

Tab 8 – Epidemiological Response

June 2022

Key Information, Guidelines, & Definitions

The epidemiological response plan will be used in conjunction with the:

Reportable Disease Desk Reference

The Reportable Disease Desk Reference will provide guidelines to the communicable disease (CD) team/regional epidemiologist with case definition and control measures. Please refer to the copy of desk reference with Communicable disease team member/Regional Epidemiologist/Center Coordinators) or visit the following website:

<http://chfs.ky.gov/dph/diseases/> or http://chfs.ky.gov/NR/rdonlyres/32EC48B9-EE1B-4968-BAE2-CC926269B474/0/RDDR2006_072908pdfWEB.pdf

Kentucky Foodborne And Waterborne Outbreak Investigation Manual

Foodborne and waterborne disease outbreaks are of extreme public health importance and are required to be reported to the local health department or the Kentucky Department for Public Health (KDPH) according to Kentucky Administrative Regulation 902 2:020 Section 5 (See Appendix L). An effective outbreak response requires teamwork from various programs within the KDPH as well as local health departments (LHDs) and outside agencies. This manual has been designed by KY DPH to provide guidance in the coordination of a foodborne or waterborne disease outbreak response.

http://chfs.ky.gov/dph/epi/Outbreak_Manual.htm

Barren River District Disease Outbreak Support Plan

Describes activation, authorities, policies and procedures to manage a local public health response to a “significant communicable disease outbreak” including:

- ① Public health procedures for outbreak investigation;
- ① Public health authorities and responsibilities in outbreak response, including disease control investigations, beyond single case management; and lastly,
- ① Collaboration between the Local Health Department (LHD) and local, state, federal, agencies and other stakeholders.

The complete plan is found in Appendix D, Tab 8.

Barren River District Health Department Radiological Response Plan

BRDHD’s ERRT following a radiological incident will work with Kentucky Department for Public Health’s Radiation Health Branch (<http://chfs.ky.gov/dph/radiation.htm>) and the Federal Advisory Team for Environment, Food, and Health to set the screening criteria based on local circumstances. (See BRDHD Radiological Response Plan, Tab 8 Appendix F).

With guidance from Kentucky Department for Public Health’s Radiation Health Branch, the CDC, and Agency for Toxic Substances and Disease a Registry will be established when determined necessary.

In Kentucky, the Radiation Health Branch is responsible for statewide emergency response to radiological incidents and emergencies and is equipped to respond to these events 24 hours a day.

For Radiological event please refer to the BRDHD [Radiological Response Plan](#). For Nuclear/Radiological event please refer to the [Nuclear/Radiological Incident Annex](#)

The guidelines are to be used in conjunction with up-to-date resources such as:

Control of Communicable Diseases Manual (20th edition) published by the American Public Health Association

Epidemiology and Prevention of Vaccine Preventable Diseases (CDC)

Red Book 2015 (30th Edition; Report of the Committee on Infectious Diseases: American Academy of Pediatrics)

Recommendations of the Advisory Committee on Immunization Practices (ACIP), available on line at: <https://www.cdc.gov/vaccines/hcp/acip-recs/index.html>

Guidelines for Isolation Precautions in Hospitals, available at: <https://www.cdc.gov/infectioncontrol/guidelines/index.html>

BRDHD maintains surveillance in accordance with the State of Kentucky Guidelines.

Definition of an Outbreak

An outbreak of an infectious disease cannot be specifically defined. An outbreak of an infectious illness might be defined in any of the following ways:

- Two or more cases associated in time and place, or epidemiologically linked (an apparent common exposure);
- A greater than expected rate of illness compared with the usual background rate for the population, at the place and time where the outbreak has occurred;
- A single case of certain serious diseases such as diphtheria, human rabies, viral hemorrhagic fever, polio, botulism or cholera; and/or
- An incident (suspected, anticipated or actual) involving microbial or chemical contamination of food, water or the environment may also lead to activation of the plan.

These definitions might be true for all cases of infectious diseases as some suspect cases of certain diseases may trigger an outbreak response. Doubts about what diseases can trigger an outbreak response; contact the regional epidemiologist/CD team by calling (270) 781-8039 or Division of Epidemiology and Health Planning, Communicable Disease Branch, Kentucky Department for Public Health (KY DPH) by calling (502) 564-3418.

Definitions of a “Minor” and “Major” Outbreak

A “**minor**” outbreak is one, which can normally be investigated and controlled within the resources of the district health department.

A “**major**” outbreak is one in which one or more of the following occurs:

- When investigation requires outside resources that may include deployment of any staff with expertise in outbreak or case investigation and also support staff & volunteers without investigative expertise;
- A large number of people or multiple cohorts of people are affected including residents from outside the district;
- The organism involved is unusually pathogenic (e.g. diphtheria, viral hemorrhagic fevers etc.);
- There is potential for transmission to large numbers of people (widespread distribution of food product, public water supply or point source affecting large numbers); and/or
- Bioterrorism is suspected.

Baseline Data for Key Reportable Diseases in the District

In the process of establishing an outbreak it is critical to know the baseline of that particular disease occurrence in the population. **Appendix C Epi Baselines** contains historic data from 2006-2010 for key reportable diseases commonly reported to our health department. The purpose of these charts is to provide trends within our district and help determine when case expectations are exceeded.

Epidemiologic Clues that May Signal a Bioterrorism Attack

The following may be clues that signal a bioterrorism attack has occurred. If there is a threat based on the clues given, follow the procedures outlined the Epi portion of the BRDHD All Hazard Plan.

- Large number of ill persons with similar disease or syndrome.
- Large number of unexplained disease, syndrome, or deaths.
- Unusual illness in a population.
- Higher morbidity and mortality than expected with a common disease or syndrome.
- Failure of a common disease to respond to usual therapy.
- Single case of disease caused by an uncommon agent.
- Multiple unusual or unexplained disease entities coexisting in the same patient without other explanation.
- Disease with an unusual geographic or seasonal distribution.
- Multiple atypical presentations of disease agents.
- Similar genetic type among agents isolation from temporally or spatially distinct sources.
- Unusual, atypical, genetically engineered, or antiquated strain of an agent.
- Endemic disease with unexplained increase of incidence.

- Simultaneous clusters of similar illness in noncontiguous areas, domestic, or foreign.
- Atypical aerosol, food, or water transmission.
- Ill people presenting near the same time.
- Deaths or illness among animals that preceded or accompanies illness or death in humans.
- Non-illness in people not exposed to common ventilation systems, but illness among these people in proximity to the system.

Epi Rapid Response Team (ERRT)

Most outbreaks will be investigated and controlled by the BRDHD Communicable Disease (CD) Team. The CD Team is made up of several nurses, Regional Epidemiologist, and a support worker. If an outbreak is larger than what the CD Team is capable to handle, the BRDHD Epi Rapid Response Team (ERRT) will be utilized. The ERRT is a small group of multi-disciplinary staff that has been trained to assist in outbreak investigation.

Model agenda for meetings of the ERRT include:

1. Introduction/roll call by the ERRT Leader/Coordinator
2. Minutes of previous meeting
3. Review of evidence
4. Control measures in place
5. Progress and challenges in information gathering and record keeping
6. Health care of affected persons – concerns and updates
7. Communications
8. Further/ongoing investigations
9. Monitoring progress
10. Resources added, additional resources needed
11. Consultation/request
12. Membership of ERRT
13. Any other business
14. Next steps

The Responsibilities of the ERRT

- Take the lead in managing community outbreaks of infection including implementing the Outbreak Control Plan.
- After appropriate consultation, determine whether an outbreak has occurred and whether it is a minor or major outbreak.
- Inform the relevant local and state agencies and medical community when an outbreak has occurred.
- In the event of a major outbreak convene the Epi Rapid Response Team inviting additional members as necessary to report relevant information.
- Insure appropriate epidemiological, microbiological and environmental

investigations are carried out.

