the last year (e.g., Rita, Katrina, Dennis, Jeanne, Ivan, Frances, Charley)?   [1] Yes   [2] No   [3] DK

21. Finally, What is your greatest need at the moment?

[1] Food   [2] Electricity   [3] Water   [4] Medical care   [5] Medications   [6] Transportation   [7] Other, *specify:*