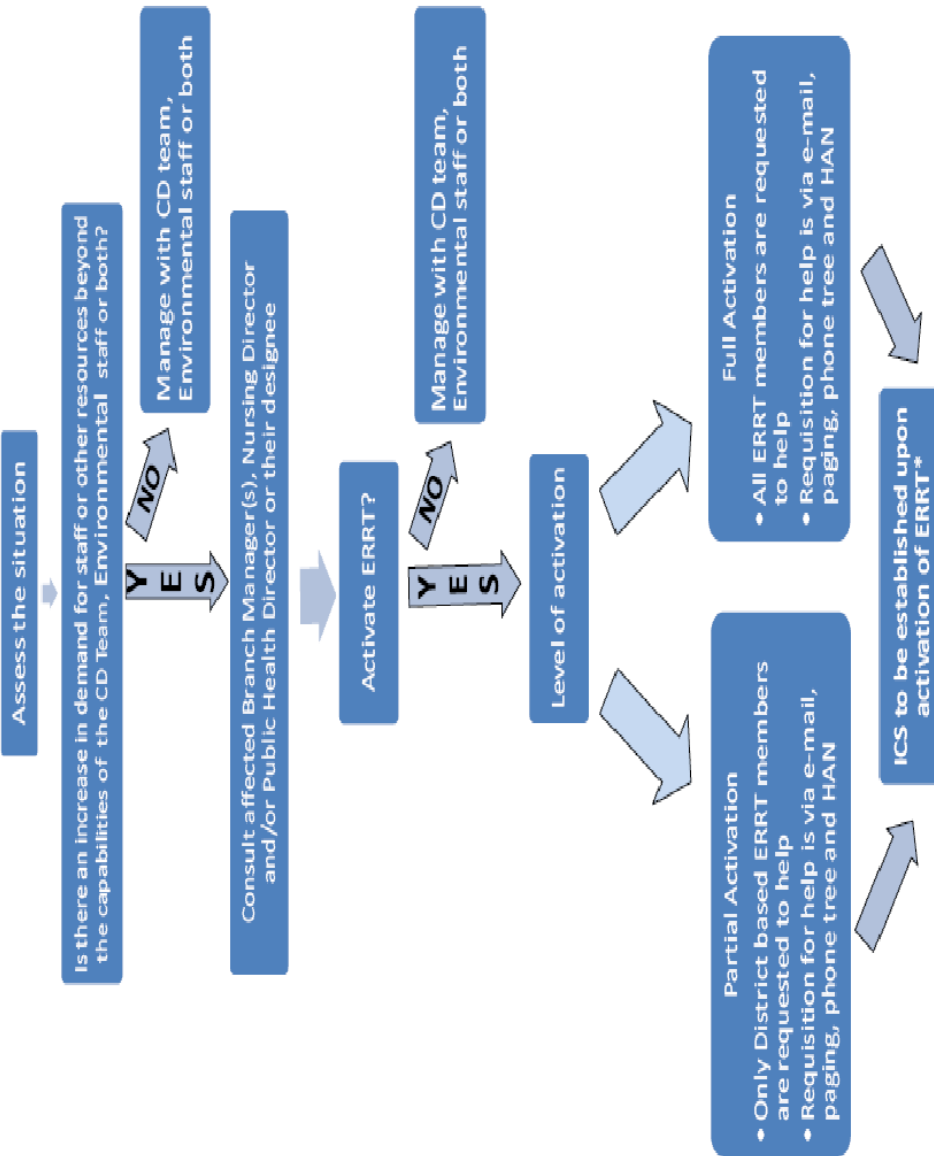
- Ensure that control measures are implemented.
- Ensure regular feedback on progress and ERRT decisions have been communicated to the BRDHD District Director and the Division of Epidemiology, KY Department for Public Health.
- Request additional resources including the convening of support teams.
- Monitor progress.
- Decide when the outbreak is over (after consultation) and communicate the declaration to the BRDHD District Director, the KY Department for Public Health, and the public.
- Ensure a final report is written, circulated, and submitted to the appropriate agencies/individuals.

Responsibilities of Environmental Health Representatives on the ERRT:

1. Response in managing community infection including implementing the Outbreak Control Plan.
2. To allocate resources to enable the efficient control of the outbreak and report to the ERRT. In the event of a major outbreak, request additional support from outside resources.
3. Report relevant information to the ERRT team.
4. To ensure the following are undertaken:
 - a. Premises relevant to the outbreak are inspected
 - b. Necessary samples, swabs, etc. are taken and submitted and sample testing is conducted in the appropriate manner (including attention to recording and labeling)
 - c. Appropriate epidemiological and environmental investigations are conducted.
 - d. At-risk persons receive adequate and suitable advice.
 - e. Suitable individual control measures to prevent the spread of the disease such as exclusion from work are enacted.
 - f. Contaminated or potentially contaminated material(s) are disposed of or rendered safe.
 - g. Appropriate pest control measures are enacted.
 - h. Effective communication with the state health department and/or other Environmental Health professionals across the state are conducted.

The BRDHD ERRT Member's Capabilities and Responsibilities are listed in a table located in Appendix E of this tab.

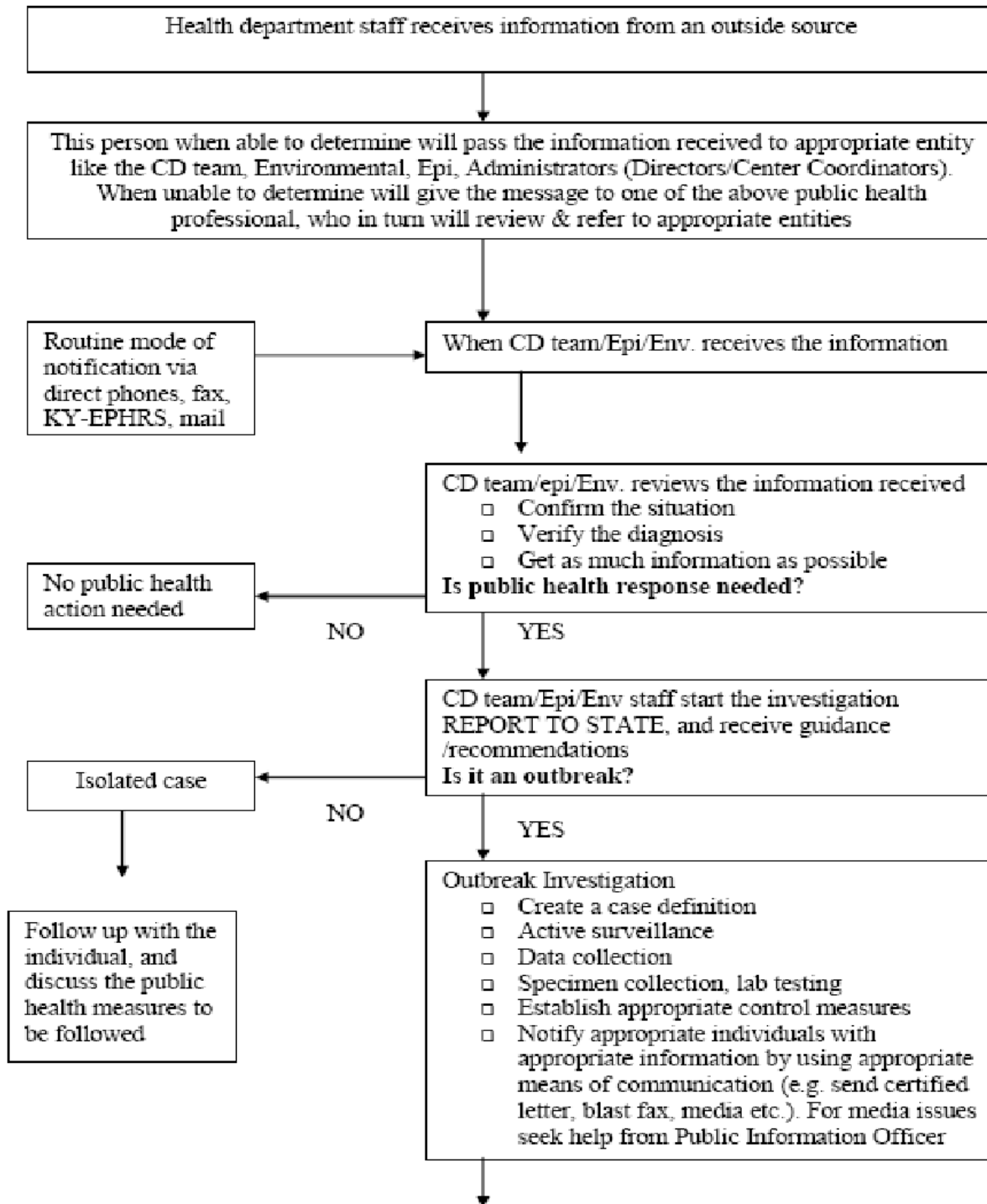
BRDHD ERRT ACTIVATION FLOW DIAGRAM

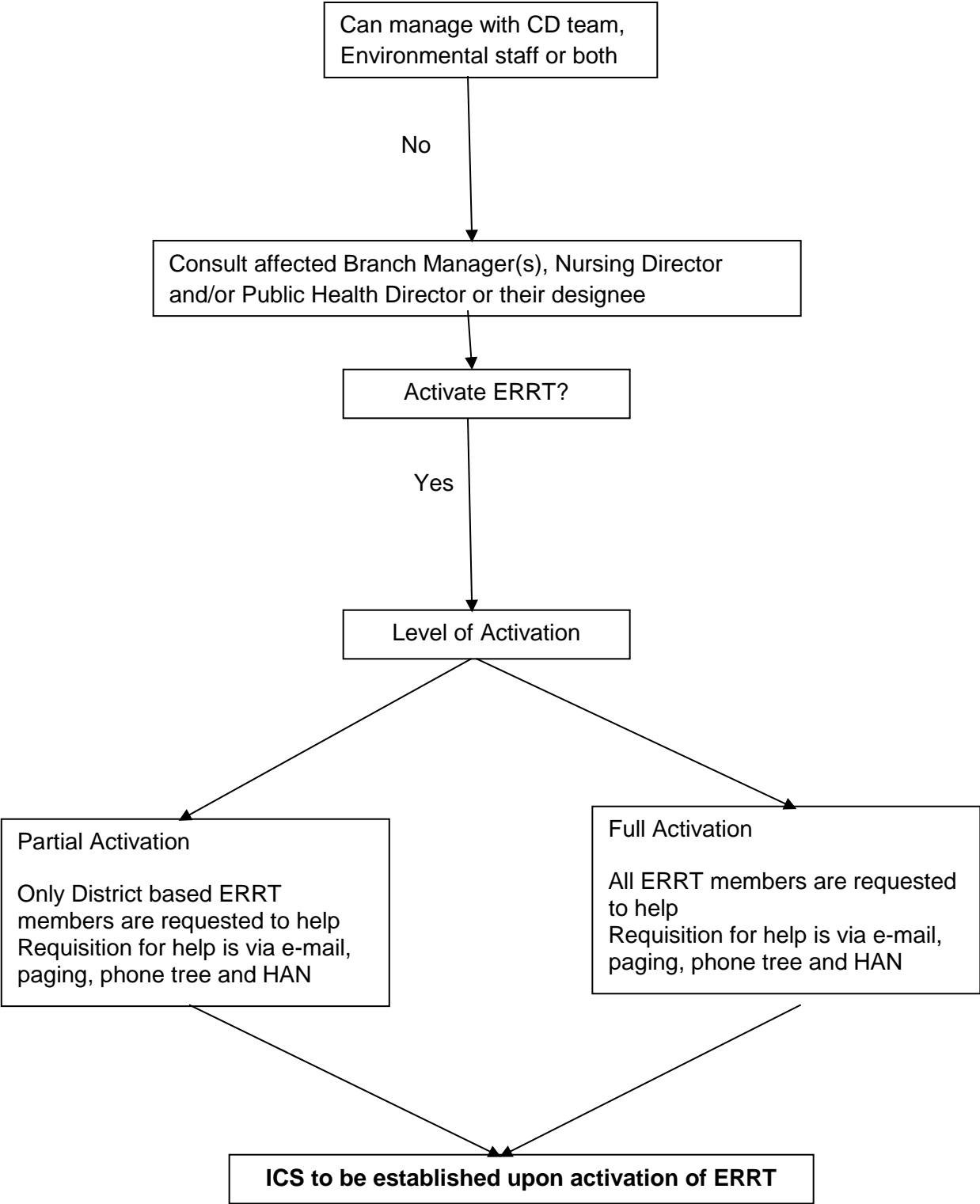


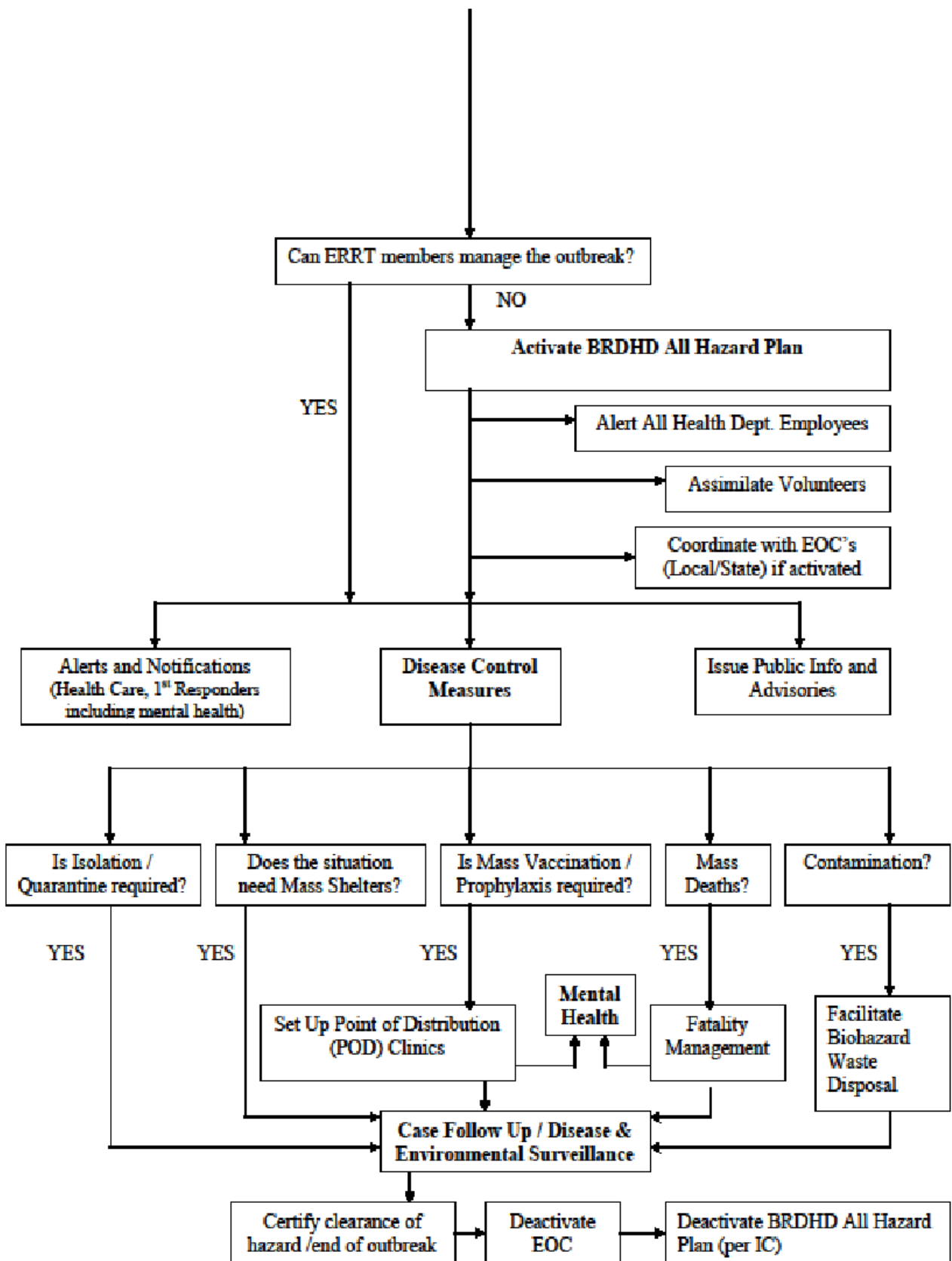
*Refer to BRDHD ICS Chart

May 19, 2011

Biological Event Sequence







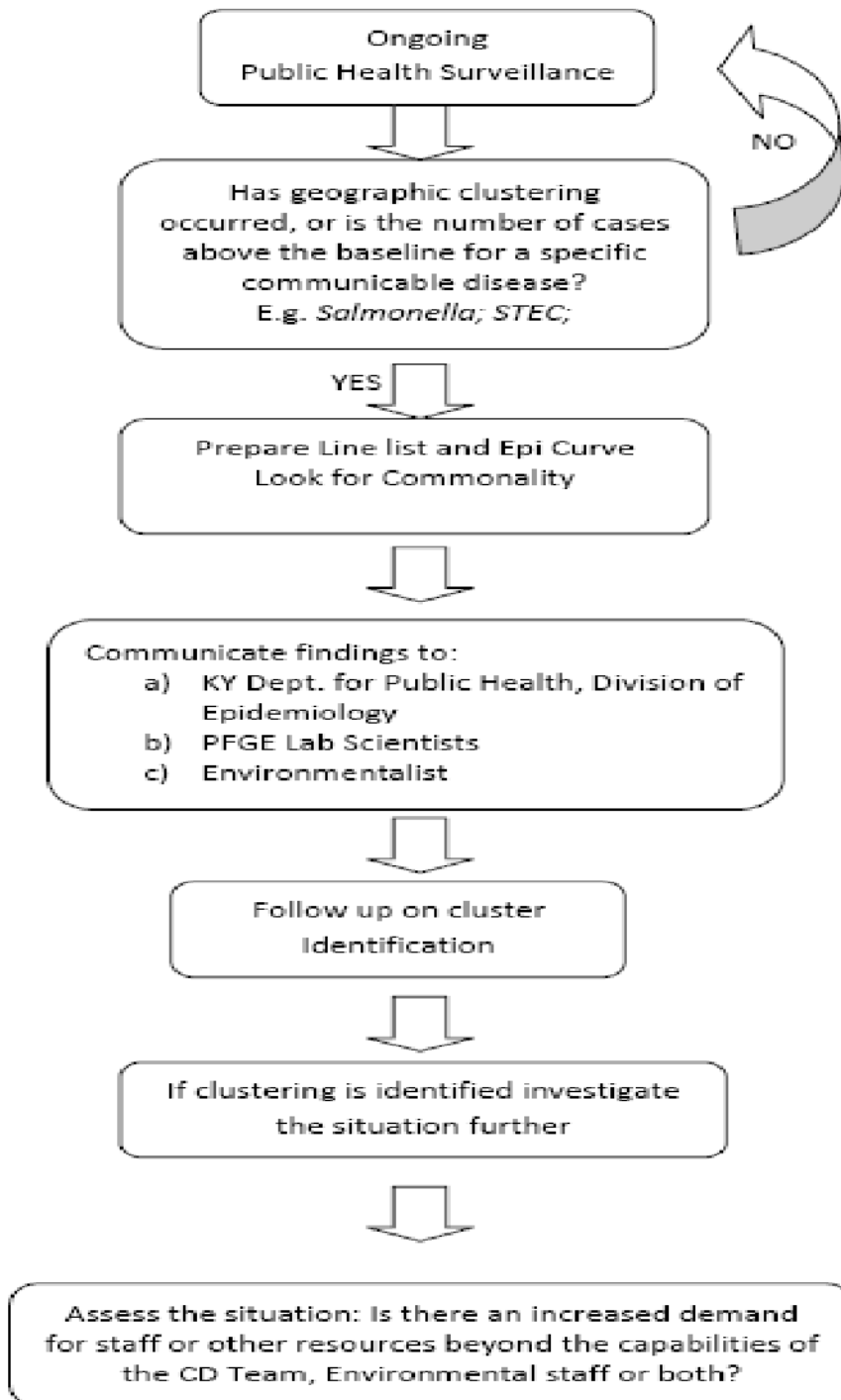
Biological Event Sequence Narrative

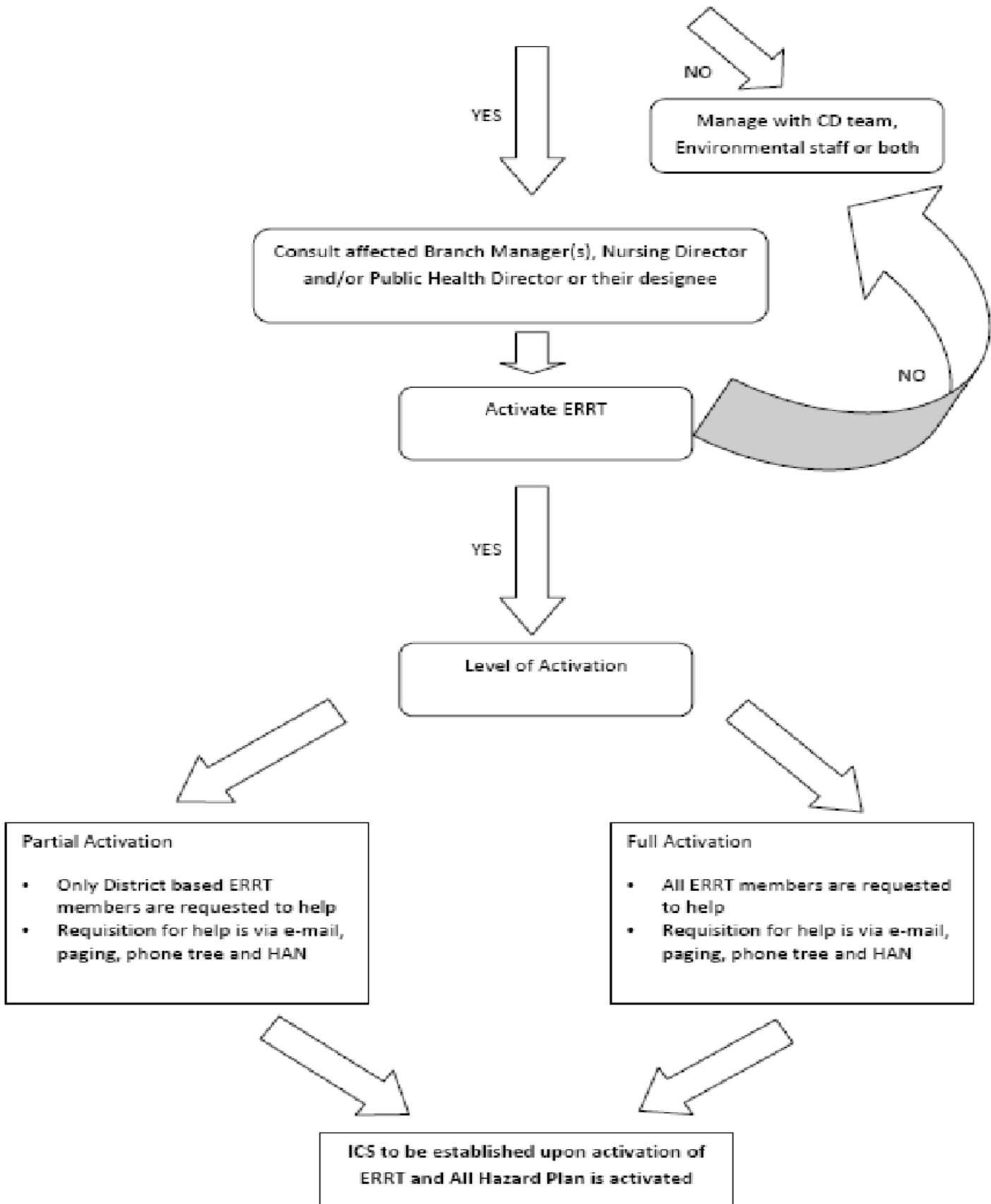
1. Health department staff receives information from an outside source. The person that received the call/fax/email should pass along all information to the appropriate person(s) (Communicable Disease Team (CD Team), Environmental, Regional Epidemiologist, Director, Center Coordinators).
2. When unable to determine will give the message to one of the above public health professional, who in turn will review & refer to appropriate entities
3. Once the information is given to the appropriate staff, those person(s) should determine other internal employees that should be aware of the information (i.e. Planners, Regional Epidemiologist, Directors, Center Coordinators, CD Team.)
4. CD Team, Epidemiologist and/or Environmental routinely receive the information, notification via direct phones, fax or KY-EPHRS, or mail.
5. Information will be reviewed by the appropriate team to confirm the situation, verify the diagnosis, and get as much information as possible.
6. It will be determined if public health response is needed.
7. If public health response is needed CD Team/Epidemiologist/Environmental begins the investigation by reporting to the state, and receives guidance/recommendations.
 - i. Is it an outbreak?
 - a. If no, follow up with the individual(s) infected and discuss the public health measures to be followed.
 - b. If yes, begin outbreak investigation (#8)
8. Outbreak Investigation
 - i. Create a case definition, intensify surveillance, collect data, collect specimens for lab testing, establish disease control measures, notify individuals with appropriate information by using appropriate means of communication (certified letter, blast fax, media, etc.) For all media issues, seek the help of the Public Information Officer.
9. Can CD Team/Epidemiologist/Environmental manage the outbreak? If not, consult Nursing Director and/ or Public Health Director (Consult Disaster Preparedness Director or Human Resources Director in absence of Public Health Director). If ERRT members can't manage the outbreak the Director or designee will activate the BRDHD All Hazard Plan and alert all health department employees, if necessary.
 - a. Assimilate volunteers

- b. Coordinate with EOC's (local/state) if activated for help/resources.
10. Alerts and Notifications to healthcare agencies, 1st responders, public information advisories will be issued.
11. Disease Control Measures will be considered
- i. Is isolation/quarantine needed?
 - a. If yes, case follow up/disease and environmental surveillance is necessary.
 - ii. Does the situation need mass shelters?
 - a. If yes, case follow up/disease and environmental surveillance is necessary.
 - iii. Is mass vaccination/medications necessary?
 - a. If yes, Point of Distribution (PODs) will need to be set up, and case follow up/disease and environmental surveillance is necessary. Mental health resources should be contacted.
 - iv. Do we expect mass deaths?
 - a. Fatality management and case follow up/disease and environmental surveillance is necessary. Mental health resources should be contacted.
 - v. Is there contamination?
 - a. Assist with biohazard waste disposal, case follow up/disease and environmental surveillance is necessary.
12. Certify that the outbreak or hazard is over.
13. EOC will be deactivated as well as the BRDHD All Hazard Plan per the Incident Commander.

Communicable Disease Cluster Investigation Protocol

Communicable Disease Cluster Investigation Protocol





Investigating Reports of Communicable Disease

Statement of purpose

This protocol will define the role of the Communicable Disease Team when reports of communicable diseases are received. The Reportable Disease Desk Reference developed by the KY DPH Division of Epidemiology is the comprehensive resource document used for managing epidemiological investigations.

The investigation and control of diseases in the community is one of the fundamental responsibilities of public health. Communicable Disease (CD) team staff will promptly investigate reports of suspect and confirmed cases and outbreaks of communicable diseases.

Notification Phase

Communicable disease reports are typically received on an EPID 200 form (Kentucky Reportable Disease Form that can be found online:

<http://files.constantcontact.com/a2246f9c001/70192a80-d687-46a5-8dc4-7176703e2e14.pdf> or via mail or fax (270-796-8946) from hospitals, private medical providers, or laboratories, KY DPH.

Environmental Branch also receives similar notification by means of phone/fax. On a need to know basis Environmental Branch shares the information with Communicable Disease Team. Reports may also be received via **National Electronic Disease Surveillance System (NEDSS)**. This surveillance system is utilized at the federal, state, and local levels to facilitate the electronic transfer of appropriate information from clinical information systems in the health care industry to public health departments. The NEDSS Base System provides secure, accurate, and efficient collection, transmission and analysis of public health data. It is an online system that is password protected and can be accessed at <https://keupsuat.chfs.ky.gov/home/>

Hospitals and health departments use this system for the initial notification of potential reportable diseases. The application contains patient demographic data, test results, symptoms and lab results. (E.g. included under Epi Appendix 8)

Healthcare provider, ICP, or health department staff enters the patient information (like demographics, signs & symptoms, lab results, progress notes etc). The health department's staff (Communicable Disease Team Nurse/Regional Epidemiologist) reviews the report, and makes the determination if the disease needs further investigation. Upon the completion of the investigation, investigators (Communicable Disease Team Nurse/Regional Epidemiologist) determine if the case should be forwarded to state officials for confirmation. All the data is collected & saved by CD team/ Regional Epidemiologist. If state consultants confirm the case, the data will be electronically transmitted to the CDC. The CD team nurses & regional epidemiologist can know the status of the case in real time. It is a quick & easy way to share information in real time from local level to consultants in the Division of Epidemiology, KY DPH and also across regions within the Kentucky if needed.

Regional Epidemiologist and Nurse Program Manager for Communicable Disease Team receive notification/alert from ReadyOp of any possible emerging public health threats. ReadyOp is in use in Warren County, and it provides real-time awareness of emerging threats by monitoring emergency medical services data from computer aided dispatch (CAD).

Information, which draws attention to the possibility of an outbreak, may come to the attention of the following who in turn would inform BRDHD:

- State/Local Authorities
- District health department staff
- Division of Epidemiology and Health Planning, KY DPH
- Public Health Agencies
- Private Health Facilities (e.g. Long term care facilities, Nursing homes)
- School Nurses (many of them are BRDHD staff)
- School Absenteeism Report
- Influenza like illness(ILI) Surveillance Sentinel site: Health Services, Western Kentucky University (WKU)
- EMS ReadyOp
- Health care providers
- Private citizens
- Laboratories

They can report via telephone/fax during normal business hours **[(270)-781-8039/ (270)-796-8946]**. They can call the 24/7, 365 days a year. Cell phone for any emergencies **[(270) 202-5785]** and talk to district administrators, who will in turn contact a member of CD team or Epidemiologist or Environmental Director/Supervisor as appropriate. When receiving a call about a possible outbreak, the following information is needed: date, time, number ill, number at risk, symptoms, severity of the illness, and possible hospitalization details.

Outbreak Investigation & Management

Plan for outbreak investigation of varying sizes:

1. Outbreak Investigation and management that can be executed with existing CD team staff:

Single cases are typically handled from beginning to end by one of the CD team nurse. Clusters or outbreaks or a single case of a high profile disease may require a wider effort. The lead CD team nurse will confer with the CD Team Coordinator or Regional Epidemiologist or the entire CD team about strategy. Division of Epidemiology, KY DPH will be notified, and their guidance will be considered.

2. Outbreak Investigation & management that may require Epi Rapid Response Team (ERRT) members:

When a major outbreak is suspected, a subset of the standing ERRT can be convened by **Environmental Director or Environmental Supervisor or CD team coordinator/nurse or Regional Epidemiologist** in a rapid manner to review the evidence and determine if additional steps are warranted.

The standing BRDHD Epi Rapid Response Team (ERRT) consists of the CD Team Nurses, Regional Epidemiologist, Environmentalists, Public Health Preparedness Planners, and Public Information Staff/GIS Specialist, at a minimum.

Members of this subset of the Epi Team will include at a minimum:

- CD Team Nurses
- Epidemiologist
- Environmentalists

There may be insufficient evidence to confirm an outbreak although suspicion may remain. It is then necessary to collect further evidence before an outbreak can be excluded.

These investigations should include:

- Case finding, using an appropriate case definition;
 - Further microbiological investigation including screening tests;
- and
- An environmental investigation if needed.

Gastrointestinal illnesses and possible food borne outbreaks typically involve both CD and Environmental Health staff. The final decision to declare that outbreak has occurred and whether it is major or minor rests with the CD team/Environmental Branch, after discussion with partners in the investigation. The expectation is to error on the side of caution; if in doubt, assume that an outbreak exists.

The District Director or designee, the Clinical Director, & Planning, Quality and Communication Branch Director will be notified and the entire ERRT is convened. If the situation warrants, additional staff will assist with the investigation after being trained using the rapid training curriculum. (See JITT, Tab 6) Staff assigned based on qualifications in Tab 6 Staff Roles and Responsibilities, BRDHD ICS Job Titles and Qualifications Quick Reference.

Consideration to include following collaborative partners should be given:

- Kentucky State Public Health Laboratory (KSPHL) will be notified in consultation with Communicable Disease Branch, Division of Epidemiology and Health Planning, KY DPH by calling **Emergency Laboratory Call Number (502) 330-6235 or routine laboratory contact number (502) 564-4446** regarding the number of specimens being submitted and what to possibly test for.

- A suspected food borne illness outbreak: the BRDHD Environmental Health Director/Supervisor is notified. If the outbreak involves wholesale food manufacturing plants or meat processors, the FDA and/or USDA may be contacted by routing communication through the Kentucky Food Safety Program, Food Safety Branch, who will interface with these agencies.
- A suspected waterborne outbreak: the BRDHD Environmental Health Director / Supervisor is notified or the Public Water System Program Manager for guidance and survey information.
- A suspected Bioterrorism action, law enforcement & KY DPH will be notified

As investigation continues and winds down, continue updating all involved parties with updates, laboratory results, etc. until investigation is declared over.

If further steps are warranted, the district will move into the activation of the BRDHD All Hazard Plan.

Outbreak Investigation & management that requires outside resources:

When outbreak investigation & management requires outside resources BRDHD will activate the BRDHD All Hazard Response Plan.

Declaration of an Outbreak

The Communicable Disease Team Coordinator/nurse or Environmental Director/ Supervisor or Regional Epidemiologist is responsible for declaring an outbreak after discussions and consideration of evidence as described above have taken place with BRDHD District Director, BRDHD Clinical Service Director & State Epidemiologist/Chief of Communicable Diseases, Division of Epidemiology, KY DPH.

Notify the BRDHD Director, who will alert the Incident Command System (ICS) participants when required.

Possible Steps During an Outbreak Investigation

May include but are not limited to the following, and may be carried out at any point in the investigation

A. Receive Notification

As mentioned under the Notification Phase.

B. Verify the diagnosis

Do not rely on outside interpretation. You must evaluate the medical picture and test results:

- Collect as much information as possible about the patient's symptom, history and differential diagnoses.

- If laboratory results are available, verify that the correct specimens were collected and that the correct laboratory tests were performed for the disease in question.
- Ask for a hard copy of the lab results to be faxed to you. You must verify the results are being correctly interpreted, even if a physician has seen the results.

If no laboratory tests have been performed, arrange for specimen collection (with the patient, physician or hospital) and transportation to the KSPHL. Cases are considered laboratory confirmed if they meet specific criteria (Refer to the Reportable Disease Desk Reference)

C. Collection of background information

Collect or review the following information:

- Background incidence of disease;
- Descriptions of symptoms in suspected and confirmed cases;
- A good case definition including description of **confirmed, probable, and suspect** cases;
- The number of suspected cases;
- The number of microbiologically confirmed cases;
- Identify population at risk, and can appropriate steps be taken to prevent further spread?
- The epidemiological description of initial cases including an epidemic curve showing dates of onset of symptoms; and
- Further, more detailed identification/characterization of organisms, e.g., typing, toxin testing etc.

Key Questions to be Addressed Include:

- Are there likely to be more cases?
- Is the likely organism unusually pathogenic?
- What is/are the suspected source/vehicle(s), including likely or potential foodstuffs?
- Is there a potential for transmission to large number of people?
- Are there any unusual or exceptional features?
- Are appropriate samples being collected?
- Are immediate steps available which can be taken to prevent spread?
- Should a health alert to medical providers be distributed to pick up additional cases? (If so, include details of the suspected organism, specific signs and symptoms, and details of specimens required, BRDHD contact information)

D. Internal & External Notification

Notification of appropriate parties' internally may include but are not limited to:

- Clinical Director

- Planning, Quality and Communication Branch Director
- Public Health Director
- Environmental Director/ Supervisor

Notify the Division of Epidemiology and Health Planning, KY DPH to share initial information gathered and to obtain guidance & recommendations.

To give appropriate guidance and recommendations, the Division of Epidemiology and Health Planning, KY DPH will require the following:

- Setting of incident – (e.g., hotel, school; if known)
- Number of suspected cases
- Apparent onset date of suspected outbreak
- Average incubation period (if known)
- Date of incident (e.g. banquet; if known)
- Type(s) of specimen(s) to be submitted
- Whether or not other districts or states may need notification
- Name of lead investigator from the district, if this has been decided

If cases are located near the borders of the district or other districts are known to be involved, neighboring jurisdiction may be informed of the incident and asked to test suitable samples for the suspect organism or enhance testing procedures as necessary by e-mail, phone, fax, Health Alert Network (HAN) or by submitting a report to the State Epidemiologist, who can publish the report on Epi-X (for sharing information at National/International Level)

Medical Advisories /alerts may be sent via Blast fax to appropriate healthcare providers. Refer to communication plan Tab 7.

E. Create a case definition

Case definitions allow you to use a standard set of criteria to evaluate whether individuals are going to be classified as cases during an outbreak. Case definitions may include criteria such as clinical symptoms, laboratory results, epidemiological criteria such as person, place and time, or any combination thereof. Options include using the CDC case definition (at <http://www.cdc.gov>) for confirmed, probable, or suspect cases of disease.

The decision regarding which criteria to use rests on several factors, including:

- Whether the causative agent is known or suspected
- How general or specific the symptoms are
- How quickly laboratory results are available

The case definition should be reevaluated as new information is discovered and the number of cases grows. It may be necessary to redefine the case definition during the investigation. Often case definitions are more general and inclusive in the beginning,

and then grow narrower as the disease is confirmed or as risk factors are discovered. Case Definition can help in tracking more cases.

F. Active surveillance – case finding

In the presence of one or more persons meeting the case definition, intensified surveillance measures may be enacted so that additional cases can be quickly identified. Such measures may include but are not limited to:

Active surveillance in hospitals, clinics and medical practices

Create instructions on exactly what symptoms/syndromes providers should be looking out for, and how they should contact the health department. Contact the infection control practitioners at the hospitals listed below and ask them to educate their emergency department personnel and distribute your instructions. Distribute this information to Urgent Cares & other healthcare providers/practices as needed via blast fax.

Intensified follow-up of surveillance in the emergency department: Request Infection Control Nurses to monitor the ED logs for patients with chief complaints similar to the disease of interest. Direct patient inquiries to the infection control practitioner at the respective hospitals.

Heightened monitoring of high-risk populations: Consider agencies/facilities that should be contacted for increased monitoring: schools, daycares, nursing homes, group homes, etc. For e.g. contact the school nurses/school health coordinator to check on what is going on in their school system. Request them to keep you posted about any increased absenteeism.

A list of contact information can be found on the Shared Drive (\\Databases\Broadcast Fax)

Other possible activities

Additional monitoring through other community partners such as dentists, pharmacists, or worksite health programs.

G. Data collection, analysis and management

Basic demographic information including name, age, sex, address, contact information, occupation, etc and information like symptoms, date of onset of illness, specimen collection date is collected on each case. Each case will be interviewed using a standardized questionnaire (for e.g. Enteric Disease Investigation Form; Pertussis Surveillance Worksheet). Information collected during the interview will be documented on those forms/questionnaires. The data will then be tabulated into a Master line list (excel spreadsheet). For e.g. Salmonella Outbreak Investigation Database; G.I. Surveillance Database) and analyzed using Epi Info. The data entry form should mirror

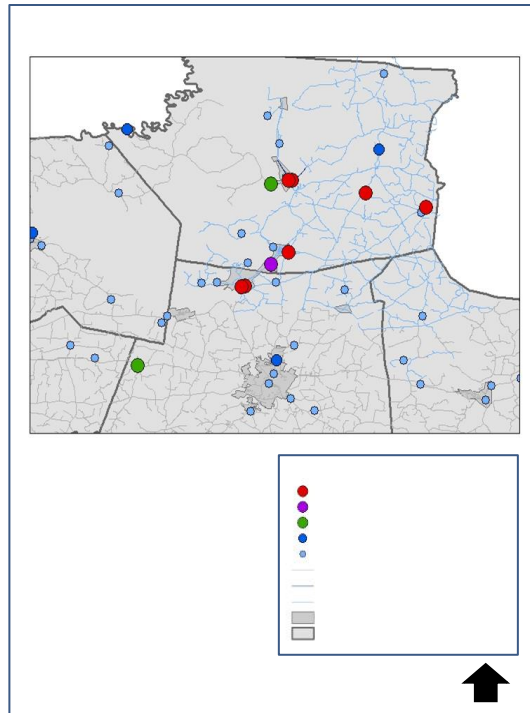
the questionnaire The columns in the excel spreadsheet will be populated as pertinent to the investigation. Medical record related to the outbreak investigation cases will be solicited from the healthcare provider/hospital (if patient was hospitalized) and reviewed. Epidemic curve will be plotted (with Date of Onset on X axis and Number of cases on Y axis). KSPHL will be contacted to look for any PFGE matches. Case addresses will be mapped using Geographic Information System (GIS) to look for any geographic clustering or other possibilities like water supply, sewage system, restaurants etc.

The databases will be saved in the CD Team Folder on the H drive (so that the information collected can be kept confidential, as limited people have access to this folder)

Line listing can be shared with Communicable Disease Branch Chief/consultants, Division of Epidemiology & Planning, KY DPH as encrypted attachment (password protected). The analyzed data can be shared with Division of Epidemiology, KY DPH via e-mail or fax.

Epidemiologic Curve presenting the number of persons with illness, by date of onset

GIS Mapping



H. Specimen collection, laboratory testing, and evidence management

The collection of the appropriate specimens can facilitate a confirmation of disease and support both an epidemiological investigation and a criminal investigation. Consider the following steps:

- Identify the proper laboratory test(s) for the identification of the disease of concern, if unsure consult the KSPHL/ Communicable Disease Branch Chief/consultants, Division of Epidemiology & Planning, KY DPH
- Educate health care providers as to what specimens to collect, are there any special directions, and how and where to deliver them.
- Notify the KSPHL of what types of specimens to expect, the approximate number, and any special directions.

Administration may request law enforcement to facilitate transfer to Frankfort, KY. It is possible that in the case of a terrorist event the FBI will take custody of lab specimens. If a criminal act is suspected, local law enforcement and/or the FBI will be involved and a chain of custody form is necessary. Consult with the KSPHL for the correct form. In a terrorist event laboratory specimens are to be considered evidence and should be handled carefully.

I. Develop and Reevaluate Hypothesis:

Once affected people have been interviewed, and the data collected is analyzed develop a hypothesis characterizing the outbreak by time, place, and person. The hypotheses should address the possible source, the mode of transmission, and the exposures that caused the disease. The data collected should support the hypothesis.

Also, the hypotheses should be proposed in a way that can be tested. An analytic study such as case-control study can be done at this phase to test the hypothesis.

J. Control measures

Once the initial data have been assessed, begin to enact control and prevention measures after reviewing control measures in mentioned in KY Reportable Disease Desk Reference, Red Book and other sources.

Decisions regarding control measures may be based on:

- Whether the diagnosis has been confirmed
- The severity of the disease
- The population being affected
- The types of contacts
- Limitations

Control measures may include procedures like:

- Infection control measures
- ***Conduct contact tracing & recommend appropriate prophylaxis if applicable:*** Contact tracing is a key control/prevention measure. During case/outbreak investigation the case is requested to provide us information about his or her close contacts including household contacts. In certain conditions the information about the population at risk may need to be collected by other means. For e.g. when we have a food handler diagnosed with Hepatitis A, we may need to get that information on exposed individuals from the restaurant management (like the patron's list or payment information etc.) or if a student has been identified to have a case of bacterial meningitis we may have to go to the school officials like school nurse, principal or class teacher to identify the close contacts. Based on the disease appropriate preventive measures including education, antibiotic prophylaxis, immunoglobulin, vaccine are provided/ recommended. Symptomatic contacts are encouraged to seek medical attention and get appropriate testing done. The information collected will be documented in appropriate worksheets/forms (e.g. Mumps contact investigation worksheet, Meningococcal contact information sheet) and then transferred to a database (excel spreadsheet) for further management and analysis.
- Appropriate Isolation of cases
- Appropriate Quarantine of exposed
- Implement criteria for exclusion & clearance (may be work or school)
- In person visit to the affected facility, to educate administrators and to underscore control and prevention measures
- Environmental measures like inspection, detention & seizure of suspected food
- Closure of premises and catering facilities if needed
- Implementing proper disinfection procedures
- Proper waste disposal
- Enforcement
- Vector Control

K. Evaluate for effectiveness of control measures

Continue surveillance and determine whether control measures/ interventions have effectively stopped transmission or the outbreak. Monitor occurrence of adverse events resulting due to control measures/intervention (Refer to Monitoring Adverse Reactions in Epi Plan. Tab 10).

L. Communicate findings, write a report, and enter into the National Outbreak Reporting System (NORS)

The Regional Epidemiologist with assistance from CD team/ERRT members will write a final report, and enter the findings into the National Outbreak Reporting System (NORS)

Public Health System Partners Reporting to our Surveillance System (National Electronic Disease Surveillance System-NEDSS) and via Fax or Mail

- Medical Center Bowling Green, KY, Infection Control (270) 745-1145
- Medical Center, Scottsville, KY, Infection Control (270) 622-2826
- Medical Center, Franklin, KY Infection Control (270) 598-4798
- Greenview Regional Hospital, Bowling Green, KY Infection Control (270) 793-2050
- Caverna Memorial Hospital, Horse Cave, KY, Infection Control (270) 786-2191
- Logan Memorial Hospital, Russellville, KY, Infection Control (270) 725-4697
- Monroe County Medical Center, Tompkinsville, KY, Infection Control (270) 487-9231
- T.J. Samson Community Hospital, Glasgow, KY, Infection Control (270) 651-4463
- Urgent Care Bowling Green, KY 42101 (270) 781-3910
- Greenwood Urgent Clinic, Bowling Green, KY (270) 843-5662
- Glasgow Urgent Clinic, Glasgow, KY (270) 651-7796
- Lab Corp: via Electronic Laboratory Reporting (ELR)
- Kentucky Department for Public Health 1-888-9-REPORT

Priority Groups for Limited Antivirals or Vaccine

	Allen	Barren	Butler	Edmonson	Hart	Logan	Metcalfe	Monroe	Simpson	Warren	Total
Hospitals	1	1	0	0	1	1	0	1	1	4	
Direct Patient Care	222	932	0	0	176	265	0	206	123	3071	4994
Support Services	117	947	0	0	138	163	0	167	96	1898	3527
Long Term Care Facilities	2	5	1	1	2	2	2	1	1	8	
Direct Patient Care	162	708	230	127	170	195	149	196	116	882	2935
Support Services	102	165	98	16	81	43	48	25	18	208	803
Physician Offices/Clinics											
Direct Patient Care	64	377	74	68	118	211	143	110	215	1284	2665
Support Services	135	658	127	150	150	298	162	144	175	1096	3094
Home Health		1				1		1		4	
Direct Patient Care		53				49		26		184	312
Support Services		19				31		17		78	145
Local Health Departments	1	1	1	1	1	1	1	1	1	1	
Direct Patient Care	5	9	2	1	3	4	1	3	1	25	54
Support Services	9	17	5	4	6	9	4	8	4	83	149
Key Government Officials	24	41	33	24	35	41	49	43	31	57	378
Emergency Management Agencies	5	11	7	8	7	6	13	5	6	22	90
Emergency Medical Services (EMS)	33	76	37	24	25	95	0	24	25	113	452
Fire	319	429	216	343	358	16	270	250	110	745	3056
Police	27	52	19	5	11	48	10	30	20	204	426
Public Works	159	41	146	159	150	185	216	147	76	648	1925
											25004

Communications

In the initial stages and during a minor incident the CD team will be the main coordinating center using the normal daytime contact telephone numbers. During major outbreaks, additional resources may be needed as described in the BRDHD All Hazard Plan and local Emergency Operation Plans.

Communications within the ERRT shall take place by having regular meetings for updates, current status, and changes to the way the investigation is taking place. Besides the regular meetings, outside communications such as email and phones (satellite, land or cell) can and will be used for communication purposes for dissemination of information between team members.

The Planning, Quality and Communication Branch Director/Designee will work in conjunction with the ERRT and District director or designee as what appropriate information shall be released to the public and the media. Once an outbreak is declared the Planning, Quality and Communication Branch Director/Designee notifies the media. The media and public information shall be accomplished within the guidance of BRDHD communication plan **(See Tab 7 and Tab 7 Appendices.)**

Declaring the Outbreak Over

The ERRT in consultation with Division of Epidemiology, KY DPH has to consider the available evidence and decide when an outbreak is over and that there is no longer a risk to the health of the public. A statement to this effect should be made and communicated to the public and all other appropriate agencies.

A debriefing meeting or meetings of the ERRT should follow to consider lessons learned and recommend further preventive action if required. Thereafter, each member of the ERRT should contribute to an outbreak report. The report should be agreed upon by the ERRT and circulated to appropriate individuals and authorities. The final report may be delayed or limited as a result of pending legal action.

Revising and Exercising the Major Outbreak Plan

The district Public Health Preparedness and CD team will review this plan annually. Lessons learned from local and national incidents together with the changes in the relevant organizations and the current epidemiological picture will be incorporated.

It will be necessary to exercise this plan by tabletop exercises both to update and improve it and to provide necessary staff training.

Isolation and Quarantine

Currently, there is not a regional policy to address Quarantine & Isolation. KRS (Kentucky Regulatory Statute) 39A.100 empowers the Governor of Kentucky to declare in writing a state of emergency exists and may exercise emergency powers to manage the situation. KRS 39A.010 describes an emergency as “threats to public Safety and Health”. Further, KRS 214.020 gives the Cabinet for Health and Family Services, of which the Department of Public Health is included, the responsibility to “adopt and enforce such rules and regulations as it deems efficient in preventing the introduction or spread of such infectious or contagious disease of diseases within this state, and to accomplish these objects shall establish and strictly maintain quarantine and isolation at such places as it deems proper.” Lastly, KRS 212.370 awards power and duty to city-county Boards of Health relating to “safeguarding the public health”, to include laws and ordinances regulating quarantines.

Specific KRS is limited in language relative in many stances. There are some risks to the public’s health that are covered: KRS 217.115-quarantine of adulterated food, drugs, devices; KRS 217.700-quarantine of misbranded hazardous substances; KRS 249.040-quarantine of imported plants with dangerous insects or plant diseases; KRS 252.200-quarantine of dangerous bees; KRS 257.070-quarantine of imported animals with infectious diseases; and KRS 258.085-quarantine of animals have rabies. In each of these cases, and in any other case deemed appropriate by the Governor, Cabinet of Health and Family Services, Department of Public Health, or the local Board of Health, the local public health department “shall petition the judge of the District Court in whose jurisdiction the article is detained and quarantined for an order of condemnation of such article”.

- The State Epidemiologist will serve as the coordinator of isolation or quarantine activities in the event of an outbreak in Kentucky. Local and/or state statutes regarding public health authorities for isolation and quarantine of potentially infected and incubating persons shall be followed.
- When necessary, federal public health statutes for the control of infectious diseases may be enacted to assist local and state authorities in implementing the necessary outbreak control measures.
- In the event of a smallpox outbreak, asymptomatic contacts will be placed under surveillance for symptoms at their home or in designated areas for 14 days after successful vaccination.
- A state of quarantine will be instituted only as a last resort to control an outbreak situation when other previously listed containment measures have failed or are falling behind the accrual of new cases.
- KY laws establish adequate authority of the Governor to institute quarantine measures at local, county, or state level in declared emergency.

- If quarantine is indicated, the Governor of Kentucky, in consultation with the Secretary of Health, Commissioner of Health, and the State Epidemiologist, as well as federal authorities, will be responsible for declaring this state of emergency and marshalling resources to implement the quarantine plan.
- If quarantine is indicated, and the patient refuses, Barren River District Health Department's appointed attorney must draft a "Verified Complaint for Injunction and Order for Quarantine and Isolation" form. The BRDHD attorney must sign this form, as well as have a sworn or notarized signature from a doctor. See Tab 8 Appendix G.
- KyEM will assist assigning law enforcement personnel to quarantine/isolation sites. An example of injunction and order for quarantine and isolation are in Tab 8 Appendix G.
- The Barren River District Health Department will follow the Kentucky State quarantine plan. This plan does not distinguish between individuals, groups, and/or facilities.
- Public Health will request assistance from the American Red Cross for the coordination and provision of medical services and food among those under isolation, quarantine, or social distancing restrictions as needed.